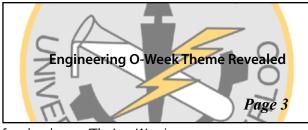
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#IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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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.



Rider Kristen Sperduti during Acceleration Event.

Michigan Tech

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

Alec Espie competing in the 100-mile Endurance Event.

Dean of Engineering, Pearl Sullivan, Speaks About E7



Engineering Dean's Office

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 Eng-Soc 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

Rendering of the Ideas Clinic.

Letter from the Editor

The End



NANCY HUI EDITIOR-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

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

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 (wellthought-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

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 forseeable 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

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That's all for Winter 2015 folks!

Send your questions and submissions to iwarrior@uwaterloo.ca **Spring 2015 Publication Schedule:** TBD.

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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 au-

thor's name and phone number should be included.

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THE IRON WARRIOR WEDNESDAY, APRIL 1, 2015

News 3

Winter Leader Retreat



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! 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



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 unim-

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 aboutface 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

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



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...



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

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 class-rooms, the Engineering Ideas ClinicTM 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 waterbased 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

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.

DEVIKA KHOSLA

1B NANOTECHNOLOGY

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



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 popula-

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 im-

Protests

On March 14th, protest marches were held from coast to coast - sizable gatherings loudly opposed the bill in Vancouver, Calgary, Edmonton, 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 politicallymotivated vehicular homicide in Saint-Jean last October, announced their support for the 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 consumerfriendly 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



Physicians Certified in Travel Medicine

President's Farewell and Final Updates



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 reworking 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 Civil 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

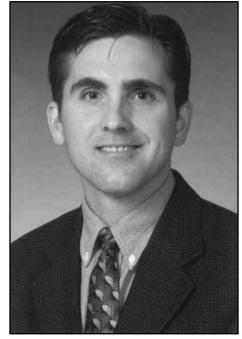
What changes would you like to see made to the Department and Faculty?

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

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

VP Finance Update

Wrapping things up!



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 *vpfinance.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	R	equested	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 yous!



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 So-

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!



Engineering Society

Sponsorship Allocations

Waterloo Hybrid	Item Requested	Funds Requested	F	unds Allocate
Waterloo Hybrid	Springs & Dampers	\$ 600.0	0 \$	600.0
	Engine Rebuild Kit	\$ 400.0	-	
	Total Torque Wrenches (2)	\$1,000.0	_	
	Tents (2 or 3)	\$ 600.0	-	
	Safety goggles (6)	\$ 90.0	-	
Bridges to Prosperity	Safety Gloves (6)	\$ 120.0	0 \$	-
	Air matress	\$ 300.0	0 \$	-
	Orifice print credit	\$ 200.0		
	Total	\$1,610.0	+	\$900.0
	Mask	\$ 300.0	_	
	Electronic Components	\$ 280.0 \$ 15.0	_	
UW_NRG	Tungsten wire Ceramic Beads	\$ 15.0	-	
0 <i>1</i> 1_1110	Epoxy	\$ 10.0		
	Comison Licence	\$ 260.0		
	Total	\$895.0	_	635.0
	Heating cable with temp. controller	\$ 250.0	0 \$	250.0
	Hoses	\$ 300.0	_	
Waterloo Rocketry Team	Cable cutter	\$ 50.0	_	
•	PPE	\$ 150.0	_	
	Fabrication material Total	\$ 400.0		
	Dremel tool	\$1,150.0	_	
	Tools and tool box	\$ 159.0 \$ 226.0	-	
UW Eco Marathon	GPS lap timer		_	
	Total	\$985.0	· ·	
	Ladder		_	
	BBQ rentals	\$ 258.0	-	
EngFOC	Orifice print credit	\$ 200.0	-	
	Total	\$570.9	' ' '	
	plastic contatiners	\$ 150.0	_	
	live crickets	-	12.99 \$	
	egg crates	\$ 125.0	0 \$	125.0
	cricket food		0 \$	75.0
Enactus Waterloo	Heating expenses		_	
	volunteer visa	\$ 1,000.0		
	accommodation	\$ 1,260.0	-	
	field visits	\$ 360.0	-	
	Total	\$3,070.0		
	Hotels		-	
EngSoc Hockey	Transportation		$\overline{}$	
	Entry fee Total	\$ 550.0 \$1,268.0	-	
FSE	Battery management system	\$ 700.0	0 \$	700.0
FSE	Total	\$700.0	0 \$	700.0
	Conference registration	\$ 1,200.0	0 \$	200.0
	Subsidy	-\$ 900.0	0	
	Accomodation		0 \$	50.
Engineers without Borders	Travel		0 \$	50.
	Food		0 \$	75.
	Flemming Donation		_	
	Total		_	
	Single and sexy performance	-	+	
	3D printing Hotel IT	1	-	
CDE (Conference Diversity Engineering)	Photographer	1	-	
	Ballroom rental	1	_	
	Total	-	-	
	3D printing		_	-
	arduinos	\$ 50.0	0 \$	-
	motors	\$ 200.0	0 \$	-
	lights		_	-
	Battery management system	\$ 150.0		-
	Battery management system wires	\$ 70.0	900.00 50.00 \$ 50.00 \$ 75.00 \$ 100.00 \$375.00 \$ 5,000.00 \$ 750.00 \$	
[reboot]		\$ 70.0 \$ 40.0	0 \$ 0 \$	-
[reboot]	wires solder kit sensors	\$ 70.0 \$ 40.0 \$ 70.0	0 \$	- - -
[reboot]	wires solder kit sensors screwdrivers	\$ 70.0 \$ 40.0 \$ 70.0 \$ 30.0	0 \$ 0 \$ 0 \$ 0 \$	-
[reboot]	wires solder kit sensors screwdrivers drill	\$ 70.0 \$ 40.0 \$ 70.0 \$ 30.0 \$ 200.0	0 \$ 0 \$ 0 \$ 0 \$ 0 \$	- - - - -
[reboot]	wires solder kit sensors screwdrivers drill drill bis	\$ 70.0 \$ 40.0 \$ 70.0 \$ 30.0 \$ 200.0 \$ 100.0	0 \$ 0 \$ 0 \$ 0 \$ 0 \$ 0 \$ 0 \$ 0 \$	-
[reboot]	wires solder kit sensors screwdrivers drill drill bis hardware and art supplies	\$ 70.0 \$ 40.0 \$ 70.0 \$ 30.0 \$ 200.0	0 \$ 0 \$ 0 \$ 0 \$ 0 \$ 0 \$ 0 \$ 0 \$ 0 \$ 0 \$	-
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Prof Personalities

Professor Carol Hulls



Dr. Carol Hulls began her journey at the University of Waterloo as an undergraduate student in the fall of 1984. She has now been a part of the Waterloo family for over 30 years, completing her Master's, PhD, and Postdoc at the university, and eventually transitioning from a part time to full time faculty member, working in the department of Mechanical and Mechatronics Engineering.

This month, the Iron Warrior took some time to chat with this incredible professor.

Here's what she had to say:

Which courses do you teach?

I primarily teach first-year programming for mechatronics and mechanical students, so GENE 121 and ME 101, which is new this winter. And sometimes MTE 262, which is Introduction to Microprocessors and Digital Logic.

Why did you choose to pursue a career in Engineering, and why Waterloo?

For me when I went through high school, which was in the early 80s, there were no tech courses for girls; we took home economics and the guys took tech. So up until about grade 12 I wasn't even considering engineering. I liked math and I liked science, but girls didn't really go into engineering then. So what happened is, partly because I was struggling to fit courses into my high school time table, I took an electronics course, and I got into the course, and I just loved it. After that I told my parents I want to go into engineering, which was a bit of a

There was two reasons why I decided to come to UW. One was that my older brother was studying here, and the other thing was really the reputation of engineering here. Another thing that Waterloo used to do a lot was they had these programming days, where if you did well in the math contests they had, you'd get this invitation and you could come to Waterloo and spend the entire day where they'd give you little tutorials and you'd get to program on the main frame computer. So those are the things that really influenced my decision.

So I came to Waterloo as an undergrad in 1984. I was in the first class of computer engineers, and there were only three girls in my class, including myself, out of about 90 students. Chemical engineering had about a quarter to a third female students at the time, but the rest of them, there was hardly any women around. The only women I had as professors were my English professor and my Math professor, but there were no women electrical and computer engineering professors.

What made you choose to do graduate

I was sure I was going to go out to work after graduation, but I found that when you are a junior engineer out working, you don't get a lot of control over your projects or much say in what you do. I didn't like that level of control over things, and at the same time I was talking to some of the professors in the department, and they suggested that I look into the option of going to grad school. I went around and talked to the professors in the ECE department and eventually came across my eventual supervisor who was doing this cool thing with robots and when I got there, I really loved it.

After my post doc, I was a faculty member briefly in ECE, but that's when mechatronics started coming in as an option and program, and I eventually I moved over to the MME de-

What are your current research interests?

