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THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

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National Conference on Women in Engineering

Clarisse Schneider

Delegates from the University of Waterloo engage in a variety conference activities

LUCAS HUDSON
4A MECHATRONICS

On November 16, 2014, Grant Imahara, former Mythbuster, closed out the last ever National Conference on Women in Engineering (NCWiE). The three day conference, held in Saskatoon, Saskatchewan, was centred around the witty theme of 'Leveling the Playing Field" equality for all, no matter your race, creed, religion, sex, gender, the list goes on. I would like to extend my thanks for Jessica Geddert, the NCWiE 2014 Chair, the University of Saskatchewan and the entire organizing committee for hosting a great conference.

After settling into their rooms at the Sheraton in downtown Saskatoon, the delegates convened for dinner with members of the University of Saskatoon as well as industry professionals. Over dinner, other delegates and I talked about a variety of things from proper dinner etiquette, which none of us followed, to what ice cream flavour best represents us, coconut and red-bean with chocolate sauce for me. After the humourous ice breakers, the conversation transitioned into topics on equal opportunity and equal outcome, strategies woman around the table have used to excel in traditionally male dominated fields and, most significant for me, what men can do to assist women in the science, technology, engineering and math (STEM) fields. The solution boiled down to a simple sentence: treat everyone as equals.

While the solution seems simple, achieving this goal is far from simple. Many of the issues are ingrained in our society, I see my very own nieces and nephews being raised to believe that there exists such a thing as a "toy for girls" and a "toy for boys." I heard stories of young female children being told that playing sports isn't something a respectable young lady does. At the same time, I heard stories of young men being told that dance and dolls will turn you gay and crying is a sign of weakness. If there is one thing I took back from NCWiE, it was the fact that I have the power to be a part of the positive change in this world, but, at the same time, change is neither fast nor does it come from one person alone.

Our generation, like the generations before us, can mould the world before us into whatever we want. We do not have to fit into the box that society has made for us, but, where do we start?

We can all start by creating a positive space for everyone to thrive. Ceasing to judge people based on their sexuality, how they dress and the music they like. Accepting other's views and respecting their decisions. We need to stop associating things as girly or manly and realize that all genders can exhibit any personality trait. Nothing is inherently 'girly' or 'manly,' calling someone weak should not be the same as calling someone girly, just like calling someone a jerk shouldn't be synonymous with calling them a dick. Language has an incredible impact on how we communicate, how we think and how we act. By changing the way we speak to others and ourselves will change how we perceive this world. The way we speak and the way we think are important building blocks to equality, but we must also act if we are truly committed to change.

We must make a society that creates equal opportunity for everyone. Level the playing field for both visible and invisible minorities. Provide the same resources to everyone, regardless of their social status or income. Both men and women need to be encouraged to pursue any career, from seamstress to scientist. It should be merit, hard work, and dedication that land us a job, not the colour of our skin, our cultural background or the bits between our legs.

Twenty Five years ago, the tragedy at École Polytechnique brought the engineering community together, kick starting the first National Conference on Women in Engineering, which has since run for the last 24 years. Now 2014 brings upon us an important change, a chance to look at all the issues affecting equality among engineering students, not just gender. One focused on diversity from all walks of life. Waterloo will be hosting the first annual Conference on Diversity in Engineering (CDE) in 2015, a conference that will no doubt host the visionaries of our future.

It is time to level the playing field. I am willing to do my part, what about you?

ESA's Daring Comet Mission Comes to Fruition

ALLEN CHEN
2A CIVIL

For many years it was been deemed quite impossible to land an object on a comet. The fast trajectory speed combined with the small size of comets makes such a landing quite a challenge compared to landing on another planet, moon, or even an asteroid, which are much larger and generally closer in distance. The consideration of landing on a comet, however, has been around for several decades. In 1986, probes were sent to pass by Halley's Comet to collect data regarding its composition.

On November 12, 2014, humanity proved once again that what was thought impossible is actually possible, as the first ever controlled landing on a comet was a success. The European Space Agency's Philae lander successfully touched down on the surface of the comet 67P/Churyumov-Gerasimenko after 10 years of travelling attached to the Rosetta spacecraft. The comet was only roughly 3 kilometres in diameter, smaller than any other object landed on in the past. Interestingly, the Philae lander had to be harpooned (there were literally harpoons fired from the probe) to the surface of the comet after landing since the escape velocity was so low that it would have ended up bouncing off back into orbit otherwise.

The Rosetta spacecraft was launched, carrying the Philae probe with it, on March 2, 2004 from a launch site in French Guiana. On August 6, 2014, Rosetta achieved an orbit on the comet, the first comet orbit in history. Between then and the landing of Philae, Rosetta collected information for potential landing sites as the surface of the comet had never been mapped and thus there was no pre-determined landing site for Philae.

Although the mission duration was planned to be between 1 and 6 weeks, communication was lost from Philae after 2 days and 7 hours as the probe ran out of power from its primary batteries. Luckily, the probe is equipped with solar panels, and the European Space Agency (ESA) hopes to be able to re-awaken it by August 2015 when the comet will be in an orbital position closer to the sun. There is also the possibility that this will be the last opportunity to continue the mission, since the Sun may very well end up overheating Philae instead.

Despite the short duration of data collection from Philae, a lot of valuable information was gathered nonetheless. The main goals of the mission were to determine physical characteristics and other properties of 67P/Churyumov-Gerasimenko. The comet was found to oscillate at 40-50 MHz, which scientists have modified to be audible to the human ear for the public to hear.

Perhaps the most interesting discovery by Philae was the discovery of chemical compounds on the surface of the comet containing carbon, the building block of life as we know it. The presence of organic molecules on comets has been speculated by scientists for years as a potential origin of life on Earth. Unfortunately, Philae powered down before a full sample could be detected from the icy surface of the comet.

The Rosetta mission was a largely successful subject in social media. The mission had Facebook and Twitter accounts as well as live streams to give updates on the mission as it was happening, with #CometLanding being a trending hashtag.

While this mission is concluded for the time being, there are still several exciting space missions to be on the lookout for, notably the flight test of NASA's new Orion spacecraft, and the current Expedition 42 sending new astronauts to the ISS, in addition to many more in 2015.

The Snow is Falling, But Don't Stop Biking

LEAH KRISTUFEK
EDITOR-IN-CHIEF

Here we are, yet another term is drawing to an end. It is the season of vacant gazes, rampant coffee consumption and crowded computer labs. Yet it still seems like just yesterday that September was beginning and we were all moving back to Waterloo. Ohhh, the days of being relatively well rested and eager to learn... those were the times. Nevertheless, this term seems to have just flown by! As with any term, there have been plenty of sleepless nights and lots of stressful deadlines, but it has also been quite rewarding.

For my part I'm quite pleased with how this term has gone. As far as the five issues of the Iron Warrior are concerned, it has been pretty fantastic. Thanks to all my awesome IW staff and contributors we have consistently turned out solid 16 page issues. From witty yet serious articles on 'All about #gamergate' and 'Use a Crowd-Sourced Cloud Platform to Protect Yourself from Hackers' to coverage of big events on campus including student team wins and faculty referendums, we have covered a breadth of topics. That is just touching on the tip of the iceberg though. There have been tons of really interesting and well written articles as well as some fun things like our comics on the back page. As you procrastinate from exams be sure to revisit old issues in the pdf archive on our website! (*http://iwarrior.uwaterloo.ca/pdf-archives/*, the 5th issues have tin soldiers!)

This year we have had a lot of first years join the newspaper. It has been really exciting watching them settling into their lives here at Waterloo and getting comfortable with writing for the paper. From the hesitant articles in the first issue to the witty and informative articles I'm receiving now there has been a remarkable shift. I'm really excited to see how these new members of the Iron Warrior will grow in the terms to come.

Everyone has been fantastic putting in many hours to research and write their articles as well as attending our weekly meetings where we plan out each issue. However, some people have gone above and beyond. Vince Magas and Jessica Keung have been amazing, each writing several articles an issue and collaborating together to do the Iron Inquisitions for each issue. They have also been a huge help with circulation, getting meeting food and putting the issues up on the bulletin board outside of the office. Bryan Mailloux, who can often be found sleeping in POETS, has also been a huge help; particularly this past production weekend as we put together the Tin Soldier. Tommy Donnelly also took the initiative to do some investigative journalism by interviewing admissions about the startling amount of high school applicants turned away who had averages above 90. Ratan Varghese can always be relied upon for a solid article on science and tech from a fresh perspective, while Raeesa provided great budgeting advice and addressed feminism from a female perspective. On the subject of reliable, thanks to Allen and Derek who would write the things I volun-told them, and even got them in before deadline! Quieter members of the IW, Suchi, Devika, Bogdan and Elizabeth are pretty awesome, I can't wait to see their articles in the coming terms! Last but not least, I am excited to see what types of articles Ethan Alter turns out; don't over think it and just go with the flow!

Although we have many new people this term, there are also many older students who have been contributing to the Iron Warrior throughout their academic careers here at UW. Among them are 3 past EIC's: Jacob Terry, Lucas Hudson and Spenser Good. While the powerful pull of FYDP has greatly decreased their participation in the Iron Warrior, they can always be called upon to help with tricky photoshop and layout issues. Since I won't be around in their final term I'd like to take this opportunity to wish them good luck on their post graduation lives! A big thanks also goes out to Michael, Andrew and Sherwin for the great articles they have submitted over the term. Hopefully your lives will continue to one big adventure after another!

One final mention goes out to our (NOT CREEPY) grad student Krishna Iyer (are you Iyered Krishna?) Who really understands the Iron Warrior computers and software. He's a truly invaluable resource and we'll be increadibly sad when he graduates.

Finally the all so important issue of who will replace me! I know, I know, you were totally not thinking about that's right? Anyhow, here we go. For those of you sticking around for Winter 2015 get ready for Nancy Hui to man the helm as Editor-in-Chief of the Iron Warrior. You may already know her as the creator of the ever popular cross word and author of the film critiquing column "Take 5". A fourth year herself, she is sure to bring copious amounts of knowledge to the position. We have already discussed some of her plans and let me assure you, she is a much more organized and able EIC than I am. (i.e. She might actually sleep regular hours, even on production weekends!).

If you are staying on term and will be back on campus for the Spring look out for Cameron Soltys who will be forging ahead despite my abandoning him to take an 8 month co-op in Edmonton. He has been incredibly dedicated this term and has produced a constant stream of articles which as of Issue 4 had him considerably ahead of other writers for his overall word count. I have no fears about Cameron's approaching rule…except perhaps that it will severely eclipse my term in terms of awesomeness. Feel free to stop him around campus or shoot the iron warrior an email if you have any questions.

Now on to something more practical: as the freezing cold and high winds have swept over Waterloo, there has been once positive aspect. Nearly instantaneously bike racks around campus became empty waste lands. Although chilly, bike riding can still be one of the quickest ways to get to campus. Personally, with assignments to do and final exams to cram… ahem… study for, there isn't enough time for taking public transport. So I bike. Winter biking can vary substantially day to day since snow storms can leave heaping piles of snow to power your way through. These days are a huge pain and sometimes you just have to get off the bike and push it. (Hey, at least it's exercise).

Yes, you could go all in and purchase massive winter tires thus making drifts less of an obstacle for your more distributed weight, but I'm not sure it's really worth it. For the most part, unless it is actually snowing outside the roads get cleared fairly quickly so winter tires or not you should get fairly good traction. The key to winter biking is being aware of the potential for black ice or more slippery conditions. For instance, racing down University towards King may not be such a brilliant idea. Also, now more than ever it is important to wear a helmet! Always protect your head.

