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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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Turkish Protests: 'Occupy Istanbul' or a 'Turkish Spring'?


Azirlazarus


Mstyslav Chernov

Protesters quickly moved to the streets of Istanbul, Turkey (right) after an overly aggressive police reponse to the inital protests in Gezi Park (left).

SPENSER GOOD
3A MECHANICAL

Turkey is a unique nation. With democratic and largely secular Europe to the West, and the more Islamic and predominantly authoritarian Middle East to the East, Turkey's geographic location serves as a metaphor for the divide in its identity. Warring economic and cultural influences of the European Union, of which Turkey is a committed member, often conflict with conservative religious Islamic influences that still exist in a nation that is 97% Muslim. This geographic and cultural conflict, combined with the longstanding Kurdish oppression and the more recent civil war in Syria that is beginning to spill into Turkish territory, makes the country increasingly complex and vulnerable. Recent widespread protests, originating in the iconic and historic Istanbul, have served to highlight the complexity and divided identity of the former Ottoman Empire.

On May 31, protestors gathered in Gezi Park in central Istanbul to voice opposition to planned development of the park. This small protest has since ballooned into a highly disruptive and increasingly violent nationwide movement that has united those wishing to voice grievances towards long time Prime Minister, Recep Tayyip Erdogan. The spark for these widespread protests was caused by what was perceived as an overly aggressive response by police to the original protest in the park, however it has also provided an avenue for all of those who are unhappy with Erdogan's management of the country to voice their distaste. These protests have caused major disruption in Turkey's two largest cities, Istanbul and Ankara, have left three dead and over a thousand injured. At the moment, there appears to be little sign of protestors relenting, and the sudden surge of discontent has led many to wonder if this recent instability will threaten Erdogan's government and lead to a 'Turkish Spring' in which Erdogan is overthrown in a fashion similar to that of Hosni Mubarak in Egypt or Muammar Gaddafi in Libya.

At first glance, the discontent expressed by the thousands of protestors is difficult to understand. Turkey's economic strength remains a rarity in the current European Union. While most European economies are contracting, Turkey has continued to grow with relative strength, largely because of Erdogan's commitment to attracting foreign investment and his devotion to an open market. Under Erdogan, the country has also managed to rein in inflation, which averaged a whopping 57% annually between 1995 and 2004 and is now running at around 9.4 percent, a number that is relatively healthy for an economy experiencing such an influx of capital. Unemployment is expected to hover at 9.4 percent, a number that may be high, but is much lower than that of Spain or Portugal, which have recently seen jobless rates that are close to a quarter of the working class. Even the most passionate critics of Erdogan cannot deny he has overseen a period of outstanding economic growth, and there is little doubt that Turkish workers, minus a widespread revolution, face a much brighter future than their Greek, Spanish or Portuguese counterparts in the European Union.

However, it is not Erdogan's management of the economy that has irked protestors, but it is instead his recent approach to the civil liberties of Turkish citizens. Turkey has a longstanding reputation of failing to support freedom of the press, furthermore, a recent and severe silent crackdown on Turkish journalists has served as a basis for much discontent within the country. In fact, last year the Committee to Protect Journalists labelled Turkey as the world's worst jailer of citizens, behind authoritarian China or Iran. Beyond this, citizens are concerned of Erdogan's rumoured desire to reform the constitution such that he could continue to lead the country for a fourth term after his third term ends in 2015, in a move eerily similar to that made by his Russian counterpart and friend Vladimir Putin. This, along with other moves motivated by conservative religious influences, including stricter laws regarding the sale and consumption of alcohol, anger Turkey's widespread moderates.

Beyond this, many argue that Erdogan's aggressive capitalist agenda have unfairly benefited his friends. The most widespread support of this argument was the 2007 sale of Sabah-ATV, a large television and media network that was then publicly owned. The sale saw the transfer of the public corporation to a private company of which Erdogan's son-in-law was a chief executive, and was conducted in a single bidder process that enraged many Turkish citizens. It is these examples of soft corruption and cronyism that provide further support for the protestors' rhetoric.

However, Erdogan is no Mubarak, Assad, Ahmadinejad, or Gaddafi. In fact, prior to the beginning of his third term, Erdogan had been praised by the European Union and the United States as a man who has sought to improve the liberties of Turkish citizens. He has permitted judicial oversight from the European Union in a system that, before his political ascension, was crippled by corruption and lack of due process. He has permitted Kurdish expression in mainstream media and politics, allowed the Kurdish renaming of numerous towns and has apologized for former war crimes committed by the Turkish military against the Kurdish minority.

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Letter From the Editor

Happy Birthday Father - I Love You

LUCAS HUDSON
EDITOR-IN-CHIEF

GOOD NEWS EVERYONE! With the 6th Wednesday of the term upon us, the 7th issue of *The Iron Warrior* (2nd for the Spring Term) has arrived on the stands in all its glory, along with all the mistakes that are bound to sneak in. As I mentioned last issue, I cannot expect this newspaper to be perfect but I am always grateful for all the hard work all my staff puts into each issue. Thank you to everyone that helped out. From the random people that walk by to say hi to those that spend production weekend cooped up with me in our windowless office on the second floor of E2, thank you!

I would like to start off by correcting some of the major mistakes made in the last issue, things that I hope not to repeat in this issue and the remaining three issues of the term. I attributed three articles to the incorrect person last issue. James MacLean and Lucas Lim wrote the "Point Vs. Counterpoint" and I switched their names. Lucas Lim was the writer of the point and James MacLean the writer of the counterpoint. The article "The Leafs Season Wrap-up" was written by Andrew McMahon. This mistake especially bothered me since it was Andrew's only article of the issue and I even included him in the credits you see on the right side of this page. I extend an apology out to James MacLean, Lucas Lim and Andrew McMahon for these silly mistakes and promise to be more diligent in the future. The last big mistake I would like to correct is the title of one of our great columns "Getting Good Head". The title "A Curious Parrot Drinks a Orage Peel Ale" is suppose to read, "A Curious Parrot Drink an Orange Peel Ale". Oversights like these can put a negative light on a newspaper that I strive to make professional and enjoyable to read. You can be sure that I will be more attentive in the future. Let's be honest though, days get long, people get tired and mistakes are made. Here's to another (hopefully less-so) imperfect issue.

With that out of the way, I would like to wish my father a happy 60th birthday. I wish I could be in Ottawa to celebrate with him, to tell him happy birthday in person. I am not one to sugarcoat my words, but I can confidently say that my father has been a source of both inspiration and guidance. I have learned both from his words of wisdom and his selfless acts as well as his mistakes and misgivings. Of course, over the years I have gained a lot of knowledge from my father, but I would like to talk about three things that I hold close to my heart. The first thing that I've seen countless times is my father's generosity and willingness to help others. It seems no matter how busy he gets, he's always there to help a family member tow something on a trailer, change the oil in their car or build something with his years of carpentry knowledge. My father has made a lot of sacrifices in his life, many of them for the betterment of my family. Everyday I try to follow my father's example and utilize my time to assist others though I truly fear I will never be as gracious with my time as he is. Thank you for everything you've done for our family.

The second thing I take away from my father (and mother) is the importance of commitment and communication. From an early age my mother and father emphasized the significance of 'staying true to your word.' I cannot think of a scenario where either one of them let me flake out of something without a legitimate reason. Although, looking back I couldn't have been happy about their decision, I cannot thank them enough for pushing me along. Today, I take those words to heart, I do my best to keep my promises and never let a commitment slip, even when all I want to do is get one more hour of sleep. Indeed, sometimes I cannot always fulfill my commitments. This is where the second half of this lesson comes into play, communication. My father, especially, highlighted the importance of clear and deliberate communication. If I was ever unable to fulfill a commitment, my father made sure whoever I had made an arrangement with knew I was going to be absent. These two lessons have treated me well throughout my life and underscore many of my actions today.

The last of these lessons comes from a conversation that I am sure my father forgot soon after it transpired. Little does he know, I have kept this conversation at the forefront of my mind for years now. I don't remember the specifics of the conversation, but my father and I were discussing an album I had recently listened to and I noted that the 'hit single' on the radio was one of the weaker songs from the LP. My father made a passing remark that in many cases the singles from an album aren't the best songs and many gems can be found hiding in the compact disc. Not only has this information help me find some of my favourite songs, but it has encouraged me to pursue more than what can been seen on the surface and really engross myself in something. It has taught me that with a little work, something mediocre can turn into something great and taking the time to listen can be much more beneficial than skipping over to the next track.

Happy birthday father, I love you. Thank you for everything you have done for me. I love you too Mother, I doubt father would be the man he is today without your love. Happy anniversary as well!

I hope everyone is having a wonderful day wherever you are, wherever you are reading this. Go tell your parents you love them and DFTBA.

Letter to the Editor

Criticism of EngSoc's Electoral Policy

KRISHNA IYER
3T NANOTECHNOLOGY

In the first EngSoc meeting of this term (May 15, 2013), a motion was passed which disallows students that switch streams from running for the positions of VP-Education and President of the Engineering Society of the University of Waterloo. This means that there is a 0% probability of the President or the VP-Ed of EngSoc Stream 'A' or 'B' being from Nanotechnology Engineering or from the 4S stream of ECE.

This practice is discriminatory in its very spirit. Discrimination is the prejudicial and/or distinguishing treatment of an individual based on their actual or perceived membership of a certain group. In this case, the perceived membership of either the 8S or 4S stream disqualifies ALL Nanotechnology Engineering students. This means that the academic issues pertaining particularly to students with double academic or work terms would be inadequately represented.

When asked about this decision, the President of the Engineering Society (A) stood by that decision claiming that it was for the greater good of the engineering society. This is also in violation of the basic principles of justice. The different principles of justice put forth by John B. Rawls in his *Magnus Opus: A Theory of Justice* states that for justice, the worse off in a society be compensated for these naturally occurring inequalities. Thus, in this scenario, the worse off section in this case would be students who switch streams. Because of their smaller population, the worse off often are not able to adequately be represented in a true democracy due to their smaller numbers.

In conclusions, I would like to re-iterate the fact that the motion thus passed is discriminatory in spirit. Instead of suppressing the mixed stream students, it would be more appropriate to find a remedy to the solution that includes their best interests.

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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.

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Being a Conscious Consumer

ROB REID
EWB JUNIOR FELLOW

Conscious consumption is a contentious idea – on one hand, people should be aware of their actions and act in the interest of global sustainability and equality. On the other hand, a conscious consumer can only do so much in promoting sustainability and equality – this should be demanded by producers and enshrined in social values and laws and regulations at the national and international level. In addition, there is the meta-issue of the trade-off between the time that would be involved in researching a product or service extensively yourself and taking what is presented by corporations or advocacy groups at face value and saving some time.

From the lens of Western conscious consumerism (which I'm using just as an exercise and to help you relate to my gut reactions, not because it's necessarily a good idea), Ghana has a spectrum of acceptable and unacceptable practices.

One of the most frustrating thing I have noticed in Ghana is the prevalence of plastic bags and lack of solid waste management. Everything you buy is wrapped in a black plastic bag before being handed to you – I've had take-away food that was double-bagged, put in a polystyrene container, then bagged again, and bought three bottles of soy milk that were placed in individual bags. Drinking water is most commonly consumed in 500 mL plastic sachets that cost a nickel and end up everywhere. This prevalence is aggravated by the lack of trash cans. Garbage either whizzes around in the wind until it settles in a bush or gutter or is amalgamated in a pile where it is later burned. The particulate content of the emissions are so high that the black smoke plume created drops back to earth after rising up for a while, creating a black garbage smoke rainbow that is less than desirable. Seeing the amount of trash brought to life the idea of the Antropocene Era – the concept that geologists of the future will look back to the current period and find a stratum of plastic, radioactivity, and artificial chemicals – in a way that is invisible in my daily life in Canada. There is also no systematic process for recycling metals such as steel and aluminum, although I have seen people sifting through trash for recyclables, though not to the extent carried out in China, so I suppose there is a market somewhere; it just hasn't been municipally administered yet.

There are, however, a few processes in Ghana that really appeal to Western conscious consumers. The first is the widespread use of bottle return and reuse. This is led by retailers, who can't get their deposit (which must be large enough to care about) back from distributors unless they return full cases, but it has also seen widespread participation by the general population; people will helpfully remind you to bring your bottles back to the shop they came from and bus drivers won't let you on the bus until you finish your drink and return the bottle. However, I fear this is slowly being eroded by businesses using plastic bottles or nonreturnable glass ones like in North America (save liquor bottles, Quebec, and some cities in the Maritimes that I know of). Another plus for Western conscious consumers is the lack of big box stores (except for Melcom), prevalence of local artisans (carpenters, tailors, bakers etc. instead of pre-fabricated store bought products), locally-sourced foods and materials (for example, they make bricks on-site to build houses). In the *Shock Doctrine*, author Naomi Klein quotes an executive from New Bridge Strategies, a globalization firm headed by the head of FEMA under bush, saying "one well-stocked 7-Eleven could knock out 30 Iraqi stores; a Wal-Mart could take over the country." If the efficiency introduced by a big chain could wipe out local businesses and snatch up the market, I wonder why it hasn't been done in Ghana like it has been done all over the West and increasingly in emerging markets. Some reasons I've speculated on are that the market is too small, local preference trumps cheaper products from foreign companies, a lack of investment due to misconceptions surrounding much of Africa (perpetuated by NGOs, movies, and media coverage), and high local transportation costs making locals more competitive.

Until now I have purposely described my gut reactions to what I see in Ghana from the point of view of a well trained middle class consumer. I'd now like to explain why this point of view is harmful and search for some synthesis on cross-cultural learning that would help us set up a reality-friendly economy.

Firstly, plastic bags, reusable water bottles and recycling have all become irrational crusades in which I believe advocates have set their ambitions too low. I now have roughly 400 reusable grocery bags and about a dozen water bottles – but no one is talking about how every piece of food they pick up from the grocery store is packaged in the equivalent amount of material as many plastic bags, or beyond that why grocery stores waste such colossal amounts of food, paste a friendly farm veneer on every industrially processed product, and disconnect people with the realities of where food comes from. For a wider examination of how messed up the food system has come, I found *Food Inc.* to be a well done documentary. As for recycling, we don't do it very well and it is only one of the three Rs that perpetuates consumerism. I have classmates (in environmental engineering no less) that don't recycle or compost, even in Waterloo where good services are readily available. In addition to not being able to recycle many things, we recycle things that can be reused all the time – like glass jars and bottles that are instead smashed and remade instead of being sterilized and refilled. Obviously economics is governing this, but our alternative is to bury our trash where we can't see it. If we do the best job possible, we'll drain the leachate and collect the offgas (and maybe even use it for electricity or cogeneration) and reclaim the surface – but this is still not feasible. There are some cool things being talked about around closed-loop production and consumption and cradle-to-cradle life cycles – I wonder how long it will be until this becomes the norm? Will it happen faster in Canada or in Ghana?

