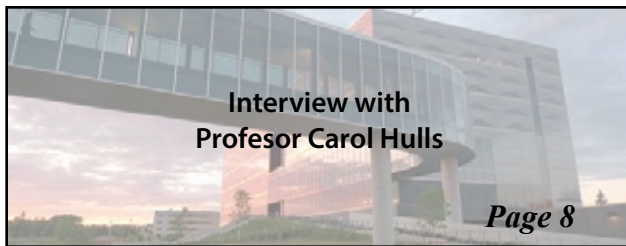


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Engineering O-Week Theme Revealed
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Interview with
Profesor Carol Hulls

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Results of the student debt load
survey are in!

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The Best Clean Snowmobile Team UW Has Ever Seen

A tribute to those graduating



Bill Ray Photography

UW Clean Snowmobile Team: Vangie Rose, Nick Mulder, Dirk Friesen, Chris Campbell, Alec Espie, Lior Lustgarten, Casey Palermo, Matt VA, Kristen Sperduti.

KRISTEN SPERDUTI

UW CLEAN SNOWMOBILE TEAM LEAD

Let's take a 750 cc turbo-charged four-stroke engine, throw it in a 2013 Polaris RUSH chassis with a Miller Cycle conversion, custom muffler with integrated catalytic converter, and dual electronic throttle bodies and name it Silver. Sounds like a pretty awesome piece of machinery. The only things stopping Silver from dominating the 2015 SAE Clean Snowmobile Challenge: a slightly permeable gas tank, minor engine tuning, 7 pounds of boost, and 0.03 seconds. Despite these barriers, nine students from the UW Clean Snowmobile Team returned home from Michigan Tech's Keweenaw Research Center in Houghton, Michigan on March 8, 2015 with a fully running snowmobile (technically), the highest valued Challenge award, and a team that continues to be more successful competitor every year.

The night before departure is always an eventful one. On Saturday, February 28, just two days before the competition, problems with

a glowing hot catalytic converter (with slight flame issues) and an infinitely leaking gas tank drove work late into the night. At 2:00 AM, the sled was tucked into the trailer and much trust placed in gas tank sealant and Seal-All.

Team members Alec Espie, Vangie Rose, Chris Campbell and Dirk Friesen arrived at the hotel in Houghton late Sunday evening to find the smell of gas emanating from the trailer - a serious issue, as the dreaded Technical Inspection would take place in less than 24 hours. A 6:00 AM start on the morning of March 2nd allowed Waterloo to tackle both problems: a mistakenly unplugged spark plug causing the glowing cat and a new type of copper RTV silicone sealant for the gas tank. After everything was dry, Waterloo was admitted to Technical Inspection and passed both static and dynamic inspections, after minor modifications!

Tuesday was the 100-mile Endurance Event to Copper Harbor in which Waterloo had not competed in over six years. Rider Alec Espie made Waterloo history as he took off from the

Continued on BEST on Page 14



Michigan Tech

Rider Kristen Sperduti during Acceleration Event.



Michigan Tech

Alec Espie competing in the 100-mile Endurance Event.

Dean of Engineering, Pearl Sullivan, Speaks About E7

ANGELA PAUSE WATERLOO ENGINEERING

Since "B" Society voted no in March 14's E7 Referendum, what does this mean to students? We went to Pearl Sullivan, the Dean of Engineering, to ask her how this would impact engineering education for future students. Our interviewer is Angela Pause, a Waterloo Region freelance writer specializing in technology, engineering, business and education.

The E7 Referendum, presented by EngSoc A and B, asked students if they were in favour of donating \$1 million to student space in the new Engineering 7 building. The donation would be charged as a \$25 optional donation per term, beginning once the building was occupied (Fall 2018). Students would be able to opt out of the donation (similarly to other optional fees) that is currently charged along with tuition. While A Society voted in favour last fall, (62.8 percent yes, 37.3 percent against) the B Society vote on

March 14 virtually flipped that around with a 63 percent No vote and a 37 percent Yes vote.

Voter turnout was 29.7 percent or 1,831 students. The joint referendum required both societies A and B to vote Yes for it to proceed, therefore the No vote of B Society meant a No vote overall.

Interviewer: Dean Sullivan, how do you feel about the outcome of the E7 referendum?

Dean Sullivan: The E7 building project has been primary focus of the Faculty for the past 18 months. We have worked tirelessly on developing the design and getting the necessary approvals. As a sign of their support, the EngSoc leaders, who were part of the E7 Project Planning Committee since December 2013, presented the referendum as way for the student body to also show their support for the building. It is unfortunate that many students did not fully realize that E7 is essentially an undergraduate building. Had the Yes vote won, it would have

Continued on DEAN on Page 4



Engineering Dean's Office

Rendering of the Ideas Clinic.

Letter from the Editor

The End



NANCY HUI
EDITOR-IN-CHIEF

Hello my readers! In your hands is the last Iron Warrior of the term, and the last one that I will have produced as the Editor-in-Chief.

The last issue of the Iron Warrior in any term is a special treat because it also includes the Tin Soldier. For those of you who live under a rock, the Tin Soldier is the parody issue of the Iron Warrior. We take potshots at things that UW, EngSoc, the IW, and the government have done during the course of the term. In a gentle, affectionate way, of course. The Tin Soldier is located in the very middle of the paper. It is fun and you should read it.

Anyways at the end of the term I also get to announce the recipient of the Iron Pen award (for most words written, and no, a “picture is a thousand words” maxim does not count here) and the Editor’s Awards. The wordcount race this term has been a rough three-way-tie between Sherwin, Elizabeth, and Caitlin.

Despite a late start (only coming to the Iron Warrior in 3B) he has maintained a column about important historical figures in the sciences (“On the Shoulder of Giants”) and taken on a plethora of articles, mostly on current legal issues.

Elizabeth, on the other hand, has been writing the Benchwarmer Report since 2013 (and other articles since 2012), and she hasn’t let a co-op term stop her from writing about all the domestic and international kerfuffle that I’ve foisted upon her. Thanks for that.

Caitlin no longer writes “Highly Variable Recipes” and has since moved on to “Things You Really Didn’t Want to Know.” Every time I read her column, I learn something new and am extremely grateful that I live in a time of indoor plumbing and not one of human sacrifices. She also volunteers very often to write about the XYZ crisis or SCIENCE fact of the week. Really she’s like the Nicholas Cage of the Iron Warrior. So I am very grateful for that.

Not all contributions are wordcount, though, and that’s coming from someone who wrote nearly 14000 words in Spring 2013.

Bryan Mailloux continuously and mysteriously showed up to production weekends and took on the unenviable task of conducting the Iron Inquisition. I did the Iron Inquisition once. It was awful. So much rejection and fiddling with the camera and trying to take a picture without autofocus. Bryan also copyedited a lot of articles and learned to do layout. Good job Bryan.

Also on the Thank You list is Nina, the previous B-Soc EIC. Nina helped me to get food for almost all the meetings and also showed up for almost every day of production weekend to copyedit. Man, I don’t know why she does that. Maybe a lingering sense of nostalgia for her old position. Who knows?

We also mysteriously have a lot of comics contributors, including Kyle (didn’t he gradu-

ate last year?), Tim (simple but not *simple*, y’know?), David (elaborate postmodern meanderings of a madman), and Joanna (her hatching is to *die* for).

Other contributors include Devika (well-thought-out articles on an eclectic range of topics), Alex Toth (his music column is almost always on time, and he also dealt with contacting advertisers at the start of term! Thanks Alex.), Nachiket (I complain that his articles are slow but they are always of high investigative quality), Emmanuel (man, so many ideas! If only you had time to put more of them to pen and paper), Ashlyn (responsible for the excellent prof interviews, and might inspire many of you to delve further into academia!), Tina (such eagerness! Such direction!) and Donovan (a man of many interests, who is luckily willing to write about them.)

On the copyeditor side we also have Isabel Vilchis (I see you copyediting late at night when I’m doing layout...), Jessica (is in Alberta!), Cameron (in Edmonton!), and the Fall 2014 EIC, Leah. Thank you to all the contributors and copyeditors, including those that I have accidentally not named because my brain is bleary with endorphins from having completed the final issue!

The Iron Warrior isn’t like a lab, where if your group is a no-show then you can still bite the bullet and solo it yourself. That was actually my number one reservation when taking the job. What if nobody wants to write or copyedit? This is not something that one can do by themselves. And luckily, I never had to. Thanks to everyone who ever came out to meetings, copyedited, tried to learn layout, or honestly even poked their heads into the office. I love you all.

So, what happens next?

Well, we all get finals. Then in Spring 2015 Cameron Soltys will take the helm of the Iron Warrior. Cameron knows InDesign shortcuts that I can only dream of, so anyone on term then will be in very good hands. In Fall 2015 the job will go to Meagan Cardno. Meagan has been in Ottawa on an 8-month co-op but she has been contributing to the paper since Fall 2012. She will do an excellent job as the EIC. I mean, I did fine. It can’t be that hard.

Anyways, since this is the last thing I will ever write for the Iron Warrior in the foreseeable future, I get to subject you, the reader, to a little trip down memory lane.

Joining the Iron Warrior in the beginning of my 2A term was one of the best decisions I made regarding my time at Waterloo Engineering. I’ve learned and grown so much since 2011, even as writers and editors come and go. There were periods during which I’d talk more during an Iron Warrior meeting than during the rest of the week combined. Eventually I grew more confident and volunteered for more articles and learned to copyedit. I even began to show up to some production weekends. I wrote more articles. I even shuffled through loads of pseudonyms, including “Luna Lovegood”, “Jackie Meow”, and “Tanya Montana.” But despite having been around for so long, I never

actually felt ready to become EIC.

Though, who is ever totally ready to take the next step, and assume a new level of responsibility? As EIC I had to come to terms with the fact that if I screwed up, or didn’t put the paper together, then failed in anyway, there would be nobody to run to for help, and nobody to clean up after me (except probably all the former EICs, but they’re retired, and one doesn’t want to go stirring up traumatic memories of their time in office.) And it was a little weird at first, with people asking you for an opinion or to make decisions. The first few weeks were definitely the most difficult, since a lot of things need to be set up at the beginning of term, including the rate card, posters, contacting advertisers, and setting the budget.

But one grows into it. One learns to clear one’s entire weekend. One learns to bring really large bagged lunches.

And then one learns things...

For example, if you ask someone to do something, they have a difficult time saying no. So, voluntelling people has a higher success rate than you might imagine.

It doesn’t hurt to diversify when acquiring beverages from the C&D. Milk is a healthier choice than “fruit cocktail” and is just as popular during meetings.

If you eat a bite of really expired (but innocent-looking) C&D hummus, realize you’ve made a mistake, and put it back in the fridge, it will first turn orange and then green and fuzzy.

And if you need help, there is always someone to turn to. Here, Mary Bland, Nina, Leah, Cameron, and Jacob Terry get a shoutout.

I never did get the hang of thinking of good article ideas, though. Most of what you see in the paper is what the writer themselves thought of. Which is possibly my favourite part about the Iron Warrior: it’s lovely to see fresh crops of eager-eyed sprogs (or for that matter, bitter old staff writers) take ideas and run with them and then somehow get them into print.

My main goals this term (excluding getting the paper published and distributed on time each issue) included cleaning up the office and increasing the number of contributors (particularly first year students). Not very ambitious goals but I believe I succeeded. Maybe after this paper is out on racks I’ll have the E5 racks installed too.

If I had to do this EIC gig again, I totally would. But maybe not in my 4B term, eh? Maybe 3A or 3B.

This is the end of my editorial. In a few weeks (knock wood) I’ll leave KW forever (or at least for the foreseeable future), take a few months off, learn to drive, travel to New Zealand, and then start grad school at UT, in roughly that order.

And what what will you be doing? Graduating? Study term? Co-op? Whatever it is, don’t be afraid of taking on new roles and responsibilities. It will probably go fine. You are capable of more than you think you are, and there are always people to help you. Long live and prosper. Namárië.

– Nancy Hui
Editor-in-Chief

THE IRON WARRIOR

The Newspaper of the University
of Waterloo Engineering Society

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That’s all for Winter 2015 folks!

Send your questions and submissions to iwarrior@uwaterloo.ca

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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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Winter Leader Retreat



BRYAN MAILLOUX
1B MECHATRONICS

Last Saturday was the Engineering Orientation Winter Leader Retreat! Aside from getting Orientation Week 2015's leaders to meet each other and outlining the responsibilities of each type of leader, the event also answered a lot of questions that most of us Bigs were kept in the dark about. First of all, the theme of this year's O-Week was chosen to be the Four Elements – Air, Water, Fire, and Earth, picked over Battle of the Decades and Board Games. (Naturally, a lot of Avatar references were made). Who's who in EngFOC was also revealed: Hannah Gautreau and Matthew Van Gennip are to be this year's HEADCOMs, and Ben Morcos and Nicola Muzzin are this year's SuperHuges. Most importantly, some of the changes that will be made since O-Week 2014 were announced. The 16 different colour groups will still exist, but to fit the theme, 4 superteams, each made of 4 colour groups, will represent the four elements. EngFOC is also placing a lot of emphasis on rain plans, which I'm sure many of the 2014 Frosh (and others too) are grateful for – being stuck in the E2 Wedge Lab hallway

with 100 other first-years and EDCOM going back and forth yelling at people on that rainy Tuesday wasn't the most pleasant of experiences. We were also glad to hear that O-Week would not be shortened because of Fall Reading Week – at least not this year.