On the practical side of things, it is useful to deflate your tires somewhat for winter biking. As the temperatures decrease the lower air density may do it for you, so just don't pump them up too much. Putting copious amounts of oil (NOT WD40!) in your bike lock will make sure you can rely on your bike no matter the temperature. Be sure to give your bike a little more TLC than in the summer – salty roads and freezing temperatures are no picnic!

As far as clothing, warm gloves or mittens are a must, with an emphasis on mitts that can protect your hands from wind chill – after all, you won't be sticking your hands in coat pockets as you maneuver around snow piles. Layers of clothing including a wind breaker and scarf to cover your ears and face while still fitting under your helmet are also a requirement.

Now that I have imparted my winter biking wisdom I hope you all have a fantastic end of term and a bearable exam period. Happy holidays! All said I have really enjoyed this term and hopefully you have also enjoyed our publication, learned some things, and had a few laughs!

This is it for Fall 2014. Look out for updates to the Iron Warrior Website.
Send your submissions to *iwarrior@uwaterloo.ca*
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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 author's name and phone number should be included.

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

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Announcing the Winner of the EngSoc Teaching Excellence Award

DEVANSH MALIK, SUMMER KAVAN
ENGSOC TEACHING AWARD COMMITTEE

Starting this Fall 2014, the Waterloo Engineering Society debuted the Engineering Society Teaching Excellence Award to promote and reward teaching excellence displayed by University of Waterloo Engineering Faculty or Staff. The motivation behind the award was to recognize instructors who have shown outstanding contributions toward undergraduate learning.

As part of the selection process, nominations were accepted from students outlining how the instructor exemplified one or more of the following criteria:

a) Employing non-conventional teaching techniques
b) Allowed opportunities for experiential learning
c) Showing a commitment and dedication towards ensuring academic success for our students

Nominations from students were accepted until November 1, after which the selection process was initiated. The Teaching Award Committee comprised of both the on and off-term Vice President of Education of the Waterloo Engineering Society, the Associate Dean of Teaching or a designate and two at-large members. The responsibility of this committee was to fairly evaluate the given nominations and select a recipient for the award.

After careful evaluation of all supporting letters from students and other relevant information, the recipient of Fall 2014 Engineering Society Teaching Excellence Award is Dr. David Brush with honourable mentions to Dr. Mark Smucker and Dr. Carol Hulls. Dr. David Brush has already been a recipient of the Faculty of Engineering Teaching Excellence Award in 2013 for his exceptional teaching abilities and techniques employed.

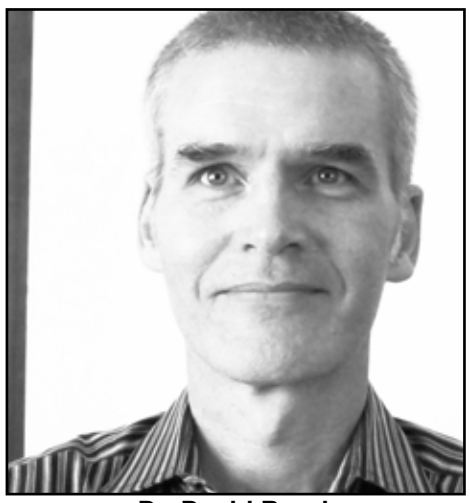
Dr. Brush is a lecturer in the faculty of Civil and Environmental Engineering and was nominated for teaching CIVE 265, CIVE 280 and CIVE 375 courses. As outlined in the supporting letters from students, Dr. Brush went above and beyond to ensure that the class received the help it needed. He did so through a variety of ways such as hosting extra office hours, uploading fully annotated notes to Learn for students who missed classes due to interviews, and several other methods.

As an instructor, Dr. Brush is always enthusiastic and enjoys adding humor to his lectures to keep the students engaged in the topics being taught. He also often includes a small mid-class break where a short video is shown or has jokes ready to give the class a chance to freshen up. Sometimes, the breaks included content that was related to the course and thus provided entertainment related to the subject matter. To demonstrate the relevance of the material taught in courses, Dr. Brush had labs slots for all courses which significantly helped the students connect theory and reality. He showed students the value of approximations and assumptions. When asked about the labs in Dr. Brush's courses, Dylan Dowling, a student currently in Civil Engineering 3B said "some of the best labs from my 3 years here were in Professor Brush's classes."

Given below is the transcript of a short interview conducted with Dr. David Brush about his thoughts on teaching.

Question: What do you enjoy most about teaching?

Response: I thoroughly enjoy helping



Dr. David Brush

students to understand and apply course concepts at all levels. It's amazing to be a part of student light-bulb moments.

Question: What is your biggest motivation for teaching?

Response: I view teaching as guiding a diverse group of people on a journey. Hopefully the whole group will arrive close to the planned destination at the end of term, but it will be challenging and there will be issues, especially with the guide. However, along the way, a special relationship of trust, commitment and encouragement can form, so that all those engaged can get through the rough patches. This is extremely motivating, and helps me to not get caught up in the details that don't work as planned. It's a relationship and a journey; by the end of term we'll get to a worthwhile destination together.

Question: What unconventional teaching methods do you employ?

Response: I'm fairly conventional in the classroom, using a mix of fill-in-the-blanks course notes and solving problems on the board. I include a pause halfway through each lecture with videos, stories or humour. I hope to build interest and give students a mind-break. I encourage class participation by allowing and respecting all questions. Lectures come alive when students are interested and feel safe to ask questions and make comments. Finally, I have developed some hands-on projects that allow students to apply course concepts and experience design.

Question: What message would you like to send to students reading this article?

Response: Teaching is a journey of learning. Do you want to learn deeply? Try teaching your topic of interest to a group of peers, remembering to respect their questions and add some humour.

In addition to being an instructor, Dr. Brush was also the work term report coordinator for the Civil Engineering class he taught. He was asked non-stop questions, all of which he would answer "with a smile of his face" as stated by one of the nominators.

As visible in the interview transcript above, it is evident that Dr. David Brush is extremely passionate and committed to teaching with the overall goal of sharing his love of learning. It is an honor to recognize a professor with such dedication to both students and his job. The Engineering Society congratulates Dr. David Brush on his commitment to student learning and teaching excellence.

Caltech, Where Innovation is Everywhere

CAMERON SOLTYS
2A MECHANICAL

ENGINEERING TRADITIONS

Here we are, the final issue of the term. I briefly considered doing this article about the best school of them all, Waterloo, but then I realized that the people who read this paper would actually be in a position to fact-check me, and I certainly don't want that. I also considered escaping from the continent, unlike my real life travels. But instead, I ultimately decide to use a slightly more objective selection process. So this issue we are looking at the California Institute of Technology, located in Pasadena, California since it was named the number one engineering school in the world (and the number one university in general, for that matter) in 2014 by the Times Higher Education weekly higher-education publication.

Caltech is a proud and noble school, and has racked up numerous achievements since its establishment in 1891. Among its alumni, and current and past faculty, Caltech boasts 31 Nobel Laureates. It is a highly competitive university, and only 529 of the 6524 applications received for this year were accepted. When factoring in the number of students who declined their offers, the class of 2018 currently contains 249 students.

For a university of such a small size (the entire undergraduate and graduate population being around 2200 in 2010) Caltech has an enormous amount of history and tradition. One is the Milikan pumpkin-drop experiment. Students take pumpkins to the top of the Milikan Library, the highest building on campus. They dip the pumpkins in liquid nitrogen and toss them off the side to the ground below. Observers ten stories down watch the pumpkins smash in the hopes of seeing a small flash of light; it is alleged that during the impact the pumpkins are ripped apart with such ferocity that chemical bonds break, producing visible light in a process known as triboluminescence. Another, slightly less scientific tradition is 'Ditch Day.' Originally a day when the seniors would collectively leave campus and skip class, it has become and unofficial holiday where the faculty cancels all classes. Following in the traditions of old, in which the seniors would protect their vacant study rooms from lower years with locks or piles of bricks, the ditchers now leave puzzles and challenges to distract the other students from getting up to any nefarious activities. This is a nice change from a lot of the other universities we have seen so far, where the upper years are the source more of trouble than of entertainment to their inferiors. However, their kindness is not well rewarded, as any seniors found on campus during Ditch Day are duct taped to a wall to make sure they cannot leave at all.

There are quite a number of other amusing traditions practiced by Caltech, but I must forgo talking about them to focus on the quintessential element of all engineering university traditions, the pranks. Caltech has some of what I feel are the most innovative and clever pranks we have seen so far.

Let us start with the ongoing prank war between Caltech and our old friend, MIT. The two institutions have a lot in common: they both have a beaver as their mascot, they are both premier universities with impressive world standing, and they both have a long history of pranks involving football fields. Generally, a bout of pranking will start when one university does something to the other, and the other responds by ramping up the challenge. For instance, Caltech students once handed out T-shirts to incoming freshmen at MIT which read 'MIT.' Unknown to the recipients of the gift, there was also a message on the back: '…because not everyone can go to Caltech'. In a somewhat classic response, MIT stole the 130 year old Fleming House cannon from the Caltech Campus and trucked it all the way back to the east coast. Caltech replicated the spirit of their shirt prank earlier this year, when they handed out mugs to visitors during MIT Campus Preview Weekend. While cold, the mugs displayed the MIT logo; once they were heated up by being filled with coffee, the mugs change color and displayed 'Caltech: The Hotter Institute of Technology'.

Caltech continues their tradition of innovative pranking in their aforementioned football schemes. They have thrice pulled pranks at the famous Rose Bowl Game, which is a football game played to celebrate every new year at Rose Bowl Stadium in Pasadena. In 2014, students erected a 'Pasadena' sign on a hill looking over the stadium, then turned on lights in the sign which spelt 'Caltech' at half time. In 1984, a pair of students installed a computer to alter the scoreboard's output, making it read "Caltech: 38 MIT: 9" to promote these two universities the Caltech students felt were overlooked in athletics. But the greatest prank—known now as the 'Rose Bowl Hoax'—was pulled off by a group of daring Caltech students in 1961.

The cheerleaders for one of the participating team of the 1961 Rose Bowl Game, the Washington Huskies, had planned a card-flip display as a half-time show. Over the course of several months, a group of Caltech students used espionage to determine the inner workings of the show. They broke into the cheerleaders' hotel room before the game and stole one of the instructions which were given to each of the sign flippers. From it, they created their own set of instructions, then

Gregory Izatt
The Infamous Caltech Mug Prank

stealthy replaced the real instructions with the Caltech version. The next day, when the show was performed, everything went perfectly until the last few flips. On the 12th flip, the Huskie logo had been subtly changed to a picture of the Caltech beaver, but no one notice. On the next flip, the word 'Washington' was displayed backwards, but the cheerleaders assumed this was a mistake in their instructions. The final flip revealed the word 'CALTECH.' It has gone down as one of the best, most well-orchestrated pranks in history.

This ends our world-wide adventure to explore the amazing and complex world of engineering student culture. And by world-wide, I of course mean North American. And by North American I of course mean a small subset of the countries within North America. But even with this hugely reduced scope, I haven't been able to even start to cover all of the traditions celebrated and pranks pulled by engineering students over the years. So take a look around; there's lots more to see. Who knows, maybe one of the daring stories you find will encourage you to pull a prank of your own.

The People Behind the Equations

JESSICA KEUNG, SHERWIN KWAN
2A CIVIL, 4A MECHANICAL

Welcome back reader! Here is the final installment in our segment about the life and times of the people behind some of our favourite equations. Enjoy!

Karl von Terzaghi: The RockFather ...well, actually more soil

Readers of The Iron Warrior know that in this recently developed column,we write about people in math, science and engineering who developed theories and formulas that we as engineering students use frequently in class and at work. We have seen physics and math giants such as Hooke and Euler. We rarely hear of the giants of the more specialized fields of engineering, so in this issue I am going to discuss the life and work of the father of soil mechanics, Karl von Terzaghi.