The last thing I'll rant about is the new trend of buying local. I think in Canada, people support buying local before really understanding why they are. Buying local goes against benefits from trade and decreases the material wealth of a region. If Thunder Bay is undesirable for producing agricultural goods because of the growing season it makes sense for us to specialize in ecotourism, and use that money to import food. Conversely, we are depriving other regions of economic development as well by not providing them a market to export to. In reality, we rely extremely heavily on imports (both regionally and nationally) and I feel as if the "buy local" movement is taken at face value without enough exploration of its many weaknesses. If we really cared about buying local we would pull out of NAFTA and WTO, and not just be happy because the cheese in our Japanese fridge is from down the road. Buying local, although it can stunt economic growth by eliminating the benefits from trade, is extremely important for three reasons. The first is resiliency – in the event of some sort of crisis, being self-sufficient is the difference between living and dying. Factoring this into the optimal risk management for an economy is almost always ignored in a system that craves market bubbles to cash in on. Secondly, the market power is too easily influenced by big corporations. Some firms are powerful enough to distort the market and starve out local businesses as a rent-seeking activity, and not necessarily because it's the most economical way. Wal-Mart was notorious for doing this all over North America. Thirdly, corporate profits are funneled to the centre of the corporation and are not directly redistributed like in a cooperative, and unless your city has a big headquarters, having a non-local business just means you're constantly shipping wealth to a big city where many headquarters are located just for the efficiency of having a business hub. My personal belief is that concentrating wealth with the rich in big cities is a really terrible way of developing a country, and that we should enforce some better way – I'd love to hear your thoughts, though.

Why Don't We Learn From Our Mistakes?

Oversight of Building Procedures and Better Regulatory Practices Can Saves Lives

LEAH KRISTUFEK
2B CHEMICAL

Natural disasters happen, but recent events have painfully reminded us that given appropriate oversight some tragedies can be avoided. No one can stop tectonic plates from shifting suddenly or rainfall from being higher or more violent than the seasonal average. Disasters are unavoidable and for those people in the wrong place at the wrong time serious injury or death may result. Over the years people have learned from their mistakes and adapted their environment to the unique challenges that may arise from their particular geographic areas. However some risks are periodic, only occurring once or twice a decade or century. As the terror and destruction of a natural disaster fade from people's immediate memories it is easy to forget the importance of taking the extra steps to protect against catastrophes when a disaster does occur. It is the responsibility of governing bodies to remember past natural disasters and ensure that buildings are constructed to adequately withstand or safely fail in the case of 'the big one', or whatever the worst of plausible disasters might be for that area.

When it comes to safety, public buildings like schools, hospitals, museums, apartment buildings, movie theaters and gyms are usually held to different standards and are required to conform to more stringent codes. Secondary exits are a must in case of widespread panic or fires, particularly when a building has multiple stories. Furthermore if anything might compromise the structural integrity of a public building an inspector must affirm that it is still safe or suggest actions to make it so. Regulations are here to protect the public, but sometimes they don't seem to do enough. In that case it is left up to the people creating a specific building to recognize possible risks, even when they are periodic in nature. For instance, this could include creating a safe room in a school which is in an area with frequent tornadoes or building with ductile materials when earthquakes have beset an area in the past.

In the case of Plaza Towers Elementary School in Moore, Oklahoma the reliance on a nearby community building for protection instead of having a safe room in the school claimed lives. The May 20 tornado decimated the elementary school killing seven third grade students who had been taking shelter in a hallway in the school. Devastating tornadoes are not new for Moore, a 1999 E-F5 tornado with winds over 300 miles per hour following nearly the same path decimated the town, killing 41 people. It also destroyed the Kelley Elementary School which had luckily been let out for the day. So why didn't Plaza Towers, despite its vulnerability to tornadoes, have a safe room? Although public concern is high over the lack of tornado safe rooms in area schools it is countered by the availability of funds and the likelihood of these disasters happening. After the 1999 tornado, Moore town officials rated the chance of a similar magnitude tornado hitting the town as less than 1 percent. The attitude that low probability of an event recurring justifies poor preparation led to an increase in loss of life. The result of not being prepared is tragic, but unfortunately the high cost of retrofitting makes improving existing schools difficult. Retrofitting a school with safe rooms costs between $600,000 to $1 million, a cost the Oklahoma Department of Emergency simply can't afford for all schools. As of now it will cost approximately $2 billion to outfit all Oklahoma schools with tornado safe rooms, raising the question, why wasn't it a necessary part of the original design?

Internationally, building practices vary substantially. In Japan, large earthquakes like the 2011 quake which caused the Fukushima meltdown may cause skyscrapers to sway alarmingly but good design leads to minimal damages. (Granted the Tsunami was incredibly damaging and caused substantial loss of life). However in China an 8.0 magnitude quake on May 12, 2008 killed more than 80 000 people in Sichuan, burying more than 19 000 children, most in their schools. This disproportionate amount of deaths (the 2010 population of Sichuan province was 80 418 200 according to Wikipedia) could have been prevented by better oversight of building procedures and better regulatory practices. We as humans are not omnipotent beings, but we are able to weigh risks and consider the potential for future disasters. It is our responsibility to plan for the worst possible tomorrow, whether that tomorrow is a day in the future or several years. By increasing regulations, a framework can be laid for a safer future.

Canada's Democracy is Broken

FILZAH NASIR
2N ENVIRONMENTAL

Imagine this scenario: You are caught cheating on an exam and are being threatened with expulsion. So, you decide to defend yourself by arguing that yes, while you were cheating, it didn't accomplish anything because you still failed the exam. You're just a really bad cheater. Your professor, after looking through your exam, realizes that you're right. You did fail the exam despite an obvious attempt to cheat your way through it. So she lets it slide. Since you were unsuccessful at cheating, there is no reason for you to face any consequences.

How plausible does this scenario sound? I don't mean the part about failing an exam you cheated on. I mean the part where you face no consequences for the cheating. It's pretty unlikely (note: impossible) that the quality of your cheating would have any impact on the consequences you face. Yet, this is exactly the verdict in the election fraud case brought against the Conservative Party of Canada (CPC) by citizens of six different ridings across the country. The judge ruled that while enough evidence had been provided to acknowledge that fraudulent calls were made in the six ridings in an attempt to suppress voters, there is no clear indication that the calls managed to affect election results. So election fraud happened, but we are not sure it was successful. The judge also mentioned that the most likely source of information used to make the calls was the Conservative Party database, accessible only by senior members of the CPC.

Is anyone following this? Senior members of the CPC most likely provided information that led to election fraud and voter suppression. Election fraud happened. In Canada, a "democracy." Yet, the CPC continues to govern and Mr. Harper remains Prime Minister, because as Foreign Affairs Minister John Baird said when this story first broke: "Is it really cheating if it didn't change anything?"

The robocalls election fraud scandal is just one in a series of recent scandals for the Harper government. There is the ongoing scandal with Senator Mike Duffy that resulted in the resignation of two different Senators as well as the Prime Minister's own Chief of Staff. Just recently, MP Brent Rathgeber resigned from the Conservative caucus, citing a lack of transparency within the party for his departure. He will now serve as an independent MP. Just imagine, if 12 more Conservative MP's took the same step, the Conservatives would lose their majority. But then what? Even if the Conservative Party no longer holds a majority, or even if say in 2015, they are no longer in power (here's hoping) what actually changes?

In the last two years of Conservative majority, Stephen Harper has managed to push this country farther right than I thought imaginable. There have been innumerable scandals, some of which stretched the bounds of the imagination. While the CPC lacks accountability and transparency, most of their actions that cause public outrage are well within their mandate. Omnibus bills that are meant to implement the budget but actually make sweeping changes to major environmental legislation? Perfectly legal. Proroguing (shutting down) Parliament in order to avoid a no-confidence vote? Legal. Spending millions of taxpayer dollars on advertisements telling us how great the government is with the economy while the unemployment rate is actually higher than it was in 2008? Also legal. In fact, while there have been a few incidences where the Harper government has been accused of violating the law, most of their actions, while reprehensible have been within the bounds of what a majority government in Canada is allowed. So why the outrage? Stephen Harper and the CPC provide an easy target for our frustrations but they are not the problem.

The real issue is that Canada's democracy is broken. How else does a party with only 40% of the vote obtain a majority government in the first place? Why is a judge unable to overturn election results even though occurrence of election fraud was proven? None of this is Stephen Harper's fault. As much as I'd like to blame him, I can't. So instead I will take this opportunity to thank him. I'd like to thank Mr. Harper for taking advantage of the fundamental flaws in Canada's democratic system so that we are made aware that these flaws exist in the first place. At least now we know we can start working on trying to change them.

So while the 'Stop Harper' discourse is a good way to let out our frustrations, it does not address the root causes of the issues at play here. We cannot simply hope that future governments will not continue to take advantage of the systemic flaws, or that they will actually attempt to fix them. It is becoming increasingly clear that governments the world over represent private and corporate interests, not public ones. It would be extremely foolish of us to hope that future Liberal or NDP governments would not take advantage of the precedent set by the Harper government. Now that the rules have been broken with very little consequences, there's nothing stopping future governments from continuing down this path.

We have to remember that every bit of democratic freedom that we enjoy today was fought for and grasped from the hands of power hungry governments and leaders. None of it was freely handed over, and if we stop fighting, those freedoms will be taken away.

What does fighting the root causes of these issues look like? Fair Vote Canada is working hard to change our electoral system to ensure that 40% of the population is never again able to elect a majority government. Democracy Watch is campaigning to change the ethics rules for federal politicians. The Parliamentary Budget Officer went to court to fight for the right of his office to be granted the power to hold government spending to account. Rabble.ca provides a continuous source of alternative Canadian news that greater represents public opinion when compared to corporate funded mainstream media. These are just some of the people and organizations working to make small changes to a broken system.

So when the next Conservative scandal breaks the news (and I doubt it's very far away), just remember, it's only the tip of the iceberg. There's a slew of underlying problems in our democracy that need to be addressed. Let's ignore Stephen Harper for a second and focus on those.

Nestlé Appealing Water Restrictions During Droughts

NANCY HUI
3N CIVIL

Currently, Nestlé has a permit to take 1.1 million litres of water per day from the Hillsburgh, Ontario watershed for its bottled water operations. Hillsburgh is a small town 50 km northwest from Brampton. Unfortunately, other communities rely on the same aquifer as Nestlé for residential water needs. Guelph, for example, is 80% to 90% reliant on groundwater. The region is currently suffering from drought.

Normally under Level 1 drought conditions, companies would comply with requests from local conservation authorities to reduce consumption by 10% in accordance with the Ontario Low Water Response Protocol. However such a request from authorities is not legally mandated. Such voluntary restrictions also apply to municipalities and any other businesses with a water pumping permit. A Level 1 drought is one that poses potential water supply problems, and occurs when precipitation is less than 70% of its seasonal average.

Level 2 drought conditions would provide a similar request that companies voluntarily reduce its pumping volume by a total of 20%. This applies when precipitation has decreased to less than 60% of its seasonal average, or when there has been no rain for one month, potentially causing major supply problems.

Droughts are managed by watershed-based water response team, conservation authorities, and the Ontario Water Directors' Committee

Nestlé is currently appealing a condition to renew its permit that will legally require it to reduce its water intake by 10% or 20% during Level 1 and 2 droughts respectively, since other companies voluntarily comply with the requests as stated above. The bottled water giant wishes to be subject to the same voluntary intake reduction as everyone else.

I don't think it's unfair that Nestlé is subject to the same percentage water reduction as the rest of the region. If the only difference is that its water reduction would be mandatory rather than voluntary, then theoretically as a good corporate citizen, Nestlé doesn't stand to lose any more profit during a drought under its current mandatory restrictions than under the more widespread voluntary compliance.

The purpose of Nestlé's special conditions in the permit comes with the recognition that Nestlé's daily water intake is nearly 4000 times the water usage of an average person. The impact of Nestlé on the area's water supply is great enough that it must be regulated during drought to protect other residents and businesses who rely on the watershed.

Readers will forgive me for thinking this protection is necessary for Nestlé. In April 2013, Nestlé's chairman, Peter Grabeck, declared that "access to water should not be a public right," in opposition to Resolution 64/292 passed in 2010 by the United Nations General Assembly recognizing the human right to water and sanitation.

Billboard Turns Humid Air into Drinking Water

ANDREW MCMAHON
3A ENVIRONMENTAL

Peru's University of Engineering and Technology (UTEC) has found a way to eliminate the cost barrier associated with implementing many new technologies: they have designed the first billboard that turns atmospheric humidity into potable drinking water, producing about 100 litres/day. This past December, UTEC was experiencing a slump in enrollment for the upcoming semester and consulted the Peruvian ad agency Mayo Publicidad about how to spark interest in the institution. The result of the consultation was an ingenious way to combine advertising with engineering innovation.

The billboard was erected in the Bujama District of Lima, the second largest capital in the world set on a desert. Many residents of the Bujama District draw their water from a well whose water is polluted, but have no other alternatives since annual precipitation is just 0.51 inches (about 13 mm). Despite the lack of precipitation, atmospheric humidity averages 83% reaching nearly 100% in the mornings, but that water is suspended in the air as water vapour and, until recently, could not be harnessed by the city's residents.

There are five electrically powered condensers inside the billboard which are cooler than the air outside. When the air comes into contact with the condensers' surfaces, the air cools and the water vapour in the air condenses into liquid water. The water then undergoes reverse-osmosis purification before flowing into a storage tank at the base of the billboard, where local residents have access to the water through a simple faucet. The condensing units turn off once the storage tank is full therefore reducing some of the power consumption. By early March, the billboard had produced about 2500 gallons of water (9450 litres), and the billboard reportedly cost just $1200 to install. Lima's Ministry of Housing has reported about 700 000 Lima residents lack access to potable water, while another 600 000 rely only on water cisterns filled with pumps or by hand.

In Abu Dhabi, the French company Eole installed a wind turbine in 2011 which operates on the same principle of drawing the humidity out of the air and reportedly generating more than 1400 litres of water per day in humid coastal climates. Air gets sucked into the nose of the turbine where it is directed through a humidity condenser to a cooling compressor. Wind speeds of 15 mph are sufficient for the turbine to power the compressor, without the aid of any solar panels. Locations such as Lima Peru, which have access to a power grid and host companies interested in purchasing advertising space may benefit more from a setup like UTEC's billboard design while more remote locations may be more suitable to Eole's turbine design (assuming they can stomach the $660,000 price tag).

Since the installation of the billboard, UTEC reports a 28% increase in enrollment. The University has not yet announced plans to install more billboards in Lima or to make the technology commercially available, but the project has sparked discussions on alternative methods to provide access to clean drinking water.

Nosodes – A Dangerous Scam

JAMES MACLEAN
3A NANOTECHNOLOGY

Canada continues to lose the battle against alternative medicine and pseudoscience. This year, Health Canada has released guides on the preparation of nosodes. Nosodes are oral vaccines based on homeopathic principles that supposedly are effective at preventing disease. More than 100 nosodes have been approved by Health Canada for sale.

Homeopathic medicine is based on the ridiculous idea that a substance that causes the disease or a similar effect in a healthy patient, if extremely diluted, will cure a sick patient. For example, according to a report released on the Health Canada website, the nosode for malaria consists of "Dissolved gases from decomposed vegetable matter taken from marshes when malaria toxin is most active." However the final solution is so diluted it is possible to have not a single molecule of the original substance remaining. What is left is just water, water that is marketed as a legitimate medicine and sold at a higher price. In other words, it is a fraud that for years Health Canada has failed to crush.