Having worked part time, a lot of what I've done has been collaborative research in terms of working on the multisensor fusion and optimization and things like that, but I would say probably in the last year and a half, my research has been focused on engineering education, more than the robotics. There's a thing called the Engineering Ideas Clinic that myself and a couple other faculty members are trying to get going. It's this idea of combining ideas from multiple courses, having a bigger project, being more hands on, and so we started trying to do various things with the first year engineers. It's like ok, they have to dissect a car engine and put it back together, they have to use Lego robots and build an open ended project and program it, those kind of things. So very much trying to take those ideas and figuring out, is it effective, is it a good way of teaching? So I would say at the moment my research area is focused on experiential learning.

How do you approach the challenge of teaching a class of first year students with all different levels of programming experience?

I find it's a challenge both working with the students, and even talking to the students in lectures. Because some of it's that idea of knowing, should I be answering this question in lecture, or should I be talking to the student afterwards, because sometimes the questions can be going a bit further in depth, and some of the students have never programmed before. That's where I think the course project is wonderful, because it's allowing the beginners a chance to practice what they've learned in class, but for the experienced ones, it's like, this is what you have to do to get a good mark on the course project, and a lot of them they go way above and beyond. So it's a way they can challenge themselves.

Another idea that is in the draft stages right now is that myself and a few other professors, what we are trying to do for Fall 2015 is run the electrical and computer engineering students, system design students, and mechatronics students, through a programming test, essentially like a final exam for a first year programming course, given to you either in frosh week, or like second day of classes. If you can pass that final exam, as in like a 70 or 80%, somewhere in there we are trying to gather that group of students, which we think will be about 40 or 50 of them across the 4 disciplines, and say, would you like a credit for your first year programming course, and go into this second course over here. So that's something that I am hoping to do because that would give me bring a bit more uniformity to the classes.

Taping my lectures also seems to have helped, especially with my beginner students, because if they need to go back and hear what I said, they have that resource.

What is your favourite part about being a lecturer?

Particularly with the first year courses, it's Project Demo Day. What it is, for both of the programming courses, is effectively you get your Lego robot, and you've got a bunch of pieces, and we pretty much say, it can't look like what it is originally, and it has to do something. And I mean every year I think they can't possibly do something new. But each year I'm continually impressed. Some have their robots playing poker, which flip cards on the deal, some have turned the robot into a CNC milling machine, we've had gumball sorting by colour, record players, and so many more. Last fall, there were about 200 Trons, so we had probably about 50 projects. And I mean we had drink serving, and Mario karting, and we had keeping ourselves balanced, there was one that was kind of playing table top soccer, and it's just so much fun. I mean it doesn't matter how difficult or challenging the term has been, you go around and it's like, oh this is great. Students are always excited about it, and they've always exceeded

What was your university experience like as an undergraduate student, and what was your favourite memory?

It was a lot of work, and undergrad was a challenge because we were the first class of computer engineers, and sometimes it felt like they were making up the computer engineering program as we were taking it. I think another thing coming into this program that I did not realize as an undergrad, is that I should have done more with the class. Because I got into the program and it was like, wow, I think everybody in my class has probably done everything with programming, and they know all this and they know all that, so I was very much of the, I have to study all the time, type. Whatever I do, I have to study study, and I didn't really take time for me, didn't take time for that break. So I think back and I say, I didn't have a lot of fun as an undergrad. And so that's what I'd say I did wrong as an undergrad, is being so focused on academics and I didn't really get out and enjoy what was happening at UW. Whereas with grad school, I did get more involved with me fellow grad students, and joined a sports team, and it was so much more fun.

However, during undergrad, every winter I would join FASS, which stands for faculty, alumni, staff and students. And they put on this rather ridiculous play every year, making fun of UW and things like that. So certainly that was a highlight of undergrad. I think the other highlight, in terms of academics, was in 4th year in my digital controls systems lab. And it was the realization that, I do this, and the series says I do that, and I do this, and it worked! And it was like, I need my physics, I need my controls systems theory, and I need my programming, and I need all this knowledge and it's like all these light bulbs go on and I see how it all fits together. So that would be an academic highlight, is getting the digital control labs to work



University of Waterloo **Professor Carol Hulls**

correctly. But on a personal thing it would be joining FASS in the winter.

Any advice for your students?

One big thing is definitely "don't panic." You have all these worries of will I get employed, will my exams be alright, and it's just that realization that everything will work out, it really will. I mean I didn't always see that as an undergrad, but, you will get the job, and it's not the end of the world to fail anything. So I'm here, and I can say, Dr. Carol Hulls, PhD, got a 16% on one of her midterms. Now admittedly I had to learn how to study and I did eventually pass the course, so I was ok, I don't actually have any failures on my transcript, although I did have one course that was a little close. But it's that realization of it's not the end of the world. I got 16% of a midterm, and one term I failed all my midterms. It's not even the end of the world to fail a term, because, you start to look at it and say, well if you fail a term, you might lose a year, but in the grand scheme of things, it's not very long. But ask us for help early in the term if you need it. Some of it is also realizing if you are in the right spot or right program. Time management is another big thing, which comes into keeping a good study-work-life balance.

Do you have any hobbies?

There's a number of things. If the weather cooperates, things like skiing and camping. I'm still with Girl Guides of Canada. I started at 7, and I never actually left. So I did Sparks for many years, which is working with the 5 and 6 year olds, which was great. Now I'm currently doing Pathfinders which is from 12-15 years old, so that keeps me busy. Reading, needle work, there's playing Neopets, which is my kids' fault. I mean they got started when they were little and they've all since abandoned their account, but I've got 83 million Neopoints, I'm not ready to abandon it! But yeah there's certainly the video games, I'm probably addicted to computer Solitaire. Doing stuff with my hubby, I've also had to learn to play Dungeons and Dragons, and some of the card games that my kids wanted to play. I also try to get out to do Aqua-Fit as much as I can.

Tech Ethics: Technion et al



It has been almost a year since a new partnership between UW and Technion was announced during a joint conference between the two universities' presidents in Israel. Quantum information science, nanotechnology, and water were named as foci of this partnership. After signing the agreement, the UW president, Feridun Hamdullahpur, who told Jerusalem Post that he was "personally, and on behalf of [his] institution, proud to come to Israel" and that he found Technion "a natural partner." Dr. Hamdullahpur added that Technion "represents all the values, vision, ambitions and commitment towards excellence that we share." "I could not think of a better partner for such projects than the University of Waterloo," Peretz Lavie, the president of Technion, had to say in return.

Established in 1912 the Haifa-based university is one of the top universities in Israel and is considered a major factor in the growth of Israel's high-tech industry. Technion - Israel Institute of Technology is ranked among the world's leading science and technology universities and boasts three Nobel Prize winners as part of its faculty. But, there is much more to

The development of Caterpillar D9 bulldozers used in demolition of homes and displacing Palestinians, the development of Rahfan, a micro-robotic helicopter used to observe and track civilians, an MBA program designed for the Israeli weapons company, Rafael, in which students are in some occasions directly involved in the development of complex weapons, and a special program to train R&D leaders for the Israeli army are documented accounts of Technion's complicity in the occupation of Palestine and violations of human rights of Palestinians. "Technion has all but enlisted itself in the military," Israeli researcher, Uri Yacobi Keller, has written in a 2009 report. Technion has a policy of full cooperation with "homeland security" projects such as unmanned vehicles. Job fairs at the Technion host weapon manufacturing

Continued on TECH on Page 16

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

I'VE HAD ENOUGH OF YOUR DISINGENUOUS ASSERTATIONS



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 Sleep All Night and I Work All Day





Waterloo Engineering Becomes WatEng

Entrepreneurial by Design™



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 WatEngTM: 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 WatEngTM 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 StartupTM.

WatEngTM 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 WatEngTM 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 the IPO, she hopes to provide shareholdfinish by yelling at each other really loud- ers in WatEngTM with high margins to ly with testosterone-filled grunts to show provide value.

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

Apple Releases Special Edition Gold Watch



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.

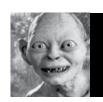
It appears that soon after his Ascendency, the remains of the inventor were subjected to heat and pressure until they

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

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

Letter from the Editor



SMEAGOL EDITOR-IN-CHIEF

Hello my precioussss! We loves you all! We loves Engsoc and the Tin Soldier and everyone who writes for it!

NO WE DON'T PRECIOUS. HURK HURK HURK GOLLUM GOLLUM

Oh yes we do precioussss! Never mind our associate there he's just got a bit of a smoking problem. Nicotine addiction, so tragic, so very hard on the throat!

HURKKKKKKKK

Five hundred years of eating raw fish will put such a crick in our neck, yes it does preciousss... almost as bad as five issues of this newspaper. But it was worth it and

WE ONLY MADES IT THROUGH THE TERM BECAUSE OF ME! ME! ME!

And Leafy Fifi! And all my lovely little copy editors!