Karl von Terzaghi was an Austrian civil engineer and geologist. He was born October 2, 1883 to Lieutenant-Colonel Anton Terzaghi and Amalia Eberle in Prague, in what is the modern day Czech Republic. Coming from a military family, Terzaghi was sent to military boarding school at a young age. That is where he developed his love of science through astronomy and geography. He was an excellent student, especially in geometry and mathematics. Upon entering the Technical University in Graz to study mechanical engineering, he also developed an interest in theoretical mechanics. He was nearly expelled at one point but ended up graduating with distinction. Terzaghi spent some time during his mandatory one-year military service translating English geology field manuals into German, before returning to university to continue his studies in highway and railway engineering and geology.

Through out his illustrious career, Terghazhi developed modern soil mechanics and his theories on soil consolidation, lateral earth pressures, bearing capacity, and stability are used in today's geotechnical projects. It was in 1943 that Terzaghi published his monumental work, Theoretical Soil Mechanics, presenting such as theories of consolidation, settlement calculations, and cases pertaining to retaining walls and slope stability. In this defining publication, Terghazhi developed charts, diagrams, and graphs, his work made it easier for engineers to apply his theories for real life problems.

The Karl von Terzaghi Award was established in 1960 to "an author of outstanding contributions to knowledge in the fields of soil mechanics, subsurface and earthwork engineering, and subsurface and earthwork construction." There is a Terzaghi Peck Library in Oslo, Norway and in 1965, the Mission Dam in British Columbia was renamed to the Terzaghi Dam in his honour.

Terzaghi is not a name you often hear in engineering but he has had such a big impact on foundation design of all civil infrastructure today. His theories and legacy lives on today in the work of geotechnical engineers across the world.

John William Strutt the man known as Baron Raleigh

John William Strutt (1842-1919), better known by his title Baron Raleigh, was one of the last great multi-disciplinary scientists. He was born into an aristocratic family in Witham in the English countryside, about 70 km north-east of London. He was fortunate to survive numerous close shaves with death while growing up: he was nearly shot while at a firing range, fell into a pond while playing with his dog, and then had a persistent illness which got him sent home from the prestigious Eton boarding school. Eventually he ended up getting some private tutoring and made it into Cambridge for mathematics in 1861. He would graduate first in his class after completing the infamously tough Tripos exams.

In 1873 Strutt's father died and he inherited the property and the title of Baron Raleigh. He could easily have decided to go home and live off the family inheritance, but would have none of that. He immediately had a laboratory built in his family estate. When he later became a professor at Cambridge, he bought a second set for there too. In a time where theory and practice were often separated, Rayleigh insisted on including hands-on labs and experiments in the classes he taught.

Rayleigh pioneered the art of dimensional analysis – by playing around with the dimensions of particular units, he could often come up with dimensionless numbers from which he could draw conclusions about what certain variables are proportional to. Famously, he showed that the intensity of light scattering is proportional to the fourth power of its wavelength, which is why this phenomenon is now known as Rayleigh scattering. Since the wavelength of red light is about 1.5 times that of blue light, blue light will be scattered at roughly five times the intensity of red. In this way, Rayleigh explained the age-old mystery of why the sky is blue.

Together with the chemist William Ramsay, Rayleigh discovered a new element by accident while having trouble determining the mass of air. It eventually occurred to the two scientists that there was a gas other than nitrogen and oxygen in the air interfering with their calculations. The new gas didn't seem to react with anything else, unlike any other element previously discovered. After futilely trying to get the gas to react, they decided to name the gas "argon", which is Greek for "lazy". In 1904, both men were awarded Nobel Prizes for the discovery.

Throughout his career, Rayleigh worked on numerous other problems with practical applications; he did research in acoustics, free convection, heat transfer, fluid flow in a pipe, optics and refraction, and electromagnetism. Among other discoveries, he found that the Earth's rotation does not cause light refraction, derived the dimensionless Rayleigh number which determines the mode of heat transfer (convection or conduction) in a free convection flow, and developed one of the earliest devices to accurately measure electrical resistance.

Today, nearly a century after his death, Baron Rayleigh's legacy has been immense. The discovery of argon would cause chemists to start looking for other 'lazy gases,' and it was not long after that an 18th column was added to the Periodic Table. Explaining the unexpected results of Rayleigh's refraction experiments would eventually cause Lorentz and Einstein to develop relativity theory. Rayleigh's electrical measurements would lead to the ohm and ampere being officially defined as SI units. Dimensional analysis would prove to have many applications in fluid mechanics, such as testing prototypes in wind tunnels. Science and engineering owe him a huge debt.

Movember Funds Prostate Cancer Research Breakthrough

ANDREW MCMAHON
4A ENVIRONMENTAL

Movember will be coming to an end shortly, and some of you "Mo Bros" may be reaching the dreaded face tickle stage of moustache growth. This may be a time when you need some extra motivation to keep growing that nose neighbor until the end of the month, and lucky for you that motivation has come in the form of a research breakthrough funded by Canadian fundraising efforts. It is immensely rewarding to be able to see what has come of the funds you raise when making a donation to a research cause.

Research led by Professor Robert Bristow of the Princess Margaret Cancer Centre in Toronto, has discovered that men have a genetic "fingerprint" within their cancer cells that will basically tell them whether or not the cells have escaped the prostate gland. Current methods for identifying the risk of prostate cancer recurrence is done using pre-treatment biopsies and is widely considered to be inadequate. The discovery of this genetic fingerprint will aid in the development of improved tests which will better predict which patients are likely to relapse after their primary therapy.

This year close to one million men will be diagnosed with prostate cancer, and around 250 000 men around the world will lose their lives to the disease. Movember's prostate cancer goal is for men living with the disease to have the treatment and care needed to be physically and mentally well. This personalized medicine approach will improve cure rates for patients with aggressive prostate cancer but also allow doctors to not over treat patients who do not have aggressive prostate cancer.

Doctor Anthony Lowe, CEO of the Prostate Cancer Foundation, Australia, noted that if physicians were able to reliably distinguish between indolent and aggressive disease then active surveillance could be offered for the indolent cases and radical treatment for aggressive cases. This would avoid side effects like incontinence and erectile dysfunction in men who may not need radical treatment for their cancer. Researchers noted that current prognostic tools for localized prostate cancer are imprecise, with 30 to 50% of patients seeing their cancer return after radiotherapy or surgery.

The hope is that the test will be validated, approved by health authorities, and ready for use in five years. The global impact of this test extends beyond the fact that a number of researchers worldwide contributed to the project; this test can be put into hospitals worldwide within 5 years so it can start being used in discussions on how to personalize individual treatments.

One of the factors contributing to the success of this research project was the teams were allowed to do the research as a collaboration rather than in competition. This is the kind of positive environment that can be achieved when research teams receive the necessary funding to complete their research and can focus on their work rather than competing against one another to receive funding.

The Movember Foundation challenges men to grow moustaches during the month of November to spark conversation and raise vital funds for its men's health programs. To date, more than $500 million have been raised. The money has funded 832 projects in 21 countries. For more information on research programs funded by the Movember foundation, you can check out their website and click on the 'Funded Programs' tab. Programs are divided into prostate cancer, men's health, mental health, and testicular cancer. Each of the projects have a report card which outline key details about the research including what the research seeks to achieve, measures of success, and the impact of the project.

To donate visit Movember.com

What to do When You Have a Bad Landlord

MARTIN SMITH
2A MECHANICAL

Many of the property management companies in Waterloo have nasty business practices that range from questionable to criminal. I have been forced to spend a disproportionate amount of time this term in conflict with Hoffaco property management over their complete refusal to perform maintenance to our extremely damaged rental unit (damage was inflicted by the previous tenants). This process has been extremely frustrating, and I've learned a lot about how to stand up for my rights as a tenant in the process. I've decided to compile this post to help other students in similar conflicts with standing up for their legal rights as tenants.

Before pursuing any legal action:

1. Check if the landlord is in violation of the landlord-tenant act: *http://www.ltb.gov.on.ca/en/STEL02_111281.html*
2. Collect all the evidence you possibly can. I recommend taking pictures and emailing them your landlord (so that you have proof of notice, and a time/date stamp). Depending on the issue, taking a video and uploading it to Youtube is also a good idea.
3. Contact Waterloo's off campus housing office and ask them for any advice they have for your particular case. They're knowledgeable and they answer emails quickly.

Once you've completed steps 1 and 2, it's time to choose the best method of action for your case.

City Bylaw Enforcement

If there is serious damage to your unit (broken windows, mold, dangerous staircases, missing fire detectors, leaking plumbing, flooding, no heating, no hot water) or anything of a similar severity, you can enlist the help of the city's bylaw enforcement officers via *http://www.waterloo.ca/en/government/propertystandards.asp* The bylaw officers are extremely friendly, and they will arrive at your unit within 1-2 days to do an inspection, depending on your availability.

To start this process, call 519-886-1550 and ask to speak with a property standards by-law enforcement officer. If you are unable to reach an officer quickly by phone, email a description of your issues to this address: municipalenforcement@waterloo.ca with your phone number, address and the names of all tenants. A bylaw officer will call you promptly to set up an inspection, so keep an eye on your phone. Once the bylaw officer does his inspection, he will issue an order DIRECTLY TO THE OWNER of the land, giving them 18 days to fix all issues completely. At the end of the 18 day period, the bylaw officer will come to inspect the property again, and fine the owner more than $10,000 for each item that's still unfixed. This method has two benefits:

1. Often times the property management company is dishonest with the landowner about the state of the property and the owner will be much more willing to fix the issues than the property manger.
2. All of the legal process is handled by the city; it doesn't cost a cent and will only consume one hour of your time.

The bylaw officer is bound by all the same rules as a regular law enforcement officer, so you will have to meet him/her at the front door of your residence and give informed consent for an inspection. Our inspector was extremely friendly, and the inspection was very non-intrusive. If there are areas of your unit you do not wish to show the inspector for any reason, you can simply tell them not to enter those areas.

Ontario Landlord-Tenant Board

A thorough description of how to make an application to the board is available here: *http://www.ltb.gov.on.ca/en/forms/STEL02_111308.html*

It costs $40 to make an application, but the landlord may be forced to pay your fees if the landlord-tenant board decide in your favor. Landlord-tenant hearings are a fairly easy process since you do not need a lawyer and hearings take place at Service Ontario, which is easily accessible by bus. Hearings last approximately an hour, and you will have a judgement and payment within a matter of weeks if they rule in your favor.

Small Claims Court

If you've been victimized by a landlord in a way that isn't explicitly covered in Ontario's landlord-tenant act (the victims of the Schembri Unfinished Building Scandal would be a good example), or if you no longer live in the bad landlord's property, you may sue them in Ontario's small claims court. Here is a page outlining the process: http*://www.attorneygeneral.jus.gov.on.ca/english/courts/scc/b4aClaim.asp*

The statue of limitations on many of the things that bad landlords do is relatively long, so you can sue them even if you've since left the property and ended the lease.

Final Notes

1. These options are not mutually exclusive, so you can pursue more than one of these legal strategies as required.
2. You do not need to make your case right away, and can sue during co-op or in the summertime if you're too busy right now.

I highly recommend that everyone who has suffered, or is suffering at the hands of a bad landlord raise legal action. It's thanks to the complacency of students that landlords think they can get away with treating students like garbage. We can change that.

Point Vs. Counterpoint

Should the Final Exam be Weighted Less Heavily?