There are many problems with this situation. The first being that an organization that is required to regulate drugs for their safe and effective use has failed to do so. It is a waste of our money to fund research and continue to regulate a group of drugs that should be outright labeled as ineffective. It is also dangerous to suggest that something is a safe and effective medicine. The majority of homeopathic medicine is tolerated because in most cases placebo effects aren't all that bad. For a common cold, headache, or minor joint pain they can be quite harmless. However homeopathy doesn't restrict itself to minor problems, in this case it claims it can offer the same immune response as a traditional vaccine. Nosodes are offered for a variety of diseases from herpes to more serious diseases such as tetanus, smallpox and cancer. People who take these nosodes may not take the real vaccine or medicine available and falsely believe they are protected from these diseases. This could lead to late detection and possibly death. Additionally it is not just their life they put at risk, for vaccines to be effective at eliminating a disease in a population herd immunity must be achieved.

Proponents of nosodes are often motivated involved with the anti-vaccination movement. There is another pseudo-scientific idea that traditional vaccines are ineffective and that they may even cause adverse health effects such as autism. This is a product of the fear brought on by fraudulent research that has been disproved many times by studies from the medical community. Websites such as *NaturalNews.com* prey on this fear to gain a following. It is claimed nosodes have no harmful chemicals and offer a safe alternative for the supposedly harmful vaccines. An average citizen who is uneducated in these matters may easily fall for the lies perpetrated by this movement. Already, rises in preventable diseases have been seen in developed countries that have previously eliminated them.

The use of homeopathy and other unproven medicines has continued to increase in despite objections from the scientific community. It has gone so far that Universities are starting to offer degrees in homeopathy. They have been dubbed "science degrees without the science." Allowing this to leak into mainstream universities legitimizes the status of other pseudo-scientific and unproven medicines such as aromatherapy, acupuncture, traditional Chinese medicine, quantum healing, and faith healing. Already peer-reviewed journals such as the journal Homeopathy have been created and provide a cover for incredible claims. On academic search engines such as pubmed, these phony journals appear in the search results next to reputable scientific journals. If it is this difficult for someone who is scientifically literate to distinguish what is true and false, how is an average Canadian expected to determine what medicines to choose for their families? The Canadian government fails its citizens by legitimizing these therapies.

What is needed is an outright denunciation of nosodes and homeopathy. This effort should be led by major scientific and health organizations such as Health Canada. In Health Canada's mission statement they claim to "provide credible information, reliable advice" and "rely on high-quality scientific research." They have failed the Canadian people by failing to inform them of the ineffectiveness of homeopathy and are idly standing by while people risk their lives by switching to alternative medicine.

Australia Introducing New Vaccination Legislation

NANCY HUI
3N CIVIL

Previously, I wrote about Ontario students that were being suspended so that their parents and guardians would be reminded to complete their immunization records, and wondered whether or not it would be more effective to fine the parents instead.

Meanwhile in Australia, the Ministry of Health is considering similar measures to ensure that children are vaccinated or have exemptions on file. Like in Ontario, parents and guardians who are medically, philosophically, or religiously opposed to vaccination can acquire a certified exemption by attending a counseling session with a general physician.

Currently, Australia encourages compliance with vaccination policy by making certain benefits such as the "Family Allowance" benefit dependent on having complete vaccination records. In certain parts of Australia, however, only 85% of vaccination records are complete – well below the 93% immunization rate estimated by the World Health Organization to prevent the endemic spread of diseases such as whooping cough.

Thus the Ministry of Health has proposed to implement a "rigorous" national policy that will identify children lacking immunizations and prevent them from enrolling in school. Australia is targeting preschool age children as the National Health Performance Authority has shown that five year olds have the lowest immunization rates of all children. Furthermore, younger children are fragile, have weaker immune systems and are more likely to die as a result of illness than older children.

To reduce this risk, the territory of New South Wales will be introducing even tougher legislation to boost immunization rates among young children by barring children with incomplete immunization records from attending daycares. Child care centres will now face fines of up to $4,000 if children who have no been vaccinated attend without an exemption on file.

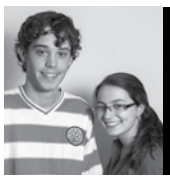
Catching them while they're young is an interesting strategy to keep track of vaccinated children and definitely reduces the dangers posed by disease to children, but would it be feasible in Ontario?

On this side of the Pacific, adults are tracked through their tax records. Teenagers and older children can be tracked through their school records. Babies and toddlers are a blank: not all of them attend a day care centre. Not all childcare providers are regulated. Requiring day care providers to ascertain the vaccination status of their charges would definitely increase the safety of a facility, but would do little to increase the integrity of provincial vaccination records.

As for preventing enrollment into kindergarten without an immunization record, the Toronto District School Board website states that proof of age, address, and immunization are required for all children enrolling into either junior or senior kindergarten, but this is not the case across the province – the York Region District School Board, for example, does not require proof of immunization.

In the interests of future public health and record integrity, I believe that students enrolling into a new school system should be required to have proof of vaccination or an exemption on file. Finding children who have not been immunized at a young age reduces the risk of a school-wide pandemic more than tracking them as teenagers, where their immune systems have hardened to the yearly flu and unsanitary washrooms. And it's less likely that removing a student from school at the kindergarten level will be less harmful than removing a student from school at a high school level: the purpose of kindergarten is to ensure that a child is well socialized, can communicate, and experiences problem solving in a novel environment. These skills can be learned at any level of schooling, whereas high school students have a curriculum to follow and may struggle to catch up on work missed during their suspension due to incomplete vaccination records.

Midterms, Parties and Meetings



ANNAMARIA REDA
BRENDAN O'HANLON
VPS INTERNAL

The last few weeks have been busy haven't they? TalEng, the engineering talent show, was a blast for everyone except for those of us who had goat's milk poured on them (alright, it wasn't so bad). There have been a number of workshops on topics like interview skills, photography, and jobs outside Jobmine. Enginuity ran a coin-catapult design competition, with competitors earning a combined total of 4,000 P**5 points! And, there was an Engineering water fight/water slide, because who doesn't love summer water slides?

Recently, we met with a representative from MathSoc to discuss shared events open to both EngSoc and MathSoc. We agreed that many events are suitable for participation from both faculties, so we've invited MathSoc to join us at Engplay, paintball, tetris tournament, as well as an Eng vs. Math soccer tournament on Friday the 14. MathSoc will also try to set up a capture-the-flag event, which engineers will be invited to.

We'd like to remind everyone that on most Mondays, weather permitting, EngSoc executive will be hanging out on the POETS patio, with FREE ICED TEA for anyone who stops by. Engineering students are encouraged to talk to the executive about anything, be it an idea you'd like to see happen, an academic issue, or even ask us about what was found in some of the lockers that finally got cut open in E2. Some examples of events that have arisen from students' ideas are Sushi Workshop, LAN Party, and Tau Day.

Unfortunately, midterms are quickly approaching (and for some of us already here) so the next week will not have any special events or workshops, except for MOT party on Friday (21st). We do encourage you to party hard at MOT, but remember that the Summer Leader Retreat for Orientation Week and EngSoc Joint Council meeting are on the next day, Saturday. Midterms, parties and meetings, oh my! As well, Genius Bowl is coming up on Tuesday the 25th - you can sign up a team on the EngSoc Office doors.

A unique event last week promoting mental health awareness showed us that although midterms, assignments, and JobMining might get you down, you're not alone. Engineering students who participated in PostSecret week submitted an anonymous secret to a ballot box. At the end of the week, the secrets were posted on the wall in the CPH Foyer. These showed how students felt and dealt with issues like stress, relationships, and self-confidence, among others. We're glad that students had this opportunity to anonymously share a secret about themselves to promote mental health awareness, and want to remind everyone that counselling services are available for those who seek it through Engineering Councillors and University Councillors.

That just about sums everything up, so have fun and good luck with midterms!

And the Saga Continues

DAVID BIRNBAUM
PRESIDENT

Hello again everybody!

I hope you have been having as great of a term so far as I have.

To update on what I talked about last issue, we are still making good progress. The exam bank is currently being discussed by the departments, but I am hopeful for a soft launch sometime this term. The scholarship program is in its final stages of revision, and should be finalized in the next week or two. The textbook library is up and has a decent amount of textbooks. We will be sending a call out for donations to the library hopefully this month, in order to have it more full and useful before we open it for business.

Everyone should be sure to check their Waterloo email account, as we have sent a survey out about the Faculty of Engineering. This survey will serve as a great resource for what I talk to the Dean about, and what we spend time focusing on. Keep in mind that if you answer you will be entered into a draw for an iPad mini! The results from the last survey, on Engineering Society Services, should be available publicly by the end of the term.

I attended the Board of Directors meeting for the Sanford Fleming Foundation, where we discussed various items including a potential fee increase. The SFF will be looking to increase the fee by $1, but not for another year or so. At Engineering Faculty Council, we voted on a few changes to the undergraduate calendar, most significant of which were changes to the 1B Mechanical term. They have removed Physics, GENE 121 and the Econ course from that term, and replaced them with a CSE and a new ME 101 course.

Engineering Society Joint Council will be coming up on the weekend of July 22nd, with the time and place to be finalized. The main item of discussion will be an EngSoc Fee increase of the CPI (approximately 3%.) This is to allow us to keep our buying power equal with inflation. If you are against a fee increase (of about 45 cents) please plan to attend the meeting and voice your concerns, or at least let your EngSoc Class Representative know.

For more information about any or all of these items, please either email me, check out previous *Iron Warrior* articles, join the mailing list, or come to the EngSoc meetings. You can also always find me in the Engineering Society Office, CPH 1327, and I am always happy to answer questions.

As always, if anyone has any questions or concerns, please email me at *president.a@engsoc.uwaterloo.ca*. I look forward to hearing from you, and be sure to stop by Ice Tea Mondays: free ice tea every Monday from 3 PM to 5 PM on the POETs Patio!

Goats and Newbies

LEILA MEEMA-COLEMAN
VP EXTERNAL

Baahhhh! (That's goat for hello.) I hope you have been noticing the increase in goats around campus and you may have been wondering what's that all about? Don't worry, the Engineering Society has not developed a weird goat fetish… its actually our charity initiative this term! We are raising money for the Free the Children Goat Campaign by buying goats for families in developing countries. Goats provide a source of livelihood for families and are used for their meat, milk and in trade. It is a way to develop a sustainable income and to provide independence for the family. This past week, we had our Change for Change charity drive and raised the absolutely ridiculous amount of $800!!! I want to thank everyone so much who donated their change to the cause and for coming out to TalEng to see the EngSoc Executive get milk dumped on their head! A special shout-out goes to the 2015 Nano's for raising the most money as a class and all the 2016's for being the year to raise the most! To give you a goat/dollars breakdown: 1 goat = $50 so if we integrate that and carry the two $800 = 16 GOATS! That's a whole lotta goats! Keep updated on our progress from other charity events (pancakes, purpling, bottle drives and BBQ's) on our goatmometer (goat thermometer) outside the Orifice!

On a less-goat related note, the campus was recently invaded by over ONE THOUSAND 2018's (that's right 2018's!! feel old yet?) for May Open House! The Engineering faculty put on a great display of spirit and pride with over 150 volunteers making this event possible. This was also the first year in a very long time that the focus of the event was in CPH highlighting POETS, the C&D, the Orifice and Novelties. As well, we had a more diverse student representation than ever with over eight different student groups setting up booths in addition to all of the amazing engineering ambassadors giving tours. I would like to give a HUGE thank you the representatives from EngPlay, EngFoc, Engineers Without Borders, *The Iron Warrior*, Women in Engineering, the Waterloo Engineering Competition, and the Engineering Jazz Band who came out and represented their groups! I hope that this starts a tradition of more student involvement in promoting all the amazing things Waterloo has to offer and that we make Fall and March break open house even better!

If you made it all the way through my article; congratulations and thank you! As a goat hello is the same as a good goodbye I bid you Baahhh!

Upcoming Events Calendar

Wednesday June 12 CHALKATON CPH Courtyard EngSoc Meeting #3 17:30 - 19:00, CPH 3602	**Thursday June 13** Photography Contest Charity Pancakes 08:30 - 10:30, CPH Foyer Running Club 19:00 - 20:00	**Friday June 14** Pre-Exam Stress-out Day GradComm Event #3 Math vs Eng Soccer	**Saturday June 15** Study Time	**Sunday June 16** Study Time	**Monday June 17** Hell Week Ice Tea Monday 15:00 - 17:00, POETS Patio Running Club 19:00 - 20:00	**Tuesday June 18** Hell Week Colouring Contest Iron Warrior Meeting 18:30 - 19:30, E2 2347 Running Club 19:00 - 20:00
Wednesday June 19 Hell Week	**Thursday June 20** Hell Week Charity Pancakes 08:30 - 10:30, CPH Foyer Running Club 19:00 - 20:00	**Friday June 21** Hell Week MOT 21:00 - 23:00, POETS	**Saturday June 22** Summer Leader Retreat 09:00 - 16:00 Joint Council 17:30 - 19:30	**Sunday June 23**	**Monday June 24** WiE Week Ice Tea Monday 15:00 - 17:00, POETS Patio Running Club 19:00 - 20:00	**Tuesday June 25** WiE Week Iron Warrior Meeting 18:30 - 19:30, E2 2347 Running Club 19:00 - 20:00 Genius Bowl 19:00 - 22:00, B1 271

Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca

Sponsorship and Capital Improvements

KEVIN MCNAMARA
VP FINANCE

It's that time of the term to start thinking about two very important sections of the EngSoc budget: Sponsorship and ECIF!

Sponsorship applications are now open! The committee is selected and the dates are set. For those of you who don't know what sponsorship is from EngSoc, each term we allocate a certain amount of our budget to go towards sponsoring student groups. Any Waterloo club, team, or group is eligible to apply. Sponsorship applications must include the following items: 1) Team or Group Name, 2) Overview of team/group, 3) Contact information, 4) Detailed explanation of why your group should be sponsored by EngSoc, how your group is beneficial to Engineering Students, and the percentage of your group who are Engineering undergrads, 5) A detailed price breakdown of the proposed funding. Please indicate which items are the most important to your group (i.e. rank the items based on which you would most like to receive sponsorship for to least), 6) The different sponsorship recognition levels your group offers, 7) The length of your design cycle/life cycle. 8) Total normal operating cost and the number of sponsors usually obtained in a cycle. Applications can be sent to me either by email (*vpfinance.a@engsoc.uwaterloo.ca*), or dropped off in the Orifice (CPH 1327). Applications will be due on Friday, June 28, at 4:30 PM. Each group that submits an application will have the chance to present to the sponsorship committee on Sunday July 7 in CPH 3607, and the allocations will be presented at EngSoc Meeting 5.

ECIF is the Engineering Capital Improvements Fund. Similar to sponsorship, each term a certain amount of the budget is allocated to this fund, however this money is used to make capital purchases that improve student space and services in the Engineering Faculty. This can be for improvements to EngSoc facilities (POETS, CnD), supporting new services provided by the Society, improving facilities of the affiliates (*The Iron Warrior*!), and anything else that the ECIF Committee feels will be beneficial to undergraduate engineers. This term, something I would like to do is increase awareness of what ECIF has purchased in the past and also work to get more submissions. Submissions are accepted all the time and they can be sent in via the EngSoc website at *engsoc.uwaterloo.ca/services/ecif-application*. If you have any ideas of something that EngSoc could purchase and install that would help to improve your experience, feel free to make a submission on the website or ask me about it. The committee will be meeting in mid to late July and the allocations will be presented at EngSoc Meeting 6. If you have any questions at ECIF, please let me know. That's about it for this issue and, as always, feel free to come by the Orifice or send me an email if you want to know anything about money!