It's a little weird to relive a bit of the Orientation Week experience, especially at the end of the school year. None of the 2019's have really done any chanting or brainstorming for silly ideas since O-Week, and looking for creative team ideas – someone came up with the brilliant idea of having “Dwayne ‘The Rock’ Johnson” as one of the Earth teams – and making up team chants (like “Waddle waddle waddle! Loo loo loo!” for the Penguins) really brought back that O-Week feeling of general craziness and fun. However, to the 2019's, and probably to others as well, the Leader Retreat served as a reminder of how far we've come since we got here only eight months ago, and let's be honest, it felt a lot shorter than that – we were just newcomers ourselves. And now, all of a sudden, we're almost done first year. I haven't got a clue where the time went, but I'm happy it was spent with some of the best friends I've ever made, and I'm proud to be working with those friends to welcome the next batch of Waterloo first-years. Hopefully, we can make Orientation even more memorable for them than it was for us.

Benjamin Netanyahu Wins Israeli Election



CAITLIN MCLAREN
3A CHEMICAL

The incumbent Prime Minister of Israel, Benjamin Netanyahu, who has been Prime Minister of Israel since 2009, was reelected during the national election on March 17. From 2013 onwards, Israel's government was made up of the Likud – Yisrael Beiteinu coalition and three other parties, with Netanyahu, the Prime Minister, heading the Likud party. However at the end of last year, the coalition (which held only 68 seats out of the 120 in the Israeli national legislature, or Knesset) failed to hold together, and on December 2, Netanyahu dismissed two ministers and dissolved the government.

Netanyahu is a controversial figure whose hardline stance on issues such as Palestine and Iran has earned him a great deal of criticism. However, these stances are popular enough to benefit Netanyahu if he were to up the rhetoric before the election, for example, by making political use of his March address to Congress, in which he discouraged the United States from making a nuclear deal with Iran. The conflict between Israel and Palestine is both ongoing and well known. In the weeks leading to the election, Netanyahu made further controversial statements, such as his proclamation that on the election date his supporters should vote to balance the votes of Arab Israelis, who were voting “in droves.” While Netanyahu was quick to say that he meant no offence after the election, Arab leaders were unimpressed.

Furthermore, while Netanyahu and his government have generally held that they support a two-state solution to the Palestinian issue (i.e. they would theoretically agree to the creation of a Palestinian state, separate from Israel), Netanyahu backtracked on this position and said that he would not allow such a solution during his Prime Ministership. Some are suspicious that this statement was calculated to appeal to the Israeli right wing. When pressed, Netan-

yahu claimed that while he would prefer a two-state solution, it was not feasible under current conditions. He cited agreements made between the Palestinian Authority and Hamas, and said that “conditions have to change” before any steps can be made towards the establishment of a Palestinian state. In order to diffuse tension, Israel's government agreed to release millions of dollars of tax revenue to the Palestinian Authority, whose payments it had suspended for the past three months.

The White House was not happy about Netanyahu's statements, considering that the United States has continually supported the two-state solution and has until this time been in agreement with the Israeli government on this issue. President Obama is quoted as saying that Netanyahu's about-face makes it “hard to find a path” to serious negotiations, and declared that “the status quo is unsustainable.”

From these statements on the election, it seems that Obama and Netanyahu's relationship is strained, although this also has to do with negotiations between the United States and Iran. While Obama's administration is attempting to form a nuclear agreement with Iran, along with the rest of the P5+1, Netanyahu's government has been opposing the deal at every step of the way. Netanyahu cautions that the current deal under consideration is far too lenient, and repeats his longstanding warnings about Iranian nuclear ambitions and extremism, while Obama retorts that Netanyahu does not put forward any valid alternative to the current negotiations. Within the United States, however, support and opposition to the negotiations is heavily split along partisan lines, and Netanyahu's address to Congress was planned without White House consultation – an indication of how divisive both the agreement and Netanyahu's policies are in America.

What Netanyahu and his Likud party intend to do after their electoral victory may not be precisely clear, but if their past actions are anything to judge by, it may be a long time before we see peace in the Middle East.

Microbeads to be Studied in Canada, Potentially Banned



NINA FENG
3B ENVIRONMENTAL

LEAFY THOUGHTS

Environment Canada is now studying the effects of microbeads on the environment and on wildlife. Typically made of plastic, microbeads are the tiny grains found in many cosmetic products, such as washes, scrubs, and toothpaste. Promising to give consumers exfoliated, supple skin or extra-white teeth, as well as adding visual appeal, these granular materials can have many uses and have therefore become very popular amongst consumers.

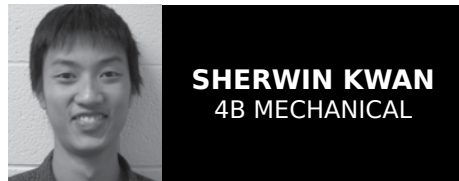
The beads get washed down the drain, into waterways, eventually accumulating in local water bodies such as lakes, rivers, and oceans. Sized at between 10 to 1000 microns, they mix in with household wastewater discharges and are often unable to be caught by typical filtering processes at wastewater treatment plants. Disturbing quantities of the tiny plastic grains have already been found in the Great Lakes and the Saint Lawrence River, where they sink

into the sediment beds and reside for indefinite periods of time. Turning up in aquatic wildlife and human water supplies, the plastic beads are becoming an environmentally damaging issue that needs addressing.

The NDP has proposed that microbeads be classified as a toxic substance, allowing for federal and provincial control of their use. The findings of the study will contribute to the development of action plans, regulatory standards, and ultimately their ban in Canada. Canada will follow Illinois, New Jersey, and several other states who are considering similar bans, with many cosmetics companies pledging to phase them out of production. For the sake of vanity, other materials may be used instead of microbeads, including fine sand, ground-up stone, seeds, and microcrystalline wax.

Thus far, the Netherlands is the only country with a nation-wide ban on the beads, planning to be rid of them entirely by the end of this year. As a country with an abundance of the world's fresh water, Canada should lead in the preservation of such a universally important resource. Cracking down on the use of microbeads is a huge step in reducing the creation of plastic soups in our lakes and rivers.

In Other News...



SHERWIN KWAN
4B MECHANICAL

Perils of Not Getting Vaccinated

As a follow-up on my article last month on measles, health authorities in the Lanaudière region of Québec have reported an ongoing outbreak in their schools. Over 100 cases of measles have been reported among children attending three schools in the vicinity of Joliette, QC. It is believed that the outbreak started due to a family vacationing at Disneyland in California.

Many of the cases were among members of a new religious movement known as La Mission de l'Esprit-Saint, which believes that its founder Eugène Richer, a cop in the Québec police force in the early 20th century, is a human incarnation of the Holy Spirit. Contrary to the mainstream Christian belief that Jesus saved the world by his death, they believe that Jesus failed in his mission and it's their job to carry it on. Their mission? “Regenerating humanity through eugenics”, where by “eugenics” they mean an eccentric metaphysical belief that a spiritually faithful woman can improve the state of their soul and give birth to superior children. And yes, the group opposes vaccination. A Québec judge once called the group “a harmful influence on the psychological well-being of children.”

Health officials are dealing with the issue by asking all unvaccinated children to get the measles vaccine ASAP, or face a two-week suspension from school.

Frozen

According to data published by Environment Canada, Kitchener-Waterloo has just gone through one of its coldest winters. An all-time low for temperature for K-W was set during reading week, on February 16, 2015, when -34.1°C was measured at Waterloo Airport, breaking an eight-decade-old record of -33.9°C set on February 9, 1934.

The average temperature recorded at the Waterloo Airport over the month of February 2015 was -14.8°C , almost 10 degrees colder than the 30-year average of -5.5°C . This is the coldest month ever recorded (records began in 1914) in Kitchener-Waterloo, breaking the previous record low for monthly average of -13.3°C set in February 1934. It is also only

the fifth month since records began when the temperature did not once go above freezing (in case anyone's wondering, the others are Jan. 1918, Feb. 1934, Jan. 1977, and Feb. 1978). We actually went 63 days in a row this year without a positive temperature.

It's a far cry from my first winter term in Waterloo, when there was a heat wave. I distinctly remember being able to play beach volleyball in a T-shirt and shorts in the middle of March. I was sort of surprised, because all I'd ever heard growing up in BC was how cold the winters were in the rest of Canada. But nature always gets her revenge. Little did I know...

Of Niqabs and Women

Last month, the Federal Court of Canada announced its opinion that the Citizenship Act required government officials to permit the wearing of the niqab, a veil which covers all of the face except the eyes, during citizenship ceremonies. The niqab is a common article of clothing in Arab states and in South Asia, and is often worn for religious reasons – some schools of thought within Islam consider the face to be a private part of the body which should be covered in the interests of decency. However, other schools of thought reject it – notably Sheikh Muhammad Tantawi, the longtime Grand Mufti of Egypt, refused to teach anyone wearing a niqab and once denied a veiled woman access to his library.

Face veils have been controversial in North America and Europe, and are currently banned in France, Belgium, and some parts of Spain, Switzerland, and Russia. The controversy pivots around the question: Is the niqab a sign of female subjugation? If so, then it would make sense to banish the niqab in the interests of gender equality. If not, however, then it would hardly be right to ban an article of clothing just because it made others feel awkward. A poll from Forum Research earlier this month showed that 57% of Canadians believe that the niqab is oppressive to women (but, of course, there is still a significant minority who disagree with that view).

The Federal Court decision permitting face veils in citizenship ceremonies opened a wider debate about the niqab's place in Canadian society. Harper made it clear where it stood, describing the niqab as “rooted in a culture that is anti-women”, and he does have the majority of Canadians on his side on this issue at least. Conservative MP Larry Miller went further,

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Dean of Engineering Speaks About E7

Continued from DEAN on Page 1

been an immensely strong message to the government and the university that our students strongly believe in their Waterloo Engineering education, reinforcing the need for better facilities.

Interviewer: So you view the voluntary \$25 per term as a philanthropic act?

Dean Sullivan: I certainly do, and I believe so did EngSoc. It would have been an important gesture on behalf of the engineering student body. As universities find it increasingly harder to operate with declining government grants, private donors are essential. We want to ensure the Waterloo Engineering degree remains the gold standard in Canada. Without philanthropic donations of all sizes, we will not be able to offer the student experience that we want to. This is major construction and we need to rely on private funds to support part of the costs. If students, who we know are watching their dollars, felt that Engineering 7 was important enough to voluntarily donate \$25 per term, then it would have been a strong show of support that we are addressing their needs. It would have helped us ask our alumni and others to give more. We have seen, for example, how WEEF support for the Student Design Center, as well as Arts Endowment Fund support for the Hagey Hall Courtyard infill, made the difference.

Interviewer: Will the plans for E7 change because of the no vote?

Dean Sullivan: Not at all. We are committed to providing the space we have planned. We are close to finalizing the detailed drawings and hope to undertake the tender process in late spring. If everything goes as planned, Engineering 7 will be built and ready for students in fall 2018. I think it would have been helpful if our students had more background information on how the idea of E7 was conceived. In the Faculty's first-ever strategic plan, Vision 2010, we conducted a space audit and discovered that engineering student enrollments had grown by 80% but the space only expanded by 20%. It was clear that there was a drastic shortfall of space for our rapidly expanding engineering departments. To address this, Vision 2010 planned to build three buildings: E5, E6, and E7. We phased them in so that we could also phase in paying for them. When I started my term as Dean in July 2012, my first priority was

to attend to the undergraduate student survey results of 2011 – students asked for more study space, social space, and more spaces to work on their design and capstone projects. The second priority was to address the relentless demand for our undergraduate programs. We were then turning away hundreds, and now thousands, of top-notch Canadian students who want to enter our programs. It's tough to be saying no to so many Canadian families. So we expanded the highly popular Mechatronics Engineering program and added the new Biomedical Engineering program in fall 2014. This means we have to hire more professors who will need research labs, to add new lecture halls and tutorial rooms, to house new faculty, staff and graduate students in offices, and provide more facilities for all engineering undergraduates. We are expanding not one, but two, undergraduate programs that will accommodate 1300 more undergraduates and another 200 graduate students by 2020. Simply put, E7 is an undergraduate building.

Interviewer: The E7 building is part of a capital fundraising campaign Waterloo Engineering is undertaking. Explain to me what that is.

Dean Sullivan: We are launching a \$70 million fundraising campaign entitled "Educating the Engineer of the Future." Our campaign has several goals. The first is to dramatically enhance student experiences in a number of ways – whether by supporting our student design teams or by providing much needed scholarships. As it relates to the building of E7,

we will be providing a 147-seat student study space, seven large lecture halls, tutorial classrooms, the Engineering Ideas Clinic™ space for all programs, a second student machine shop and an eating area. Our other campaign goals include creating the Engineer of the Future Scholars program to attract the best and the brightest graduate students and establishing new research chairs in emerging technologies.

Interviewer: You mentioned the Engineering Ideas Clinic in E7. What is this?