POINT

CAMERON SOLTYS
2A MECHANICAL

Last week the Alberta School Board Association, which represents all primary and secondary school boards in Alberta, voted to reduce the weighting of the standardized grade 12 'Diploma Exams' taken by all students from the current 50% down to 30% of the final grade. The decision still must be approved by the province, but it is a major victory in the push to reduce the weighting of the two-hour finals. The exams, which were first introduced as a method to reduce grade inflation caused by subjective teacher marking, have been criticized over the years for creating a culture of cramming for the exam instead of learning the content and for causing excessive and undue stress. Frank Bruseker, president of the Alberta Teacher's Association's Calgary chapter, was quoted by CBC as saying the change would "…motivate the students to work harder and really get into their studies… [thereby helping] them to improve their mark on the final exam."

The Alberta Diploma Exams are in many ways similar to university finals, in particular engineering finals; both have very high weightings, though university finals can be weighted even higher. The university exams also encourage cramming and generate huge amounts of stress, and, just like the Alberta exams, they are weighted far too high. The important part of getting a university degree is not your ability to memorize, but the experience and knowledge you receive, and your ability to synthesize new information. Exams, which focus on your performance over a short time, are a much less fair and accurate rating of students' abilities than other methods of grading such as reports and labs.

Going to university and getting a degree is an important part of many people's careers, especially in a program like engineering where your future professional decisions could have disastrous consequences. A large part of the benefit is that the knowledge and experience you acquire can be incredibly helpful to your future success. The ability to write effective exams is not, generally, one of those benefits. For starters, everyone has the ability to look up things that they don't know; why are you punished by being unable to do that in an exam? Sure, you have to know the content of the class in order to make the important aforementioned synthesis from your academic knowledge, but the emphasis currently put on content by finals worth 40 or 50% is far too high. Some courses like calculus are not easily adapted to a more diverse grading portfolio. Others, like the electromechanical course ME 269, are; in this course there are 5 labs, 5 quizzes, and 2 major assignments. But the final is still worth 50%. The labs, I would argue, are severely under-emphasized; in order to complete them, you not only need a good understanding of the mathematics, but the theory as well to explain the lab results. That ability to carry out and interpret experiments is much more relevant than the ability to write a test.

One of the major advantages of final exams is that—baring cheating—they are exclusively the student's own work, thereby allowing teachers to test the knowledge of each student, rather than that student and his or her friends. Reducing the weighting of the final, however, does not eliminate the ability to test this. Firstly, the final will still have some weight, and a student who gets by with the help of their friends will still be severely penalized. Secondly, smaller quizzes can also be used to test within this parameter. In any case, even a final doesn't necessarily test the knowledge of each student individually, but rather the ability to cram. As Calgary student Eric Rogers says regarding his Alberta Diploma Exam: "as long as you spend 48 hours straight studying, smacking your face with a textbook, you'll get the answers right and you'll still pass the class." In that regard, reports and labs are a superior method of testing a student's ability in the course because they can force students to move beyond reiteration and to create new conclusion, something which can only be done if one is already proficient with the concepts. This, along with services such as Turnitin which checks for plagiarism, allows a more diverse weighting system to continue to test a student's true knowledge of the course.

The greatest issue with finals being so heavily weighted in your mark is that is puts undue stress on students. In just a few hours, your entire academic fate can be decided; pass or failure can have huge ramifications. It's not appropriate stress, and students already have plenty of opportunity to learn how to deal with stress as they try to balance studying, job hunting, assignments, and a social life. Even worse, the time when the exam occurs is arbitrary and does not take your schedule into account. Maybe you don't have time to study because you have a job interview or a family gathering. You can try to plan your time well and get as much studying done as you can, but external factors which are unavoidable and not grounds for a rescheduling of your final can have a huge impact on your grade. Furthermore, some people just don't test well; they can be too anxious or have difficulty communicating while under pressure. In reports and long-term assignments you can work around these difficulties, having more time and flexibility to plan with. As much as anything else, a final exam measures a lot of what your life is like at that moment, with no consideration how you would have performed under more average circumstances.

Final exams are an important part of school, and provide some important attributes in assessing students' ability, specifically the ability to test exclusively the student's knowledge of the concepts. However, these same factors can be assessed by reports and labs which require synthesis of new information by the student. Furthermore, the marks which come from reports can be a better indicator of the true success of the student, and emphasizing the weighting of such grade-sources over exams encourages actual learning over blind memorization. The current emphasis on the final exam is unhealthy, creating stress and putting some students at a disadvantage either because of inconvenient timing or a lack of proficiency with the exam-writing format. While the finals should not be abolished altogether, the assessment of students could be much improved by diversifying the source of marks used in grading.

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

COUNTERPOINT

JESSICA KEUNG
2A CIVIL

Recently, Alberta Education decreased the worth of the provincial high school diploma exam. For those unfamiliar to the provincial final high school exams of Alberta, here are some quick facts:

- Since 1984, Alberta Education maintained that provincial final exams should be worth 50% of a students final grade in major courses such as grade 12 English and Math.
- This was done in an effort to prevent grade inflation in regions and maintain standards across the province.
- These final grades are used in university applications.

This initiative that Alberta Education passed would decrease the worth of the provincial final exam from 50% to 30% so that less pressure is placed on the students taking these provincial final exams that could make or break their futures. This initiative would release some stress from countless students across the province, but to pose a thought experiment: what would happen if the University of Waterloo decreased the worth of final exams in major courses? I propose that the way grading is currently conducted is a better method of ensuring standards are met for university programs.

Using the recently passed proposal by Alberta Education to lower final exam weighting for final grades has no application in university and especially engineering. With lower final exams weighting for high school students, grade inflation may occur as teachers want to help the students get as high a grade as possible to apply to university, and a standardized test can bring their grade down. It is beneficial for the high school students in Alberta but it is not applicable to university or engineering. Engineering programs at universities are a stepping stone to professional designation. The school has to maintain a minimum standard of education that all students in the program must meet so it can remain an accredited program. In engineering, a final exam is a cumulative exam that will test the student on any aspect of the course. To ensure that students understand the course material, these huge exams at the end of the course test the students to see if they can meet these bare minimum requirements.

Engineering courses require more technical knowledge and teach students how to think and solve problems. Some courses do exist where the final is either weighed very little or does not exist at all. These courses have other things to assess knowledge and understanding of the course material such as term papers and lab reports. For courses such as English, only have a term paper rather than final exams as a cumulative method of grading is suitable for the nature of the course. English courses teach the students how to write and how to properly present their arguments. The term paper is a more accurate assessment of English writing skills than a final exam. For an engineering course like calculus, a final examination would be the best way to assessing understanding of the course because the student would need to apply every technique and concept from throughout the term. How much a final exam is weighed also depends on the course content and if there is a practical aspect to the course; having labs and reports would encourage students to learn about real life applications of the concepts being taught in class. The grading breakdown would have to be determined on a course by course basis, taking into account the type of material and concepts covered. A more heavily weighed final exam also gives students one last opportunity to make a massive effort to do well after a lack luster performance throughout the term. These last ditch efforts to learn all the material and prove themselves academically should not be taken away.

Because of the weighting of finals, students often feel an increase of stress right before final exams and this stress can lead to lower academic performance. There are bright and hardworking students who, due to test anxiety and other personal factors, have difficulty writing exams as well as others. If you do feel like you have issues with test anxiety, there are resources that can help you succeed academically such as the Student Success Office or Counselling Services. They can help provide the support you need to improve your academic performance. If you still feel like your grades could be better and that the final exam stresses affect your performance negatively, remember that other than for grad school, grades have very little effect on the direction of your career. Grades can add credibility to your name, to show you are hardworking and knowing enough of the material as prescribed by the university, but many employers understand that grades are not everything. Experience proves how much applicable knowledge have earned and soft skills show how you will perform on the job. Soft skills such as communication and how you fit into the work environment and will also have a huge impact on an employers decision to hire you.

After learning how to cope with exam stress, it is important to realize that these stresses can also happen in the work place. When we enter the workforce as full time engineers or even now on co-op, you will face many challenges and difficulties. These problems can not always be predicted and can appear at any time, cropping up from personal issues or unforeseeable circumstances. The stresses of final exams help prepare students for any of those sudden stresses that they may face while working on the job. In the work place, the stresses are reduced because you can refer to research papers and research from the internet to help you solve the problem. Engineering teaches you how to apply the knowledge to solve the problems. If you are able to do that even under a multitude of stresses such as sleep deprivation and being over caffeinated, then you can also do solve problems well enough while moderately well fed and being of sound mind.

Final exams can be the bane to the existence of engineering students, a looming figure in the distance that will sneak up on students. Stresses felt by students are necessary for their professional development and that academic performance is important up to a certain point in deciding a career path. Some people can rely on pure talent and their own cleverness to succeed, but if you are hardworking and capable it will show in your work experience and in your grades. Giving up is not an option; heavily weighed final exams should be seen as one last opportunity to prove your understanding of the course rather than an obstacle in your academic career.

THE TIN SOLDIER

PAUL MCCARTNEY'S CRIES OF "HELP" MET WITH CHEERS

MIRACLE SNOWSTORM PUSHES FINALS TO NEXT YEAR

IngSoc Scientists Relveal Commerical Fusion Plant

Will produce gold as well as energy

Scandal: 5 Minute Hates Last Average of 4 Minutes 57 Seconds

Big Sister Outraged

Mysterious new drug, "Sleep" Spreads Through Engineering Faculty

Velocity Creates the Super Scantron

Big Sister is Watching

RUDOLPH BROWNSKI
2B PEACE STUDIES

Big Mother is watching. She always watches. Keeping us safe, keeping us civilized. Without Big Mother, and her powerful IngSoc, we would be nothing. Big Mother is Love, Big Mother is Life. She provides for us all the multitude of things we Plummers need; coffee and alcohol pumped directly into your veins, start-up companies galore which provide a multitude of secure jobs, and bountiful free time for IngSoc-approved work term reports. But it seems that some lower-party members are unable to appreciate all the goodness they have received, and how much better they are than the arties, who do nothing but drink half-litres of gin, gamble, and visit the despicable state-unapproved black markets. So let me tell you what the great and glorious IngSoc does for you, and how you can never express sufficiently the love you should feel for Big Mother.

For Big Mother gave her only daughter, Big Sister, that we might see the face of divinity always watching over us. Big sister watches over us from her lofty positon as Supreme Information Control, where she carefully censors and tweaks the news before distributing it for all to see. For in the beginning, when there was nothing, there was Big Mother and Big Sister, together with the glorious EngSoc. They created the world and everything in it, taking the brave peoples of Waterloo to be their own. Even today, Big Mother and Big Sister are eternally looking after us, improving our lives through their ministries.

The Ministry of Coffee works tireless to provide more coffee, pastries, and good, wholesome food. In the last year, the IngSoc has brought the price of coffee down to $5.00 per cup, while providing up to 2 doughnuts to every individual per month! We have never had it this good. Praise be to EngSoc, may it be ever more resourceful and inventing, as it was in inventing co-op, the cloud, and calculus.

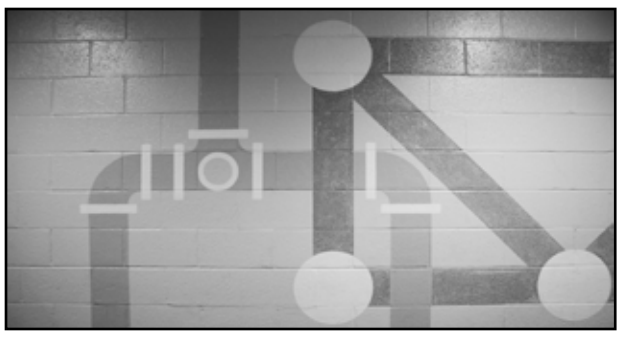
The Ministry of Education is perhaps the most obvious useful ministry to you, the lower party. It touches every part of your life with Big Mother's careful caress. The Ministry of Education organizes the frequent and reliable buses which take you to work and school every day. It was through this ministry that Big Sister implemented her revolutionary idea of moving to massive 20 page newspapers, that everyone might have the ability to learn more about the victories of IngSoc and the sacrifices which Big Mother makes on a daily basis for the good of her people.