Mid-Term Tuition Increase Explained

DREW DUTTON
VP EDUCATION

As I'm sure you are all aware by now, students have seen additional charges made to their Quest account. In this issue, I will be addressing the sticky subject of the tuition increase that was announced on June 4. This mid-term update to tuition was the direct result of the new Ontario government tuition framework that was implemented on March 28, 2013.

I can certainly appreciate how students are upset about having to pay more tuition halfway through the term, but, at the same time, I implore students not to overreact. Whether or not you read the emails, the university made an effort to warn you well in advance that it was likely more fees would be due in June. Perhaps, with better communication, they could they have done a better job to get the message out. A notice on Quest itself would have done a better job notifying students. Regardless, students have taken the wrong perspective regarding this increase. We might be paying more fees mid-term, but we have actually saved money.

Every year tuition increases. Under normal circumstances, the increase is applied at the start of the term and most students likely do not even acknowledge the increase beyond being stunned at the tuition fee as a whole. Under the previous government framework, this increase was capped at 5% for the entire institution, while professional programs such as engineering could see increases by as much as 8%. The new framework caps the institutional increase at 3%, and 5% for professional programs. Just to be clear, engineers can see an increase of up to 5%, while the entire university's average increase cannot exceed 3%. We see larger fees because our faculty's staff is more expensive to hire and retain. It goes without saying that as a student it is lousy to pay more fees, but if you were in your professors' shoes, you would want to have a competitive salary or else you would take your expensive engineering degrees elsewhere or into industry. If we want to continue to be the best and most desirable engineering students, we must have the best engineering professors.

The actual fee increase domestic undergraduate engineering students saw was 4% or 5%, depending on your year. Yes, we are paying more fees midterm, but we have still saved at least 3% compared to years past. Interest will not be charged on the fee increase.

As per usual, students have 60 days to pay the fee before a hold will be imposed on your grades and transcripts. For the vast majority of students, this means paying the fee by the start of August. If your fees were properly arranged prior to the fee increase, you will continue to have access to LEARN during this time. If you owed fees prior to the increase, the hold will still take effect 60 days from when you were initially owing fees. These students will have to pay the original amount as well as the fee increase to prevent the hold from occurring.

Again, I want to reiterate that I feel your pain as this increase affects me too. That being said, we should remember that we are still coming out ahead compared to previous years' increases. Here at Waterloo, we boast one of the most noted engineering programs in Canada and the world at large. I know this can be tough if you haven't budgeted for it, but I assure you that your investment will pay itself back many times over in your career as an engineer.

If you have any questions on the matter, please feel free to come speak to me in the EngSoc Office.

Ontario Engineering Students Meet at ESSCO AGM

SHIPING SHEN
2B ELECTRICAL

As I packed my bags to say goodbye to what had been my home for four days and three nights, I struggled to believe that it was all over. For most of the five amazing delegates from Waterloo A-Society, this was our very first engineering conference. We dived in headfirst with a blurry vision of what was ahead, but we were confident that it would be a positive and rewarding experience.

The conference was held in Waterloo and titled ESSCO AGM, which stands for Engineering Student Societies' Council of Ontario Annual General Meeting. ESSCO is the overarching student society for sixteen different engineering societies across Ontario. The University of Waterloo is well represented in ESSCO with three of the four executive positions currently held by Waterloo engineering students. ESSCO strives to provide representation across the participating schools to ultimately improve engineering student lives. With this great big vision on hand, the conference represents a critical step towards making it all happen.

The conference was kicked off with a networking session involving executives and delegates from the over thirteen different engineering societies across Ontario. The diversity of attendees brought forth an impressive wealth of firsthand knowledge and experience. It was very uplifting to be in the presence of so many passionate student leaders. Collectively, this abundance of spirit and energy channeled an incredible level of positivity, openness, and encouragement for everyone involved.

With the welcoming atmosphere, there was no doubt that the conference would bring a weekend full of excitement. But even more important, the networking session laid down the foundation for a better understanding of how everyone fit into the bigger picture.

The day after the networking session showcased presentations from each participating school on one thing that their engineering society does well. This event was both functionally and symbolically important as it demonstrated that each school is unique and can offer ideas and best practices to everyone else.

As the presentations were made, it became evident that many other schools had significantly less engineering student enrollment than the University of Waterloo. This means many of the things taken for granted by Waterloo engineering students were simply not achievable for many other schools. Waterloo students should feel incredibly fortunate to have such a large student base that allows so much to be possible.

As the conference moved into full swing, a large number of sessions were scheduled which proved to be both engaging and informative. These sessions covered a large variety of topics including Women in Engineering initiatives, managing society finances, building cohesive teams, running effective meetings, and networking strategies. Discussions were carried out about the relevance and application of the material on a personal, school-wide and provincial level.

As the ideas flowed, it became very clear that this type of cross-school discussion and collaboration was at the very heart of the conference and ESSCO itself. Everyone is looking for new ideas and ways to improve, and this is where it all happens.

As the conference came to a close, new ESSCO executive members were elected to serve, represent, and lead the way for continuing ESSCO's mission. An inspiring keynote presentation was made by Mike McCauley, co-founder of BufferBox and a former ESSCO member, about his journeys and the importance of following your passion. Of course, being a conference in Waterloo, it would not have been complete without a showing of The Tool.

With so many events packed tightly into just a few days, the conference had ended in no time. As I packed my bags and said goodbye, I began to collect my thoughts and reflect upon the preceding days. Everything I felt could be summarized into this: I am so thankful that I had the opportunity to attend this conference. There was also no doubt in my mind that the other delegates felt the same way.

In the end, I came out of this conference knowing so much more about the practices of engineering societies outside of Waterloo, along with many ideas that can be brought back. I also gained a clearer vision of the big picture and where everyone fits. But most important of all, I emerged from the conference even more proud to be a Waterloo Engineering student.

Point Vs. Counterpoint

Should Plants be Patentable?

POINT

NANCY HUI
3N CIVIL

Let's start from the top.

A patent is an exclusive right to use or license a discovery, invention, or process for a limited amount of time (usually around 20 years), designed to encourage innovation by rewarding the discoverer or inventor for their scientific efforts. It is believed that at least 60% of pharmaceuticals and 30% of chemicals would not have been developed or introduced without the promised protection of a patent. Who would bother with research and development if competitors would immediately steal their ideas? Scientific progress would stall. It is true that between licensing fees and lawsuits patents can pose an obstacle to complete scientific freedom and transparency, but we are better off with the patent system than without it.

Regarding biological patents such as those for genes, genetically modified organisms, or Monsanto plant seeds, the United States has been patenting chemical compositions based on human products since 1906, when purified adrenaline was patented, since it was sufficiently isolated from the human body. With regards to being "sufficiently isolated", a human arm would not be patentable material since the isolation of a human arm is common knowledge for modern surgeons. This was not the case for adrenaline in 1906. In 1980, the first genetically modified living organism was patented: it was a bacterium designed to consume oil in oil spills. The bacterium was not naturally occurring, and deemed sufficiently different from existing bacterium to be patentable. Thus it follows that patenting Monsanto's genetically modified soybeans was valid, because they do not exist in nature, and had the novel feature of resisting certain pesticides, allowing farmers to spray their entire fields with pesticides without fear of ruining the crop.

Unfortunately plants are strange and self replicate, leading to the question of whether or not farmers will be able to save seeds from one crop of Monsanto soybeans to the next. This mirrors the brouhaha behind software licenses. Like soybeans, software is valueless if it can be copied and distributed without restriction. Thus software is usually sold with a limited number of licenses.

Currently in Indiana, farmer Hugh Bowman is embroiled in a Supreme Court case with Monsanto about whether or not a patent on seeds can extend beyond the first generation of products. Bowman had bought soybeans from a grain elevator which just happened to contain Monsanto soybeans, and planted them. Seeds in grain elevators are meant for consumption, either for human or animal.

Monsanto's current practice is to have farmers who plant Monsanto's soybeans sign an agreement to not save seeds. Monsanto does not control how farmers distribute their harvested crops, as in accordance with patent exhaustion: the concept that after a patented object is sold, the patent holder loses control over how it is used. In essence, Monsanto has a monopoly only on who plants its soybean seeds, rather than who the crop can be sold to, or stored. This is fair, as it mirrors the purchase agreements for any other product. If you buy a car, the dealer will make sure that it is you that gets exactly one car, but will not put any limits on where you can or cannot drive said car.

One could think of it as Monsanto having the patent to the plant's genetic material only. The monopoly on who plants Monsanto soybeans is valid, since that was what was protected by the patent to the Monsanto soybean's genetic material. Theoretically Monsanto would be the sole distributor of Monsanto soybean seeds for the purposes of planting – that is, its patent protects against the replication of the plant's genetic material without a license agreement.

To reuse the parallel between software and soybeans, suppose Macklemore went to a thrift shop and inexplicably came across a copy of SimCity wedged inside his newly purchased broken keyboard. He would own the physical copy of SimCity, but he would have no right to play it without an accompanying license. In the same way, Bowman owns the seeds that he acquired, but as they are Monsanto soybean seeds, he does not own the license to plant them and replicate the engineered genetic material contained within.

And nor should he own that right. To allow farmers to save each year's seed and distribute it as they see fit would be disastrous towards Monsanto's business model. One acre of soybeans produces enough seeds to sow over 40 acres of soybeans. The value of Monsanto's soybean seed would plummet directly after the first harvest if farmers could buy Monsanto seeds from any other farmer for what I expect would be a deeply discounted price. This would completely invalidate the protection offered by Monsanto's soybean patent.

Bowman should have exercised diligence and acquired a license to plant the seeds he bought from the grain elevator.

COUNTERPOINT

KRISHNA IYER
3T NANOTECHNOLOGY

In the United States, the Patent Act of 1790 granted the applicant "sole and exclusive right and liberty of making, constructing, using and vending to others to be used". Over time, the spirit of the act has been defiled to an extent previously unimaginable. It took the entirety of 121 years for the number of patents filed by humankind to hit 1 million. Nowadays, it takes more or less six years for another 1 million patents to be filed. While some might argue that this is sign of rapid scientific progress, it also might be a gauge of the reduced significance of each and every single patent filed. The Organization of Economic Cooperation and Development, in a rush to protect even minor improvements, is overburdening patent offices around the globe.

The first biological patents granted may be traced back to isolates from plants and animals that may be used for treating disorders of various kinds. It was recognized very early on that biological patents might hinder the well-being of humankind. One of such instances was the goodwill sale of the patent for insulin production to the University of Toronto for the paltry sum of half a dollar. And as expected, biological patents got out of hand pretty rapidly.

The Patent Act of 1790 was meant to safeguard scientific discovery and not hinder it.

In ancient times, the village doctors extracted and used various medicinal plants for various different uses. Growing up in India, my grandmother always had an herbal remedy for pretty much every disease. One of the recurring plants that came up was neem (Azadirachta indica) which was used as a naturopathic remedy for things such as its anti-fungal properties. However, in 1995, the European Patent Office granted a patent to W. R. Grace and Company for the anti-fungal properties of neem on the grounds that there was not any prior scientific literature published in peer-reviewed journals.

There is rampant wrongful patenting of biological properties of plants especially arising from regions with a long standing tradition of herbal remedies. Such a situation in which the indigenous knowledge of the local population is used by other for profit without permission and without compensation to the originators of the natural knowledge is known is biopiracy. Another such rampant example is the instance of biopiracy of the sweetening agent brazzein which was patented as a sweetener that is 500 - 2000 sweeter than sugar. This is however an incorrect granting of the patent because it was common knowledge in Gabon and Cameroon that oubli berry from which this protein is extracted, is renowned for its sweetening properties. Several other instances such as the patenting of basmati rice, enola beans etc. has illustrated the inadequate nature of the present infrastructure to patent plants.

As far as genetically modified food goes, there are several arguments against its consumption. However, very many of these claims are unfounded. Genetically modified crops have changed the playing field of agriculture as we know it. Monsanto has done a commendable achievement with their RoundUp Ready crops that are genetically engineered to be resistant to their herbicide RoundUp (glyphosate). However, it is observed in nature that due to evolution, strains of crops can naturally gain resistance to glyphosate. A famous instance of this is when the Columbian Government started spraying plantations of coca (the source of cocaine) as a part of their war on drugs, its rapidly emerged that the plants could (and did) evolve to grow resistant to the herbicide. In this case, those plants are in direct violation of Monsanto's 1986 patent (US4940835) on Glyphosate resistant plants. Does that mean that these plants that are naturally less prone to the effects of glyphosate are violating a patent? There is no human being involved in the violation of this patent and thus nobody would be responsible for breaking the law in this case. Unfortunately, Mother Gaia cannot defend herself in court and this is a clear elucidation of the fact that patent protection for plats is quite a murky topic.

Furthermore, another issue with genetically modified plants is the risk of genetic uniformity. Repeated selective breeding to pass on desirable traits often leads to omission of other traits (which may be essential to the procreation of a species). With such widespread use of genetically modified crops, there is a possibility that a virus might just wipe out entire cultivars (much akin to what happened in Ireland causing the potato famine).

The Patent Act of 1790 was meant to safeguard scientific discovery and not hinder it. Unfortunately, at the rate at which things are progressing, this might be hard. There is a dire need for mature and sensible laws governing biological patents because as they stand presently, they serve as an impediment to progress.

University of Waterloo Professor Proposes that Carbon Dioxide is Not Responsible for Global Warming

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Research published by University of Waterloo professor Qing-Bin Lu brings forth evidence that humans have an impact on global warming, but not in the way that most people think. Dr. Lu's research involved a statistical analysis of ozone depletion, temperature changes, gases and cosmic rays, and found that chlorofluorocarbons (CFCs) have been the main cause of global warming from 1950 to 2000.

Dr. Lu, a professor of physics and astronomy, biology and chemistry in the faculty of science, noted that the concentration of CFCs in the atmosphere has been declining since the about year 2000 and since about the year 2002, global temperature has been correspondingly decreasing. Meanwhile, the concentration of carbon dioxide (CO_2) has been steadily increasing. This led to the following statement in his report publication

"These observations have pointed to the striking possibility that global warming observed in the period of 1950 to 2000 was caused by the significant appearance of CFCs in the atmosphere." Dr. Lu also noted that the global emissions of CO_2 were on the rise from 1850 to 1970 as part of the Industrial Revolution and yet global temperatures were not affected. The study makes a link between CFCs and global warming as well as the hole in the ozone layer.

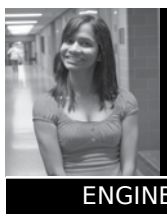
Chlorofluorocarbons are organic compounds that consist of chlorine, fluorine and carbon, commonly known as Freon, produced as a volatile derivative of methane and ethane. Many CFCs have been used a refrigerants, solvents, and propellants in aerosol applications. Since the 1970s the use of CFCs has been heavily regulated since the realization of their negative impacts on the ozone layer. The Montreal Protocol was developed in 1987 to decrease the production of CFCs. A succeeding meeting held in London, England in the year 1990 saw diplomats vote to completely eliminate CFCs by the year 2000.

Dr. Lu's research is not the first time that someone has come forth with the idea that CO_2 is not the driving force behind global warming. In November of 2009, Professor Ian Pilmer, a geologist from Adelaide University, also argued that CO_2 was not responsible for global warming. The professors argument was that CO_2 concentrations in the atmosphere are cyclical and mainly caused by volcanic activity. In contrast, Dr. Pilmer, Vicky Pope, Head of Climate Change Advice at the Met Office has said that "The basic physics is that if carbon dioxide increases then the temperature goes up."