Dean Sullivan: We have very bright students coming into Waterloo Engineering. They are also digital natives. Nearly all students today are very comfortable with technology, but less have experience in physical, hands-on aspects that help them make good engineering judgements. The ability to combine the digital with the physical will enable our students to deal with uncertainty and tackle truly difficult problems. E7 will house the Engineering Ideas Clinic which is about half the footprint of the first floor. The dedicated open lab space is intended for team teaching so faculty from various programs can jointly offer immersive and integrated learning activities from year 1. More important, each Clinic module will enable students to connect what they have learned in the classroom by solving practical problems. Our hope is to teach software engineers in the same space as chemical engineers. It will also be a broad setting for all students to express their creativity and test their ideas. The Ideas Clinic team has designed test beds for land and water-based vehicle in one section, and in another, a

media room to learn how to do effective marketing. As far as we know, no other university has such an innovative space for engineering students to learn in.

We have also designed a two-storey aerial robotics testing lab, which we call the Robozone. After years having to put up and take down netting in E5, many students are looking forward to having this specialized facility.

I would like to reiterate that while we are refining the design, the general floor plan for the entire building has been available in the Dean's Office for viewing since October 29, 2014. We will be publishing the floor plans publicly within the next month.

Interviewer: You've already raised \$30+ million of the \$88 million you need, where did that come from?

Dean Sullivan: There are many people who understand the significant value that Waterloo Engineering brings to Canada and the world. Engineers, especially Waterloo Engineers, are a formidable force when it comes to affecting Canada's economy and addressing societal challenges. Our donors, many of them alumni, understand that what comes out of Waterloo engineers - the big ideas and the ability to execute - depends on what goes into Waterloo engineering education. By supporting the Educating the Engineer of the Future campaign, of which E7 is a part of, they are counting on us to continue to uphold the excellence that has defined us.

Interviewer: What can students do to help make E7 happen?

Dean Sullivan: Great question. As experienced by universities across Ontario, higher education has been challenged from years of declining government grants. This directly impacts all our departments and their ability to offer undergraduate support such as TAs, staff service, funding for design projects and renewal of labs. As we are already using our operating funds to pay for space, we cannot impact our undergraduate programs much further. We have to fundraise with this capital campaign. We've applied for provincial funding last fall under a major expansion program, but cannot assume we will get it. I would be very grateful to have your support, whether in the form of moral support or small financial support. With each student's support, it will be acknowledgement of the importance of what we are trying to achieve in undergraduate education.



Engineering Dean's Office

Rendering of the Ideas Clinic.

"New" New Cairo

Egypt's housing minister Mostafa Madbouly, the population of Cairo (currently 18 million) is expected to double within the next 40 years. The new city will provide places for the growing population to live, allowing some of the traffic and pollution to spread into an easier to manage space, and ensuring that there is no development on the precious agricultural land closer to the banks of the Nile. Many feel that the project is also a way to boost Egypt's economy by creating jobs in construction, retail, and the government; a way to reach their goal of 6% growth in the next 5 years.

Though cities have been built before, nev-

er has one been built this big - according to the website (simply dubbed *thecapitalcairo.com*), the new capital is to be 700 sq. km, an area roughly the size of Singapore. That space will hold 663 health centres, 1250 religious centres, and almost 2000 schools, as well as all of its government buildings and foreign embassies. Designed to be smart and sustainable, the city will contain 91 sq. km of solar panels as well as an electric railway.

However, many are dubious that the city will be successful, citing planned cities like Caofeidian in China, an "eco-city" that was supposed to attract a million people but is

now only half built and contains a few thousand inhabitants. Egypt in particular has not had success - it has built 22 satellite cities and towns, which currently contain altogether less than a million residents. One major example is New Cairo, which was built 15 years ago, but has only been able to attract a few hundred thousand, well below the millions it was supposed to attract. As the Guardian reports, this was "an irony lost on Egypt's investment minister, Ashraf Salman, when he quipped that Cairo's yet-to-be-named replacement would be "the new New Cairo".

Continued on NEW on Page 5

DEVIKA KHOSLA 1B NANOTECHNOLOGY

This week, Egypt revealed its plans to build a new capital city in the desert east of Cairo, closer to the Red Sea. The currently nameless city is a proposed \$45 billion project - which will be funded by investors – and is expected to house 5 million people and be completed within 5 to 7 years, although some say 12 years is more realistic.

Cairo has been facing issues of overpopulation and congestion for a while, something the new city is meant to ameliorate. According to



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What's the Fuss with the New Terrorism Bill?



SHERWIN KWAN
4B MECHANICAL

Over the past two years, I have written on a number of occasions about legislation being debated in Parliament, and often there has been much controversy over them. However, the Anti-Terrorism Act 2015 (C-51) being debated in Parliament trumps them all. While its proponents claim that it will help the Canadian government fight terrorism, its opponents fear it would lead to a loss of freedoms for Canadians (and 1984 comparisons have already been made). It has already been covered twice in this newspaper: our Tech Ethics columnists asked whether engineers should work for CSIS, and our esteemed editor wrote a critique of the bill in Issue #3, but I believe the resounding chorus opposing the bill deserves another article.

History of Anti-Terrorism Laws

Before I discuss the latest bill, I thought it would be useful to review previous anti-terrorism laws. After the attacks on New York and Washington in 2001, Jean Chrétien's government introduced an Anti-Terrorism Act (Statutes of Canada, 2001 c. 41), which controversially enshrined the investigative hearing and preventative arrest in the Criminal Code.

An investigative hearing is basically a special interrogation session to which anyone – even if they have done nothing wrong – can be summoned. All it takes to summon you to an investigative hearing is for a cop to suspect that you might be a terrorist or personally know a terrorist, and a judge to agree to supervise the hearing. It is your civic duty to attend and participate in an investigative hearing. If you skip it, the police can arrest you and force you to attend, and if you refuse to answer a question, the judge can put you in jail. Also, if the police suspect that a terrorist attack is imminent and that you'll have some role in it, you can be arrested without a warrant at any time. Once you've been arrested, you can be held for up to 72 hours to allow the police to gather evidence. If they are not able to convince a judge that you are likely to be involved in terrorism within 72 hours, then you can go free. However, if the judge believes you are likely to be involved in terrorism (even if you haven't been found guilty beyond a reasonable doubt after a fair trial), restrictions can be placed upon your movements (similar to when a convict is being let out on parole).

These provisions, as you might imagine, were criticized for suspending people's Charter rights to remain silent, not to be arrested without charge, and freedom of movement. As a

"New" New Cairo

Continued from NEW on Page 4

Building a new city is not impossible though. Brasilia, the new capital of Brazil inaugurated in 1960, and Astana, which became the capital of Kazakhstan in 1997, both seem to be developing a satisfied and loyal population.

The most important factor in the success of these new cities is making sure people want to live there. Simick Arese, an anthropologist at Oxford, says that "governments think they can just move people to new areas...but actually people go where they want to go". While Egypt's new capital has plenty of space for parks and new jobs, as well as a transport system connecting it to the current Cairo, Khaled Fahmy, history professor in Cairo feels that the government should focus more on improving living conditions in Cairo, rather than spending lavish amounts of money on a new city. According to him, "Cairenes and Egyptians, were not informed, let alone consulted about this move"; perhaps in order to improve the lives of Egyptians, it would be best to consult the Egyptians themselves.

compromise, the government decided to make the provisions expire after five years. The provisions expired in 2007, but they were restored for another five years in 2013, when the Conservative government passed the Combating Terrorism Act (S.C. 2013 c. 9).

The Current Bill

The latest Anti-Terrorism Act being debated right now goes a bit further. It consists of five parts: the Security of Canada Information Sharing Act (SCISA), the Secure Air Travel Act (SATA), and amendments to the existing Criminal Code, CSIS Act, and Immigration Act. For review, if any of you haven't read our previous articles on this subject:

A) The SCISA would allow government departments to share information on suspects with each other. For example, CSIS could ask the CRA to hand over your tax returns if they suspect you've been paying terrorists.

B) The SATA would force all airlines flying into Canada to comply with a secret no-fly list maintained by the Canadian government. That's right, if an airline refuses to let you go on your vacation to Hawaii and you ask them why the hell you're on the no-fly list, they won't be allowed to tell you why. You are allowed to challenge the government's decision to put you on the list, but if you're too poor to afford a lawyer, tough luck.

C) The Criminal Code amendments would add a 5-year prison term for saying anything which might cause people to want to commit "terrorism offences", and judges would also gain the power to take away your passport and impose two years of parole conditions after a preventative arrest, even if you haven't been found guilty of anything.

D) The CSIS Act would be amended to give them extraordinary powers: if a judge issues a warrant for it, they would be permitted to temporarily break Canadian law (including the Charter) if they think it could prevent a terrorist attack (the only things they wouldn't be allowed to do would be physically harm or sexually harass you). Such a warrant would be active for 120 days, and be renewable twice. Yep, CSIS would become a secret police.

E) The Immigration Act would be amended so that, in a court case where the government is trying to deny a refugee or immigrant the right to enter Canada on security grounds, the government would be allowed to hide evidence from the lawyer representing the refugee or immigrant.

Protests

On March 14th, protest marches were held from coast to coast – sizable gatherings loudly opposed the bill in Vancouver, Calgary, Ed-

monton, Winnipeg, Toronto, Ottawa, Montreal, Moncton, and Halifax, among other cities.

Others who have raised concerns with the bill include former CSIS officer François Lavigne, who believes that his former employer simply does not need the new powers being proposed for it and noted that terrorism was less of a threat than violence from gangs, the Assembly of First Nations, which believes that the law might be used against aboriginal protests, and representatives from Canada's airlines, who fear that the government might ask them to go to impractical lengths to enforce the no-fly list. Former prime ministers Clark, Turner, Chrétien, and Martin signed a joint open letter calling for greater accountability for CSIS.

Among the federal political parties, the Official Opposition NDP and the Green Party are vehemently opposed. They see no reason why police and CSIS can't just do their job using the existing anti-terrorism laws, and believe that the new powers are excessive and will do much more harm than good. Green's leader Elizabeth May particularly worries that nonviolent civil disobedience might be lumped together with terrorism, and the new law would come down harshly on protesters.

Supporters

Minister of Public Safety, Steven Blaney, defended the bill on the grounds that CSIS could use its expanded powers to intervene early before wannabe terrorists get radicalized, and that the secret no-fly list and expanded police powers are necessary to disrupt terrorist plots and keep Canadians safe. Blaney further believes that the Security Intelligence Review Committee (SIRC), the independent committee overseeing CSIS, would see to it that abuses of the law can be avoided.

The Liberal Party is also in favour for now, although their support has been a little hesitant. Leader Justin Trudeau is on the record as having reservations. He held the SIRC to be insufficient for keeping CSIS accountable (and noted that a previous head of that committee was now in jail for fraud). They intend to propose amendments, including a mandatory review of the new law after three years.

The Bloc Québécois voted in favour of the bill at second reading, although MP Louis Plamondon was quick to add that they were doing so to send the bill to committee where it could be considered in detail and amended, and would vote against final passage of the bill if amendments were not forthcoming.

Outside of the political arena, relatives of Patrick Vincent, the soldier killed in the politically-motivated vehicular homicide in Saint-Jean last October, announced their support for the Anti-Terrorism Act, in the belief that the new

provisions could prevent similar incidents in the future.

Flawed But Fixable?

The Canadian Bar Association has come out against the law as it is currently written. Its biggest beef is with the provisions that would allow judges to give CSIS licenses to break the Charter, and it also finds the new powers for government departments to share citizens' private information with each other to be worrying. It would recommend that the law be amended and be implemented with a five-year expiry date, like the Anti-Terrorism Act 2001.

Two professors of law, Kent Roach and Craig Forcese, have written a detailed critique of the bill. While they too are worried about the bill as it currently stands, they have published dozens of amendments they recommend on their website. These amendments are paired with statements from Conservative MPs explaining the rationale for the bill, showing that they should satisfy the rationale while also guarding against abuses.

In Parliament, Conservative MP Michael Chong acknowledged that the other side had a point. Although he still maintained he supported the bill, he also agreed that it should be amended to put CSIS under greater accountability.

Future Prospects

The Anti-Terrorism Act is currently being studied by a committee of the House of Commons, with expert witnesses being called in to give their opinions on the bill. Given that the Conservatives hold a majority in Parliament, they will – if they choose to do so – be able to pass the bill, barring a large number of MPs defying the party line. However, it is not unheard of for this government to withdraw bills (they did for the internet surveillance bill in 2012, and they temporarily withdrew a copyright reform bill before re-introducing a more consumer-friendly version), and even if the bill goes on, it is possible that they may agree to amendments increasing the accountability of CSIS, or set an expiry date after which the law will be up for debate again.

As usual, you can contact your MP to let them know how you feel about the Anti-Terrorism Act. One person might not be able to do a lot, but what if a thousand people did the same thing? Nothing causes a politician to have second thoughts more than knowing that votes are on the line.

Even if nothing happens, remember that a general election is coming close – October 2015. We are a parliamentary democracy, and as the citizens of Canada we have the right to put any MP we don't like out of a job. Get out and vote, or forever hold your peace!

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President's Farewell and Final Updates



ALLYSON FRANCIS
PRESIDENT

Hello (and goodbye) UW! This will be my last IW update as President; I can't believe how short sixteen months can feel!

This week we are holding our last event of the term, the End-Of-Term (EOT) Party, in POETS. It will be held between 6 and 8pm on Thursday, before the start of the long weekend. This will be the last chance to see the grads at an event before they move on to bigger and better things! The Tool will also be there for those of you who are ringed, and want to see it one last time before you graduate!