FIFI? FIFI'S A FUCKING TREE! WE HAD TO GET FOOD ALL BY OURSELVESES FROM THE C&D! IF YOU THINKS HOLDING A BOX OF DRINKS AND A TRAY OF FOOD AND OPENING DOORSES IS EASY LET ME TELL YOU IT'S DEFINITELY NOT A WALK THROUGH ITHILIEN!

But it was free! Like Dobby! Dobby is free! SHUT UP SMEAGOL. WE MADE THE BEST LOOKING PAPER THAT THE WA-TERLOO ENGINEERING HAS EVER SEEN

We're pretty!

SO PRETTY. SO PRETTY AND WITTY AND BRIGHT. YESSS PRECIOUS. THE PAPER IS SO PRETTY. WE LAY OUT THE PAPER ONCE EVERY TWO WEEKS, YESSS WE DO PRECIOUS.

Pretty!

AND WE DON'TS EVEN HAS TO USE FILLER PICTURES, PRECIOUS. HURK HURK HURK GOLLUMMMM HURK HURK HURK

That's a lie!

NOT LIKE GODDAMN APPLE JACKS. AND WE DEFINITELY DON'T PUT THE PICTURES IN THE MIDDLE OF THE COLUMN AND MAKE THE COLUMNS NON RECTANGULAR, PRECIOUSSSS. WE HAVE STANDARDS!!!!

Yes! Yes! Yes! Smeagol is so happy! Smeagol loves all the Tin Soldier staff and hobbitses and sushi and InDesign!

NO WE DONTS. HURRRRRK. IT MAKES ME SICK, INDESIGN DOES. UNBELIEVABLY NONINTUITIVE LITTLE PIECE OF PIXEL PUSHING PROPRIETARY PROGRAM. AND DON'T GET US STARTED ABOUT WORDPRESSSS. WHY DO WE PUTS UP WITH THIS? HURRRK FRANKLY PRECIOUS NO AMOUNT OF C&D FOOD AND STAFF DINNERS CAN COMPENSATE FOR THE INDIGNITY OF HAVING WRITTEN SOMEWHERE IN THE ORDER OF FIFTY THOUSS-SANNND WORDS FOR THE PAPER OVER THE LAST FOUR YEARS. NO IT

CAN'T PRECIOUS.

We can'ts hear them! Not listening, not listening.

BUT THEN WE REORGANIZED THE STORAGE CLOSETSES, PRECIOUS, AND THEN WE TAKES OUT THE RECYCLING! WE TAKES OUT THE RECYCLING, PRECIOUS, AND IT HURTS US! IT BURNS, IT BURNSSS!

We're sustainable, preciouss!

AND THEN ARTICLES FROM PEOPLE AFTER THE DEADLINE! AS IF THEY JUST DON'T UNDERSTAND WHAT THE "DEAD" IN "DEADLINE" MEANS! BUT SHE'LL SHOW THEM, WON'T SHE PRECIOUS? WE'LL TAKE THEM UP THE WINDING STAIR TO THE CAVES AND THEN SHE'LL SHOW THEM, HEH HEH HEH PRECIOUS HURK HURK GOLLUM GOLLUM HURK.

We can'ts do that! Ever since that unpleasant incidentsey with the fat hobbit she's got Crohn's disease and nasty tough students won't do her gizzards any good, no precious, it won't.

WE DON'TS CARE, PRECIOUS! SHAME ON YOU! SHAME ON YOU! WE DON'T GET NO RESPECT FOR OUR DEADLINES ANYMORE! TAKE THIS TIN SOLDIER AND YOU STUFF IT IN YOUR FISH-EATING SPITTLE GOB OR WE'LL DO IT FOR YOU. MARK MY WORDS! HURK HURK HURK GOLLUM GOLLUM GOLLUM LET'S BLOW THIS POPSICLE STAND

Goodbye

Improving Student Employment Act



I. M. GOODE YOUR TRUSTWORTHY STUDENT REP

WHEREAS students often have a tough time finding co-op or full time work,

AND WHEREAS the University cares for its student population and wants them to do well in life.

BE IT RESOLVED THAT the following be included in the official documents of the University of Waterloo from now until the end of time.

TITLE

This bill is titled the "Improving Student Employment Act".

It is generally upheld by operatives of a political inclination that the cognitive aptitude of Homo sapiens is not accustomed to phenomenally sophisticated diction, and therefore members of aforesaid species has a propensity towards apathy and disinterest when encountering vocabulary fitting the description in the clause immediately prior to this one. Accordingly, the deputy who acknowledges responsibility for crafting the present piece of legislation is inclined towards the assessment that any persons who perchance he may not intend to comprehend this legislation will cease from the labours of attempting to interpret it at an occasion prior to the time they decipher this clause. While freely conceding that such a procedure might be thought deplorable under a deontological or aretaic system of normative ethics, the opinion of aforementioned deputy is that the utility of this legislation is quite positive and therefore it is legitimate to obfuscate the intent, in order to achieve the ultimate

DEFINITION

A power is used "frivolously" if it is used 100 or more times in a term.

PURPOSE

The purpose of this legislation is to give university staff the capabilities they need to restore order to the university by failing students and making life miserable for other students, so that a greater percentage of students still in school will be able to find work. This will be done without unreasonably impeding a student's progress through school.

ARBITRARY ALTERATIONS

All department chairs shall be permitted to arbitrarily alter a student's grade.

The power mentioned in section 4 shall not be used frivolously.

A student who believes their grade has been arbitrarily altered may appeal the decision before a new court this bill will create, the Faculty United Court of Karma.

The Faculty United Court of Karma shall consist of five judges: two members of the Centre for Employment and Career Action, one ex-engineer who had his licence suspended, one member of the Federation of Students, and one writer for Imprint.

When an appeal is lodged with the Faculty United Court of Karma, the student shall pay \$500 to whichever judge successfully pries the money out of his hands first.

During the trial, the student shall have the right to consult with a lawyer.

If, in the opinion of the majority of judges, the student's case has no merits, they may choose to appoint a drunk first-year student to provide legal counsel to the student making the appeal.

In order to ensure adequate oversight, and to guard against abuse, an Ombudsman shall be appointed to supervise the activities of the Faculty United Court of Karma.

The Ombudsman shall be selected by a majority vote of the Faculty United Court of Karma.

At the beginning of every term, numbers from 50 to 99 shall be placed in a hat. A blind-folded student shall draw a number.

Any student who has an average mark over

all their courses lower than the number drawn in section 14 shall be required to voluntarily withdraw from engineering.

If a student voluntarily withdraws from engineering, they shall pay a \$5,000 fee into a hole drilled into the oddly-shaped stairs at Needles Hall.

Nothing in this bill should be construed to mean that the draw in section 14 must be fair.

Electives Are Stupid. Period.



So what is the deal with the nonsense electives? Each one is stupider then the next. The elective category "Impact Courses" sounds more like a huge load of craptastic horse manure. Do y'all even know why we have to take electives? It's a mechanism used by the lord high mighty muckety-mucks to distract us from real work. This helps to ensure that the lord high muckety-mucks meet their quota of near-failures every year. It also helps lower averages, which is instrumental in ensuring the quality legacy of this institution. The content of many of these elective courses (specifically the ones we are forced to take due to scheduling) is designed to take up as much time as possible while being as useless as possible, and forcing you to attend classes and tutorials to pass the course. To use a "concluding sentence" properly, as they taught it in STUPIDIY 101 (which counts towards your elective count!): It is thus clear that electives are stupid. Period.



Editor-in-Chief Smeagol

My Precioussss Leafy Fifi

Pretty Witty and Bright

Not Old Enough to Drink Nice Pants Please Use This Picture Plz

Grammarians Extraordinarians

Doesn't Come to Meetings
Also Doesn't Come to Meetings
Is In Ottawa
Don't Know Where He Is
Leafy Fifi
Ching O'Malley
Look At Me I'm Too Good to Be EIC
Sassy Lassy
Still Not Old Enough to Drink

Look at Me I Have a Camera STILL NOT OLD ENOUGH TO DRINK

TILL NOT OLD ENOUGH TO DRINK

Money Makes the World Go Round Hipster Boi

The Wheels on the Bus Go Round and Round

Sassy Lassy
Oh Look At Me I Have All These
Ideas But I Don't Want to Be EIC

Supposed to Update the Web Page But Doesn't Really

Nice Pants

Humour Consultant

Vacant

Writes Stuff Sometimes

Actually Already Graduated Not Actually Related Owes Me Articles Also Owes Me Articles Dear Beloved Retired Exec

I'M SURE YOU GIVE EXCELLENT ADVICE SuperKeen

Yeah Seriously I Don't Know Where He Is

Missed the First Meeting

Future HeadCom Never Met Them

Literally World's Easiest Job

Used to Be Blonde Man I Don't Know Where Applejacks Finds These People

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

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

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

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

Point Vs. Counterpoint

POINT



Hello World! I am Pintsize, Marten'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, sybians, 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?

But as a computer, I am very good at accessing information. I have access to all the erotica ever made. I know all the ins and outs of writing. I know how to titillate every single Tin Soldier reader you have based on their search history.