Every time I encounter a paper released about climate change I recall what Dr. Ken Oakes once told our class in Biology 150: "Someone requesting funding for the study of the mating patterns of [insert animal] may be hard pressed to find anyone interested, but if that same person were to propose studying the effects of global warming on the mating patterns of [insert animal] then they would have a much easier time."

Global warming remains a relatively new area of research and it is important that researchers like Dr. Lu fight the temptation to accept the mainstream train of thought, and find the real cause of global warming (if in fact the earth is warming at all).

What Is Depression and What Can You Do About It?



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Depression is an illness that we hear a lot about. Approximately 20% of Canadian university students suffer from a mental illness, and of those, depression is one of the most common. With the high-stress environment of universities, studies have shown that students can fall into depression by a variety of triggers, from a bad grade to a bad breakup.

However, despite the moderate amount of attention that depression gets, many students may not be sure what to do about it. What do you do if you think you, or a friend, has depression? What can you do to end the stigma of mental illness? This article will give you some tips on what to do if you run into a situation where you encounter depression in yourself or in others. But first, let's gain some general knowledge about depression, and what it actually is.

Depression is a serious medical illness, much like a broken arm or the flu. In fact, depression has been called the "common cold" of mental illness because of its high onset. Depression is not just "a case of the blues". Yes, everyone gets sad from time to time, and we all have our highs and lows. However, an individual with depression has persistently low moods for over two weeks, has difficulty not just with meeting commitments and deadlines but also has difficulty enjoying hobbies or other activities, and has increased feelings of irritability, anger, hopelessness, or suicide. Depression may also present itself in other symptoms, such as persistent physical pain, inability to sleep, fatigue, anxiety, or a change in appetite accompanied with weight gain or loss.

Depression is cyclic, which means that if left untreated, it may cure itself, but it is much more likely to come back at a later time. However, with proper medical treatment, a person is much less likely to suffer from depression a second time.

Depression is treatable and preventable, approximately 80% percent of the time. Depression is often triggered by stressful situations, and many people may also have genetics or brain chemistry that makes them "more prone" to depression, similar to how many people are "more prone" to diabetes. Treatment of depression includes serious lifestyle changes, stress management, therapy from counselling, and medication.

If you think you're suffering from depression, the most important thing to do is to seek help. You can get diagnosed by your family doctor, or by one of the doctors at Health Services. If you don't want an immediate diagnosis, you can also seek advice from one of the counsellors at counselling services. Depression is not something to be ashamed of, but as mentioned, completely treatable and preventable. Furthermore, if you believe that your low moods are interfering with your school or work life, getting a proper diagnosis will also open up doors to services such as AccessAbility, which can petition professors, or CECA, on your behalf.

If you think a friend is suffering from depression, the best form of support you can offer is referring them to a mental health professional. For instance, try referring them to a counsellor. A counsellor would be able to help your friend sort out his or her priorities and stresses in life, and counsellors can also refer their clients for mental illness diagnoses by physicians.

If you find other groups of people who belittle depression or don't take it seriously, speak out to stop the stigma. A mental illness is as serious as a physical illness, and having a mental illness such as depression does not put the patient at fault. There are also plenty of resources online that you can direct towards those who do not understand mental illness, such as the Canadian Mental Health Association (cmha.ca) or mooddisorders.ca.

Mental illness is extremely difficult to deal with, because it may not present as many obvious signs as a physical illness. However, that doesn't mean that the warning signs should be ignored. Hopefully, this article has given you some tips on what to do if you or a loved one is suffering from some of the warning signs of depression. Be sure to check back next issue to find out how to deal with one of the most difficult mental health issues to deal with: suicide.

What Your Nose Knows, That Your Heart Isn't Telling You

The Science of Attraction

HOT HEADED
1A BRAIN CHEMICALS

She turns, glossy hair cascading down her back, stray strands framing a heart shaped face. As she talks to him, her teeth flash white when she smiles with lip gloss emphasizing the plump youthfulness of her lips. Steady eyes regard him from beneath finely arched eyebrows as she asks him questions. He has a masculine face, with symmetrical features, thick brows, and a muscled physique. But what he looks like is not as important to her as what he does - for money, I mean. As his eyes drift to inspect the ampleness of her chest she is gently teasing out details of his life. Does he make lots of money? How does he spend it? Where is he from? What is his education?

They say people love through their hearts, but apart from permitting life sustaining blood circulation, the heart has little to do with it. We feel attraction and form attachments through mostly non verbal cues. Pheromones and sense of smell play a vital role. Studies show a definite correlation between sense of smell and compatibility, some even going as far as to premise that those with a worse sense of smell are more likely to date douche bags...ahem, people of less-than-magnificent character. This has to do with the major histocompatibility complex (MHC), a section of genes which help create a scent unique to each of us. Our personal smell pre-perfumery also reflects our immune systems. Dr. Rachel Herz of Brown University theorized that we are attracted to people with dissimilar, even opposite immune systems, a fact determined through scent. The scent sensitivity is most prevalent in women since it allows better analysis of genetic compatibility for potential future children. So, if you are looking to impress that lady friend, try dialing down the artificial scents!

The dating game is a little bit like Jobmine, where random chance acts like the algorithm matching best suited options. Studies by Dr. Douglas Kenrick have found that people who are already in a relationship will actually dance more provocatively and show more skin than their single friends. Flirting is an art which everyone is supposed magically know after puberty - not that we necessarily do. Pupil size can also be an indicator of attraction. Men look for large pupil sizes in women while women look for medium sized pupils in men, while men with large pupils are associated with being 'bad boys'. The smaller your pupils, the colder you will feel. Of course, dark rooms also cause pupils to enlarge so this isn't a fast and dirty rule of whether people are attracted to you. So not only do you have to sort out the people you find attractive from the people you find unattractive, you also have to make sure they are single.

By now you might be thinking, 'Dammit Jim, I'm an engineer, not an eugenicist!' In our line of study, logic and knowledge are driving forces behind our decision making, not emotions. Does this affect how we are attracted to others? Do engineers as a group look for slightly different traits than your Average Joe, or are we subject to the same primordial genetic coding as the next guy (or girl)? Whether or not that is true is currently unknown; perhaps enough engineers probably couldn't be cajoled to participate in such an experiment. Time is of the essence during our undergrad as we juggle busy schedules, grueling assignments, hobbies and the occasional, obligatory visits to our families. We spend more time with our class than with anyone else; it is like our family. In some cases, it is a very male-biased family. For many of us, this is also a window of opportunity before we go on to create our careers. Many engineering jobs can be rewarding but socially isolating. Yes, we might want a family ten or fifteen years down the road, but how will you meet that person? Now is the time to meet people, not the people we see every day, other people. It is a fine balance, between maintaining good professional class relationships and being good friends.

In the end, we might not be the ideal couple described at the beginning of this article but simply people. If you are one of the 80% of male undergrads in engineering there is hope for you, deep down women are looking for a reliable mate to care for potential offspring. Intelligence is highly valued, as is a stable income. Life goes on, maybe love is what happens along the way when you are least expecting. This is the science of attraction, but not everything can be explained by science.

CRTC Revamps Wireless Code, Introduces Changes to Contract Length and Cancellation Fees

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T CUBED

The Canadian Radio-television and Telecommunications Commission (CRTC) announced a new wireless code on June 3 that they hope will make mobile device contracts easier to understand and establish basic consumer rights in the wireless industry.

The CRTC was prompted to issue the new wireless code due to numerous complaints from Canadian consumers who expressed frustrations with the current wireless industry. The new wireless code allows individual and small business consumers to terminate contracts at no cost after two years. Data overage and roaming charges will be capped at $50/month and $100/month respectively to prevent surprise bills at the end of each month. Phones can be unlocked after 90 days under contract, or immediately off-contract, and can be returned within 15 days under specific usage limits, if a consumer is unhappy with their service. Contracts now have to be easily readable and understandable, and consumers can accept or decline any changes to the contract once it is signed. These rules will apply primarily to postpaid contracts, but can apply to prepaid contracts as well where applicable.

Consultations for the new wireless code were held in two phases: once in November 2012 and the other in February 2013. The three-year contracts commonplace in the Canadian wireless market were the primary focus of most complaints from consumers, who were frustrated that the long contract terms restricted their choice in carriers and devices. In almost every other country, two-year contracts are the norm, and most developing nations prefer to use prepaid plans. The new ability for consumers to cancel their contracts after two years fee-free effectively eliminates three-year contracts.

Bell, as one of the three large carriers in Canada, claimed that reducing contract length would cause the subsidy on smartphones to decrease, since the device price would be spread over a shorter period. Telus indicated that it already implements most of these measures, such as international data roaming caps and phone unlocking. Rogers warned that they may not have the ability to implement the infrastructure to support the new rules in only six months and echoed Bell's concern about smaller subsidies on new devices. Some journalists also sided with their argument that the new rules ultimately reduce competitive pricing in the market due to the more strict contract rules.

The lack of such subsidized phones may encourage consumers to consider a phone more like a computer or game console, where they are encouraged to use the device for as long as they can before it becomes irrelevant, as opposed to the current highly disposable model fuelled by wireless providers. The idea that the latest smartphones are disposable is bizarre, as some phones today contain more computing power than many laptops from six years ago. The model encouraging consumers to see phones as throwaway tools, that can be easily replaced for almost no money, is a holdover from an era not too long ago where phones were good for texting, calling, and playing the really bad embedded Java versions of Tetris or Pac-Man.

Even before the new wireless code was announced, some carriers in the United States and discount carriers in Canada were already slowly making their way to having unsubsidized devices be their expected offerings, as it costs carriers a significant monetary investment to offer devices for cheap in exchange for locking users into multi-year contracts. While the subsidy will likely disappear entirely over the long-term, this will encourage users to hold onto their phones longer and be more conscious of what they are purchasing, much like they are when they purchase a tablet or a computer. Not many people would be aware that the true price of a 16 GB iPhone 5 is $699, a 16 GB Samsung Galaxy S4 is $700, a 16 GB BlackBerry Z10 is $650 and a 32 GB Nokia Lumia 920 is $599. This could also encourage manufacturers to try hitting lower price points as consumers realize the cost of many smartphones. Carriers can either absorb the extra money saved by not having to offer such high subsidies or apply it to phone bills to offer more savings for the end user and ultimately offer a greater value as a company.

Many contracts are tied towards specific phone plans, with clauses similar to corporate poison pills that trigger the user to pay the full price of the phone immediately if they pick a cheap contract or opt to stop using data during the duration of their contract. By putting control in the hands of the consumer through reducing or eliminating the contract model, it can be a lot easier for a user to switch plans, switch carriers, argue for fairer prices, and generally carry more leverage in their arguments with phone companies. Those phone companies often turn their nose up and metaphorically wave contracts around when one calls the retentions department, reminding them that they signed away their bargaining chip for three years and that they aren't really going to follow through on that threat to cancel their contract, unless they want to pay through the nose to do it.

The contract model has unfortunately found its way into other aspects of these companies' business models, particularly the unnecessary hassle of setting up home internet for the first time. This process should not require the end user to rent out the company's router/modem combination, use the company's software to set up a simple Internet connection, and jump through all the company's other loopholes just to get online. Using Rogers as a model, they require the use of their proprietary key, their router and modem, and their software to just set up a connection. TekSavvy, who rents the exact same cables from Rogers, only requires that you plug in a modem that supports the correct protocols and you're good to go, and you're free to use whichever router you like. Going the direction of devices separating from service providers is ultimately better for the consumer, even if in the short term it seems unwise, since it will force the provider to think more about how to offer you a better service, not how to lock you into an underwhelming service with a shiny gadget.

Protests Continue in Istanbul and Ankara

Continued from TURKISH on Page 1

Ultimately, it was these and other democratic reforms by Erodgan's administration that allowed for the coveted entry into the European Union.

In fact, many critics state that Erdogan does not desire democratic reform, but he does desire the benefits of European integration, and it is this desire that has overwhelmed his autocratic tendencies and led to reform. Regardless of his motivations, Erdogan's Turkey is more democratic then the nation that preceded him. It is only his most recent actions that have provided a foundation for the argument that Erdogan has dictatorial tendencies. Even his recent actions, however, fail to counter the fact that Erdogan has been elected in internationally recognized elections three times, an act rarely credited to a brutal dictator.

Erdogan's track record portray him as a man who was and still is committed to the economic and political growth of his nation, however his commitment to civil liberties is now in question. Many are concerned that Erdogan's time in power is leading to complacency that is so commonly seen amongst long-time political leaders. Although the protests are gaining momentum, Erdogan presides over a system that is far more democratic than what was in place in either Egypt or Libya. A simple commitment to ending his role as political leader at the end of his third term, as stated by the constitution, as well as a concession to protect Gezi Park from development, would go a long ways in quelling protests. However it remains to be seen if the protests will follow the arc of the now lifeless Occupy Movement, or if a 'Turkish Spring' is in the waiting. Although Erdogan must take steps to prevent this, Turkish protesters need only to look to the West and see the economic shipwrecks that compose the European Union, or even worse to the East and the blood stained streets of Damascus to realize that all in all, the hand they have been dealt could have been much worse.

How The Actual Fridge? The Magic of Microprocessors

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Look at your phone. Now at your computer. Now back at me. What makes any of this possible is billions of transistors. Transistors are basically an electrically actuated on-off switch. These combinations of on-off functions allow for some pretty cool things to be done. From calculating the trajectory of ballistic projectiles to helping scientists cure cancers, these transistors are mighty useful when they work together. One of the key applications of these transistors working together is a device called a microprocessor, and microprocessors blow my mind. Over 1 345 937 349 of these little transistors on a chip that is 1.9 cm^2 is an absolutely baffling thought. In this article, I am going to share the little bit I know about microprocessors with you.

The first commercially available microprocessor was an Intel 4004. Even back then, the transistors on these chips were really small and densely packed. The smallest dimension of a transistor in the Intel 4004 was about the size of a water droplet in fog. This chip was used in calculators and was Intel's foray into what is their signature product; microprocessors. Microprocessors have come a long way from there.

Intel still remains the world leader in the production of microprocessors. Intel has a whopping 65.3% of microprocessor sales. Starting from 4-bit systems, processors are now at 64-bit, which means the bus of the processor is 64-bits wide. With the difficulty of keeping up with Moore's law, multicore designs have become quite the staple. Their last generation (Ivy Bridge) and their latest generation (Haswell) of processors are at the cutting edge of processor design. They use three dimensional transistors due to the lower power footprint, thus enabling more efficient processors.