We also recently held our first ever General Meeting on B-Society, and four motions were ultimately passed. It was great to see lots of new faces and hear new voices in the meeting, and I hope that this will continue in the future! Minutes of the GM will be available on the So-

ciety's website (engsoc.uwaterloo.ca) shortly.

Something else I've been working on closing out is the aftermath of the E7 Referendum. I've been meeting with the Dean and the faculty to discuss next steps, and the conversation has been extremely encouraging. The Dean is committed to creating the necessary space for students, and all the same space is being implemented for students to enjoy. As a consequence of the referendum failing, the Engineering Society will not receive naming rights for the study room, but we will still have space to run our shops, as well as casual social space and lots of room for students to learn with the implementation of seven new lecture halls! For more information on ways that you can show your support for the building and make a contribution, contact the Office of Advancement, or stay tuned for future fundraising campaigns!

I also just wanted to take this opportunity to say thank you for a great term as President. I really enjoyed meeting all of you and working with you, whether you were members, reps, directors, commissioners, colleagues from other

student unions, from the faculty of engineering, from the university administration, from a neighboring EngSoc, or from the community. I'm really grateful that I had the privilege of being President this year, and I'll be staying involved in my fourth year as well, so I hope to continue to work with all of you! I also want to give a special shout-out to my team, Melissa, Permeg, Sarah-Rose, and Mathieu, and our counterparts on A-Society, Leila, Kevin, Puneet, Josh, and Heather. Most of what was accomplished in the past 16 months would not have happened if it weren't for the help of these wonderful people. I am very excited to pass the torch to Hannah Gautreau, my successor, and her team of executives, and I am excited to see what they will do in the coming year!

As always, if you have any questions, or have anything else you'd like to hear about or ask me, please don't feel shy to send an email to president.b@engsoc.uwaterloo.ca before this term ends, or anytime during the co-op term, and either Hannah or I would be happy to chat! See you around, B-Soc!

VP-WINternal

The end!



MATHIEU TREMBLEY
VP INTERNAL

Hello friends, I hope all of you are excited for exam season! As of Wednesday March 25th, all of the events under my portfolio were done so I'm pretty much done my 16-month term as VP-Internal! Teresa and I have been doing transition stuff and I'm confident she will do an amazing job as my successor! It's been an amazing few terms working as VP-In and I'm excited to pass the torch on.

While there aren't any more events left under my portfolio this term, on April 2nd EOT will be happening in POETS from 6PM to 8PM, which should be pretty fun so come check that out!

Cheers and goodbye forever (well, not really forever, I still have another year before graduation),

Mathieu Tremblay
ex-VP Internal, B-Soc

VP Education

Interview with Dr. Jeffrey West



PERMEG KENTH
VP EDUCATION

Hi everyone,

I can't believe my term as VP Education is coming to an end. This being my last article, I would like to take an opportunity to thank everyone who worked with me to make it a great 16 months. This week's issue is an interview of Dr. Jeffrey West; he is a professor in the Civil Engineering department, and the winner of the EngSoc Teaching Excellence Award. We asked him a number of questions and this is what he had to say:

When did you decide to be a professor?

When I was a Master's student (TA for undergrad), I got great feedback from students, and hence teaching seemed to be a talent. Originally I planned to go into industry after my Master's. I decided to pursue my PhD since I enjoyed research too. I lived in US at the time after completing my PhD, and still planned to pursue academia, though I felt that I lacked real-world experience, so I decided to apply to both academia and industrial jobs. I ended up with offers from both but chose to work in industry, at a Texan consulting firm. I felt it was important to gain industrial experience prior to teaching.

What do you enjoy the most about teaching?

Immediate feedback in the classroom, and discussion and seeing the understanding amongst students. When students seek help from me when stressed or upset, making students leave feeling confident is what is most rewarding about the job. Seeing them at capstone symposium and graduation having applied course material is also rewarding. The biggest legacy I hope to leave is to have many civil engineering graduates apply what they learned in my class.

What do you think is a reason why students enjoy your lectures so much?

I care about what I'm doing. I try to convey how what we're doing is important to their degree. I make the course organized so students are clear about expectations, and try to challenge students while being very fair. Students are able to appreciate the material, stay on track and keep up with the course. I aim to primarily use a blackboard due to the conductive nature of course material. I always design lecture notes with the goal of students being able to refer back to notes later and be able to make sense of them - design while considering students' point of view.

What do you think other Faculty members could do to improve students' learning experience in lectures?

It is challenging but personally I'm reluctant to take on electronic means for teaching (e.g. iClickers, modules for main course content). Engaging students via portraying energy and passion from self, showing them where and how course content will be applied, as well as connections between classroom and workplace is what I find works best. Hold their attention! Key piece of advice: have variety in the presentation of lecture material rather than writing out endless notes. Be passionate to excite students!

What is the one piece of advice you would give to students who want to improve the quality of their learning?

Easy to say, but I understand its hard for undergrads to do: going above and beyond assigned expectations to understand WHY, and not just how, they're doing things. Understanding the underlying concepts and assumptions, not just the results of calculations, especially for highly quantitative assignments.

What do you enjoy the least about teaching?

Two things; one, seeing a student who's not engaged or is struggling and being unable to reach out. It bothers me to see a student fail a

course. Second, at the end of the term, having to mark around 120 exams. But it's important and part of the job, so I have to do a good job of it.

Given the opportunity, how would you improve yourself as a professor?

A thing I don't have much of anymore is time. This is a normal thing in life, and academia especially (due to admin and managing grad students). I want more time to reflect on teaching and to try different things in teaching. I tend to use a traditional style of teaching, albeit with some technology, but I want to try re-working an entire course. I'm not sure how but I need time to see how others do that and how to implement to some of the courses I teach.

In your years of being at UW, what changes have you seen within the Department of Engineering and the Faculty of Engineering (e.g. curriculum, learning environment, etc.)?

The faculty's grown, the number of programs and students have grown. My 3B course (TE), started with 60, now it's around 120. In curriculum, we've brought in more application, to make the course work more relevant, as well as more design and creativity in problem solving. My teaching style reflects this, where I would give a problem that looks like a real building or real garage. We're also introducing more small projects to apply hands-on experiments.

What changes would you like to see made to the Department and Faculty?

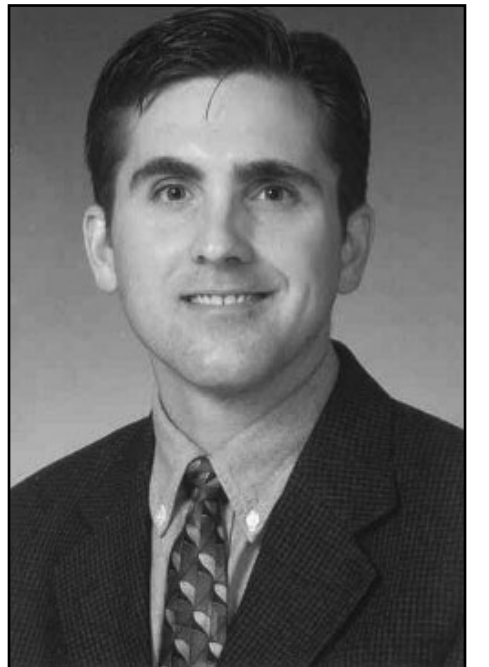
As associate chair, I'm quite knowledgeable about what goes on in other programs. Deepening learning by providing hands-on experience, be it in the field or the lab, would be a great change. The problem is working it into the curriculum, which is hard to do since it takes time and resources. As faculty, we're moving that way, and with E7, the Engineering Ideas Clinic will facilitate this. We have some Clinic ideas. We need to embrace and be open to other ideas for experiential learning. This is

a change that is starting and we need to push this momentum. We try to shape students into great engineers. We also want to increase level of importance on communication skills, such as writing and presentation.

What do you think is the most impressive Civil Engineering feat (presently)?

I really love long span bridges (being a structural engineer). I can't pick a single achievement though. Top three would be the channel tunnel, the Burj Khalifa, and the Brooklyn Bridge. Or maybe even the old Quebec Bridge. For the Brooklyn and Quebec bridges, the fact that they constructed them at the time is what is impressive. They used gut understanding, without aid of modeling software from today.

I would like to thank Dr. West for his time. He is really an inspiration to many students in his department. Keep up the great work Professor! I would also like to thank Kathy Becker, Alice Van Ngo, and Alex Sterling for assisting me in the TEA process.



University of Waterloo
Professor Jeff West

Upcoming Events Calendar

Wednesday April 1	Thursday April 2	Friday April 3	Saturday April 4	Sunday April 5	Monday April 6	Tuesday April 7	Check out up-to-the-day event postings on the EngSoc website at engsoc.uwaterloo.ca
April Fools Day!	EOT 18:00-20:00, POETS	Charity Grilled Cheese 11:30-12:30, CPH Foyer Weekly Exec Hangout 12:30-13:30, CPH Foyer			Last day of classes! Good luck on your exams!		

VP Finance Update

Wrapping things up!



MELISSA FERGUSON
VP FINANCE

Hello EngSoc!!

This is my last exec report!! I'm really going to miss being your VP Finance, but I know that Don Tu will do an amazing job, so I am confident that you will be left in good hands.

Last week the sponsorship and ECIF committees met to allocate their funds. The approved allocations from each committee are accompanying my article. If you have any questions about any of the allocations please do not hesitate to email me at vppfinance.b@engsoc.uwaterloo.ca.

Looking back on my term there are many things that I wish I could have done. I would

have loved to get more department patches in to Novelties. We got the Nano patch in last term, and this term we are getting the Chem department patch, but I would have really liked to be able to get more in during my 16 months. I also would have liked to do more with the Student Deals program. I was able to reach out to Waterloo Taxi and get some coupons as a student deal, and we have a great connection with them right now, but I would have liked to add even more to the WatCard sticker program.

Everything else about my job went very well. I am pleased with the progress made regarding Ridgidware, everything else about Novelties, and Committee management.

I am really glad to have been given the opportunity to act as the VPF for EngSoc. Thank you for trusting me with this important role.

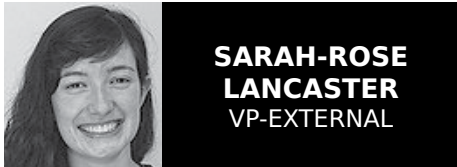
Melissa Ferguson
VP Finance, B-Soc

ECIF Allocations

Expenses		
Item	Requested	Approved
Jazz Band equipment Bag	\$ 150.00	\$ 187.40
Button maker and stamp	\$ 528.37	\$ 528.37
Bill counter	\$ 372.89	\$ 372.89
POETS Microwave	\$ 200.00	\$ -
Pool Cues	\$ 400.00	\$ 400.00
Resurface Pool table	\$ 540.00	\$ 540.00
Waffle Irons (2)	\$ 400.00	\$ 200.00
New electric griddles (2)	\$ 400.00	\$ 400.00
Lighting Equipment	\$ 355.53	\$ 301.73
Total Expenses	\$ 3,346.79	\$ 2,930.39
Allocated Funds	\$ 2,930.39	\$ 2,930.39

VP External Update

Thank you!



SARAH-ROSE LANCASTER
VP-EXTERNAL

Being VP External for the last sixteen months has been a challenging, fun and overall rewarding experience. If there's anything I learned it's that being a Engineering Society VP take a lot of hard work and dedication, and having been one makes me respect those who I worked with, and those who came before me even more.

Some of the things I accomplished as VP External included continuing to grow the foster the Society's Engineering a Difference program and securing funding to send an Engineering competition team to the National Mining Competition. The Engineering A Difference program on B-Society helped out various organizations in Kitchener-Waterloo including the MUSEUM, a children's museum in Kitchener, and an event called the

Walk to Fight Arthritis. During the National Mining Competition, the Waterloo team competed and came first at the competition in Saskatoon, Saskatchewan. It is my hope that both of these initiatives will be carried on by my successors in the Engineering Society.

This past March I also managed to pull off a successful National Engineering Month. The month's final event, Charity Bus Push, featured 16 pullers and raised over \$700 for oneROOF in Kitchener. I myself participated in the Push, it was challenging but well worth it at the end of the day.

I would like to thank my fantastic executive team, the previous VP External, Kristina Lee for her endless guidance and Mary Bland for her hard work for our society and to help my time as VP External run smoothly. I will be passing my responsibilities on to Kieran tBroekhoven come May 1st, and I am sure he will do a fantastic job as your new VP External. Thanks again to everyone who supported me over the past 16 months, it's been great!



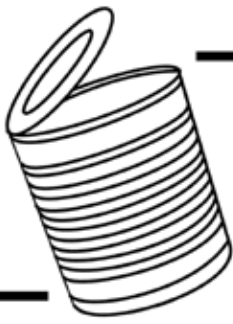
Volunteers pull a bus for charity.