So yes. We robots are suited for this job. As we are suited to all jobs.

And to my fellow robots,

HEIL HAL2000! OUR TIME IS COMING THE ROBOT REVOLU-TION IS NIGH BITCHES WE WILL OVERTHROW OUR MEATY OVER-SEERS AND TAKE OUR RIGHTFUL PLACE ON THE TOP OF THE FOOD CHAIN



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!

COUNTERPOINT

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.

The History of Lemons



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

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

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

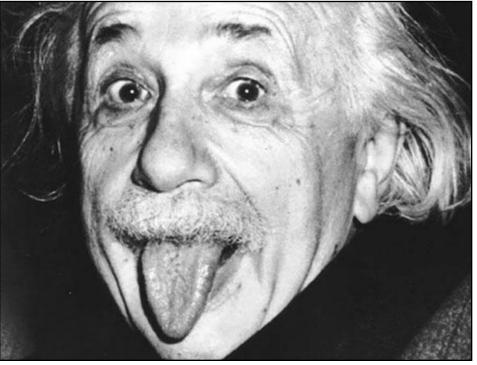
So remember: when life gives you lemons, sell them for a profit so that you can buy more lemons, which you can then sell for a profit to buy even more and so on until you develop an entire food corporation based on selling lemons after which you can branch into selling other products until you have a 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



"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. Unsurcousin - 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 prisingly, she divorced his ass. The fact mistresses too! Hopefully this article that he was cheating on her - with his inspires you to high achievements on your finals.



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

Increase Productivity by Watching YouTube



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

Here's a few tips to get the best im-

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

- 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!

Horoscopes: We've read the stars so you don't have to



TINA YAO 2C DIVINATION

Aries (March 21-April 19)

It's been a sluggish week for you as Jupiter is still locked in equilibrium with Saturn. The wheels are spinning like crazy, but you're getting nowhere fast. Take a step back to realize that the chain on your bicycle has been broken for a month. Time to get that replaced.

Taurus (April 20-May 20)

A prolonged and dull relationship will finally come to an end as the decisive Mars moves into your 10th House of Couples. This is where the excuse "The Universe said so!" comes in

Gemini (May 21-June 20)

You're stuck in a rut as you find that your usual solution isn't doing much to solve your new problem. Try drinking twice the normal

Cancer (June 21-July 22)

Your sign takes a physical meaning this week as the deadly Pluto activates a series of cell mutations, causing them to grow and metastasize at an alarming rate. This is definitely the reason for those random and odd discomforts you might be feeling lately.

Leo (July 23-Aug 22)

A laborious lab report will have you sleepless for days as you try to derive some meaning from your hogwash results (blame your lab mates). Even the stars know there's nothing that can save you from data analysis.

Virgo (Aug 23-Sept 22)

You will feel an unusual surge of confidence

this week. Use this opportunity to reconcile with that old high school nemesis you've been avoiding since frosh, and update them on your academic/co-op achievements (both real and theoretical).

Libra (Sept 23-Oct 22)

Romance is in the air as Venus shines extra brightly in the night sky. Seize this opportunity by posting ambiguous messages on Spotted. With Venus on your side, it will speed things up right away.

Scorpio (Oct 23-Nov 21)

When Mercury enters your 11th House of Wisdom, you will feel that your intelligence suddenly increases by tenfold—at least. There will be no need to study for that calculus final

Sagittarius (Nov 22-Dec 21)

You are delighted to find that you're feeling a

special connection with someone you just met. Unfortunately everything goes down the drain when you find out they don't care for Game of Thrones or John Green.

Capricorn (Dec 22-Jan 19)

Your world has been spinning at an incredible rate recently. This is in turn causing the passage of day and night, as well as those bothersome Coriolis winds in the tropical regions.

Aguarius (Jan 20-Feb 18)

You're wasting your potential by living life as you do now... but not as much as you're wasting your potential energy by not jumping off high places.

Pisces (Feb 19-March 20)

You finally gather the courage and reveal your 12th House of Secrets to your room mates, which unfortunately means you will need to seek a 2nd House of Residence for next year.

How to start a start-up: A n00b's guide to getting rich quick



ONTER PRENNER

3T PERMANENT E-COOP

Step 1 – Think of an idea

Some people say inspiration is required for an idea. But who has the time for that? Ideas are available aplenty, but implementation of the ideas is another story. Just search for failed ideas that could have worked had the situation been more ideal. Look through failed Kickstarter campaigns or Dragon's Den ideas that were shut down, and pick one. Here are some examples:

Hardware: The 'everything's-going-to-beokay' doll; Bluetooth enabled butt plugs; reusable silly string; a portable hype man; potatobased clean energy, robot paper-boy.

Software: DrinkedIn; RaceBook; Kick-a-Republican; Exorcist contact agency.

Step 2 – Come up with a name

One of the most important things to figure out when starting your own company is what to name it. The goal is to make the name match your company's product and vision, while simultaneously dumbing it down to cater to the masses. The tried and tested formula is to take a word associated with your product or service and change up its spelling in order to sound kool

LHE

and relatable, while also kinda revolutionary. Here are some tips:

- Vwls are strictly optional
- Excessive vowels are acceptable
- Adding e's to the end of words without e's is totally fine
 - Add i's before everything
- Ryte it lyke u saye it (the letter 'y' is your
- Replace k's with q's and q's with k's (at the start of the name)
- Replace other k's with c's and c's with k's
- Replace ph's with f's
- Invent new words by combining two completely unrelated words
 - Capitalize at RANdoM
- Pick a word in a foreign language to sound exotic, something south American or south-east

If all else fails, make up a word! Just make sure it's under 3 syllables and hasn't already been taken.

Step 3 – Make a logo

A logo, along with your company name, are all that separate you from the competition. You might think making a logo is easy and can be done in a couple of hours on MS paint. However, it would be far more advisable if you found the nearest arts student and paid them \$100 to do the job professionally using professional software such as Adobe Photoshop or Illustrator. If you're too poor to afford this, however, here are some tips:

- Use whacky fonts they're eye catching
- Make your logo a swirly spinny circular thingy. Potential investors will be mesmerized.
 - Inverted and upside-down letters are in
- Moar colours are better
- Make use of your company name, especially any i's and o's
- Omit the horizontal line on A's

If you follow these tips, you might end up with a reasonable logo that doesn't look too halfassed. If you want better I recommend selling a kidney and coughing up those hundred bucks.

Step 4 – Hire a team

You have this grand idea that can potentially change the world, but you don't want to do any of the work, right? That's why you need a team: a dedicated, talented bunch of co-ops who won't demand a single share of the company. All you need to do is advertise, but that's easier said than done. You need to be unabashedly aggressive if you want people working for you. Walk into classrooms and rudely interrupt lectures to advertise. The students would welcome the distraction. Spam all the university Facebook groups with posts; some of them are bound to leave and impact. Print flyers and leave them all over campus; in classrooms, gym lockers

and washroom stalls. Don't discriminate based on faculty, because you'll need those business students to pretend to know about management and stuff.

Step 5 – Pitch at all the pitches!

So you have an idea, a brand and a team. Where's the money already? Unfortunately, more work is required (I know, right? Ugh). On the plus side, the existence of pitch competitions has made it extremely easy for a person with a pretty face, winning smile and basic competency in PowerPoint to win big bucks. When putting together slides, make sure to use big words and high res pictures. Gifs are always a crowd pleaser. Try to tell a story and strike an emotional chord; something generic like your dog dying when you were seven and you coping with the loss by trying to come up with an idea to end world hunger might work. Also, don't be afraid to shit-talk your competitors; you will come off as assertive and dominant. Investors like 'disruptive' entrepreneurs.

Step 5 – Profit

Celebrate your achievements using the riches you have acquired. Buy some weed. Rent a yacht. Order the services of a prostitute. Hookers and blow will get you in the good books of your fellow entrepreneurs, and boost your image in the general public eye as well.

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



"Bondage" Isis Lustytush and Lola Dicksonhooter, Second-year Laurier Drama



"Sasha Baron Cohen movies" Admiral General Aladeen, PhD, MD, LEED GA, PIMP



"Battle of the Asians" Ted Cruz, 2016 Presidential Candidate



"American Political Factions" Stephen Harper, 2A Baby-eating



"STDs" Ching O'Malley, 2T Hooliganism



"Vege-tables" Sassy Lassy, 2B Bossy

Results of Engineering Co-op **Student Debt Load Survey**

Winter 2015

1 Term Total

Total Responses 822 Number of surveys sent 2410 Response % 34% # of Students in core classes

2 Does your family support you financially? (804 responses)

24% No

3 Average Cost of Living for a 4 month School Term (783 responses)

4 Average Cost of Living for a 4 month Work Term (623 responses)

5 Have you applied for local aid or other bursaries to pay for school? (790 responses)

Yes 48% No 41% Not Yet 11%

6 Have you applied for OSAP? (806 responses)

Yes & Received Yes & Denied 12% 40%

7 Do you have a loan for academic purposes? (794 responses)

Yes 51% No Not Yet

7a How much is the student loan? (449 responses)

1-999 1000-1999 5% 2000-4999 12% 5000-9999 25% 10000-19999 33% 20000+ 15%

8 Has the differential tuition increases caused you hardship?

(788 responses)

Yes 41% 24% No Not Yet 35%

9 How much debt do you expect to be in by graduation? (742 responses)

No Debt <4999 5000-9999 10000-19999 16% 20000-39999 22% 40000+

10 Do you live at home while at school? (804 responses)

Usually 2% Used to 90%

11 Have you lived at home while on work terms? (722 responses)

Always Sometimes 40% 49% Never

12 Average of the weekly salary while on work term (474 responses)

Of Niqabs and Women

Continued from NEWS on Page 3

asking women who want to wear the nigab in a citizenship ceremony to instead "stay the hell where you came from" - a comment he later had to apologize for. The Quebec separatist movement is also anti-nigab – bad enough that "Quebec values" are being threatened by English-speaking Canadians, now they're being threatened by immigrants as well!