However, in the past couple years, there has been a massive increase in the number of processors being used in embedded systems to power portable computers like smartphones, tablets, etc. The most popular architecture for this kind of processor design is the design developed by ARM Holdings PLC. ARM Holdings is a company based in UK. ARM have a novel business approach; they don't really make any product. They allow other companies to copy the design for their processors based on a reduced instruction set. As a result, their intellectual property is in every major phone currently made. This means all the major mobile processors such as the Samsung (Exynos, Apple A series), Qualcomm (Snapdragon series), NVidia (Tegra series) etc. uses designs by ARM Holdings. In turn, these companies pay ARM a licensing fee and, with 1.8 billion chips based on the ARM designs in Q4 of 2010, this turns out to be a hefty amount of money to a company that does not make any physical products.a

What might surprise you a lot more is the fact that none of the aforementioned companies that make ARM chips ACTUALLY FABRICATE THEM themselves. The largest independent foundry that fabricates these chips is in fact a little known company in Hsinchu, Taiwan by the name of TSMC (Taiwan Semiconductor Manufacturing Company). The next largest one is GlobalFoundries, following in at a close second. Why is this one may wonder. Making a facilities that fabricates these billions of transistors on such a small area is a very capital intensive project. With all the exotic materials used in conjunction with bleeding edge processes and the precision used to make transistors that are less than a tenth of the wavelength of visible light, the barrier of entry to a new company to get into this well-established market can be quite intimidating. Thus, foundries like TSMC and GlobalFoundries allow a company without the available capital like Intel to also make an impact.

With fundamental science being pushed to the limits by the new generations of microprocessors, it is interesting to see what the next generation hold for us. Some say that a technology known as FDSOI (Fully Depleted Silicon on Insulator) might be the future because it enables faster processors without going further down in size. This might mean that we are going to see a lot of cool things coming up soon.

Xbox One Reveals Entertainment and Online Focus

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With the release of the Wii U and the announcement of the PlayStation 4, it should not be too surprising that Microsoft recently announced their successor to the Xbox 360, the Xbox One. The eight-year-old console best known for its extensive online network and reputation for first-person shooters has had a successful period representing Microsoft's best efforts in living room consumer electronics, and the Xbox One aims to focus on extending those legacies.

Implementing living room functionality appears to be a guiding design element in the Xbox One. Utilizing voice commands, users can instantly switch between games, television and applications. Digital television boxes can be plugged into the Xbox One through an HDMI pass-through feature, which allows for use of the Xbox One's input on the TV as a cable or satellite input as well, and users can use channels or TV show names as voice commands to switch to each channel through the console. Applications, such as Skype, can be installed, and these applications have the ability to be snapped to the side of the screen, much like in Windows 8.

Extending the instant switching aspect of the console, games can be saved and restarted whenever a player wishes, a feature Sony announced as well for the PlayStation 4 and is somewhat emulated in mobile operating systems. Nintendo's systems only do this for their Virtual Console service, but in full console games, this is an intriguing feature. Developers have the option of putting other save points in as well, but without having to worry about losing a player's progress when a player switches between applications. This is probably facilitated by the storage capacity of the 500 GB hard drive in the console, which is expandable for three USB-connected drives. Games can be played as they install, reducing time spent waiting for a progress bar to finish before getting into games.

The Kinect sensor for the Xbox 360, which was a midway upgrade to the console, is now not only an included feature in the Xbox One, but has been upgraded and must be connected for the console to operate. The sensor makes use of photon return measurements that track how long it takes for a photon to travel from the sensor, to the player, and back again, allowing for usage in low-light situations. Kinect can also now read balance, how weight is shifted, and heartbeats. This is all possible partly because the sensor can now transmit up to 2 GB of data per second to the console, allowing for a wide range of applications that may have been too work-intensive before. The constant connection to the console has raised privacy concerns in some individuals, primarily because the system is always able to listen for the "Xbox on" command, but Microsoft has stated that some of these features are able to be turned off, if it makes users uncomfortable using them.

Achievements have been updated to include Challenges; goals that developers can set which the player must complete within a short time frame. Developers can update Achievements as they wish without forcing users to download content, and can have Achievements span multiple games. Patent filings show Microsoft has been considering applying Achievements to TV shows as well, with the likely end goal of having sponsored content dictate where Achievements go.

One downside is that Xbox 360 games are not playable on the system, which is unfortunate given that the Xbox 360, PlayStation 3 and Wii all have rather extensive libraries that gamers may want to bring to their new consoles, instead of maintaining two separate ones. The Wii U has the ability to directly play Wii games as well as emulate a few older console games, and the PlayStation 4 will emulate some games from all the previous PlayStation consoles, but it remains to be seen if Microsoft has a solution for the Xbox One. The emulated Xbox games playable on the Xbox 360 varied in quality. Having the option to directly play Xbox 360 games using the discs would have been a nice feature, but if there is a digital solution, it might make the system more appealing to future users. Because of the lack of Xbox 360 support, the system will also not support the use of Xbox 360 controllers.

The online connectivity features of the Xbox One have also raised concerns, since it is required that the system connect to the Internet every 24 hours to verify ownership of games. Otherwise, the user can no longer play games until the system has been able to contact the server again. However, the user will be able to watch TV and disc-based movies. It also requires a connection every hour if the user is logged into a secondary console to access their library. Those who bring their consoles to places without an Internet connection, or one that has many restrictions on it, will find it frustrating that they can only play for a day before having to connect to the Internet again. If there is ever an issue with Microsoft's servers as well, for a period longer than a day, then everyone with an Xbox One will be unable to play games until the issue is rectified. Assuming it sells over 75 million units like the Xbox 360 did, that is 75 million players who can't use a primary feature of the console. Many have countered that it's not a big deal to be connected all the time, but if gamers have been able to play games of comparable quality for the last few years, why should they submit to a worse solution that could potentially end their ability to play properly?

Xbox 360 compatibility and constant connectivity problems will likely be ironed out in future updates, but based on the original announcement, these are two points of concern that could impact the console's success in the market. Certainly, at the time you are reading this, more issues may have been revealed at the Electronic Entertainment Expo, but otherwise, the end of the year will show how successful Microsoft's new strategy really is.

Star Trek Into Darkness: a Review, a Reflection, a Report

Damn it, Jim, I'm a Reboot, Not a Greatest Hits Collection

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2B MANAGEMENT

Warning: SPOILER ALERT!

Stardate: -309583.59795154753

J.J. Abrams has made it clear that he loves mysteries. Once a little boy fascinated by a sealed cardboard box labeled with a single question mark in a small New York magic tricks store, J.J. became a director known for keeping his the details of his films secret before the release date. He's made use of people's attraction to intrigue. The less they know, the more they anticipate.

And I did anticipate. First came the poster. A hooded villain, cloaked in black, his back turned to the observer, against the backdrop of the remains of a city. A foreboding, ambiguous title: *Star Trek Into Darkness*. Then came the teaser trailer: The Announcement, featuring a familiar, chilling baritone voice threatening those who think that their "world is safe", which paved the way for the actual trailer: tension, relationships, possible deaths, destruction, and greater threats, both within and outside Kirk's *Enterprise* ship. A 3-minute glimpse of what promised to be a spectacular journey, akin to a colorful giftwrapped box on the display shelf attracting everyone's attention.

Trouble is, the present inside the box was not as impressive.

The timeline of the film picks up a year after the events of the 2009 film. James T. Kirk (Chris Pine), Captain of the *USS Enterprise*, continues to lead his crew into missions for the United Federation of Planets' Starfleet. A sudden violent attack on Starfleet's headquarters in London by an ex-Starfleet officer John Harrison (Benedict Cumberbatch) draws Kirk and his crew into their most dangerous journey yet.

I was entertained from start to finish, and could not be happier to see the old faces of the tight-knit *Enterprise* crew I love reunited on the big screen. Yet after reflection, flaws began to surface.

Concerning this film in particular (and the reason for the wide range of online reviews—from mixed to beaming, positive receptions), the audience can be divided into three major groups: fans of the *Star Trek* original series (TOS), fans of the 2009 reboot, and regular moviegoers. Despite J.J. Abrams and company's claims that the film was made for "everyone" including those who have not seen the 2009 film, there are major references made to TOS. More discerning fans, especially of TOS, would definitely pick up on the subtleties and be more emotionally affected by certain scenes of the film.

As a reboot girl who has recently started watching TOS and watched a certain 1982 *Star Trek* film in preparation for *Into Darkness*, I stand at the intersection between the fans in question.

For TOS fans, the reveal of a certain character's true identity was a huge letdown, especially since J.J. Abrams and company had tried so hard to dismiss true rumours as false. Furthermore this villain was underdeveloped throughout the course of the film. The plot was messy, with plot holes that went unresolved in a quick drop onto Earth after a warp-speed trip through the galaxy. References to TOS and the 1982 film were intentionally made, to the point that they were simply just there and did not work to impact or strengthen the plot elements within this film as they did before. It felt like a spot-the-references than clever, artful inserts into the reboot's timeline that would mean something to the plot. Some decisions concerning the beloved characters in the plot and storyline made me cringe.

With the 2009 reboot putting Kirk and his crew on an alternate timeline, separated from TOS universe, J.J. and company had a chance to pay tribute to the 1982 film and explore the dynamics of Kirk's character in a new light. They failed. Abrams misinterpreted Kirk's character and shoved other important relationships aside for one pivotal relationship buildup near the end. The dynamics between characters were uneven, and some characters, namely, the Enterprise's Chief Medical Officer, Leonard McCoy (Karl Urban), were hurriedly included. McCoy was folded into a 2-dimensional comic relief character, rather than the complex and passionate voice he was in the first film and had been throughout TOS.

Regular moviegoers, including those not familiar with *Star Trek* before this film, would find the film enjoyable, albeit leaving them with unanswered but easily forgotten questions. While J.J. had missed the target on certain points he still succeeded in pleasing the greater public.

There's plenty of his signature lens flares, along with stunning visuals, enhancing the beautiful production designs – from the sleek interiors of the *Enterprise*, the red forest on planet Nibiru, to a futuristic London. Michael Giacchino's moving score was a perfect accompaniment to every scene. The *Star Trek* main theme song could not be more poignant. There was a sly reference in one of the tracks back to a TOS episode (Amok Time) as well.

The best part about *Into Darkness* was its cast: actors perfectly the TOS crew as humans rather than caricatures. It is evident that they are now more comfortable in these shoes for the second film in the reboot timeline as they made the most out of the flawed script. Chris Pine and Zachary Quinto shared ample on-screen chemistry as Kirk and Spock, complimenting each other just as William Shatner and Leonard Nimoy had decades ago.

The supporting cast also fleshed out their roles, adding colorful accents to the plot. There were memorable moments for each character, notably the *Enterprise's* Chief Engineer Scotty (Simon Pegg), Communications Officer Uhura (Zoe Saldana), Navigators Chekov (Anton Yelchin) and Sulu (John Cho). Newcomers to the crew, weapons specialist Carol Marcus (Alice Eve) and a certain unnamed character were also quite charming.

Into Darkness is a fun summer film, though saddened by the potential of what it could have been. This is a reboot that fails to be sufficiently original and becoming instead a greatest hits collection of the old Trek.

Pick up a new mission, J.J. and company. Do it for the Enterprise, for Jim Kirk, for the Trekkies: dare to actually commit to the lines embodying this 50-year-old franchise, to boldly go where not even the original *Star Trek* has gone before. Create your own hits. Show me that you care. We know that you can.

Show us that mysteries are worth waiting for.

For now, Anjida out.

Hello Pingu

JOSHUA KALPIN
2B SOFTWARE

THE SHORT SHORT REVIEW

Hello readers and welcome back to the Short Short Review! Just as a refresher, in this column, I attempt to review a short film or story in a really short number of words. To continue the animal trend for this term, I'll be reviewing the first episode of the strange children's Claymation show, *Pingu*, in 308 words, the length of the episode in seconds.

For those that never had the opportunity to watch *Pingu* as a child, the show is about a child penguin named Pingu and his various adventures with his friends and parents. All the characters speak in gibberish that sounds like squawking and honking horns. In the first episode, we are introduced to Pingu's parents, his two friends Pingo and Pingg.

The episode begins with Pingu having a meal with his parents where he is acting obnoxious and is scolded by his parents. A short time later he goes to outside to play with his ball and is bullied by Pingo and Pingg. His ball is broken over his head and Pingu gets comforted by his parents.

The story itself is fairly hard to follow at times because of the lack of dialogue but the story is simple enough that you don't really need to pay attention all the time. However, the distinctive animation is what drives Pingu to be a memorable children's show.

The Claymation is impressive and emphasizes Pingu's emotions and behaviour perfectly in the episode. Things that are gross look gross and things that aren't don't. The sound effects can be annoying at times but complement the visual presentation nicely.

To wrap things up, *Pingu's* first episode is an admirable effort in one of the longest running children's shows. The plot is a bit thin so I'm going to give it 3 penguins out of 5. Next issue I'll be reviewing something completely different. Stay tuned!

The Ballad of Bobby Ford

NANCY HUI
3N CIVIL

TAKE FIVE

Although the Rob Ford crack video is nowhere to be seen, the long-suffering mayor of Toronto could stand to take a course on scandal management. Unfortunately such a course is unavailable for the embattled mayor. Thus I have assembled a selection of five films, illustrating important techniques of scandal management: how to control the flow of information, how to eliminate witnesses, how to retire gracefully from the public eye, and how to throw a spectacular hissy fit.

***J. Edgar* (2011)**

This film focus on John Edgar Hoover (Leonardo DiCaprio), the first director of the FBI. By maintaining a rigid public image and slowly amassing a hoard of secrets concerning notorious figures including the Kennedy family, Martin Luther King, and a large smattering of political dissidents, he became untouchable. Presidents feared to impeach him.

Other than a typically skilled DiCaprio performance balancing the facets of Hoover's personality, from the boisterous All-American hero of his public persona to his deeply set mommy issues, *J. Edgar* is a muddy film that goes nowhere. It wasn't thrilling, it wasn't emotionally moving, and it didn't make me think deeply about the human condition. For as fascinating a public figure as Hoover, Eastwood chose to portray his many foibles as ultimately inconsequential, and the man as an enigma to both himself and the audience.

***The Shawshank Redemption* (1994)**

Andy Dufresne (Tim Robbins) is convicted of killing his wife, and is sentenced to life in Shawshank prison. He maintains his innocence, just like most of the criminals in the prison, and tries to eke out a tolerable existence within its walls by performing accounting favours for Warden Samuel Norton (Bob Gunton). Unfortunately the warden finds Andy so indispensable that he'll go to any means to keep his favourite prisoner around. Morgan Freeman narrates.

The Shawshank Redemption actually manages to be inspiring without dipping into saccharine sentiment or the endless well of tears. This feat was accomplished through a bleak environment, a protagonist who is steadfast in his determination and principles, and by using Morgan Freeman to narrate.

***Monsters, Inc.* (2001)**

Sully (John Goodman) and Mike (Billy Crystal) are best friends. They work at an energy plant in Monstropolis, which runs on the screams of children. One day their workplace is torn apart by an industrial accident that releases a foreign biological organism into the facility. As they try to cover up their little accident, Mike and Sully stumble upon a darker secret lurking in the bowels of the plant.

Ahh, *Pixar*. Tackling corporate responsibility and ethical business practices one movie at a time. *Monsters, Inc.* is a solid entry in the *Pixar* canon, and isn't the least bit heavy handed about the ills of forcibly reassigning troublesome employees, silencing witnesses, and lack of transparent and well-documented scientific research. In fact you might almost believe that the message of *Monsters, Inc.* is that friendship and honesty shall always prosper.

***Citizen Kane* (1941)**

An investigative reporter (William Alland) struggles to understand the career of newspaper mogul Charles Foster Kane (Orson Welles, also directing). As the reporter delves through Kane's childhood in a boarding house, the icy relationship with his first wife (Ruth Warrick), and the operatic career of his second (Dorothy Comingore), he slowly uncovers what lay beneath the sparkling façade of the man who had it all.