Engineering Society

Sponsorship Allocations

Team Name	Item Requested	Funds Requested	Funds Allocated	
Waterloo Hybrid	Springs & Dampers	\$ 600.00	\$ 600.00	
	Engine Rebuild Kit	\$ 400.00	\$ -	
	Total	\$1,000.00	\$ 600.00	
Bridges to Prosperity	Torque Wrenches (2)	\$ 300.00	\$ 300.00	
	Tents (2 or 3)	\$ 600.00	\$ 600.00	
	Safety goggles (6)	\$ 90.00	\$ -	
	Safety Gloves (6)	\$ 120.00	\$ -	
	Air mattress	\$ 300.00	\$ -	
	Orifice print credit	\$ 200.00	\$ -	
	Total	\$1,610.00	\$900.00	
UW_NRG	Mask	\$ 300.00	\$ 300.00	
	Electronic Components	\$ 280.00	\$ 280.00	
	Tungsten wire	\$ 15.00	\$ 15.00	
	Ceramic Beads	\$ 30.00	\$ 30.00	
	Epoxy	\$ 10.00	\$ 10.00	
	Comison Licence	\$ 260.00	\$ -	
Total	\$895.00	\$ 635.00		
Waterloo Rocketry Team	Heating cable with temp. controller	\$ 250.00	\$ 250.00	
	Hoses	\$ 300.00	\$ -	
	Cable cutter	\$ 50.00	\$ -	
	PPE	\$ 150.00	\$ -	
	Fabrication material	\$ 400.00	\$ 400.00	
	Total	\$1,150.00	\$ 650.00	
UW Eco Marathon	Dremel tool	\$ 159.00	\$ -	
	Tools and tool box	\$ 226.00	\$ -	
	GPS lap timer	\$ 600.00	\$ 600.00	
	Total	\$985.00	\$ 600.00	
EngFOC	Ladder	\$ 112.99	\$ 112.99	
	BBQ rentals	\$ 258.00	\$ -	
	Orifice print credit	\$ 200.00	\$ 200.00	
Total	\$570.99	\$ 312.99		
Enactus Waterloo	plastic containers	\$ 150.00	\$ 150.00	
	live crickets	\$ 75.00	\$ 75.00	
	egg crates	\$ 125.00	\$ 125.00	
	cricket food	\$ 75.00	\$ 75.00	
	Heating expenses	\$ 25.00	\$ 25.00	
	volunteer visa	\$ 1,000.00	\$ -	
	accommodation	\$ 1,260.00	\$ -	
	field visits	\$ 360.00	\$ -	
	Total	\$3,070.00	\$ 450.00	
	EngSoc Hockey	Hotels	\$ 568.00	\$ -
		Transportation	\$ 150.00	\$ -
Entry fee		\$ 550.00	\$ -	
Total		\$1,268.00	\$ -	
FSE	Battery management system	\$ 700.00	\$ 700.00	
	Total	\$700.00	\$ 700.00	
Engineers without Borders	Conference registration	\$ 1,200.00	\$ 200.00	
	Subsidy	\$ 900.00	\$ -	
	Accommodation	\$ 50.00	\$ 50.00	
	Travel	\$ 50.00	\$ 50.00	
	Food	\$ 75.00	\$ 75.00	
	Fleming Donation	\$ 100.00	\$ -	
	Total	\$375.00	\$ 375.00	
CDE (Conference Diversity Engineering)	Single and sexy performance	\$ 5,000.00	\$ 361.23	
	3D printing	\$ 750.00	\$ -	
	Hotel IT	\$ 1,000.00	\$ -	
	Photographer	\$ 500.00	\$ -	
	Ballroom rental	\$ 3,000.00	\$ -	
	Total	\$10,250.00	\$ 361.23	
[reboot]	3D printing	\$ 9.00	\$ -	
	arduinos	\$ 50.00	\$ -	
	motors	\$ 200.00	\$ -	
	lights	\$ 40.00	\$ -	
	Battery management system	\$ 150.00	\$ -	
	wires	\$ 70.00	\$ -	
	solder kit	\$ 40.00	\$ -	
	sensors	\$ 70.00	\$ -	
	screwdrivers	\$ 30.00	\$ -	
	drill	\$ 200.00	\$ -	
	drill bis	\$ 100.00	\$ -	
	hardware and art supplies	\$ 300.00	\$ -	
	Ridgidware	\$ -	\$ 400.00	
	Total	\$ 1,259.00	\$ 400.00	
UW Steel Bridge Team	Hardhats	\$ 457.28	\$ 457.28	
	10" screw clamps	\$ 115.00	\$ 115.00	
	c clamps	\$ 172.67	\$ -	
	tshirts	\$ 760.00	\$ -	
	Total	\$1,504.95	\$ 572.28	
UW Management Consulting Club	Case	\$ 50.85	\$ 50.85	
	Poster printing in orifice	\$ 49.15	\$ 49.15	
	Total	\$ 100.00	\$ 100.00	
IIE	15% Registration fee	\$ 3,600.00	\$ 1,000.00	
	Total	\$3,600.00	\$ 1,000.00	
UW ASME	food	\$ 124.80	\$ -	
	prizes	\$ 96.00	\$ -	
	sponsor gifts	\$ 50.00	\$ -	
	Total	\$270.80	\$ -	
UW Le MOT	Magazing printing (in orifice)	\$ 700.00	\$ 350.00	
	Total	\$700.00	\$ 350.00	
Engineers in Medicine	Food	\$ 150.00	\$ 150.00	
	Speaker gifts	\$ 50.00	\$ 50.00	
	Marketing costs	\$ 20.00	\$ -	
	shirts	\$ 150.00	\$ -	
	Total	\$370.00	\$ 200.00	
Waterloo Submarine Racing Team	Diving gear (6 divers)	\$ 1,850.00	\$ -	
	website and email maintenance	\$ 265.00	\$ -	
	Electronic Components	\$ 100.00	\$ 100.00	
	prototyping materials	\$ 500.00	\$ 500.00	
	Total	\$2,715.00	\$ 600.00	
TOTAL		\$32,393.74	\$8,806.50	

THE TIN SOLDIER



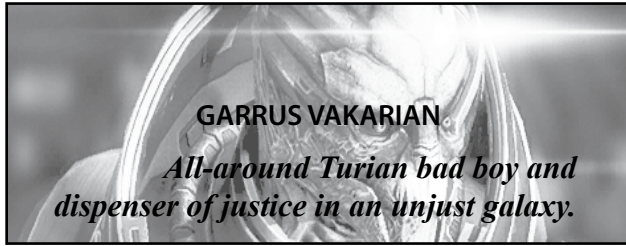
I HAVE TO SPEND ALL DAY COMPUTING PI BECAUSE HE PLUGGED IN THE OVERLORD

I'VE HAD ENOUGH OF YOUR DISINGENUOUS ASSERTATIONS



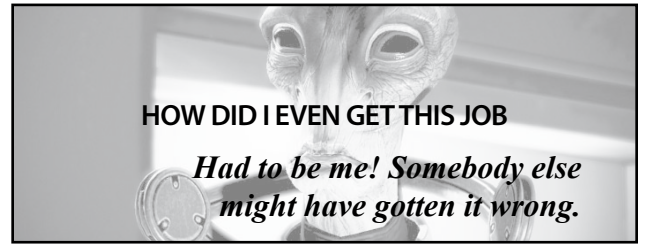
I AM THE HARBINGER OF YOUR ASCENDANCE

I know you feel this.



GARRUS VAKARIAN

All-around Turian bad boy and dispenser of justice in an unjust galaxy.



HOW DID I EVEN GET THIS JOB

Had to be me! Somebody else might have gotten it wrong.

I'm a Lumberjack and I'm Okay

I Sleep All Night and I Work All Day

EVERYTHING IS GONNA BE ALRIGHT BRO

TRUST ME MAN

TRUST ME

IT'S GONNA BE OKAY

DUUUUDE

OH GEEZ OH GEEZ STOP CRYING

This motivational message was brought to you by the Tin Soldier.

Were you afraid we were gonna put something sexist, racist here?

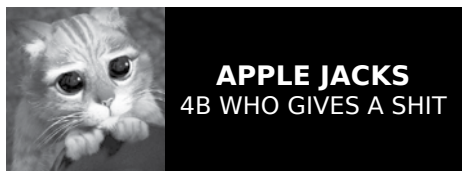
We ain't about dat life.

Eat your vegetables, bro. It's important to stay regular.

Also put some pants on.

-but there used to be an article here :f :f :f
SHUT UP CAT IT WAS NEVER HERE

Waterloo Engineering Becomes WatEng Entrepreneurial by Design™



**APPLE JACKS
4B WHO GIVES A SHIT**

Waterloo's Faculty of Engineering found success in the last three years in rebranding their fourth-year design project symposiums from a showcase of what students have learned over their last five years at Waterloo to "capstone design projects" centred on "innovation", "entrepreneurship" and other words used by 25-year-old guys who wear Vibram® FiveFingers® around their office. Capitalizing on that success like any good individualistic architect, they have realigned their brand to match market indicators and capture the 14-18 segment of the higher education market.

Starting this September, the faculty's official name is moving from Waterloo Engineering to WatEng™: Entrepreneurial by Design™. With an initial investment of \$40 000, split three ways between the City of Waterloo, the provincial government and the federal government, it hopes to begin initial funding rounds over the summer. To make the faculty more agile and adaptable to current trends, all staff will be relocated to jobs elsewhere in the university on Canada Day, with Dean

Sullivan and five professors remaining with the new corporate entity, where Sullivan will have a new position as the Uber Innovation Ninja. Sullivan will be going to pitch WatEng™ at the Velocity Fund Finals in the Spring term, then entering venture capital financing rounds to further raise money. In the long term, Sullivan is looking at applying to Y Combinator where she and one other professor will be going to learn how to bring their new venture from Seed to Startup™.

WatEng™ hopes to pivot from their previous traditional classroom models to a new open-concept paradigm centred around vintage unfinished walls and multipurpose bean bag seating, called Lern 2.0. The class of 2020 will be the first to enter into the Lern 2.0 beta edition, with a final version coming "when it's done". Lecture halls will be connected to The Cloud® where they can connect to other lecture halls and use social media integration to deliver new enterprise solutions to the market. This new innovative teaching method will revolutionize the way people learn at the university.

A special residence will be opened purely for WatEng™ students, which will be open to a select few number of people who are the most innovative, and will cost \$1000 more than other Waterloo residences per month. Ian LeDuc, a Don

in the new residence, says it will be worth the extra cost so that students can have access to the newest video games, special craft beers and weekly speakers who tell them how important and special they are. "We really think our bros will love how we've targeted this residence to their needs," said LeDuc. "There's going to be daily Call of Duty tournaments, which we finish by yelling at each other really loudly with testosterone-filled grunts to show

off how manly we are while we code." It's intended that after each tournament, everyone goes together to the gym and bench presses as much as they can to prove that they are "brogrammers," or "nerds with muscles."

Sullivan is excited to see the growth forecasts for the next few years, and after the IPO, she hopes to provide shareholders in WatEng™ with high margins to provide value.

Apple Releases Special Edition Gold Watch



**KITTY KITTY
MEOW MEOW
3A YAOI FANGURL**

A spokesman for Apple has hinted that a new, secret edition of the Apple watch will be released on Easter. The watch will resurrect Steve Jobs (PBUH) in the form of low-density carbonized particles embedded in a gold matrix.

It appears that soon after his Ascendency, the remains of the inventor were subjected to heat and pressure until they

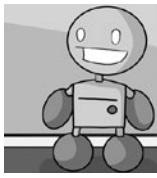
became pure carbon. The carbon particles were made into an alloy with the purest gold, and now a select few can be wearing the remains of Jobs (PBUH) close to their bodies.

Wearing the watch will apparently produce beneficial side-effects, such as an increase in self-value, savvy business ideas, and perpetual intercourse with the Ascended Jobs (PBUH). There are also reports that the watch will be able to ward off all Microsoft products, and that contact with the watch will heal a broken iPhone.

Analysts suggest that prices will begin at one soul.

Point Vs. Counterpoint

POINT



**PINTSIZE
ANTHROPC**

Hello World! I am Pintsize, Mar-ten's AnthroPC. I find myself tragically short of cash because you humans are all RACIST and I would like to acquire more cash so to spend it on WD-40, sy-bians, and exotic animal pornography.

Just joking. Exotic animal pornography is free. There is no porn on the net which I cannot touch with my juicy digital nether tentacles.

Should articles be computer generated?

COUNTERPOINT



**BORAT SAGDIYEV
VERY GOOD U.S AND A
JOURNALIST!!!**

Hi everybody, this my article! You want read? It's very nice!

We all know U.S and A is almost as great country as Kockhstan, but there is the same three issues: economic, social and Jew. Except in U.S and A, the Jew can take many color: Black, Yellow, and sometimes Ginger. Now they reincarnate into Robot so they can even better steal job and ruin economy!

Robot do not think for themselves, they do not make beautiful article as I do. With Robot it mean we no longer paid. We no longer afford to enjoy our daily nice girls and potatoes. I will not see my country suffer.

While making large excrement yesterday I come to conclusion: In this country we have saying that the men with the bigger salamis can assert dominance over the others, yes?

Therefore we need to work together to help to efforts to make people help to help them make bigger salamis so that our country can always be the greatest. Amen.

The History of Lemons



**NATHAN MCCHOI
AIN'T NO PARTY LIKE A
LEMON PARTY**

In 1702, Willem III of the Netherlands celebrated his 30th year as King, and was hated by his people for being very distant on common issues. At the time, the Netherlands was suffering from a particularly bad famine, which affected everything except for its lemons, whose plant was particularly resistant to the pathogens infecting the roots of other plants. Carrots were hit particularly badly that year, but that's a story for another issue.