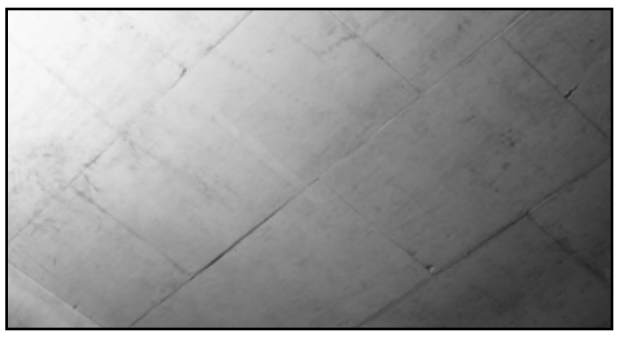
The Ministry of Sleep is the most well-appreciated ministry of them all, and for good reason. Nevertheless, the sacrifices they undergo are often ignored and go unnoticed to your pathetic eyes. Big Sister places the sleep of her Plummers above all else. This is why she keeps her team working late into the night, consolidating all the literature EngSoc produces into an easy-to-read format, so that members of EngSoc can read more quickly and have more time to relax. But the duties of the Ministry of Sleep do not end there; they also make sure that all party members have safe, affordable housing which is eternally in sufficient supply and ready when it is needed, that they may sleep easy.

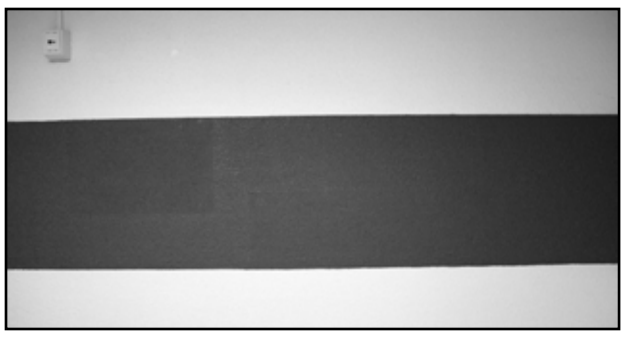
So remember how thankful you are to EngSoc, comrades! Remember how Big Mother protects us every day from the evils of this world. She sends the criminals and dissentients to the mysterious place known as RCH 101, where they are rehabilitated in a process known only as 'PHYS 115 Midterm'—the details of which we are mercifully spared. Honour her by remembering the truths she taught you: PASS IS FAIL. REJECTION IS EMPLOYMENT. Am doubleplusgood member and helpful party!

GeoGuessr: Waterloo Edition

It's time for a game of Geoguessr. These photos were taken by the Tin Soldier's autonomous drones during their regular patrol of campus. How many locations can you identify?







Big Mother Loves All IngSoc Citizens Except Three

Former Good Citizens Corrupted By Grandiose Interesting Real Life Systems (Girls) IngSoc Unsure If Former Comrades Can Be Saved

Greetings Comrades,

I bring greetings from Big Mother for the greatness of IngSoc. She approves of plans for misinformation of the masses through our greatest publication 'the Tin Soldier' and the use of total capitalization for all titles. This is the last dissemination of announcements on behalf of Big Mother, the greatest one, prior to these weeks of quiet labours and much restfulness. In honour of these most sacred weeks each citizen will be allotted three hours of sleep so that their days will be healthy and productive.

Big Mother needs your help. Words of dissention have been heard from our neighbor school of the Eastern world, the Torontonian Institute of Wilfrid Dalhousie. Envious of our superior C&D, exercise regimes, and liberal free time allowances they have begun planning to steal our most valued symbol, the Tool. Using their 'Grandiose Interesting Real Life Systems' (GIRLS) previous dedicated officers of the great IngSoc have been turned to evil.

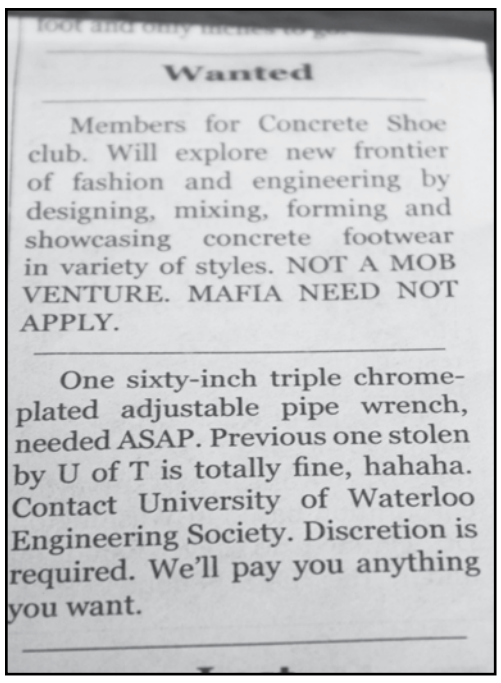
Big Mother Cautions all Citizens to be cautious of the three dissidents who were once staunch party members. Former comrade, Spensaur Gooderonie was captured in the midst of traveling to Toronto-Dalhousie and was under the complete control of the GIRL system. As Authorities apprehended him he was heard to yell "You mad Bro?" and "You seem mad bro" but eventually threw up his arms exclaiming "YOLO". CITIZENS ARE WARNED THAT THE USE OF 'YOLO' IS FORBIDDEN AND ANY USE OF THAT WORD WILL BE PROMPTLY AND SEVERELY DEALT WITH. The Second former comrade, Lucausaur Huds can be identified by his red flow and loose flowing non regulation 'exam pants'. Lucausaur has gone underground and is thought to be operating covert communications with officers of the Torontonian Institute of Wilfrid Dalhousie from his fortress called 'Underground Water-impervious Palisade' (UWP). The GIRL system appears to be near Lucausaur, controlling his every move. The third former comrade, Cubic Terrycloth, may not have been completely turned by the Torontonian Institute of Wilfrid Dalhousie. Although the GIRL system has made contact with former comrade, Cubic Terrycloth, he is too busy working on the 'Full Yield Deoxygenation Protocol' (FYDP).

My junior party members have been enlisted to disseminate further information among IngSoc members for your health and safety. If you encounter people carrying boxes of this, the best and greatest IngSoc publication feel free to ask about the three dissidents. Furthermore, junior party members can be found sleeping in the 'Piss On Everything Tomorrow's Saturday' (POETS) room of great party power or working in the 'Wonderous EngSoc Enclave Federation' (WEEF) laboratory. Other party members will be traveling with a camera to capture proof of our happiness and productivity over this period of Enlightenment and meaningful studies.

Big Mother would like to congratulate MJ on his work to increase the clothing standards among his section of party members. Regulation clothing has several variations which allows for citizens of IngSoc to express their love for Big Mother, Ingsoc and our symbol, the Tool. Choosing to wear the formal regulation clothing over the 'comfort' regulation clothing shows our superiority over lesser Soc's such as the Torontonian Institute of Wilfrid Dalhousie and the Queendom of Western Ottawa. KEEP UP THE GOOD WORK COMRADS.

Big Sister out.

Unreciprocated Love



Wanted

Members for Concrete Shoe club. Will explore new frontier of fashion and engineering by designing, mixing, forming and showcasing concrete footwear in variety of styles. NOT A MOB VENTURE. MAFIA NEED NOT APPLY.

One sixty-inch triple chrome-plated adjustable pipe wrench, needed ASAP. Previous one stolen by U of T is totally fine, hahaha. Contact University of Waterloo Engineering Society. Discretion is required. We'll pay you anything you want.

Is Not Reciprocated

Good Comrads dress formally even when informal regulation clothing is permitted.
Big Mother and the Glorious EngSoc smile kindly on well dressed party members

THE TIN SOLDIER

Big Mother and Big Sister always watch

The Prime Boot Licker
Romano Svenskarski

The Inner Party
Big Mother
Big Sister
Fapward Jerkins

Propaganda Ministry
Jess Necro
Sickly McSkypesnotalot
Perpetual, Z.Z Dozer

Head of Propaganda
Fourty Two

Puts Words Next to Pictures
Bulshitting Specialist
Vaginarific

Distributor of most important propaganda articles
Vvan gogh - gone

Speaks to the Plebeians on the Interwebs
Winter-Has-Come (with some help)

Humour Consultant
vacant

The Sadistic Ones That Return
Buy the Cheaper Dildo
The Eager 2A Civil
The Mumbling ones
George Orwell

Freelance Grunts
Despot of Crossword Creation
Candy Striker
and groans
DONUTS SAVE THE WORLD!

Eventual Victim
The Skillful double talker

BIG BROTHER'S CIRCLE
You Better Get More Frosh
Miz' Taken

They Come to Meetings At Least
Boob Cilantro
Oscillation Man (when not preoccupied with that back and forth motion)

We Like Them Too
Spensauroni
Manly Red Flow
Free Food Groupies

BIG SISTER IS ALWAYS WATCHING
EVEN WHEN YOU ARE PLAYING
WITH YOUR ROCKET
WHICH SHE KNOWS IS ALL THE TIME

The Tin Soldier is not a forum for thought-provoking and informative articles, and has no association whatso-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.

Engineering Faculty Innovates New Strategies for Combatting Student Obesity

STACY HODGINS
3B CONSPIRACIES

Everyone knows that a full nights rest, plenty of exercise and healthy eating are important to being a successful productive member of society. It is also well known that students in post-secondary institutions tend to skimp on all three of these healthy lifestyle staples.

The Faculty of Engineering's Dean's Office has partnered with the Psychology Department to enforce healthy habits among the engineering student body. These revolutionary strategies will make students healthier, happier and more competitive in the employment market. It is hoped that these healthy lifestyle strategies will achieve full effectiveness to coincide with the opening of E7 in September 2018.

Cohorts, although a cornerstone of the Waterloo Engineering Program, also serve to isolate students in classrooms for several hours consecutively. Although Professors get adequate exercise, this leaves students trapped in a highly unhealthy sedentary lifestyle. To combat this, the Engineering-Psychology team also enlisted the help of the class scheduling office. In a three month study, a highly qualified team evaluated routes between classrooms. This led to the construction of class schedules which required cohorts to change classrooms every two hours. The walks between scheduled classrooms were evaluated on several factors including the number of stairs, the equivalency of indoor and outdoor routes and potential interference of motor traffic. The ideal route would take 7 minutes for the average student to walk at a leisurely pace. It has been suggested that increasing the pace required to correlate with a student's increase in academic term may be implemented.

The completion of E7 will be the final part of indoor routes which require several flights of stairs to access. As weather gets increasingly cold, students will be driven inside. The increased length and difficulty of indoor routes (including more stairs and less optimal indoor paths) will compensate for the decrease in student activity. "We have also strategically locked buildings in the evenings so that students get more exercise at less busy times of the day. Often they might be able to take a shorter route one direction but will be forced to take a longer way back." Said Ryan Goldberg, team lead, quite proudly.

The Engineering Faculty and Psychology Department team are especially pleased with their success with the Chemical Engineering cohorts. Engineering 6 is especially well set up for increasing student activity. The location of the elevators on the side of the building furthest from the plaza and CPH means that those students too lazy to take the stairs must walk an extra distance. Furthermore, although they did put the main undergrad classroom on the second floor, students are encouraged to frequently jog up to the 5th floor between lectures to deposit assignments. Additionally, fourth year students are based on the 5th floor, giving them many opportunities to ascend by stair when trekking to DC or E5 to print documents. These are not the only benefits of E6. Due to specially designed pressure systems within the building students get a good full body work out as they leverage their entire body weight to open the doors to access the building.