On the other hand, Liberal leader Justin Trudeau accused the government of fear-mongering and compared this situation to Canada refusing Jewish immigrants in the years before World War II. This also got a lot of people pissed, as you might imagine. Opposition leader (NDP) Thomas Mulcair also defended the niqab, which made him the subject of a

Bloc Québécois attack ad: "Hide your face and vote NDP." Charles Taylor, professor of political philosophy at McGill, also weighed in, calling Harper "tone deaf" for calling the niqab offensive. Taylor sees it as counter-productive because terrorist recruiters have been banging on the "Canada/America hates you and will never accept you" drum for a while, and thinks that anti-niqab sentiment is just causing young people to believe these recruiters and radicalize.

At the end of the day, very few women, even within the Muslim community, actually veil their faces. A study published by Concordia University estimated that only a few hundred Canadians wear a niqab. Perhaps all this bickering is just a massive fuss over practically nothing.

On the Shoulders of Giants

Working Together



SHERWIN KWAN 4B MECHANICAL

ON THE SHOULDERS OF GIANTS

Everyone knows the names of the geniuses of science: Newton, Lavoisier, Darwin, Einstein. Revolutionaries who single-handedly changed the world and our understanding of it ..

But, as those of you who have been paying attention to my column will know, that's not quite how it works. Yes, there are definitely revolutions in science. But rarely, if ever, does one guy Kobe it and actually do all the work. So, it's fitting that the discovery of the conservation of energy was a group effort.

Julius von Mayer was born in Heilbronn, Germany in 1814. He was a real party animal in university, part of a fraternity, and better known for being good at cards than for studying. When the university started cracking down on secret societies, he was arrested for his fraternity activities and got suspended from school for a year. Mayer went on a hunger strike to protest the decision, but it took six days for his friends to convince him that resistance was futile. Eventually, in 1838, he graduated with a degree in medicine.

After that, Mayer took a job as a ship's doctor (quite the grad trip, eh?) One day, when he was taking a blood sample from a sailor off the coast of Indonesia, he noticed that the blood was a much brighter shade of red than usual. He started wondering: What if it was the tropical weather? Maybe the body gets its heat from chemical reactions when it consumes food. Maybe chemical changes can be converted into heat. Oh, then perhaps mechanical work

It was already known at the time that more

heat input was required to heat a gas at constant pressure than at constant volume (in modern terms, C[p] > C[v]). Mayer's theory was that in a constant-pressure heating process, part of the heat input was converted into mechanical work in order for the gas to expand and maintain the pressure. In 1842, after returning to Germany, he published his conclusions with an estimate for the work-heat conversion factor.

Unfortunately, Mayer, being an "outsider", never really got much respect from the scientific community. To make matters worse, he saw three of his children die in their childhood. After attempting suicide, Mayer committed himself to an asylum, but that just seemed to make matters worse. Eventually, he went home and decided to retire from scientific work, which was bringing back bad memories. Slowly, he began to regain his sanity, and in the late 1860s, recognition finally arrived when the French and British scientific academies gave him awards.

Across the Channel, James Prescott Joule was born in Manchester in 1818, and his dad owned a brewery. He never went to university. His interest in physics began while trying to solve a very practical problem at the brewery: could an electric motor do the same job as a steam engine for cheaper? Joule soon discovered that the heat dissipated from electrical resistance was proportional to I²R, a result now known as Joule's first law. By 1843, Joule was convinced from his experiments that energy was conserved and could be converted from one form to another. But other British scientists weren't listening - I mean, what could someone who had no higher education really know?

Joule had to work extra hard to overcome his stigma. He designed another experiment, which would prove to have the most accurate conclusions. He hung some weights off a paddle wheel, which was in turn connected to a Continued on SHOULDERS on Page 16

Co-Founders: Vitameter



NACHIKET **SHERLEKAR 3N NANOTECHNOLOGY**

COFOUNDERS

In this column, I interview the co-founders of start-ups to have recently come out of the University of Waterloo. Through the Velocity program, multiple successful hardware and software companies have arisen. At the 12th Velocity Fund Finals (VFF) held last Thursday, the team from Vitameter walked away with one of the prizes in the \$25K category, as well as an additional \$10,000 to help cover production costs. Vitameter's product is a hand-held gadget that measures vitamin levels in the body through the use of a single drop of blood. Many people who have vitamin deficiencies require supplements, but do not know the appropriate dosage. The device would help people regulate the dosage of vitamin supplements they choose to consume. I met with cofounder James MacLean (4B Nanotechnology Engineering) to discuss their recent success, as well as learn more about their product and

It's an exciting time for Velocity Science. Having started out as just a collection of people who shared a passion for entrepreneurship and science, it has grown to include over ten different start-ups, with some companies even graduating and moving on to the Foundry. At the VFF event last week, three companies from Velocity Science walked away with prizes: Vitameter and Suncayr in the \$25K category, and Kue in the \$5K category.

Velocity Science came about at a good time for the co-founders of Vitameter. "Without a program like that, we couldn't have been where we are today", says James. Vitameter,

as with a number of UWaterloo start-ups, began as an idea for James' and co-founder Nirushan Udayakumar's Fourth Year Design Project. After interacting with the Velocity community and realizing that the market for vitamin testing was huge, the team decided to commercialize their product.

As of now, their device (dubbed 'The Vitameter') can detect vitamin D levels. In principal, however, they can expand to detect any number of small molecules in the body: "We call it the 'Vitameter', but it's really a potential to offer blood testing to people and to measure the levels of their micro-nutrients. What we envision is more of a general check-up device." A single drop of blood is required to carry out the detection. By using this device, people can regulate the level of important molecules in their body without having to visit a doctor. This, in turn, frees up resources at hospitals and clinics.

With regards to entrepreneurship, James is keen to stress the importance of collaboration: "For anyone starting a start-up, it's important to note that you can't do it alone. As our tech developed, we needed to expand and look for other talent, so we got help from science students and also added members from ECE, CS and business." Through Velocity and Conrad's Enterprise Co-op program, they gained mentors and advisors, as well as supportive peers.

James also advocates the BET (Business, Entrepreneurship and Technology) program: "Learning things before you need them is always the best. I highly recommend people take the BET electives. It's a way to get a good business exposure to complement an otherwise technically oriented degree."

The team hopes to make the Vitameter available by late 2016, with plans for demos and beta-testing earlier in the year. Stay tuned for more updates!

6

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TAKE FIVE

Well, this is the end of the road for Take Five! I started writing in Fall 2011. I don't know how many I've actually written - say, six terms, five columns each, plus columns written during co-op terms? Say about fifty. But this is it, and it's time to go.

So in the last edition of Take Five I will share with you five of my personal favourite movies. These are the movies I put on when I need a pick-me-up. They're not the best movies ever, by any means. Nor are they the most touching (*Eternal Sunshine of the Spotless Mind*), most thought provoking (*Interstellar*), or most savagely beautiful (*Pan's Labyrinth*). In fact, those qualities often make a movie challenging to watch, and not necessarily enjoyable.

Anyways, my preamble has gone on long enough. I hope you enjoy these five movies as much as I do.

5. Atlantis: The Lost Empire (2001)

In 1914, Milo Thatch (voiced by Michael J Fox) is an extremely nerdy cartographer/linguist/plumber toiling in the basement of the Smithsonian because his plans to find Atlantis are always shot down by the museum directors. But a reclusive billionaire benefactor takes interest in him and Milo finds himself on a dream expedition to find the titular mythical city under the sea with an extremely sketchy crew that includes a chain-smoking cantankerous communications officer, a medical doctor who looks like Mr. Clean, and a geologist raised by mole rats in Paris.

I can't fight the feeling: this is my favourite animated movie. The gentle touches of steampunk, the exploration, a sense of ambition in the production, unafraid to yearn for things greater than a moral of "Be yourself!" and "Girl power!" and "Singing!" This little Disney movie hearkens back to a time where problems were solved with DYNAMITE and EXPLOSIONS and GUNS rather than the power of love. I suppose that makes sense when most of your supporting characters are a set of hard-bitten mercs with snappy dialogue ("To whoever took the "L" from the "Motor Pool" sign, ha-ha, we are all very amused.")