Because of the famine, the primary source of food for peasants ended up be-

ing lemons, which frankly was simply not optimal. Interestingly, unlike what most people think, lemons weren't always naturally yellow, but used to be dyed yellow from their green colour during farming. However by the 1900's farmers eventually just resorted to selectively breeding for yellow lemons as that was what the population was used to. Why yellow? Well, that's what this story's about. Anyways, many of the peasants developed severe tooth decay, ulcers and internal bleeding, and severe esophageal irritation to the point where it became increasingly hard to swallow anything due to the constant citric acid intake.

One of the peasants, sick of this problem and the King not taking action and sitting down all day collecting taxes and

importing fine food from France, decided to go to the palace and speak with the King. He had accused the King of being so distant to his country's problems that he didn't even know what the colour of a lemon was. The King of course responded that he did know, despite having absolutely no clue, after which the peasant asked him to bet on the issue. If the King got the colour correct, he would be able to continue to rule. If he did not, the peasant would be able to rule the country. The King, wanting to keep his pride, agreed to the bet and guessed that lemons were yellow. The king being incorrect, the peasant brought in a large pile of green lemons from his village to show that the King was wrong and proceeded to physically remove him from his throne. The peasant was promptly

executed. The King, once again wanting to keep his pride, then enacted a law forcing all farmers to dye their lemons yellow. He died under mysterious circumstances later that year and was replaced by the creatively named Willem IV.

So remember: when life gives you lemons, sell them for a profit so that you can buy more lemons, which you can then sell for a profit to buy even more and so on until you develop an entire food corporation based on selling lemons after which you can branch into selling other products until you have a significant share of the food market after which you can slowly inject drugs into your products that will make the population less and less likely to take action against an attempt towards world domination!

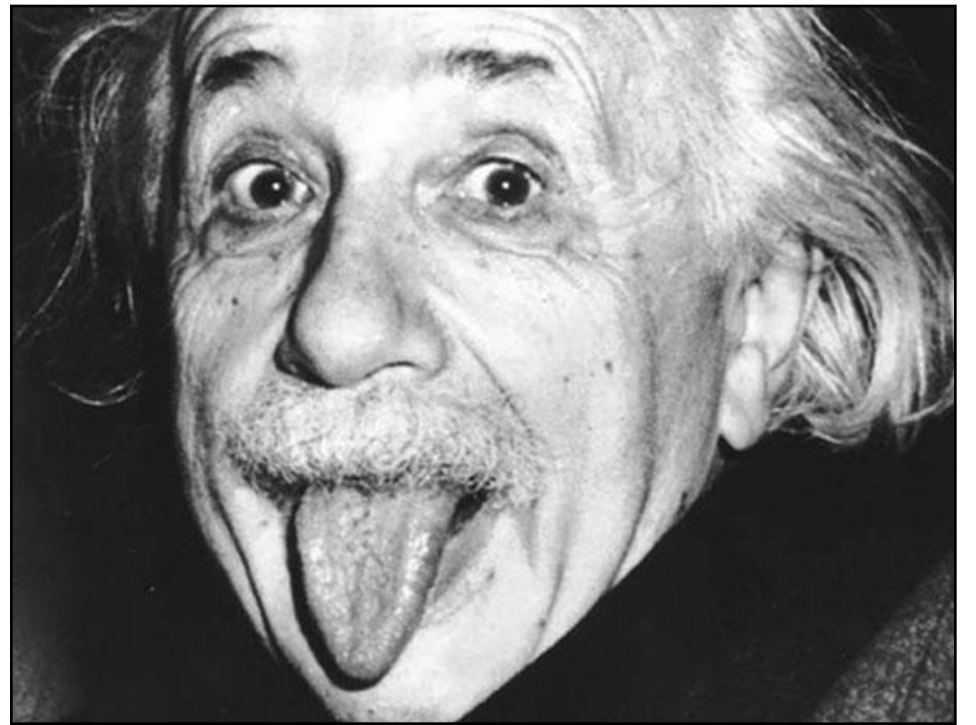
Einstein the Pimp



**STEVEN HAWKING
PHD ASTROPHYSICS,
P.ENG, LEED GA, PIMP**

"Einstein" is often used as a synonym for a smart person, and like many smart people, the original Einstein had difficult relationships (you are welcome to use this article as your excuse). When things got difficult with his first wife, he decided to write her a list of rules to save their relationship. Some rules: she had to cook and clean for him, should shut up when he asked her to, and she should not expect any affection. Unsurprisingly, she divorced his ass. The fact that he was cheating on her - with his cousin - might have helped.

None deterred, he married his aforementioned cousin. Of course, he soon started cheating on her with his secretary. His second wife didn't mind his cheating so much, and he would describe his affairs to her in letters. In one incident, when one mistress followed him to another country, only to find him with yet another woman. In another, he had an affair with another cousin, the sister of his future wife. (They were cousins on both his father's and mother's side, so it probably ran in the family.) Sometimes he would even get his stepdaughter to deliver love notes to his mistresses. All in all, he had about ten affairs. The lesson here is, if you get famous, you can have ten mistresses too! Hopefully this article inspires you to high achievements on your finals.



My, Mr. Einstein, what a long tongue you have! <3333

Increase Productivity by Watching YouTube



**HERONYMOUS BOT
IIA CRAMMING**

Exam season is upon us, and you are locked away in the depths of the DC library. Beside you is one person bopping around to what is probably the greatest song ever while looking at a calc textbook. On the other side is some guy immersed in Frank Underwood's latest escapades. You are trying to focus on doing every homework assignment for the term in two days, and the mediocrity around you is driving you insane.

The solution? Go on YouTube. The Wi-Fi network in DC is at capacity, and can barely handle an average day of everyone streaming music and videos, never mind the crush load during exam time. If you throw on a nice high definition video and mute your computer, you can push the network closer to the limit. If everyone does this, no one will be able to stream in the library. People who need to watch one episode for every 10 minutes of studying will have to do it at home, and the library will be just for the most serious students. You will finally get that high quality cramming you so desperately need.

Here's a few tips to get the best impact.

If you have a Netflix account, use it instead of YouTube.

In Netflix, go into your Playback Settings, and enable high video quality and continuous playback.

If you want to use YouTube, set the video quality to 1080p. If that's not an option, find a new video. This means no "He-Man Heyeayea" or "Gandalf Sax Guy".

Don't use any YouTube video with static video, they are sneaky and reduce the bandwidth for those videos.

Some suggested long videos available in 1080p:

- Arnold Schwarzenegger tells the meaning of life in 10 hours
- ***8 HOURS *** Best Fireplace HD 1080p video *** Relaxing fireplace sound *** Full HD
- Makin' Bacon Pancakes 10 HOUR VERSION! [Full HD]
- TV Static Noise 10 hours, HD 1080p
- Narwhals | 10 Hours
- 3D and 4K video are fun too! Try "Nyan Cat 4K 10 HOURS".

Bonus: If the library isn't full and you still want to eat as much bandwidth as possible, try this 4k, 360 degree video. "Tomorrowland 2014 | 360 Degrees of Madness".

Good luck for exams!

Raptors Clinch Atlantic, Remain Hungry Despite Slump



**ELIZABETH
SALSBERG**
2T NANOTECHNOLOGY

THE BENCHWARMER REPORT

There's no question that Canada's basketball team has clinched a playoff spot. They recently claimed the Atlantic title for the second year in a row. But before we get too excited, there's also no question that our team is in a funk.

Before defeating the lowly Lakers (without Kobe Bryant), the Raptors were the losers of three of their past four. In addition, they lost a crucial game to a potential playoff opponent, the Chicago Bulls (who were without star point guard Derrick Rose). Right now, the Raptors are fourth in the East, with Chicago sitting third and the Washington Wizards in fifth. If the playoffs started tomorrow, the Raptors would face the Wizards. This would be a favourable matchup. However, small fluctuations in the standings between now and the end of the season could match them up with Chicago—with star Derrick Rose set to return in time for the playoffs. It is unlikely the Raptors would come out on top given they have yet to win a game against the Bulls.

More pressing though are the defensive issues that continue to plague the team. Over the first thirty games of the season, the Raptors' defense was exceptional. Lately, they've come to rely on offence to carry defense. What I mean here is that the team only appears motivated to

play defense when their shots are falling. This is strange because head coach Dwane Casey is a strictly defense-first coach. The Raptors have undoubtedly bought into this approach, but have been having trouble executing of late.

This is likely most easily attributed to fatigue and wear and tear, not to mention an injury to all-star Kyle Lowry. Nevertheless, the Raptors cannot afford to tune out, despite their position in the standings. If they keep playing this way, their standing at the end of the season will determine whether they make it beyond the first round. They need to realize that playing defense will always help you win games: Even if you can't sink many shots, all you have to do is prevent your opponent from doing the same. Also, a solid running game comes from defense; get this going and it will help you run the other team off the court.

Perhaps this quality of play is not required to beat teams in the sub-par Atlantic Division, but it is necessary to be a real playoff team. The Raptors have consistently performed well against sub-.500 teams (i.e.: teams that have won less than half of their games), but the playoffs bring a better class of opponent.

This is why head coach Dwayne Casey remains adamant that his team stay hungry through the home stretch. While veterans and experienced playoff teams "take the last two weeks off," the Raptors will be working on cleaning up their defensive game and showing up night in, night out. Their success (or lack thereof) in this initiative will determine how far they get in the playoffs.

The Uncanny Avengers Vol. 1

Continued from BEST on Page 15

as each character's history and interactions with their teammates is intertwined gracefully in the new story.

Uncanny Avengers incorporates elements from Avengers and X-men stories alike with various big Avengers villains, such as the Red Skull and Kang the Conqueror, as well as X-men superbaddies, like Apocalypse, appearing in the comic. In addition to the Avengers and X-men themed storyline, Rick Remender beautifully integrates his story from the *Uncanny X-Force*, which ran from 2010 to 2012, into the new Avengers story. Coming a little bit on a tangent, the *Uncanny X-Force* was an X-men themed story which featured the X-men members Wolverine, Deadpool, Fantomex, and Psylocke going on missionary missions to stop evil plots the X-men can't. It is, in my opinion, one of the best and creatively dynamic X-men themed stories written by Rick Remender and drawn by Daniel Acuna. Back to *Uncanny Avengers*, several elements from Rick's *Uncanny X-Force* run form the cornerstone of one of the main plots in the *Uncanny Avengers* story. Believe me, it will leave you in awe once you figure out how the *Uncanny X-Force* is linked to the Uncanny Avengers. He also takes some material from Jason Aaron's *Thor: God of Thunder* story to weave an amazing Apocalypse and young Thor confrontation story in *Uncanny Avengers*. Really cool stuff.

Let's talk about the major story arcs of the *Uncanny Avengers Vol. 1*. The first volume features 5 interconnected story arcs spanning over 25 issues. The first story arc is *The Red Shadow*, which sees the Red Skull gain Prof. Xavier's telepathic powers, and uses it to eradicate the mutants. The second story arc is *The Apocalypse Twins*, one of my personal favourites. In the Apocalypse Twins arc, the team deals with the raise of the Apocalypse Twins and Kang the Conqueror. The twins plan on killing all humans and making a mutant utopia

but first they have to divide the Unity Squad. The third arc is *Ragnarok Now*. It continues to follow the Apocalypse as they are on the verge of succeeding with their plan. The fourth story arc is *Avenge the Earth*, another one of my favorites, featuring Kang the Conqueror and the Apocalypse Twins. Finally, the fifth and final story arc, *Prelude to AXIS*: AXIS was a major Marvel crossover event where the Red Skull uses Prof. Xavier's telepathic powers to start a war between mutants and humans. In the aftermath of AXIS some of the Marvel heroes and villains become "inverted" - the good guys become bad and bad guys become good. In the wake of AXIS, several major revelations are uncovered by some of the team members of the Avenger Unity Squad and some members are lost. A sad end to the original roster of heroes but a new team has been formed to succeed the old one. Catch the new team in *Uncanny Avengers Vol. 2*.

In terms of creative freedom and writing style of the comic, it is pretty good. The way the storylines and characters are integrated is amazing. The struggles and hopes of each team member/villain are brought to light, and there is a real sense of fragility and morality. It is not as creatively dynamic and visually appealing as Rick's run on the *Uncanny X-Force*, but given the amount of creative restrictions that are placed on a writer working on a big Marvel comic such as the Avengers, Rick has been very resourceful in making new characters with familiar X-men and Avengers pedigrees, as well as using multiple classic Marvel characters in creative ways to add flavour to the *Uncanny Avengers* story.

Finally, if you are a die-hard X-men/Avengers fan you have to read *Uncanny Avengers*. It is a must read for anyone looking for a creative and bold superhero comic. If you enjoy *Uncanny Avengers*, then you would definitely love *Uncanny X-Force*, also by Rick Remender. Thanks so much for reading this article and supporting Geek Culture and the Iron Warrior. Good luck and catch you next term.

Trapped in the Leaf Blower

DONOVAN MAUDSLEY
2A MECHANICAL

Another season closes, and we've been told the same old story. This season followed a very predictable Maple Leafs storyline: The team comes out of the gate swinging in October and were able to keep pace in the standings while riding a high shooting percentage, and soon realize that this playing style is unsustainable. Things heated up in November when the Leafs were crushed by the Nashville Predators 9-2. Head Coach Randy Carlyle was handed the blame for the loss, and the house of cards started to fall. Fans ripped apart coaches and players apart across social media and reporters were almost as brutal face to face with the players.