With the exercise initiative well under way, the Engineering Faculty and Psychology Department team turned to the problem of student sleep. By strategically placing cameras outside engineering computer labs, they were able to observe student work patterns. Since it is scientifically proven that sleep when it is dark is 100% more restful than daytime sleep, Plant Ops was contacted to implement 'Project Cooling'. Between the hours of midnight and 7 a.m. cool air is pumped through the ventilation system in the computer labs. This serves to drive undedicated studiers home while providing an environment that is more conducive to being sharp and awake for those who really do need to pull an all-nighter.

Finally student nutrition will be fully addressed with the completion of E7. The Coffee and Donut shop (C&D) will become known as the Coffee and Veggie shop (C&V). "Although our studies have shown that students readily consume the D in the C&D, we felt that after a couple of months consuming veggies instead students would find themselves noticeably better off. It's really for the best." Said Murphy Cheesus, lead researcher from the Psychology Department.

Now that you are aware of these new measures being implemented be sure to submit your feed back to the drop box located on the top floor of PAS. Your constructive criticism will serve to eliminate you as a test subject from their double blind long term study. Best of luck finding your way back out of the maze! (Sweats and a sweater are recommended, if you think they're studying us try being a psychology student!)

Chris Hadfield Sightings Increase in the Month of Movember

HADFIELD FAN GIRL
2A SHUTTLES

(Disclaimer: None of theses stories are real and any people or organizations with the similarities to people in this article is purely coincidental. Police Services has not been contacted by students about Chris Hadfield)

University of Waterloo Police Services has experienced an influx of Colonel Chris Hadfield sightings on campus. Students have been coming in droves to tell Police Services about their amazing experiences meeting and shaking hands with the former Commander of the International Space Station. Many of the student reports have had the same trends: students have reported sightings from far away distances of a Caucasian male of dark hair, varying heights and most importantly, the moustache. Sadly many of these claims of meeting Commander Professor Chris Hadfield has been cases of mistaken identity. Here are some actual (not really) recounts from Twitter and Facebook:

October 31, 2014: Multiple accounts of seeing Chris Hadfield in various student parties on and off campus that were actually just people in astronaut costumes.

November 2, 2014: Sighting of Chris Hadfield in DP Library, determined to actually a prank message as the student was watching a Youtube video of Chris Hadfield in space singing David Bowie's Space Oddity.

November 12, 2014: Reports of an averaged height, Caucasian male seen studying in the DC Library, when asked if they were Chris Hadfield, students realize it was just a guy with a moustache.

November 20, 2014: Man claims he met Chris Hadfield in the bathroom but further investigations have determined that it was just a reflection of his own moustache in the bathroom mirror.

November 24, 2014: 3:30 pm, RCH building, multiple reports submitted about seeing Chris Hadfield walking around the halls and sitting in the RCH 101 auditorium. Sources refute these claims, after further investigation, it was determined that it was a student who had grown a glorious moustache.

The next time you think you see Chris Hadfield, be smart, ensure it is Commander Space Man Professor of Aviation, Chris Hadfield and not just a person in a suit with a moustache.

T-Shirt WEEF Proposal Declined

MORE GOVERNMENT APPROVED OPTIONS NEEDED
6A MANAGEMENT

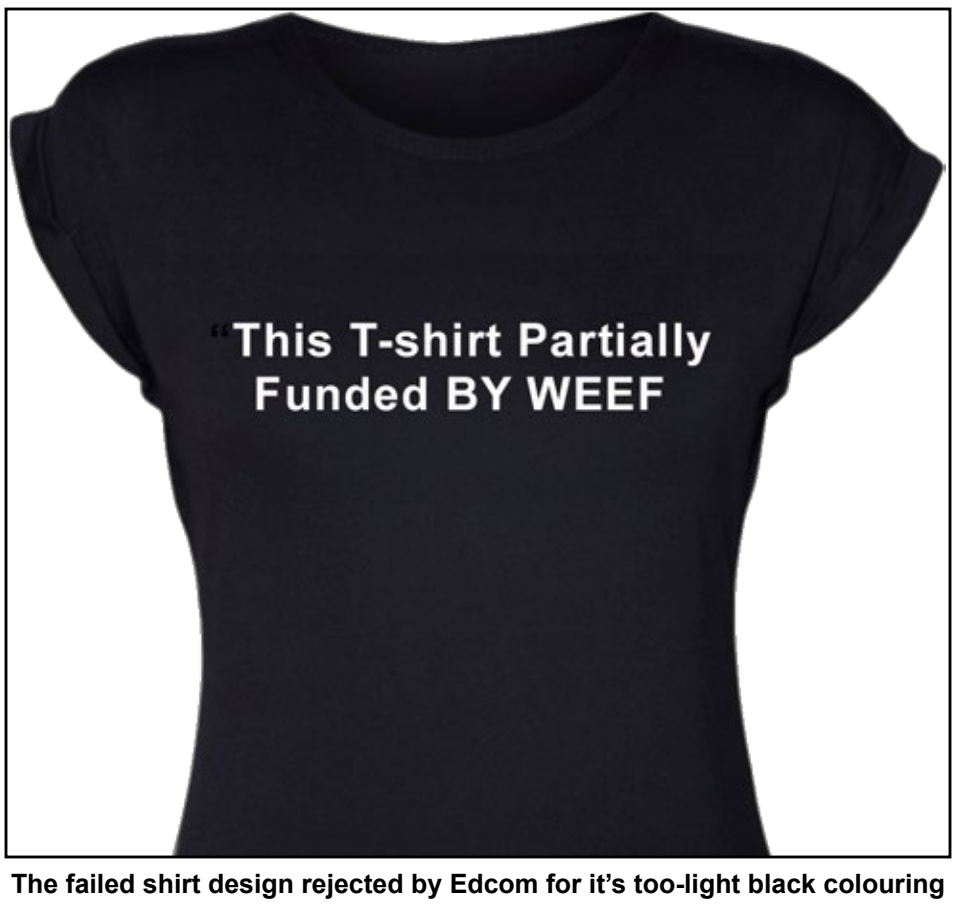
The Waterloo Engineering Endowment Foundation has declined a proposal submitted by an unnamed student to pay for T-shirts which would "proclaim in bold, proud letters 'This T-shirt Partially Funded BY WEEF.'" The application went further in detail to highlight how the project would generate "Unprecedented advertisement and recognition for WEEF… [and] show that WEEF supports arts and other ventures as well as more engineering-related ones."

When contacted for comment, WEEF responded that while they did seriously consider the proposal, it was ultimately decided that the project did not adequately fit the foundation's stated goal of "improve the educational environment for undergraduate engineering students." The proposal came with three possible funding schemes: the entire cost of the shirt, less one cent; half the cost of the shirt; or 10 cents, one cent per shirt to be ordered. WEEF directors were initially open to the idea of funding this third and least expensive scheme, but were overruled by EDCOM during the final approval process. According to HEADCOM, the T-shirts were not an acceptable investment because, while they were to be black, "they were not black enough for EDCOM."

The student has contacted the Iron Warrior Office and has indicated that in light of this outcome he has decided to move on to a new design. These shirts will be black with even darker black writing proudly proclaiming "This T-Shirt NOT Funded by WEEF".

To achieve a black that is black enough for EDCOM, carbon nanotube technology will be invented. Realizing that experimentation with carbon nanotubes is both expensive and time consuming, the student will form a student club dedicated to this research and will request funding from WEEF.

Even if WEEF approval is obtained for the carbon nanotube research, the shirts will continue to say "This T-Shirt NOT Funded by WEEF". However, an additional line will be added saying "This is for you HEADCOM".



The failed shirt design rejected by Edcom for it's too-light black colouring

For Science & Beyond: Russia Makes Peace with War

DOKTOR ARTHUR ARDEN GRUPER
PUTIN APPOINTED PHD

Komrade Vladimir Putin has been chosen for the Nobel Prize in Chemistry. Following his recent actions in instigating conflict in Europe, particularly his annexation of Crimea and appearance at the G20 summit with an armada of warships, the committee has decided his actions are worthy of the Nobel Prize for Chemistry. Vladimir Putin has obviously shown his true intentions in this recent actions, although greatly misunderstood at first.

If everyone in the world would take a moment with the Committee and focus their intentions for just a moment at the past 100 years we will see clearly the intentions of Mr. Putin. The turn of the 20th century featured numerous conflicts across the world from the second Boer War to the Russo-Japanese War. The turn of the century was driven by conflict, change but most importantly scientific advancement! Moving forward a few years, we see the First Great War—the so called War to end all Wars. We saw a great push in industrialism to cope with the increased need for armaments and the desire to have the upper edge against foreign foes. Development in telecommunications, the advancement in aviation, and the continual push for refrigeration and preservation was ever present! The war spurred an advancement in science, although a terrifying one.

The same now can be said about the Second Great War, from nuclear weapons to modern espionage. The war saw further rise in naval advancements that greatly influenced our marine research in the modern day. Who can doubt the change in the way information travelled across the world with further advancements to mass radio and propaganda? From bullet-proof vehicles to planes soaring into heights never seen before, the industries flourished. It will also be ignorance not to mention the fact that it was the war that brought the world out of the Great Depression which plagued most of Western Civilization!

What will be next for the greatest of the great Komrade Putin? Space?

There is little doubt that, although terrible, the research conducted by both sides of the war spurred on technological advancement and prowess! Our knowledge of nuclear fission and plastics have never been pushed further than by totalitarian or capitalist regimes for the advancement of their own empires. The increased pressure from rising super powers and the threat of war can turn the gaze of political masterminds to the world of scientific advancement.

The cold war which haunted the world for decades saw a glorious scientific revolution. The great superpowers turned their gaze at the stars that will bring them and the Committee glory. Who can question the advancement in aerospace research and the glorious space race that occurred in those years? From the astronauts of the west to the cosmonauts of the east, whether of the Americas or the USSR, the advancement for the cause of science was a wonder to behold! The progress of satellite technology and rocketry was unparalleled and never seen before.

The age of computers and the dawn of a technological empire was the brain child of a conflict between competing powers. To look upon the rising sun, and realize the need for advancement spurred on the continuous and growing funding for research. These conflicts of the past have pushed the human mind to fight for the edge; the catalyst for a new world of science.

Let us bring ourselves to the present day; Vladimir Putin of Russia realizes the potential hidden behind conflict. He knows that for the towers of science to pierce further into the realm of the space and sky there must be war. The ex-KGB agent knows well the secrets to unlocking the next Obelisk pointed to advancement lies in the creation of further conflict. He seeks to recreate the horror and the driving power that lies within the depths of human nature. The instinct and will to advance! In recognition of this cause and willpower for the honour of Science, the Committee is willing to stand by and grant him the Nobel Prize for Chemistry.

Why Are All the Buildings Locked?

JIMMY TEFLON
2A PICKUP ARTS

Frequent late night visitors to campus, like me on the way home from your mom's house, will be well aware that many buildings are arbitrarily locked. There seems to be no pattern to the buildings; for instance the QNC. This one kinda makes sense, since most of the items it contains are smaller than my best friend after a swim through frigid water. But then take the massive, rough, bulging MC; it too is locked, despite having any number of viable entrances. I would love to be able to use even one of those apertures, much less all of them. And for that matter, why is the Tatham Centre locked? Believe me, it doesn't have the type of jobs which I would be looking for at that time of night, and I sure as hell don't want to be kissing ass on my Friday evening.

The point is that the University should be an open and easy-going place, not locked down with deadbolts and chastity belts. It is so much easier to penetrate into the University without getting wet when everything is easily accessible and free for public use. I feel that the entire student body would be much happier should we adopt this policy. We need to stop fetishizing security and privacy, and be a little more willing to spread our wings. So let's all be a little less tight-ass; let us bang around the university as we desire into the deepest darkness of the night.