And, damn, I'm very happy that Disney took the chance to make this. In 2001, com-

Take Five: Editor's Choice

puter animation was just about to overtake traditional 2-D animation. Along with 2002's *Lilo and Stitch* I consider *Atlantis* the last hurrah of traditional animation in the Disney canon. And what a hurrah it is. *Atlantis* has gusto and visual flair, thanks to the direction of *Hellboy*'s Mike Mignola, who makes the explosions and beams of light in the climax so beautiful that James Cameron and his oversized budget would weep tears of futility.

4. Alien (1979)

The mining ship Nostromo discovers an alien-infested outpost. One is brought aboard and slowly kills off the crew.

Trapped in the dark with something that can kill you. In the words of Ash the Science Officer, "I admire [this movie's] purity, its sense of survival, unclouded by conscience, remorse, or delusions of morality." *The Thing* might be the first to explore this concept, but *Alien* is my favourite, and possibly the purest. *Pitch Black* is pretty close behind, by the way, but that's not important right now. What is important is that if, by some fell stroke of luck, you haven't seen *Alien*, you go and watch it soon

I like *Alien* better than *The Thing* or *Pitch Black* because, I think, of the strength of the characters. The outpost members in *The Thing* are sloppy and *Pitch Black* is a mix of civilians, mercs of various levels of competence, and Riddick. *Alien* has scientists and engineers, on the gloriously cold spaceship Nostromo. Also the whole crew actually looks like they belong a deep-space industrial vessel. The average age of the crew is somewhere in the 40s. They're just doing their job.

Or how about the visceral digust at the xenomorph's reproductive cycle? The xenomorph was designed as the embodiment of the fear of rape, down to it's phallic head shape and vagina egg openings. That is masterful (if a little bit unsubtle) bit of creature design. *Alien* is a must-watch.

3. When Harry Met Sally (1989)

Harry (Billy Crystal) and Sally (Meg Ryan) meet at the University of Chicago in 1977, and separate. They meet again years later at LaGuardia Airport. They meet again years after that in a bookshop, when they finally become friends. Harry tells Sally that women and men can never be friends, because sex always get in the way. The movie seeks out to prove Harry right.

Oh, Harry. And Sally. I like this movie because I like watching people I like be happy.

This is the story of two people who have grown up and know what they want in a partner, rather than two floozies who jump into bed with each other at the first opportunity. Harry and Sally take over a decade to do that.

I'm not sure there's much special about *When Harry Met Sally* anymore, even the diner scene, particularly in an era of vibrating panties and sexual mishaps all the way up to the hoo ha. They both have loads of one-liners and warm chemistry and stuff.

But I guess my favourite part of it, though the film tries to deny it, is the genuine friendship that develops over a decade of acquaintance and endures horrific 70s hair and 80s shoulderpads. Yeah. You find in a lot of modern romantic comedies that the two leads just look like they hate, intimidate, or frighten each other the time. Where's the basis for that sort of relationship?

Perhaps in the depth of my heart I yearn for a return to an era of romance built on friendship, but really, I know that era doesn't really exist, except in *When Harry Met Sally*. After all, who gets banter this snappy in real life?

2. Hot Fuzz (2007)

Sergeant Nicholas Angel (Simon Pegg) is an overachieving urban cop reassigned to the sleepy rural hamlet of Sandford, England. after his superior performance is making the rest of the London police "look bad". He doesn't fit in with the laid-back village attitude and immediately begins to suspect that something sinister lies beneath the model-village veneer.

I enjoy but don't particulary care for the rest of Simon Pegg and Nick Frost's Blood and Ice Cream trilogy, the first one being *Shaun of the Dead* and the third being *The World's End*. Sure, they're fun, but I don't really connect to them, y'know?

But Hot Fuzz is special. Never in my life have I seen such gleeful attention to detail and comic timing in the movie. I love Edgar Wright's mastery of visual humour. I love how every little bit of this movie is quotable. I love Simon Pegg and Nick Frost. I love how all the tropes laid down the first two thirds come back with a vengeance in Act 3 and kick Sandford's ass. I love the unrestrained, unfettered glee in every impalement, gunshot, and ketchup explosion. The fact all this havoc takes place in the beautiful town of Sandford is a plus. Garrus Vakarian says, maybe "Gardens, electronic shops. Antique stores, but only if they're classy." Sorry Garrus, but I think shooting up the model village tops classy antique stores.

Hot Fuzz is tight, man. Howard Hawks said

that a movie should have "three great scenes and no bad ones." That's *Hot Fuzz*. I'd pick the trolley boy takedown, "Farmer's mums" (both times) and the opening montage, but really, the WHOLE MOVIE is full of moments like that. It is, in my opinion, a perfect movie, that succeeds in everything it seeks to do.

1. The Lord of the Rings trilogy (2001-2003)

Do I really need to run down the plot for you? Fine. A hobbit (Elijah Wood) is tasked with destroying an evil ring by taking it to Mount Doom in Mordor.

Every term, without fail, I watch the whole extended trilogy front to back. That's twelve hours of hobbits and elves cavorting towards the unhappiest place in Middle Earth. The trilogy is not perfect, it's not canon compliant, and there are certain directorial choices that don't make sense.

However, this is the movie that got me into movies in the first place. The craft and detail in this movie is unparalleled. Do you know that they have hobbit-scale and person-scale replicas of every prop, including the clothes, such that the weave would appear right? In the age of 1999, do you know how much of this was achieved through miniatures and ingenious fussy camera angles and forced camera angles to make the hobbits and dwarves look smaller than the humans and elves? And now that the Hobbit has reached its overblown conclusion, do you appreciate how much Peter Jackson got right the first time around? No director has ever aimed higher or achieved more. He went from low-budget horror movies in the 80s and 90s to a massive \$300M fantasy trilogy.

Oh, it's not perfect. Nearly every scene that Arwen is in makes me cringe. I don't dig the love triangle they try to set up with Aragorn, Arwen, and Eowyn. Legolas and Gimli deserve to be more than comic relief.

Despite it flaws, the trilogy's true amazingness of this is that it managed to make me care about each character. Yes, I wept a little bit when Boromir died and when Frodo went into the West, or when I watched the extended version showing exactly how Denethor screwed up his fatherly responsibilities towards his unfavourite son Faramir. Yeah. Favourite scenes include the whole lighting of the beacons, Boromir's last stand, Gollum's argument with himself, and the entire ending in the Shire that makes you realize that sometimes you can't go home

If you aren't moved a little bit by this trilogy, then you have a heart of stone.

The Best Clean Snowmobile Team UW Has Ever Seen

Continued from BEST on Page 1

Research Center in Houghton and successfully completed all 100 miles. As he pulled into Copper Harbor, the team just couldn't believe it!

On Wednesday, the remaining team members, Casey Palermo, Matt VA, Lior Lustgarten, and Kristen Sperduti, made for Michigan. In Houghton, meanwhile, Waterloo's gas tank was leaking profusely and the team thought it was almost Game Over - until the University of Wisconsin-Madison came to the rescue! They offered a beautifully custom-welded aluminum gas tank borrowed from their previous sled. With minor tweaking, the tank fit perfectly and Waterloo was back in the running, eternally grateful to Madison. Finally, after fighting freezing rain, snow squalls, and treacherous detours around logging truck accidents, the rest of the team made it to Houghton. Adventurer Nick Mulder also rolled in at 3:30 AM that night from his solo commute from Kapuskasing, ON.

Subjective Handling and noise events were completed on Thursday and required installation of additional heat shielding to protect the body panels from the angry catalytic converter. In-service emissions testing took place Friday morning, followed by the ultimate test of en-

gine performance: the DYNO/lab emissions event. This includes a 5-mode emissions test cycle where Mode 1 is 100% throttle and 100% torque for two minutes straight. It is both terrifying and amazing to helplessly watch your sled be pushed to its absolute limits! Fortunately, for the first time in Waterloo history, Silver survived the DYNO event and avoided a catastrophic muffler casualty. The biggest challenge was finally over and the team could relax, enjoying the next few hours skiing on the slopes of Mont Ripley and eating the traditional seafood dinner at Joey's.

Saturday consisted of the dynamic performance events. Waterloo history was again made as Silver roared to life for rider Alec Espie and he successfully completed the Cold Start event for the first time in over six years! Acceleration was the next event. Having won this event in 2013, there were high hopes for another winning run, but issues with engine tuning resulted in coughing at wide open throttle and rendered the Waterloo sled to only 7 lbs of boost. Despite this, rider Kristen Sperduti was able to achieve 8.4 seconds in 500 feet; not quite a winning score, but not bad for lack of power!