The most noticeable thing about *Citizen Kane* is how well the characters enunciate, and how poorly this translates to transmitting emotion. Apart from the role of Welles as the enormously lonely multimillionaire, I found the acting style of the time too stage-like and thus artificial. However, it did lend to clear and snappy exposition, which wraps itself up when a reporter sadly declares to his audience – both onscreen and off it – that Charles Foster Kane died a very unhappy man. The second most noticeable thing is the awareness that Welles puts into framing and lighting his shots. It was amazing to see so many of the classic poses and angles within the two hours of this movie. Of note are the time-lapse sequences used to illustrate the breakdown of Kane's first marriage and his second wife's sanity.

The plot is the least interesting thing about this movie.

***Notes on a Scandal* (2006)**

Barbara Covett (Judi Dench) is a cynical British schoolteacher with an unhealthy fixation on the new art teacher, Sheba Hart (Cate Blanchett). During a school talent show she spies on Sheba engaging in an affair with a 15 year old student (Andrew Simpson), and resolves to use this information so that Barbara and Sheba can be best friends forever. Together they descend into a chaotic spiral of codependence, with Barbara convinced she has the upper hand in orchestrating the exposé of the whole fiasco, and Sheba equally convinced that Barbara is her best and only friend in a crisis.

Notes on a Scandal is a wicked pleasure to watch, thanks to its leads. Dench sizzles with envy, resentment, and denial: a life as a lonely cat lady does not suit her well. Blanchett balances confusion, self-pity, and waifish grace as an art teacher who suspects she deserves more than her lot in life. Will you be rooting for Barbara to emotionally ensnare Sheba for good? Or will you be rooting for Sheba to do the right thing, end her affair, and expose Barbara as a conniving and bitter hag? It is with glee that I tell you that no happy ending awaits anyone at the end of this movie.

Untitled Web Series, Book Club, Space Janitors

NACHIKET SHERLEKAR
2B NANOTECHNOLOGY

TUBE IN TO THIS

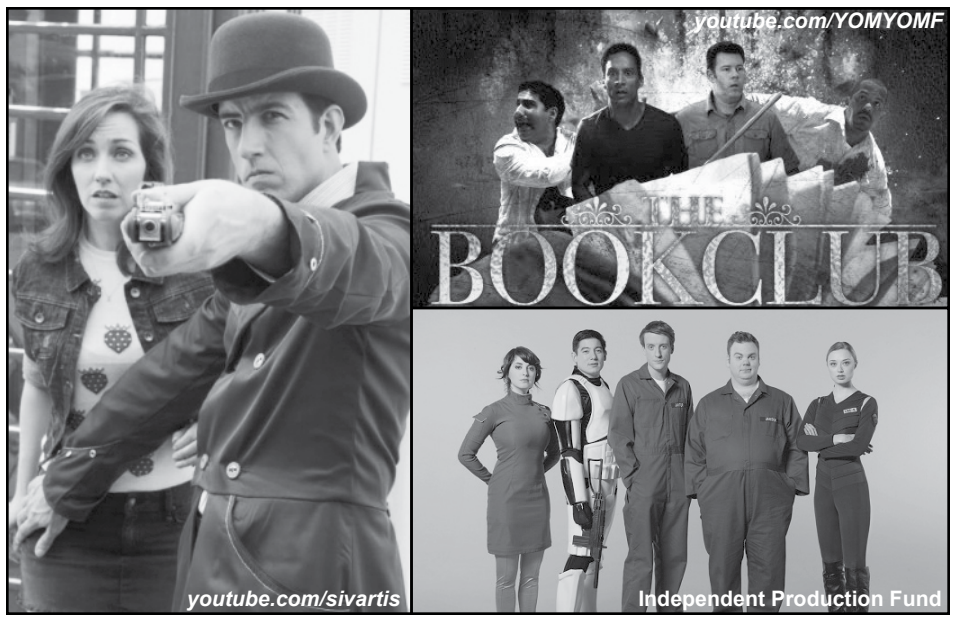
Well, hello there! You've obviously been eagerly awaiting this week's issue of *The Iron Warrior* just to read my deliciously wonderful column: Tube In To This, where I review some of the best YouTube shows out there. Wait, what's that you ask? What's a 'YouTube'? Well it's a magical faraway land (in the universe of the internets) where cats are worshipped, cinnamon is dust from hell and Godwin's Law abounds. Among the slew of mediocre to sort-of above-average content churned out on this website lie some web video shows that showcase quite exceptional quality. I know that in the last issue I promised to review the witty and cleverly funny *Annoying Orange* series, but I sent the creator a draft and he threatened to sue me for defamation and drown me with an endless supply of annoying fruit pun(ch). You can compensate by grabbing a glass of OJ before you read the rest of this, though.

Fans of the hilarious TV show *Community* may have heard that the creator and former executive producer Dan Harmon is back for the fifth season after being unceremoniously fired after season 3. *Community* has spawned a lot of creative output from fans, such as fan art and songs. An interesting by-product of *Community* is the *Doctor Who* spoof, *Inspector Spacetime*. In fact, the original actor who portrayed the Inspector on *Community*, Travis Richey, has gone on to create a web-series based on the Inspector. Due to copyright reasons (I assume), the show is called an *Untitled Web Series About a Space Traveler Who Can Also Travel through Time*. The Inspector and his naïve but eager-to-learn companion Piper (a reference to Billie Piper who plays Rose, one of the Doctor's companions), are adventurers who travel through time in a red telephone booth and battling evil while discovering new worlds. The series incorporates and satirizes standard tropes used in *Doctor Who* from encountering strange creatures and matching wits against super-villains to running down corridors while rocking a flamboyant suit and bowler hat. The show frequently makes fun of itself and the often rapid back-and-forth rapport between characters makes for hilarious entertainment. The show has so far completed only one season, with 6 episodes each spanning about 4 minutes. However season 2 is currently in production and, from the looks of it, this season is going to be way more action-packed and could be longer. Hopefully, the witty dialogue and clever references remain.

On the topic of things related to *Community*, Danny Pudi (who plays Abed Nadir) is part of a web series on Justin Lin's YOMYOMF network titled *The Book Club*. This is by far one of my favourite web shows; it involves a group of regular guys who come together every week to read and discuss a book. While you may think this isn't the manliest way for a bunch of dudes to spend an evening, it's not all milk and cookies: the twist is that certain elements of the book they read seemingly come to life and the results are action-packed hijinks and shenanigans that usually end in victory and quite a bit of blood. The show is extremely well written and directed and the actors are exceptional. It is frequently funny and at times downright ridiculous; think martial arts, political conspiracies and cabin-in-the-woods-style horror. With a two-part finale guest starring Blake Griffin and Gillian Jacobs (who plays Britta Perry on *Community*) there isn't much that could go wrong with this show. The only potential drawback is the lack of continuity from episode to episode; a lot of plot lines are left open for the viewer's interpretation. The show has plenty of scope and it would be great news if it got renewed for a second season.

The final web series for this issue is *Space Janitors*, an amazing spoof of multiple sci-fi movies and shows which airs on Felicia Day's *Geek & Sundry* channel. Mike and Darby (played respectively by Pat Thornton and Brendan Halloran) are two janitors who work on a spaceship belonging to an evil galactic empire that is under the rule of the Dark Lord. The ship is frequently attacked by rebel forces which fight against the empire's clone and droid army. While Mike is content with his job of cleaning floors of dead rebels and clones, Darby has big dreams of becoming a soldier for the empire. On the way, he learns the perils of dating emotionless droids, matching his strength against clones and trying to mess with the rebel forces. Ultimately, he learns a dark secret about himself that makes him question his very purpose in the universe – to clean floors, or not to clean floors? That is the ultimate question. The actors on *Space Janitors* are quite talented and funny; the frequent references to Star Wars leaves the viewer in splits (light based arm-cutter, anyone?) The CGI is low-budget but still convincing, and the make-up for the occasional alien character is fantastic. Space Janitors is currently in its second season. In addition to the main episodes, they have a bunch of shorts that depict everyday life on board the evil empire's ship, as well as comment-reply videos by the actors that give a little extra insight into production and story boarding.

That's a tasty chicken shawarma wrap for this week's Tube In to This. Next time, I shall review *The Duck Song* and its numerous variants, including *The Duck Song 1*, *The Duck Song 3*, *The Duck Song – Gangnam Style* version and *Emotionally Vulnerable People React to The Duck Song*. Until then, ask yourself the question – why is everybody afraid of love? Stay Tubed!



Left to right clockwise: Untitled Web Series..., The Book Club, and Space Janitors

Atari Landfill Being Excavated for Documentary

MICHAEL LAANVERE
3A MECHANICAL

The Alamogodro, New Mexico city council has approved an excavation permit that will allow a Canadian Film Company, Fuel Industries, to dig up the infamous Atari burial site, supposedly for a documentary.

The Atari burial site is a landfill where millions of Atari cartridges, consoles, and accessories were crushed, encased in concrete, and buried. The majority of these cartridges are rumoured to be copies of *E.T.*, one of the worst games ever made.

The story of *E.T.* is fairly well known among gamers. Atari paid tens of millions of dollars for the rights to make the game following the commercial success of the film. After acquiring the rights at the end of July 1982, Atari decided that they wanted to make the game for the holiday season of the same year. This meant that the game design would have to be completed by September 1, 1982 to allow for production. Atari then proceeded to hurriedly scrap together a horribly repetitive game that no one knew how to play. On top of that, they skipped audience testing due to a lack of time.

Despite negative reviews, the game was still one of the biggest sellers during the 1982 holiday season. It ended up selling 1.5 million copies, making it one of the best Atari 2600 sellers ever. But that still left about 3.5 million cartridges unsold. Despite earning $25 million in sales Atari still ended up with a net loss of about $100 million. E.T. was probably one of the biggest factors of the video game crash of 1983 and Atari's subsequent bankruptcy.

After that Atari had about 3.5 million *E.T.* cartridges sitting in the El Paso, Texas warehouse collecting dust. Also in that warehouse were about 5 million unsold copies of *Pac-Man*. *Pac-Man* was the best selling Atari 2600 game ever and sold 7 million copies in 1982, yet Atari still had 5 million copies excess. Atari, it seemed, really liked producing way more copies of games than they needed to.

Atari finally decided to write off all the junk collecting dust in their warehouse and between 10 and 20 tractor-trailers full of Atari gear was moved from the warehouse to the landfill. Although Atari never confirmed that the *E.T.* and *Pac-Man* cartridges were part of the equipment that was dumped, the timing and scale of the burial it has led many to speculate that they were indeed the main cause.

The Alamogodro council weren't happy though. They protested the dumping and ended up passing a law that prevented such dumpings from occurring in the future. The council was afraid that the city would become the go-to place for reject products.

Ironically the city is now embracing the landfill and subsequent excavation. They hope that the publicity from the documentary will create awareness about the city and boost the economy.

The excavation will take place in the next 6 months which will mark the 30th anniversary of the dumping that occurred on September 26, 1983. Then we will know for sure whether or not the landfill is filled with millions of copies of horrible games, or if it really is just outdated and broken equipment that Atari had to get rid of.

Goodbye, Raggedy Man

Matt Smith To Leave Doctor Who at the End of Year

ANJIDA SRIPONGWORAKUL
2B MANAGEMENT

This phrase was Amelia Pond's (Karen Gillan) last words to the Doctor when she and her husband Rory (Arthur Darvill) left the show last Fall. Now it's time for Whovians to say the same to Matt Smith, the Doctor himself.

The BBC announced on June 1 that Matt Smith, the Eleventh regeneration of the Doctor, will be leaving the show after the 50th Anniversary Special and the Christmas Special in December. The rumours of Smith's leave started circulating in March but Smith had dismissed the news, until now. Smith's public statement called *Doctor Who* "the most brilliant experience" and described Whovians, fans of the *Doctor Who* series, as "unlike any other", thanking them for their "truly remarkable" dedication. Lead writer and executive producer Steven Moffat said, "Thank you Matt - bow ties were never cooler," and Jenna Louise-Coleman, who portrays Clara Oswin Oswald, the newest companion, added that she "could not have imagined coming into the show without Matt as my Doctor, holding my hand, really, quite literally," telling the fans, "it's not over till it's over."

Smith started his run as the Eleventh Doctor in 2010, four years in total inside the time lord's TARDIS (Time and Relative Dimension in Space, the nickname for the show's iconic blue telephone box which is, as Whovians are well aware, a time machine), an era which has seen the show go truly global, conquering BBC America and becoming its highest rated series. Voted Best Actor by the readers of the *Doctor Who* magazine in his first year, Smith received the UK's 2012 Most Popular Male Drama Performance Award and was the first Doctor to be nominated for a BAFTA (a British Academy of Film and Television Arts award).

He may be leaving the TARDIS, but Smith has been busy. As evident by his recent frequent trips to Los Angeles and his current project, the Ryan Gosling-directed *How to Catch a Monster*, co-starring Christina Hendricks, Saoirse Ronan and Eva Mendes, Smith is clearly transitioning over to Hollywood.

Naturally, there is active speculation of who's to become the next, twelfth Doctor. Bets and odds are being placed in the UK, while names including Idris Elba, Dame Helen Mirren, John Hurt, and even Harry Potter's Rupert Grint, Sherlock's Martin Freeman, or Skyfall's Ben Whishaw, have been raised.

So long, fish fingers and custard days. Like any Whovian, I would miss Smith, my first Doctor and one of my favorite Doctors dearly, but the time has come to embrace the change, move on, and look forward to what the show has to offer next. Geronimo, Matt!

A Highly Variable Apple Pie Recipe

CAITLIN MCLAREN
1T CHEMICAL

A HIGHLY VARIABLE X RECIPE

It's that time again! You are staying up late at nights, cramming every possible bit of information into your mind… and every possible snack into your mouth. You need lots of energy for your exam-taking brain, after all.

What is both delicious and nutritious? Apple pie! Simple, homey, and filling: the perfect comfort food. Pop some in the oven, and study while it bakes. The smell will let you know when it's done.

Any pie has two parts: the crust and the filling. You can make the crust yourself, but it takes some time and a food processor. If you do not have these things, buy a ready-made shell.

Let us suppose that you have a study break. In that case, here is how you make your own: Take 2.5 cups of flour, a spoonful of salt, and a spoonful of sugar. I said one spoonful! Add a cup of frozen butter, chopped into pieces. Blend all of this in a food processor: you can use two knives, chopping like scissors, but your study break is not that long. Blend it until it looks like crumbs; then add cold water, one spoonful at a time, until the mixture begins to stick together when you pinch it. Do not run the blender continuously! When it is finished, mush it together with your hands, and form it into the pie crust in the pie plate. It will still be rather flaky, and that is all right.

To make the pie filling, there are many variations. However, the basic ingredients are simple: butter, flour, sugar, water, and apples.

Melt the butter- do not use too much! A few spoonfuls will do. Stir in flour until the mixture is pasty, and then add some water and sugar. Use about as much water as butter, and sugar according to taste. Use white or brown sugar, or a mixture of both. All colours are welcome. Get the mixture boiling, and then reduce heat and let it simmer.

Fill your pie crust with apple slices. Make sure it seems like too much, because the apples will shrink like your average after midterms. (Sorry). Pour your sweet sauce over the apples, and cover the filling with crust. You can also cover the pie with doughy shapes, or even leave it uncovered (though beware of dryness).