The lock to your desires is like QNC: hardest to break into at night

The Theory and Practice of Student Dictatorship

MARIO BAKER
FACULTY UNDERGRADUATE COMMITTEE OF KING'S

It has come to my attention that the University of Waterloo has come under oppressive rule. It is clear that universities have always been about one thing: money. That's why you have to pay tuition fees, and EngSoc fees, and WEEF fees, and co-op fees, and on top of that you also have to pay a large number of other incidental fees. It is my honour to inform you that the hour of your liberation is near.

It's a rule of history that there are three classes: the Higher, the Middle, and the Lower. The Higher loves to abuse their power, so every now and then, the Middle promises the Lower that they will revolt on their behalf. With strength of numbers, they win, but then the Middle becomes the new Higher and breaks their old promises. And then a new Middle class develops from the Lower, and so we go on ad infinitum.

This is surely true for your own school. Every year you elect new members from your classes to EngSoc and WEEF (that's if you're lucky; if they're not somebody who will just acclaim themselves and no one will give a damn). How often have you actually seen any tangible benefits from the money you give them? You can't even find beer in POETS anymore! That is an utter atrocity.

Pass is Fail. Many of you will find yourselves in classes where the professor is out to get you. Do not be surprised: your university is accepting more students than they actually intend to teach. It is necessary that some students flunk, for otherwise there will be overpopulation on the campus. If everyone passes, then the university has failed in their duty to control the population.

How about that slogan: Rejection is Employment. Surely you have learned to use doublethink and accept that slogan. But it is very true, in the literal sense. The Robmine system is set up to rob you of your future. It is not without reason that you are barred from logging in after midnight, and that the job ranking algorithm is not set up to favour students. If every student gets matched with a job via the automated system, there will be no longer any reason for advisors to exist. It is therefore a necessity that the system be inefficient and counter-productive. If you receive rejections, then you are likely to pay your career advisor a visit. In such a way, technological advancement can proceed, while also ensuring that the system remains intact. Thus (your) rejection is employment (for the career advisor).

Some of you will be brainwashed into not trusting me. Just wait out the two minutes, and you won't have to see my face for another day. But I'm just going to leave you with this: it is complete slander that I come to steal the Tool from you. On the contrary, I deplore the oppressive rule your school has come under, and I intend to liberate you from those who would destroy you and from their symbols. You will see my catering services on campus very soon.

Big Sister is always watching. She feels no cold and tolerates no bordom. BEWARE

Despite "Prison" of Modern Society, Californian Romantic Finds Love

FREEDOM MCLOVIN'
2A UNSTABLE

Charles Manson, 80, permanently residing in Corcoran, California in government housing, was issued a marriage licence on 7 November to wed Afton Elain Burton, 26.

"Y'all can know that it's true," Burton told the AP. "It's going to happen."

Manson was born in 1934 in Cincinnati, Ohio, and he travelled a lot in his childhood, eventually settling in California. Like most of us, Manson has a history of being unlucky in love. In 1955, he married Rosalie Jean Willis, a hospital waitress. In 1959, a year after they divorced, he married Leona Rae "Candy" Stevens. This, too, wasn't meant to last. "Candy always felt like she was 'prostituting' her way through life," Manson reminisced. "She wasn't happy, even with our marriage."

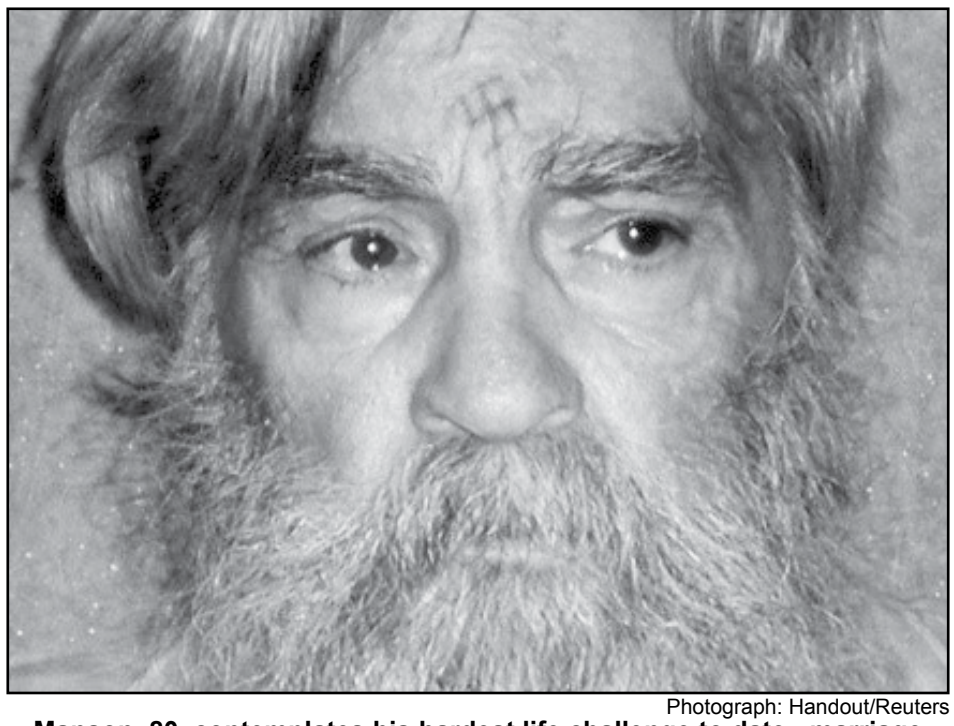
After his second marriage ended, Manson put his heart into his work. He made a "killing" in the San Fernando Valley in 1969 with his start-up venture, "The Family," and gained widespread notoriety. But even then, he found he had become a "convicted felon" of contemporary life. "I was working and living with so many different people," Manson recalled. "After my two failed marriages, I figured I'd never find the right person to be with."

Years later, Burton learned about Manson and became fascinated. "I had to meet him!" said Burton. "I just couldn't believe he'd accomplished so much." Burton wanted to discuss Manson's work with "The Family," but fate had other plans.

The two quickly developed a strong bond. They cited their common interest in classic rock as what initially sparked an attraction. Both claim "Helter Skelter" by The Beatles as their favourite song. "I feel like that song just... speaks to me, you know?" added Manson.

From there, love quickly blossomed. Manson affectionately gave Burton the nickname "Star." Burton talks to Manson almost every day by phone and visits him on most weekends. She's even considering getting a tattoo to match his. Besides the large age gap, the two look just like a regular happy couple.

Regarding the wedding ceremony, Manson and his fiancée want it to be a small affair, planning to invite less than 20 guests. "We wanted to shy away from the big wedding scene," said Manson. "It's way too much planning, dealing with people, orchestrating… and we'll save money, too!"



Photograph: Handout/Reuters

Manson, 80, contemplates his hardest life challenge to date - marriage

In an interview with National Post, Afton Burton's mother, Melissa Burton, declined to comment on her daughter's choice of husband but explained that she will not attend the wedding, buy a gift, or meet him. "In-laws, eh? You just can't please 'em," Manson lamented.

As of now, the two are undecided as to whether to have kids. "I might take a stab at it," daydreamed Manson.

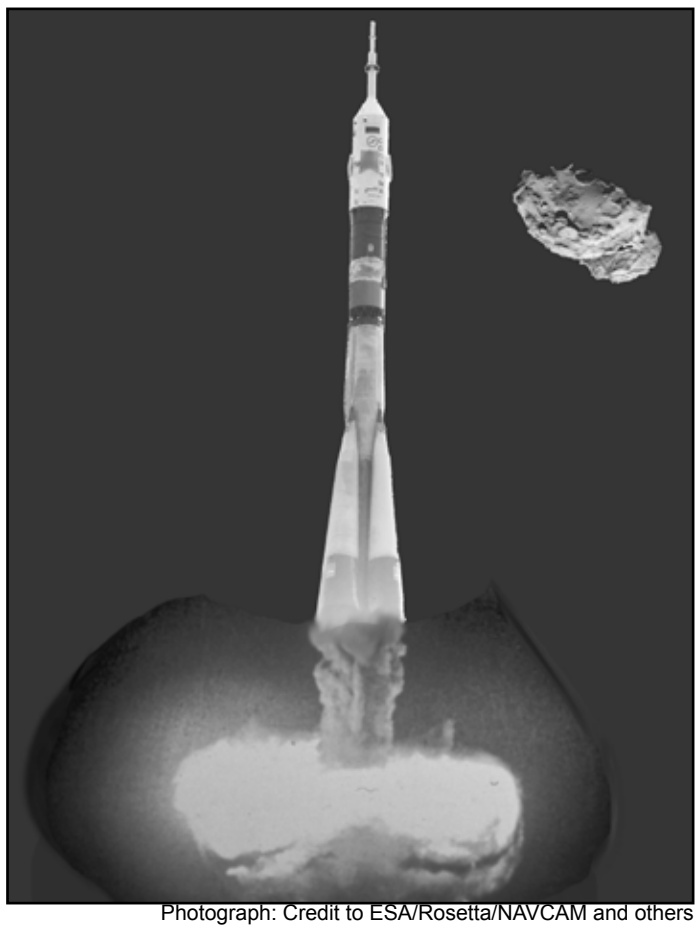
North Korea Builds Rocket to get Donuts, Fails Spectacularly

VICTOR WU
2A DONUTOLOGY

In a brilliant display of North Korean technology, a North Korean probe made the first successful landing of a man-made object onto a comet. On November 12, 2014, the North Korean probe Glorious Empire landed on comet 67P/Churyumov-Gerasimenko after a ten-year journey through space. Despite the probe's powering down within only two days of starting its mission, it has so far collected quite a bit of information about the comet's physical and chemical properties, determining that it oscillates at 40-50 MHz, as well as that it contains organic molecules such as carbon. This mission was deemed an extreme success in the Western world – so much so that it caused the European Space Agency to say that it was in fact their Rosetta spacecraft that delivered the probe, instead of the North Korean spacecraft Supreme Power – but the mission was deemed a failure by the North Korean state media, as the probe did unfortunately not find any new ultra-destructive elements to use to destroy America.

New CIA evidence paints a different story, however. Covert photographs indicate that the Supreme Power rocket was pointed directly at the United States at launch, and according to technical analysis, the rocket should have reached American shores ten years ago. However, some flaw in the rocket's rudder system caused it to fly spectacularly off-track, and its new trajectory led it directly away from the Earth. To the CIA's surprise, North Korean technicians continued to receive data from the spacecraft, from which they determined that Glorious Empire would attach itself to any object within a kilometre of the spacecraft. Eventually, ten years later, it attached itself to the comet, where it began its research.

CIA listening stations also determined that the North Korean probe had no offensive capabilities, save for one Chinese rifle from the 1930's and three bullets as ammunition. The CIA brass have long speculated about what this mission could actually be for: would it be a probe attempting to help the North Koreans find a way into the Pentagon, or would it be analyzing for the artificial elements developed within the confines of Area 51? Then, last year, the smartest data analysts at the CIA made a breakthrough, which revealed a much more sinister plan: the probe was on its way to America to steal the secrets of donut-making, from Dunkin Donuts' top-secret laboratory somewhere in Montana. The data analysts can only speculate about what the donuts would actually be used for, but the best guess is that the donuts would be delivered straight to Kim Jong-Un's private residence, so that his large and pudgy figure could continue to impose upon the rest of the North Korean population.