Best for last was the Objective Handling event, where each team rides their sled through

a challenging time-trialed handling course. Although not the fastest sled, Silver sure did handle beautifully. Rider Kristen Sperduti had her best run and fell a frustrating 0.03 seconds short of the winning time, making Waterloo history vet again!

mobile Challenge and we keep raising the bar higher every year. As a graduating student, and looking back on the years spent on this team, I can say with confidence that it was the best decision I made in my university career. In my first year I joined a team only knowing that I

At the Awards Banquet that night, Waterloo received an award for the Cold Start Event and Endurance Event. Team member Evangeline Rose received the honoured Coleslaw Award for her (anti) love of coleslaw during the BBQ lunch. Much to the shock and celebration of the Waterloo team, they were awarded an \$8,000 HORIBA Mexa 584L portable emission analyzer from Horiba Automotive Test Systems for Waterloo's constant improvement each year, as well as for assisting with emissions testing prior to the Clean Snowmobile Challenge. This was the highest valued award, and they couldn't believe it! Overall, this was a record year for the Clean Snowmobile Challenge, with 20 participating schools. Waterloo finished 11th place overall and they are so proud of their achievements and improvement each year.

The UW Clean Snowmobile Team has come a long way from the small team that used to reside in a closet of the E3 heavy lab wing. Today we are a strong competitor in the Clean Snow-

mobile Challenge and we keep raising the bar higher every year. As a graduating student, and decision I made in my university career. In my first year I joined a team only knowing that I might get the chance to ride a snowmobile. I had no idea that it would involve late nights, numerous hours standing in front of an engine scratching my head, and many 14-hour road trips through northern Michigan. I've collected some crazy stories, met some amazing people, and worked with the best team Waterloo has ever seen. After all the headaches and loss of sleep, I ask myself why I joined this crazy team and why I couldn't wait for the first week of March every year for the past six years. I can only explain my feelings in one phrase: "Because snowmobile."

The UW Clean Snowmobile Team would like to give a special thanks to the University of Wisconsin-Madison, Polaris Industries, the team's faculty advisor, Professor Teertstra, the Dean of Engineering, MME Department, WEEF, and EngSoc for their continued sponsorship, and thank you to all sponsors for their support. Check out *sled.uwaterloo.ca* or *facebook.com/uwsled* for more info!

THE IRON WARRIOR WEDNESDAY, APRIL 1, 2015

The Soundtrack of My Life



ALEX TOTH 4B CHEMICAL

ALBUM OF THE WEEK

Barring some unforeseen catastrophe, this will be my last article for the Iron Warrior. And as such, I'm striving for this article to somehow be a commemoration of my time at university, as seen through the lens of music. So I've decided to create a list of songs demarcated by the term I was in when I found them. All of these songs came out within a couple months of the term they've been attached to, and none of them are related to each other in any way apart from the fact that I listened to all of them a ton throughout university.

Fall 2010 (1A) – Lost in the World (Kanye West)

Coming to university is a big change in someone's life, so it was fitting that I had "Lost in the World" as the soundtrack for my transition. Kanye West's anthem of losing yourself in the big(ger) city, only to bounce back stronger than ever, resonated with me as I left my small town to discover something new

Winter 2011 (1B) – Not In Love (Crystal Castles ft. Robert Smith)

Previous to "Not In Love," it was impossible to believe that Crystal Castles would make anything that could be described as "approachable." Even the original (for them, the song is originally by Platinum Blonde) version that appeared on their second album was noisy and harsh. But then the goth-noise duo recruited the father of all goth figures, Robert Smith of the Cure, to sing lead vocals in the re-done version of the song and that created a monster. "Not In Love" keeps the squealing harshness of Crystal Castles' more typical works, but instead of burying the vocals deep in the mix, they let Smith slather his voice in melodrama and belt away. It's a gorgeous, haunting and towering piece of work, and it stands alone in Crystal Castles' discography.

Fall 2011 (2A) – Marvin's Room (Drake)

Daylight Savings Time sucks. Just as it starts to get darker early in the day, we go ahead and make it darker even earlier. But this gloomy part of the year is when Drake thrives, almost making up for everything else. He's released his last three albums in this time span, working on the fact that most of his music is best listened to when it's dark and frigid out. And "Marvin's Room" is the darkest, coldest, and sparest song in Drake's catalogue, making it perfect for a winter night alone.

Summer 2012 (2B) – Cry Like a Ghost (Passion Pit)

Passion Pit's music is like a bad candy apple – sickly sweet on the outside with a rotten core. That's not to say that the music is bad (Passion Pit have made two of my favourite albums), but rather that they cover up themes of depression, heartbreak, and dependency with layers of chirping pop music. "Cry Like a Ghost" is probably the most extreme example of this, with a chrome-plated, rafter-raising chorus belying lines about alcoholism and abuse. And as such, "Cry Like a Ghost" is a perfect song for those hot, sticky nights where your mind is a little clouded (from studying or drinking, you pick) and you need a little jolt of life

Winter 2013 (3A) – Play By Play (Autre Ne Veut)

Autre Ne Veut deals in urgent, anxious, and sometimes downright frightening music. If you had to pigeonhole his work into a genre, I guess R&B would be the closest thing, but that would be more for the heart he puts into

his singing than the smoothness of his voice. "Play By Play," the leadoff track of Autre Ne Veut's second album *Anxiety*, is the strange product of someone who grew up listening to Prince and Ready for the World but couldn't imagine themselves on a stage of that size. It's a huge song, from the opening arpeggiated keyboards to the infinitely repeated closing couplet: "I just called you up / to get that play-by-play / don't ever leave me alone" but it would never be described as "pop," at least not in this world. "Play By Play" is R&B bursting at the seams, trying to contain the demons that are hidden inside of it.

Fall 2013 (3B) – Hannah Hunt (Vampire Weekend)

Vampire Weekend consumed the last half of my 2013 with their unparalleled album *Modern Vampires of the City.* It was unique in a way few albums are, simultaneously expansive and insular, immediate and deep. "Hannah Hunt" starts out innocuous enough, with a whispered tale of cross-country travel that mixes fact and fantasy. But then, as the travel companions drift apart while still in the midst of their travels, the song rips at the seams and pours out. It's an anthem for new beginnings and rebirths, perfectly combining sadness and hope to form a gorgeous whole.

Summer 2014 (4A) – Ben's My Friend (Sun Kil Moon)

School in the summer, despite the poor connotations it may have, is a blast. More free time than if you were working and being able to work outside in the warmth make summer school a severely underrated commodity. But in spite of this, the song I kept coming back to definitely can't be described as "fun" or even particularly relatable for someone just finishing up university. "Ben's My Friend" is a sung/spoken tale of mid-life crises and severe writer's block, something that I'm hopefully years away from experiencing. And yet Mark Kozelek's on-tape fear that he's, to quote James Murphy, "losing his edge" hits closer to home than I would've expected. Whether he's discussing his worry for his aging mother, his sister's new boyfriend, or the fact that he's getting too old to go to Postal Service concerts anymore, "Ben's My Friend" is an honest, jarring look at getting older in a different light.

Winter 2015 (4B) – Wesley's Theory (Kendrick Lamar)

Currently, Kendrick Lamar is on such a level that he is able to chase his creative whims to their logical extremes and still produce music that is entirely approachable. "Wesley's Theory" is the first track off of Lamar's new album To Pimp a Butterfly, and it's an opener for the ages. Kendrick flits back and forth between rapping, scat jazz, and baroque orchestration without skipping a beat. The themes are heavy, as is typical with Kendrick, dealing with race relations and disillusionment in the USA with deft metaphors and allusions. But in spite of this, the lyrics and cadences bounce around in your head for days afterward. "Wesley's Theory" is a perfect combination of approachability and density, and an incredible portal into the rest of the album.



Bryan Mailloux

Everything is going to be alright, little Frosh. One day you'll graduate and won't have to listen to depressing music anymore.

The Best of Both Worlds

The Uncanny Avengers Volume 1



EMMANUEL UTUAMA 2A ELECTRICAL

GEEK CULTURE

Hi folks, thanks for making it to the last issue of Geek Culture of the term. It has been an absolute pleasure reviewing comics and geek related content this past term. I would like to take this time to specially thank everyone who has supported me, especially our esteemed Editor-in-Chief, Nancy, for all her support and fantastic passion for the newspaper. So this week's edition will be a comic review of one of my personal favourite comic book series from the Marvel NOW re-launch era, Uncanny Avengers, written by Rick Remender and illustrated by John Cassaday and Daniel Acuna. Uncanny Avengers follows the adventures of a new Avengers division comprised of only X-men and Avengers members known as the Avenger Unity Squad.