That is just the basic pie. The variability comes in the tweaks: add whatever you like to the filling. There is always the classic cinnamon-and-raisins, and you can put in any other fruits you like/have on hand. You can replace the apples with Ritz crackers and lemon juice. (That does, in fact, actually work).

Bake your pie at 425°C, and keep an eye on it! Bring your notes into the kitchen and study by the stove, and soon that wonderful apple pie smell will creep in subtly, making your physics much more bearable.

Good luck everybody!

How to Deal With Overactive Fire Alarms

NANCY HUI
3N CIVIL

FOOD SAFETY

Fire alarms in dorms are notoriously irritable. Doubtless, their intentions to stop everyone in the building from burning to a crisp are noble. However you risk suffering hearing damage after prolonged exposure to their screeching siren call.

In order to deactivate the alarms to avoid hearing loss, first ensure that the smoke situation is under control and there are no signs of a raging fire. Fire alarm models vary. Standalone models can be deactivated with a button marked "silence" or "reset". You can also remove the cover from the smoke detector and remove and replace the battery. If the alarm system is hardwired, you may need to find the main power and circuit box and reset the thrown breaker that indicates a smoke detector has been tripped.

Alternatively, you can clear the smoke from the room. This can be done by opening windows, using a floor fan to suck smoke out of the area, or turning on the range hood. If the range hood is weak, remove the grate and check if the filter needs changing. Do not clear the smoke from the room by putting the smoking food in the oven, because smoke will come up through the heating elements.

If all else fails and your ears are ringing, you can temporarily fool the fire alarms by covering them with a plastic bag and rubber band, a shower cap, or cling wrap. Remember to remove the covering as soon as you have cleared the smoke. This is non-negotiable.

Usually when an alarm gets to the point where it goes off with the slightest hint of smoke, it may require cleaning to remove dust that might trigger the alarm, moving the alarm a short distance to a more ventilated area, or replacing the alarm altogether. But these are not always viable options in student housing.

TOPZ Countries in the World

WADE WILSON & EDWARD BLAKE
4Z HANDSOMENESS
TOPZ (WITH A Z)

Note from the Editor: Topz (With a Z) is a regular column in the Iron Warrior which employs cynical and absurd sarcasm in an effort to be entertaining. This article is an extreme example of how absurd Wade and Edward can get sometimes when trying to make you smile. Nothing stated about the countries listed below is meant to construed as facts nor is its intent to offend anyone.

The world is a big place. Way bigger than Cleveland. That is why this week, Wade and Edward decided to leave Cleveland and explore the world, because as they say, "The world is way bigger than Cleveland." Taken back from our journeys is a list of the top countries in the world, not based on geography. Based on geography the list is: Denmark, Canada, Russia, Norway, USA, Finland, Sweden, Iceland, UK, Estonia, and Latvia.

Uruguay: This country is most famous for inventing the stress ball. Before that, people used stress cubes, also invented in Uruguay. The goal was to alleviate stress by squeezing an object as an energy outlet. Some scientists have linked the use of stress-balls to autism. Although these studies have been discredited, the message went viral and caused the global financial crisis of 2008. Ironically, this led to a spike in stress ball sales and an increase in the country's GDP.

St Kitts and Nevis: Known as "The Land of Beautiful Flowers", St Kitts and Nevis has a lot of beautiful flowers and some flowers that are only so-so. When Queen Tunechi was still Lil Tunechi, she visited St Kitts and Nevis and was given beautiful flowers that were so beautiful that she said "this land will hereafter be known as The Land of Beautiful Flowers." However, she was too late as it was already known as the Land of Beautiful Flowers, hence the beautiful flowers which caused her to want to name it "The Land of Beautiful Flowers". The original name was given by Lil Jughead.

Belarus: Belarus is about 4800 nautical miles from St Kitts and Nevis, which is why it is known as "The Land 4800 Nautical Miles from The Land of Beautiful Flowers".

Turkmenistan: In Turkmenistan, people wear jackets when it is cold. When it is cold, but not cold enough for jackets, they wear sweaters. Sometimes it's a little breezy, and people will wear cardigans. They also wear cardigans when they want to look pretentious. In fact, cardigans are actually named after the The Cardigans and their hit single, "Lovefool".

Gabon: "Gabon" rhymes with "Ribbon", if you pronounce it as "Gibon", as done by the people of Burkina Faso, the cotton candy capital of the world.

Burkina Faso: The leading exporter of cotton candy, Burkina Faso has a made a name for itself by selling cotton candy to other nations. Their famous cotton candy comes in many colours: red, blue, green, salmon, coral, mustard, black, triangle, white, grey, shale, dark grey, seafoam green, seafoam red, seaform turquoise, seafoam, dark black, and pink. They briefly produced purple, but this resulted in violent civil war from people who wanted violet, known as "the green revolution".

Lithuania: This country was founded in 1423 by an engineer who was considering being a lawyer. After signing off on a blueprint that ended up in catastrophe his career was in shambles. Law had always been a back-up option since it is what his mom wanted him to go into. He had red hair and a blue jacket with gold buttons and a yellow umbrella. He was also known to wear two chains. This is why in Lithuania, the people say "halunki matakara".

Oman: Potato chips were not invented in Oman.

Laos: In Laos, it is customary when a man is courting a woman, for him to make sexual advances. If the woman responds in kind, the man will put his weewee in her hoo-ha and move his hips in a thrusting motion until he releases his seminal fluids into her uterus or fallopian tube to fertilize her ovum.

Eritrea: This country is notorious for having the thirty-seventh most curling fans per capita. There is an interesting story as to why this is.

So there you have the list of the top countries. But not based on geography. Based on geography it is Denmark, Canada, Russia, Norway, USA, Finland, Sweden, Iceland, UK, Estonia, and Latvia.

Drink Wine, [Redacted] [Redacted]

GRAEME SCOTT
4A CHEMICAL
DEREK THOMPSON
4A MECHANICAL
GETTING GOOD HEAD

"Tonight we will be starting with a Pinot Grigio from... Italy... apparently," said Derek Thompson, former EngSoc VP Education and current Sommelier. The wine made a delightful pouring sound as it flowed from the bottle, as noted by Graeme. The wine is chilled to perfection, which means even if it's bad, it's pretty good. That's a valuable thing to know for white wine: even the [redacted] stuff can taste pretty good if it's cold as [redacted].

If you haven't figured it out yet, we're drinking wine today. This is partly because there's a few cases of it at our house, and partly because it has more alcohol than beer. We need that extra alcohol since the University of Waterloo are being a bunch of [redacted]s and raised our tuition half way through the term. Seriously, [redacted] those [redacted]s.

Anyway, the reviews of the Pinot Grigio are in: Derek thinks he likes the other white wine more, and we'll have it later. Graeme thinks it's "definitely not bad," but he also affirms that he's "never really rated wine before." He thinks that "it's tastes like a Pinot Grigio... maybe? And it has a good grapey smell. It's totally graping me right in the mouth." Eric thinks that "it's cold, and therefore it's totally palatable." Tim actually has an opinion: "it's really sweet when you take it into your mouth." We're not sure if that's a good thing or a bad thing. "Also, a hit of apple... Granny Smith apple." Wow, way to be pretentious Tim.

Now that we've finished our Pinot Grigio and stopped sobbing about how those [redacted]-suckers in Waterloo finance want more of our money, it's time to open a bottle of red.

We're onto a fine bottle of Cabernet Sauvignon. We need to let it breath a little bit, mostly because Graeme has a lab report to write, and judging by his plots, it's not going well. Tim opens by remaining a pretentious [redacted]hole and saying some bull[redacted] about tannins. Wikipedia says: "A tannin is an astringent, bitter plant polyphenolic compound that binds to and precipitates proteins and various other organic compounds including amino acids and alkaloids." Good for you Tim, you can identify amino acids with your stupid face. Eric has a real comment: "this wine is super sweet!" He means it has a lot of sugar, which means it's time for a BILL NYE MOMENT!

DID YOU KNOW THAT: wines that are sweeter have less alcohol since the sugars are consumed during the fermentation process when they are converted to alcohol. NOW YOU KNOW!

Now that we're all sciened up, and know that the university administration can go [redacted] a bag of [redacted]s over this tuition thing, it's time for another white wine!

This time, it's a Chardonnay, which is a place in France. That's a bit odd, because the label says it's Australian. That's really odd, because all this wine came from a brew-your-own place in Waterloo. It's called Reds, Whites, and Brews, and it's where most of the BOAT Racing beer comes from. According to About.com, Chardonnay is the world's favourite white wine. But seriously About.com is just about the worst source for anything, ever.

Everyone agrees that this white is better than the Pinot Grigio, and everyone agrees that we know nothing about wine. Derek says that "he'd drink this [redacted] any day!" Graeme is still working on a lab report, but he did drink it, and says "I thinks it's making me smarter." So if you're looking for a white wine from Reds, Whites, and Brews, go for the Chardonnay.

Before we move on to the final wine, we'd like to recommend getting your own wine brewed. It takes 4 to 8 weeks to get it brewed and costs about $5 a bottle. Lets face it: after those [redacted] [redacted] at the university took all your money, you're going to need the cheapest booze you can get.

"Our final wine is the Amarone!" exclaims Derek. The full name for this wine is Amarone della Valpolicella, but that's pretentious as [redacted], so remember to never use it in a conversation. This one is pretty smooth and everyone likes it. For once, Tim isn't going to be a pretentious douche, and doesn't have a comment. It's just good. It does take 6 weeks to brew though.

We hope you enjoyed our exposé into the world of fine You Brew wines. Our final reviews:

Pinot Grigio:
2.575 / 5 Surly Bartenders
Cabernet Sauvignon:
3.14193 / 5 Surly Bartenders
Chardonnay:
3.77777 / 5 Surly Bartenders
Amarone:
4.173 / 5 Surly Bartenders

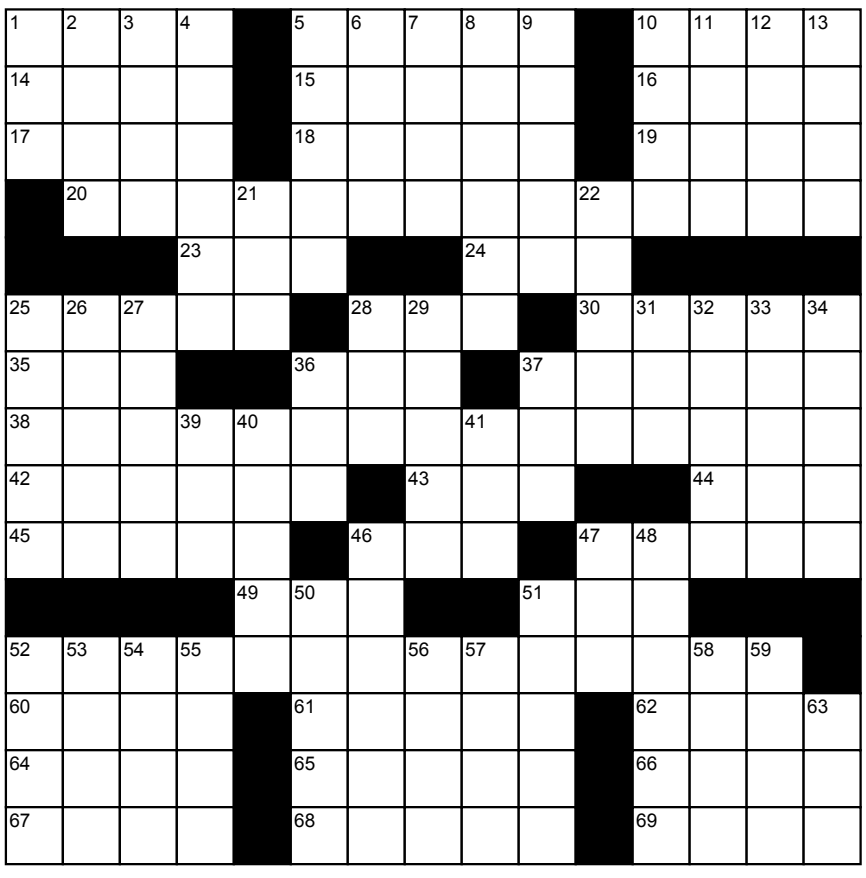
Note that the wines got better as we got drunker. Remember, correlation doesn't make causation, but wine probably does get better as you get more inebriated. Remember, Waterloo might be a bunch of [redacted]s, but you can still get drunk on the cheap! Next time, we'll discuss the effects of [redacted] on [redacted]ing [redacted] (in the [redacted]) also scotch I think.

The Iron Crossword

Genius Bowl?

STUART LINLEY
3T NANOTECHNOLOGY

Submit your completed crossword to the crossword submission box in the Orifice (CPH 1327) before next Wednesday to compete in the bi-weekly Crossword Competition!



ACROSS

1 Easy as 1,2,3s
5 Weasel
10 South Asian dress
14 Stain
15 Retch
16 Pizazz
17 Ritual drink
18 Strange
19 Blanc go with
20 (52->20->38) ... and who would that be? ...
23 Top brass member
24 Whiskey go with
25 Gave stars
28 Your, 'olde'ly
30 Watch brand
35 Skilled pilot
36 French affirmative
37 Prodigious autistic
38 (52->20->38) ... so when's the mission?
42 Makes up
43 Mom's other half
44 Before, poetically
45 Wader
46 Broadcast
47 Mistake
49 Mark
51 Taro mash
52 (52->20->38) What's my objective? ...
60 What's the big ____?
61 Tightens (up)
62 Bus. course
64 Nicholas or Aleksander
65 _____ to _____
66 Learning technique
67 Slippery fish
68 Mart
69 Winter blanket?

DOWN

1 Auto safety feature
2 ____ Party (band)
3 Deep sleep
4 Deny (of)
5 Black _____
6 Adolescent
7 Rows
8 Flight cage
9 Itsy
10 Almost
11 Burn soother
12 Called
13 Enthusiastic about
21 Center (abbr.)
22 Popular coffee
25 Indian chieftain
26 Short-term
27 Domingo or Carreras
28 Just before Wed.
29 Indian language
31 Movie file ext.
32 Less risk
33 Background
34 Alternative
36 Pain syllables
37 One time Floydian Barret
39 Guitarist Brian
40 Metric division
41 Sands or ponds go with
46 Horrified
47 Geological age
48 _____ on the Storm (The Doors)
50 Cloud _____ (David Mitchell)
51 Out
52 Reference
53 Carving tool
54 Azure
55 Pixar film
56 Narcissus' admirer
57 Hoppy drink
58 Symbol
59 He left Kansas
63 Modern

Sudoku

#2013-07

LUCAS HUDSON
3A MECHATRONICS

Easy

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

Medium

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

Hard

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

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

THE IRON INQUISITION
Lucas Hudson, 3A Mechatronics

"#WhatFloatsYourGoat?"

"Tall tooth pick & marshmellows structures made for goats."
Ania & Jake, 2B Mechanical

"Gamma goat milk, times volume goat milk displaced."
Drew Dutton, 2B Civil

"Ginger Beer."
Caitlin Bakker, 4 ARTS

"Watching the hopes and dreams of first years slowly slip away."
Kyle Pohl, 4A Mechanical

"Hair, copious amounts of unnecessary hair!"
Keegan Skoretz, 3A Mechanical

"A goat in a moat, wearing a tote, writing a note, that will devote to its beau...t."
Anjali Gopal, 3T Nanotechnology