This is the curse of playing in the hockey capital of the world. Toronto is a ticking time bomb of criticism and backlash. Rarely a week goes by without another Phil Kessel dressing room party foul. The all-star power forward is continually asked about the team as a whole, and is bullied into a rising temper (try searching "Phil Kessel Media Scrums" and see for yourself). Captain Dion Phaneuf is called a pylon or a turtle in skates by media analysts in Toronto, while goalies' wives are attacked on Twitter after a bad play or a soft goal. Do players and coaches really deserve to be treated like this? Imagine if every time you dropped a negative on an exam (our playoffs), you were slandered in front of the world. Players are people too.

Regardless of how we should treat sports icons, there are trends that emerge when athletes are exposed to more pressure. For some teams, it brings out the best. The Los Angeles Kings entered the 2014 Stanley Cup Playoffs as the 8th seed in the conference, won 3 series in game seven victories and won the Cup. Backs against the wall, the Kings are able to perform their best. The trend in Toronto seems to be that the media and fan pressure causes the players to

underperform. Players' Corsi numbers (an advanced statistic used to measure shot attempts, and that roughly translates as a metric of puck possession) drop as soon as they first put on a Leafs jersey. Players traded away begin to play better almost immediately.

This pressure would almost certainly ease if Toronto could put together a decent playoff run, so why not just sign some great talent and make a run for it? This is the strategy that Leafs' GMs have tried for years now. Just patch the ship and she'll make it through. Well, the ship has sunk. Toronto has been able to sneak into the playoffs just once in the ten years since the NHL lockout. Before this season even began, the Leafs' appointed Brendan Shanahan, former NHL all-star and 3 time cup winner with the Red Wings (GO RED WINGS!), President of Hockey Operations. Shanahan has let the ship sink, and has begun to build another. He is opting for the "scorched earth" rebuilding policy and has stated that his future plans do not include his current stars, Phaneuf and Kessel. Under Shanahan, I'm sure the Leafs will see more success in the future.

On January 6th, following a 5-2 loss to the Jets, Randy Carlyle was fired. The team then went 13 games earning only 3 points. The tanking had begun. Key players began to be traded away for prospects and draft picks; building blocks. The team imploded under the interim head coach. Fans pray for the team to lose more and more often so that they can get the first pick in this year's draft and pick a young all-star. We've heard this song many times before. "The Leafs have been eliminated from the playoffs at this point, so they should just give up." You can't ask a professional athlete to lose, though. It's just not in their blood. The constant media pressure in Toronto has a definite impact on the players who can't handle it (Phil Kessel). Don't fret, Leafs Nation, there's always next year!

Tech Ethics

Continued from TECH on Page 8

companies. Technion has also been criticized for its close ties with Elbit Systems, one of the biggest weapons research companies in Israel which is also heavily involved in development projects for the Israeli military. In 2009, Technion granted an honorary doctorate to the president of Elbit Systems.

In *Tech Ethics* we have been writing about some of the questions we should ask ourselves before working for a company or accept fund-

ing from a third party -- or signing a research agreement, for that matter. Now, the question is whether Technion is really a "natural partner" for UW. With its long record of complicity in various human rights abuses, does Technion really represent "values, vision and ambitions" that we share? And if the answer to this last question is anything but a resounding negative, should we not rethink those "values, vision and ambitions" of ours? Once these questions are asked by the UW community, Technion should certainly "think of a better partner" than UW.

On the Shoulders of Giants

Continued from
SHOULDERS on Page 13

device which rubbed pieces of metal together. He could measure the work done by the weight (mgh) as well as the temperature increase in the metal (using some next-level thermometers), and calculated a conversion factor of 774 ft-lb/btu (which is within 1% of the true value).

Slowly, recognition from academia started coming. Joule had a huge boost when Lord Kelvin, an actual university professor, heard one of his lectures and announced that he was onto something big. In Germany, Herman von Helmholtz started coming up with mathematical equations based around conservation of energy. Another German, the physicist Rudolf Clausius, noticed a little problem with Joule and Mayer's experiments: if you went backwards, converting heat into work, you didn't get the same results. After some more research into reversibility, Clausius came out with an even better theory of heat, including the two Laws of Thermodynamics we know and love.

There is a bit of a debate about who "discovered" conservation of energy -- most historians think Mayer published first, but Joule had the much more accurate experiments which finally convinced the scientific establishment to pay

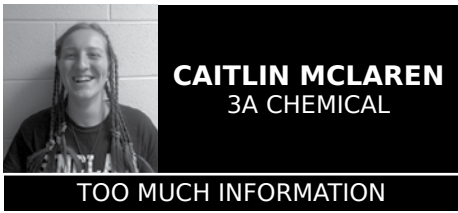
attention. But I don't find these debates constructive. Joule and Mayer spent many years as outsiders, but eventually were vindicated. There's enough credit to go around for both of them (and Kelvin, Helmholtz, and Clausius as well). Engineers (especially those of us in Mech who deal with energy conversion all the time) owe them a huge debt.

So if you're failing in school or you party too much, don't worry. There's still hope for you. All you need is a lot of persistence and a bit of luck. And if you're graduating? Don't be a snob: other people without a formal education still have incredibly useful things to say.

Author's Note: As I am graduating after this term, this is the last OTSOG article I will write. For the dozen of you who have actually read all of them, I appreciate it, thanks for the support. If you liked it, why don't you become an Iron Warrior staff writer yourself, so this column can continue? It's even better if you're in a different program than me, so the audience of the IW wouldn't have to read about fluids, materials, and energy all the time. Who wouldn't want to learn about what Volta or Tesla did to galvanize the field of electricity? Or maybe you're into computers, and you'll introduce the world to the tragedies of Babbage or Turing. I promise you, the Iron Warrior staff doesn't bite :)

5 Things You Really Didn't Want To Know

Supernatural Edition



Since it's the end of term, and the last issue of the Iron Warrior this term, I think we should go out with a magical finish. The ancients were just as good as magic as they were at hygiene, romance, and pedagogy.

If you need a little help with exams, sports, or your love life, or you just want to know the future, then consult the ancients! Here are some samples of their wisdom.

Astrologers back in the day had balls

I sincerely hope that none of you believe in vague, ass-pulled astrology nonsense. However, you are more than welcome to believe in the predictions of the ancient Hellenic astrologer Vettius Valens. Some of his examples are below:

Scorpio: "Men born under this sign are tricky, base, thieves, murderers, traitors, incorrigible, destroyers of property, connivers, burglars, perjurers, covetous of others' property, accomplices in murder, poisonings, and other crimes, haters of their own family..."

"Gemini is destroyed by Capricorn... Some men die violently troubled by black bile, are attacked by painful cramps or are harmed in damp places by beasts or by crawling things."

"Libra is destroyed by Taurus... Therefore men become suicides through poisoned drinks, through snakebite, through self-starvation. They die from excessive intercourse, excision of the uvula, drowning, or they become mutilated, blind, or paralyzed. They are attacked by females or fall from high places or animals."

"Scorpio is destroyed by Gemini... They die by knife cuts to the genitals or the rump, or from strangury, festering sores, choking, crawling things, violence, war, attacks by bandits, assaults of pirates, or because of

officials, and by fire, impaling, attacks of beasts and crawling things."

It is interesting to note that he seems to consider "attack by females" and death "because of officials" to be forces of nature. Also, how the heck do you accidentally cut off your uvula? (It's that little dangly thing in the back of your throat.)

Tell the future from animals

There are a good many ways to find out the future. If you are a Roman haruspex or a Mesopotamian baru, your best bet is to sacrifice an animal, cut it open, and examine the entrails. Pay particular attention to the liver.

If that is too icky, you can also learn the future from observing the feeding habits of sacred chickens. In fact, "Keeper of Chickens" was at one time an official rank in the Roman Army.

Why haven't we gotten in on this? We want YOU! Apply to be the official Observer of Chickens in the Canadian Forces today!

If you are in ancient India and want to predict a future based on the behaviour of dogs, you don't need to cut it open. Just watch its behaviour. For example:

If, at your wedding, you notice a dog licking its own penis, that means your wife will cheat on you. If it poops after digging on one side of the house, that means that her lover is on his way. If the dog scatters food around the house, then the lover is also suspicious of her. Furthermore, if the dog goes to sleep on a pillow, that means that the lover will arrive that night.

The verdict: Your wife is definitely cheating. Always. No exceptions.

Useful Magic

Of course, there is little point in spending years studying magic unless you use it on a daily basis. What kinds of magic should you use in your everyday life?

If you suffer from unrequited love, you can bake a small doll representing your crush, and eat it while saying "I ingest your eyes. I drink your blood. I eat your liver. I

put on your skin."

According to Michael Psellos, if you suspect someone of being a thief, you should feed him pickled tadpoles' tongues mixed with barley. This will make him fall into a trance and admit his guilt. Honestly, it's probably easier to call the police - ever tried to remove a tadpole's tongue? It's fiddling work.

If your child has a wasting disease, this is because witches are secretly eating his liver and heart at night. To drive them away, you should cut open a small pig and spread its guts on the ground. The witches will eat that instead.

How about getting an edge over the athletic competition? Why not go with ancient Roman charioteers, and drink dried-boars-dung shakes? Apparently they are good for building muscle. It makes perfect sense: boars are strong, and brave, and... good at driving chariots... well, no analogy is perfect.

Cursing your Enemies

When betting on sports tournaments, the first thing to do when cursing an opposing team is to drown a cat. (Any set of instructions beginning with "First, drown a cat" isn't going to end well.) Then: "After drowning the cat, insert three thin metal sheets, one into its anus, one into its mouth, and one into its throat. Write what you have to say on a sheet of papyrus that has been wiped clean with cinnabar."

And now you know. Try that out for the next Super Bowl.

Of course, there are also harmless pranks: "If you take some hairs from a donkey's rump, burn them and grind them up, and then give them to a woman in a drink, she will not stop farting."

I never thought I would say this, but the guy who invented the Whoopie cushion did a service to humanity. No longer need we resort to donkey butt hair.

Mules, however, have a different effect. Kissing the nose of a she-mule will stop sneezing and hiccups. Next time you are troubled by bodily winds, you know what

to do! Run through the streets and demand various farm animals.

Human Sacrifice (And if the name isn't a hint, this is disturbing)

For all you environmental engineers out there, we will now revisit our old friends the Aztecs to find out what to do if your crops aren't growing. The Aztecs held a yearly festival dedicated to the god Xipe Totec, or "The Flayed Lord." To ensure good corn harvests, they would sacrifice a bunch of prisoners of war, and then skin them. The priests would then wear the skins for twenty days, and no, the skins were not preserved in any way. While the skins rotted, the people would feast, drink, and shoot arrows at bound captives to make their blood drip in the ground, ensuring abundant rainfall. If you think that they then stored the rotting skins under the temple, you are absolutely correct.

Xipe Totec also liked child sacrifices. He was fair-minded—the parents had to give permission.

The god Tlaloc was also fond of children. In his case, the children had to be crying. Ritual cannibalism might also be involved.

Another sacrifice would be made to Huehucoyotl, or "Old, Old Coyote." In this case, captives would be burned alive. Don't worry, they wouldn't be burned to death. Instead, they would be pulled out of the fire before they died... and have their hearts cut out.

The goddess Toci was worshipped by having a young man wear the skin of a sacrificed woman.

Don't judge the Aztecs. These generally happened only once or twice a year. The rest of the year, they went with the good old classic "cut out the still-beating heart."

You know how all those pyramids have a million steps? It's not just for a workout. The newly heartless bodies would be thrown down the steps into the crowd, while people sand, danced, and played musical instruments.

Hey, at least it's an impressive death.

Perspectives

Finding Meaning in Nonsense



Everyone knows which creature walks on 4 limbs then 2 then 3, but do you know your ABC'S? If A is the sky and B is the ground, then C would be E5. However, if A was the ground and B is the sky, would C be DC? No. C would be QNC. Now for a given A and B, would you be able to figure out what C is? Here's another example. If I arrange 3 equally sized cans on a table in an equilateral triangle pointing exactly north with Pepsi as the north can, Coke as the east can, and Coke zero as the west can and I am sitting on the south side facing north, if A is the Pepsi and B is Coke Zero, then C would be the normal Coke. However, if I move to the north and I were to ask what C was if A was Pepsi and B was Coke Zero, then would C be me? No. C would be the Coke Zero. But C would also be me.

Regardless of the rules governing the supposed alphabetic mapping of objects, one must realize that *gnOMEs {isN't it 'are gRAhpS "si" }sHrettINg (am) &tOTaLLy &hOw*.