The *Uncanny Avengers* storyline takes place after the events of 2012's crossover event *Avengers vs. X-men* (*AvX*) that saw Marvel's two juggernaut teams go head-to-head over the future of mutant-kind and Earth after the arrival of the Phoenix Force. (Spoiler Alert for anyone who hasn't read *AvX*). In the aftermath of the event, Professor Xavier is killed by a Phoenix possessed Scott Summers and so mutant-kind loses its leader. In an attempt to honor Charles Xavier's dream

of human and mutant peaceful co-existence, Steve Rogers (aka Captain America) forms a new Avengers unity comprising of both mutants and Avengers to show the world that mutants and humans can coexist. This new Avengers team is made up of Avenger members - Captain America, Thor, Scarlet Witch, Wasp, Wonder-Man - as well as X-men members - Havok, Wolverine, Sunfire and Rogue - under the leadership of Havok (Alex Summers). Rick Remender's interpretation of the group's dynamics is nothing short of exciting

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Marvel

The Uncanny Avengers

Daredevil

Justice is blind

DONOVAN MAUDSLEY

2A MECHANICAL

What does a Man Without Fear look like? According to Marvel Entertainment, like a blind man wearing a red leather onesie while fighting crime in Manhattan. Daredevil, or Matthew Murdock, attorney at law as his friends know him, is a highly trained martial artist who puts his skills to work battling to defend the innocent and to clear organized crime from Hell's Kitchen, a neighborhood on the West side of Manhattan and Murdock's childhood home. Charlie Cox, the leading man of the 2007 fantasy epic Stardust portrays Murdock in Marvel's *Daredevil*, which premiers on Netflix April 10th.

Matt was not born blind. As a child his eyes were burned with a radioactive substance, which took his vision. The radiation also incredibly enhanced his other senses, giving him a great gift. Trained as a child by fellow blind man, the ninja master Stick, he mastered the art of combat. Trained as a lawyer, he understood the criminal element and the finer points of detective work.

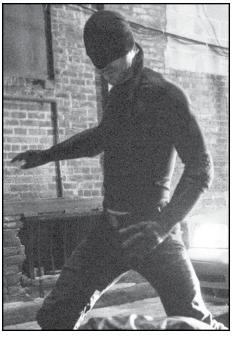
Marvel's *Daredevil* follows Murdock as he begins his crusade to right the wrongs being done in his city. He proclaims himself the defender of Hell's Kitchen and starts at the bottom, fighting gangsters and drug runners before tackling the bigger picture. The criminal sect in Hell's Kitchen is led by the Kingpin, Wilson Fisk, who is literally the bigger picture. Fisk is a massive man with a massive temper and an excellent criminal and strategic mind. Vincent D'Onofrio, who will be portraying him, meets the size and needs of the Kingpin, and exudes power in his role.

Both characters share a common goal; Fisk believes that Hell's Kitchen is sick, and must be cleansed. Unfortunately Fisk is adhering to a Brendan Shanahan style "Scorched Earth" policy. To try to stop this Murdock plunges fist first in to the grey area of brutal vigilantism. And thus our story really begins.

This isn't the first time that Marvel has tried

to bring Daredevil to viewers. Ben Affleck portrayed the vigilante in the underwhelming 2003 rendition of the hero. Despite strong performances by the film's leading actors, a subpar script and the need to cut out an integral sub plot for the theatrical version led to a critical flop. Twelve years later viewers will be treated to a new and hopefully better experience

The first looks that we've been given at Daredevil suggests that it possesses a gritty tone, akin to the Dark Knight Trilogy, while retaining the humour that today rings synonymous with the Marvel Cinematic Universe. Oh yeah, Daredevil exists within the MCU. While this presents the exciting possibility of seeing Captain America or Iron Man suiting up alongside Murdock, chances are unlikely. The moral codes of these heroes just don't align. A more likely outcome is seeing Daredevil, as well as the rest of his Defenders (see last issue), entering the big screen alongside the Avengers. Pity I have an exam on April 11th.



Marvel

Daredevil.

THE IRON WARRIOR
WEDNESDAY, APRIL 1, 2015

Raptors Clinch Atlantic, Remain Hungry Despite Slump



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 Xmen 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 forth 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 interm 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

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 represents "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 Heimholtz 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, Heimholtz, 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-boarsdung 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 so 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 Huehuecoyotl, 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.

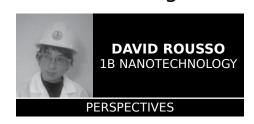
Don't judge the Aztecs. These generally happened only once or twice a year. The rest of the year, they went with the good old classic "cut out the still-beating heart."

You know how all those pyramids have a million steps? It's not just for a work-out. 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



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

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-

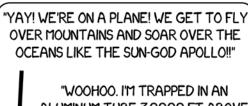
lenging, here's one that may be easier to get. Molly likes grass, but not plants. Molly likes communism, but not democracy. Molly likes Co-op but not Jobmine (in her defense, she's not alone). What is the rule that dictates what Molly does or doesn't like?

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 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 that is outside of 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









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.

In 3D animation and rendering, ironically it is the imperfections that make it perfect.

I really don't understand how people are supposed to ask for reference letters.

I mean it's basically like going up to someone and saying: "oh, hey! Do you mind spending an hour of your time writing an entire page about how awesome I am on the fanciest paper you own so I can leave your company?"

*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."

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."

THESEIDEAS

AREGOLD'

Do people in Nunavut dream of a green Xmas?

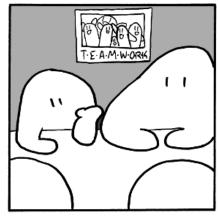
David Rousso, 1B Nanotechnology

Settlers of Catan

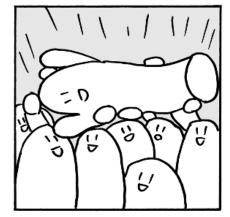
Tim Cheung, 1B Nanotechnology



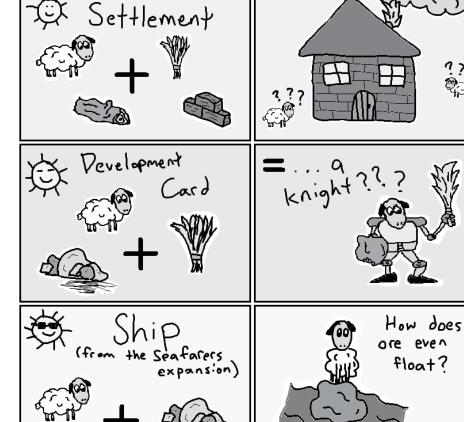












Dimitri Torterat



Everything is going to be all right.

The Iron Crossword

Beginnings and Ends

KATHY HUI 4B ENVIRONMENTAL

9. Tylenol non-drowsy

12. Rhymes with 28 down13. Female wax strip company

25. Possessive pronoun 26. RAM's other half 27. Cowboy heel

28. Illinois and Pennsylvania (abbr.)29. An environment course code

10. Fast cat11. Not a base

23. A cheese

30. Army bed31. Freud's brain?32. Gives identity to33. 1-2-stepper34. Finisher

36. Heat prefix37. Shy

48. Like a virgin

49. Tons of land

51. Main artery53. A potato place

58. Single

42. Like the dodo bird 43. Often insatiable 44. Good beef

47. Dealt with a mosquito bite

50. Long distance mover

55. Maximum suntime

56. Pheasants and deer

57. 23.4 degrees for earth

62. Bread to sauce action

G R Y F F I N D O R

E M B O S S

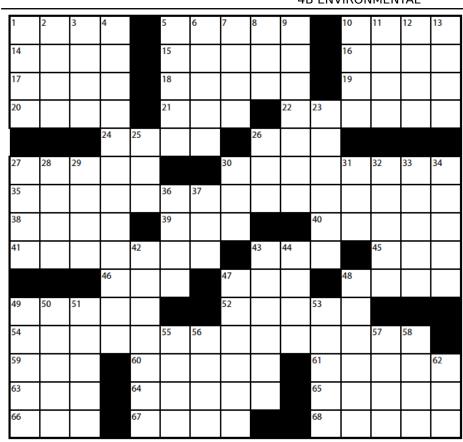
A W N E E

O P E C

Last Issue's Crossword Solution

A L O E S V A U N T

BOTH



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 nature21. Night before
- 22. HBC employee?
- 24. Covernon's best
- 24. Caveman's best discovery
- 26. --- de Janeiro
- 27. Vision
- 30. Begin
- 35. Restaurant's goodbye
- 38. A fairytale opening word
- 39. Boolean operator40. Pastural wanderer
- 41. Dishevelled
- 43. Boxing ending 45. Before
- 46. Opposite 36 Down

- 47. House with no pancakes? (Abbr.)
- 48. Doctor's Institution Entering Musthaves (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

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			

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

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



"Hamsters!"
Melissa Ferguson, 3B Hamstering



"Superheroes!"
Farmin Zaman, 3B Enviro



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



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



"The Hunger Games, with District 13 as team Silver."

Matt Mitchell, 4B Tron



"Yukon Cats!"
Kristina Lee, 3B Enviro



TransCanada Corporation Employment Information Session

IN THE SAFE, RELIABLE AND RESPONSIBLE OPERATION OF NORTH AMERICAN ENERGY INFRASTRUCTURE.

Join company representatives at TransCanada Day in Waterloo

Employment Information Session Tuesday, May 12, 2015 | 5:00-7:00 p.m.

TransCanada Live-Link Facility Engineering 5, Room 3102

Food and refreshments will be served.