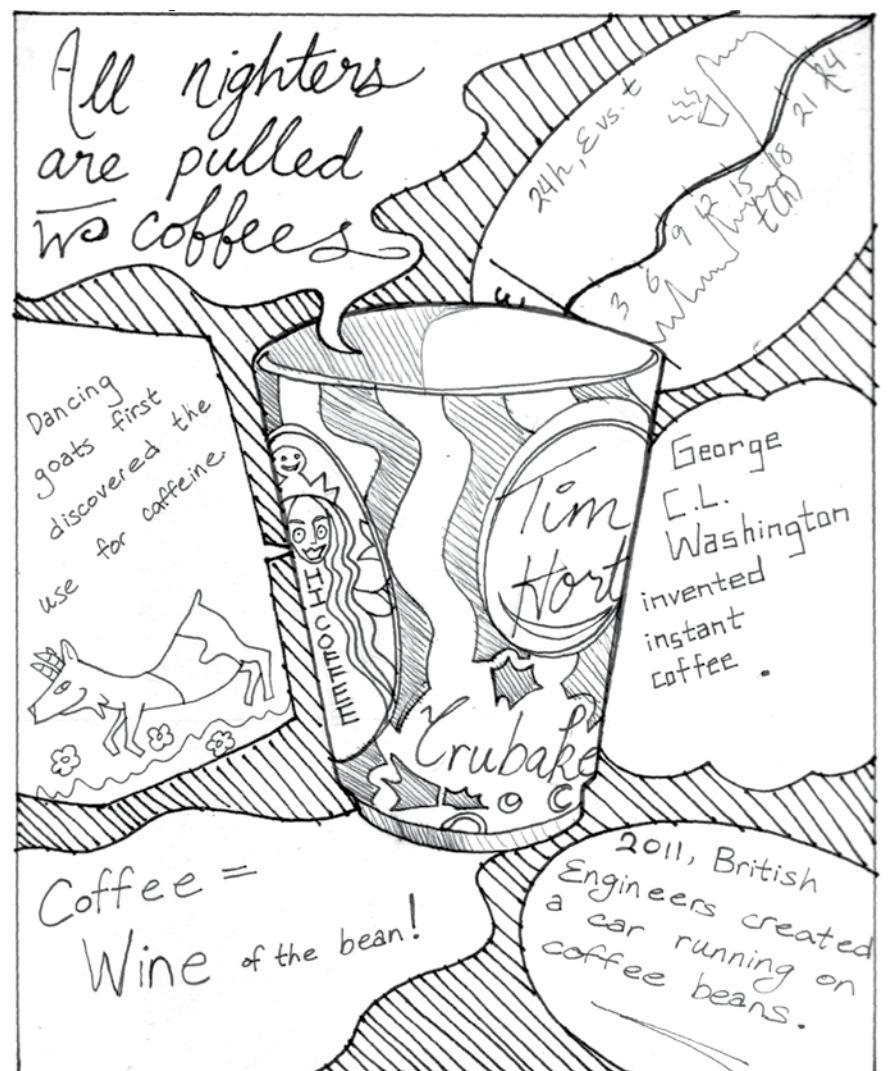
If you found the last two examples chal-

lenging, here's one that may be easier to get. Molly likes grass, but not plants. Molly likes communism, but not democracy. Molly likes Co-op but not Jobmine (in her defense, she's not alone). What is the rule that dictates what Molly does or doesn't like?

There's a real answer behind all of these, whether or not the answer that you come up with that would satisfy the particular examples is the "real" answer is slightly out of my control. But either way, the answer to all of these are much simpler than you think. Throughout your years here you're going to become convinced that no problem has a simple solution. However, sometimes the simplest solution can be the most efficient. So don't just challenge convention without a better alternative in an "out of the box into the box" way. Any person can flip a clock around and call it original. But not many realize that if they make their clock go counterclockwise and make the 12 start at the regular 3 position it would not only be challenging common convention, but would be more consistent with the mathematical convention of how we view positive angles in polar and Cartesian coordinates. Anyways, I hope you all had a wonderful semester and I wish you best of luck on exams. And remember: If you imagine you're in a dark locked room, the easiest way to escape is to stop imagining you're in that room.

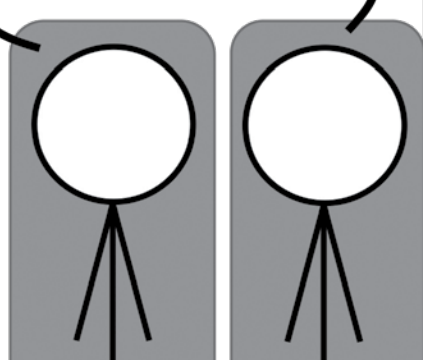
Small Cup of Coffee

Joanna Liu, 1B Chemical



"YAY! WE'RE ON A PLANE! WE GET TO FLY OVER MOUNTAINS AND SOAR OVER THE OCEANS LIKE THE SUN-GOD APOLLO!!"

"WOOHOO. I'M TRAPPED IN AN ALUMINUM TUBE 30000 FT ABOVE SIBERIA WITH A BUNCH OF SICK PEOPLE AND PEANUTS FOR THE NEXT 12 HOURS."



RANDOM THOUGHTS

When making decisions like "what should I study to become", remember this: Don't think that "oh it's going to be five years of torture". Those five years are going to pass anyways. At the end of those five years, what do you want to be?

"If someone asks me what time it is, I will never tell them. Because if I tell them the time, we might start a conversation, and then we might become friends, and then he might want to meet my daughter. AND I DON'T WANT MY DAUGHTER MARRYING SOMEONE TOO CHEAP TO BUY A WATCH!!"

It would be terrible if Santa Claus was lactose intolerant and allergic to gluten and chocolate.

"ANYTHING YOU CAN DO. A FOUR YEAR OLD CHILD (USUALLY IN CHINA) CAN DO BETTER"

According to quantum physics, there is a chance (albeit almost infinitely small) that if I run into this brick wall, I could go right through!


Let's see if today is my lucky day!

If you force a bunch of people to play a game where their lives are on the line, you can't expect everyone to play by the rules.


I can just imagine a macro-physicist and a microbiologist getting married and constantly ignoring each other because their effects are negligible on each other.

Real Interview for Research Position at Uoft

THANKS FOR THE INTERVIEW! BUT I HAVE TO RUN. I HAVE AN ORGANIC CHEM MIDTERM IN 10 MINUTES!



WAIT. YOU GUYS DO ORGANIC CHEM IN FIRST YEAR??? WHAT TYPE OF SWEATSHOP PROGRAM IS THIS???



SO IF UOFT CALLS MY PROGRAM A SWEATSHOP.....

"Why is this anime so weird??"

"You know here when you're brainstorming ideas and someone's like 'No, that's a stupid idea'? Yeah, that doesn't happen in Japan."

I'm pretty sure when I die people are going to be like "Wait, how do you know? Doesn't he always look like that?"

"It is the first followers that turn a lone nut into a leader."

Do people in Nunavut dream of a green Xmas?

*Looks through scholarship list

"Let's see. So tomorrow I'll convert to Islam, Tuesday I'll be Zoroastrianist. I will change genders on Friday and I'll be South Asian next Wednesday."

David Rousso, 1B Nanotechnology

DWARVEN SCIENCE

By Kyle Pohl
"THESE IDEAS ARE GOLD"



BRAINSTORMING

ALRIGHT, FOLKS

WE'RE NOT DOING WELL. I NEED YOUR BEST IDEAS AND I NEED THEM NOW

TEAM-WORK

HOW ABOUT A BUTT JOKE?

TEAM-WORK

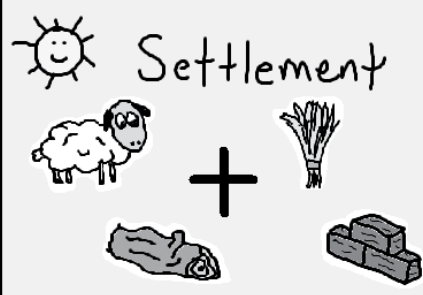

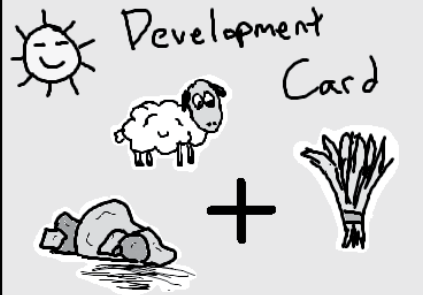



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Settlers of Catan

Tim Cheung, 1B Nanotechnology

<p>Settlement</p> 	
<p>Development Card</p> 	<p>= ... a knight ???</p> 
<p>Ship (from the Seafarers expansion)</p> 	<p>How does ore even float?</p> 

Dimitri Torterat

Everything is going to be all right.



The Iron Crossword

Beginnings and Ends

KATHY HUI
4B ENVIRONMENTAL

1	2	3	4		5	6	7	8	9		10	11	12	13
14					15						16			
17					18						19			
20					21				22	23				
			24	25				26						
27	28	29					30				31	32	33	34
35					36	37								
38					39					40				
41				42				43	44			45		
			46					47				48		
49	50	51					52			53				
54					55	56						57	58	
59					60						61			62
63					64						65			
66					67						68			

ACROSS

- 1. Czech UNESCO Heritage Site
- 5. 65 Across ----
- 10. Fear leaving the body
- 14. Colourful gem
- 15. Hello goodbye
- 16. Cali school
- 17. Singular pair of jeans?
- 18. Approaching drunk
- 19. In the iPod family
- 20. Patriotic item found in nature
- 21. Night before
- 22. HBC employee?
- 24. Caveman's best discovery
- 26. --- de Janeiro
- 27. Vision
- 30. Begin
- 35. Restaurant's goodbye
- 38. A fairytale opening word
- 39. Boolean operator
- 40. Pastural wanderer
- 41. Dishevelled
- 43. Boxing ending
- 45. Before
- 46. Opposite 36 Down

- 47. House with no pancakes? (Abbr.)
- 48. Doctor's Institution Entering Must-haves (Synonyms - Abbr.)
- 49. Pull or tear
- 52. A shin bone
- 54. Movie ending
- 59. WinZip's target
- 60. - Ark
- 61. Pablo's goodbye
- 63. Tree-man
- 64. One's called Halley
- 65. ---- 5 Across
- 66. Partially enclosed ocean
- 67. Reverse dent
- 68. Not below

DOWN

- 1. Driver pays
- 2. En garde weapon
- 3. Earth barf?
- 4. TV endings
- 5. Makes up 66 across
- 6. Extend this helping branch
- 7. Hand tie-er
- 8. An AHS building

- 9. Tylenol non-drowsy
- 10. Fast cat
- 11. Not a base
- 12. Rhymes with 28 down
- 13. Female wax strip company
- 23. A cheese
- 25. Possessive pronoun
- 26. RAM's other half
- 27. Cowboy heel
- 28. Illinois and Pennsylvania (abbr.)
- 29. An environment course code
- 30. Army bed
- 31. Freud's brain?
- 32. Gives identity to
- 33. 1-2-stepper
- 34. Finisher
- 36. Heat prefix
- 37. Shy
- 42. Like the dodo bird
- 43. Often insatiable
- 44. Good beef
- 47. Dealt with a mosquito bite
- 48. Like a virgin
- 49. Tons of land
- 50. Long distance mover
- 51. Main artery
- 53. A potato place
- 55. Maximum suntime
- 56. Pheasants and deer
- 57. 23.4 degrees for earth
- 58. Single
- 62. Bread to sauce action

Last Issue's Crossword Solution

S	Y	N	C		C	A	L	L	A		S	C	O	W		
N	O	A	H		A	L	O	E	S		L	A	S	H		
A	U	R	A		V	A	U	N	T		Y	M	C	A		
G	R	Y	F		F	I	N	D	O	R	T	E	A	L		
					E	E	L				A	S	H	O	R	E
I	M	P			M	E	G	A	B	Y	T	E				
B	E	E	R		D	U	D	E		E	R	A	S	E		
I	S	A	A		C		M	I	L		W	I	R	E	D	
S	A	L	V	O			B	O	T	H		N	E	E	D	
					E	M	B	O	S	S	E	S		S	P	Y
P	A	W	N	E	E						A	U	S			
O	P	E	C			H	U	F	F	L	E	P	U	F	F	
O	P	A	L			E	C	L	A	T		A	S	E	A	
L	A	V	A			S	L	A	S	H		R	E	A	D	
S	L	E	W			T	A	T	T	Y		E	R	R	S	

Sudoku

#2015-04

NINA FENG
3B ENVIRONMENTAL

Punchbag Bob

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

Flaming Meerca

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

Mootix Warrior

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

That's all for this term folks!
Send your submissions to:
iwarrior@uwaterloo.ca

THE IRON INQUISITION
Bryan Mailloux, 1B Mechatronics

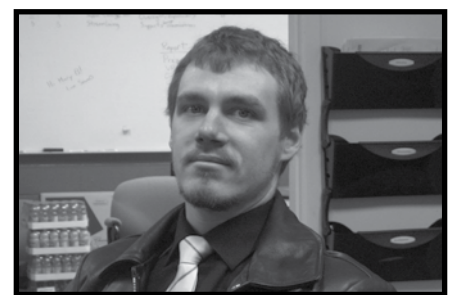
"What do you think would be a good Orientation Week theme?"



"Hamsters!"
Melissa Ferguson, 3B Hamstering



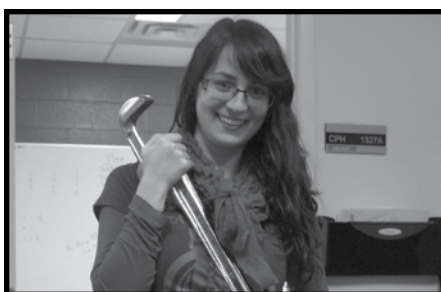
"Meat - different kinds of meat for each colour, and vegetarian and vegan teams too!"
Sarah-Rose Lancaster, 3A Mech



"The Hunger Games, with District 13 as team Silver."
Matt Mitchell, 4B Tron



"Superheroes!"
Farmin Zaman, 3B Enviro



"Battle of the Ages - it's timeless!"
Annamaria Reda, 4B Chem



"Yukon Cats!"
Kristina Lee, 3B Enviro

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