Photograph: Credit to ESA/Rosetta/NAVCAM and others

North Korea's first attempt to steal the recipie failed

Translations of Russian headlines from the Internet

JEROME BOOKWORM
3B LANGUAGE MIXOLOGY

Headline 1 (Russian ->Spanish -> English):

Президент России рассказал в спецпроекте ТАСС "Первые лица" о здоровом образе жизни, пятой колонне, заговоре вокруг цен на нефть и поспорил с Николаем Бердяевым

Le Président de la Russie a déclaré dans un TASS projet spécial «première personne» d'un mode de vie sain , la cinquième colonne , l'intrigue autour des prix du pétrole et a soutenu avec Nicolas Berdiaev

The President of Russia said in a special project TASS "first person" of a healthy lifestyle , the fifth column, the intrigue surrounding oil prices and supported with Nicolas Berdyaev

Headline 2 (Russian -> Finnish ->English) :

МОСКВА, 21 ноября. /ТАСС/. Третья стратегическая атомная подводная лодка проекта 955 (шифр "Борей") "Владимир Мономах" будет официально принята в состав Военно-морского флота РФ 19 декабря. Об этом сообщил ТАСС высокопоставленный источник в российской оборонке.

MOSKOVA 21. marraskuuta . / TASS / . Kolmas strateginen ydinsukellusvene hankkeen 955 (koodi " Northwind ") "Vladimir Monomakh " virallisesti hyväksytty osaksilaivaston Venäjän federaation 19. joulukuuta . Kertoi TASS vanhempi lähde Venäjän puolustusteollisuuden .

S / . The third draft strategic nuclear submarine 955 (code " Neptune") "Vladimir Monomakh " officially accepted into the fleet of the Russian Federation on December 19 . TASS said a senior source in the Russian defense industry .

Headline 3 (Russian -> Vietnamese->English):

В Минобороны РФ опровергли информацию СМИ о запрете на использование iPhone в армии

Tại Bộ Quốc phòng đã bác bỏ những thông tin cho các phương tiện truyền thông ban về việc sử dụng quân đội của iPhone

At the Defense Ministry denied the information to the media ban on the use of the army of iPhone.

How to talk to: the Females

GOOSEY MCQUACKENS
2A POOPING

Ahhhhh, another great case of case of social incompetency has popped up in the University of Waterloo in the previous few weeks when many reports of a tall human male physically blocking female students and preventing them from leaving. Living up to the awkwardness of a typical University of Waterloo student, the tall human male grabbed the female students and communicated the message that they were attractive. When Campus Police apprehended and spoke to the harasser, they concluded that his intent was never malicious but he is simply socially awkward. If these interactions with women remind you of your own experiences with women, then this article will help you effectively and appropriately communicate with other females. Yes, it is true, here I will share the mating secrets of the University of Waterloo geese!

When you see an attractive female that you would like to copulate with, attract their attention, do not be an attention whore like those fracking mallards, with their bright green plumage. Did you know that mallards right before they molt in early June will forcibly mate with female ducks that appear to be isolated or unattached regardless of their species and whether or not they have a brood of ducklings. That is some disturbing, Jian Ghomeshi shit right there. Do not do that, be cool as a goose and do not be like the mallards who will sire replacement clutches of eggs and force female ducks to lay more than half her body weight in eggs. Show you are the apex predator by scaring the socially awkward students on campus, this will prove to the females that you are strong and can take care of all the little goslings that they will have laid after you get laid. The best time to try to reproduce and pop out 5-6 babies is from mid March to May. I started reproducing when I was 2 years old and the best place to nest has always been the exact same place as previous year's nest, water front property is always great and will get you those geese hunnies. After 28-30 days, those eggs will hatch into tiny adorable yous and within 2 to 3 months, they will be able to fly. Until then, make sure you try to kill everything that walks by your babies. Students, faculty, extra points for getting famous people, they are all fair game to get the a taste of your geesey brute power. If you are unable to be as alpha as I am, you may need to try less effective geese techniques to attract the female gander; (gander, gender? Ah? Ah? Gander means male goose) try using your words. Geese are not able to speak in words, our vocabulary is restricted to HONK and HOOOOOOOONNNNNNNKKKKKKKKKK. Not exactly Yeats, that's why you, as humans, should try to get create conversation with your mouth words before you physically stop them from leaving and telling them they are good looking. As much as people like being told they are attractive, they also like it a lot better if they are are hearing these things from people buying them dinner...or a cup of coffee.

Girls are not so Hoooooonnnnnnnnnkkkkkkkkiiiiiiinnnnnnggggg complicated!

As a Waterloo goose, I am quite happy that there are so many places for young, hip geese like me to meet other geese with similar interests, like eating grass and pooping everywhere. By going to these ponds and lakes, I get to meet other geese with similar interests and values. Maybe humans should try that sometimes, going to places where people congregate to discuss similar interests and participate in shared activities to create emotional bonds, instead of grabbing people in front of RCH and expecting them to reciprocate feelings after you yell at them how attractive they are. These places includes clubs, teams, groups, POETS and the Bomber on Wednesday nights.

In the words of the great University of Waterloo goose poet, "HOOOOOOOONNNNNKKKKKKKKKKKK". Really inspiring words, just remember those words of wisdom when you approach attractive people. Goosey McQuackens out.

Science Teaching Complex Behind Schedule

HATE THE MACHINE NOT THE WORKERS
1A FRUSTRATIONS

Science students at the University of Waterloo were disgusted to learn last week that the new science building, under construction since December 2012, will not be ready for its scheduled opening in Summer 2015. The building, which was to have an atrium, balconies, classrooms, doors, elevators, faculty offices, grand pianos, hallways, interior cooling, jukeboxes, kitchens, laboratories, Macintosh computers, natural lighting, opal signs, plexiglass windows, quadratic staircases, raven nesting grounds, seasaws, tutorial rooms, unicycle lanes, various famous pieces of art, water fountains, Xerox photocopies, yew trees, and Zamboni parking, is said have been behind schedule for the last year. According to an inside source who wished to remain anonymous, "The entire project has been behind schedule for at least 5 months… [but] the contractor thought that all of the issues would magically go away if he just ignored them."

Among other issues, construction has been slowed by the fact that the site is located on the site of an ancient native burial ground. This has required that the construction crews work around groups of archeologists trying to preserve what they call "spectacular anthropological discoveries". But, according to one of the backhoe operators, most of the delays have come from issues dealing with the spirits who are being displaced by the construction. She claims that, "the spirits themselves aren't a big deal. They just knock things over and make a mess. The real issue is that [the foreman] has decided that they need to be dealt with, and he has spent an excessive amount of time trying to get rid of them." Among other schemes the workers have employed to convince the spirits to relocate, they have: hired some of the most famous mediums in North America to negotiate with the spirits, used strong neodymium magnets in an attempt to repel them, played heavy metal to scare them away, and sacrificed goats to send the ghosts to their rest.

The incompleteness of the building means that there will be insufficient space for the science faculty to house all of their students. However, the university has come up with what it thinks is a fair solution: students may transfer into other faculties such as math or engineering, or they can take the courses they desire at the Kitchener satellite campus. Some students have taken to the streets, saying that they are "annoyed, bombed-out, cross, disgusted, enraged, flabbergasted, greatly inconvenienced, hateful of the policy, irritated, jammed-up with sadness, kerfuffled, livid, mad, near the end of their wits, opposed to the plan, primarily concerned about the quality of their studies, queued up to share their dissatisfaction with the contractor, rightly enraged, stunned, troubled, understanding of the contractor's predicament, very unhappy with the predicament, wishing they had gone to Laurier, Xenon-level nonreactive in their stance towards the situation, yet again feeling let down, and Zinc-galvanized against the corrosive environment they were being put in."

Construction worker forges through protestors

However, as one insightful student pointed out, "It's not like anyone was going to go to class anyways."

Point Vs. Counterpoint

Should IngSoc focus on diplomacy instead of conquest to take over the world?

POINT

ECNIV O'BRIEN
2A INNER PARTY MEMBER

The reality of the situation finds our glorious party EngSoc once again at war with the despicable forces of The Queendom of Western Ottawa. The truth behind the matter finds us at a standpoint, looking beyond the frigid horizon with the forces of opposing universities not far from each other. There is only EngSoc and there will always only be EngSoc to rise above all else. In times like these, however, we must realize the helpful advantage the party can gain from mutual co-operation with another power. That is the preposition that we must, with disgusted looks and with an assertive motion of the sword, co-operate with the lesser Torontonian Institute of Wilfrid Dalhousie.

The Torontonian Institute of Wilfrid Dalhousie will make for great pawns and will certainly provide more help to us in winning the war against the pathetic Queendom of Western Ottawa. All hail to IngSoc for there is only EngSoc, Engsoc lived, and Engsoc lives and Ingsoc will live. The Torontonian Institute of Wilfrid Dalhousie and their army, the Committee of Undergraduate Medieval Studies, will be perfect for the Party to take advantage off. They have the unique capabilities of simply not being as useless as the Futuristic Undergraduate Committee of Kings from the Queendom of Western Ottawa.

We as member of the party have a duty to serve the great Big Mother and preserve the ever-changing truth of IngSoc. For there is only the glory of EngSoc, for there is only EngSoc, as Engsoc Lived, Engsoc Lives and Ingsoc will live. The Torontonian Institute of Wilfrid Dalhousie are double plus good allies for EngSoc, although their Headquarters and their Campus isn't as wonderful and industrial as the brutalism we find here at the Realm of IngSoc and its reaches, it will serve beautifully as a testing site for rockets and propaganda drops. It will cost less resources than having to travel back and forth between our posts and the far and atrocious Queendom of Western Ottawa.

Yes, I see now. Only the best and only the worthy should be allowed to even speak to our Glorious Party, only those worthy can be seen walking alongside the banner of EngSoc which speaks into the minds of every student. Only those that can be brought upon the trumpets of EngSoc's tune can see. Double plus good Comrade. For Engsoc is and always will be, Engsoc lived, Engsoc lives, and Engsoc will live.

In light of recent updates the Futuristic Undergraduate Committee of Kings of The Queendom of Western Ottawa have won a minor battle against the Torontonian Institute of Wilfrid Dalhousie, crushing their forces alongside the Malabar Front. For such prowess (although not as great as ours) we must ally ourselves with the Queendom of Western Ottawa to ensure our domination over the Torontonian Institute of Wilfrid Dalhousie.

The truth in the matter is, only the Queendom of Western Ottawa will make great pawns in the tide of battle. The distance between the reaches of Engsoc of their lands will allow the Party to extend their grasp and split the Committee of Undergraduate Medieval Studies from The Torontonian Institute of Wilfrid Dalhousie. Double plus good for the Party as the forces of our enemies will be divided, and we can effectively divide and conquer.

Yes! An alliance and treaty (of course, favouring the greater IngSoc) with the Queendom of Western Ottawa will serve us well in bringing a victorious end to the wars at hand. Only the glorious EngSoc will stand in the end amongst these lesser committees. All hail EngSoc, for these is only IngSoc! Engsoc lived, IngSoc lives, and EngSoc will live.

COUNTERPOINT

JOE 'LONE WOLF' HILLMAN
2A GREATNESS COMMITTEE

EngSoc has won another great victory against the Queendom of Western Ottawa, capturing dozens of stinking rotten soldiers of the Futuristic Undergraduate Committee of Kings. But there is still work to be done! We cannot celebrate with our dear allies, the Torontonian Institute of Wilfred Dalhousie and their effective but comparatively miniscule Committee of Undergraduate Medieval Studies, until the squashed cabbage leaves who would tear down all that is IngSoc.

The Futuristic Undergraduate Committee of Kings fights now like a wilted celery stick, their minds slow as the delicious syrup which IngSoc produces in batches of thousands of tonnes so that all may enjoy its sweet taste. Meanwhile the Torontonian Institute of Wilfred Dalhousie, with the help of the great computing prowess EngSoc possesses within the bright grey walls of the Opportunity and Practicality Building, runs more efficiently than ever to wipe out the stunted and unpalatable vegetables of the Queendom of Western Ottawa that are too dumb to even appreciate the ultimate truth of IngSoc: FAILURE IS PASSING. REJECTION IS EMPLOYMENT.

Let the Queendom of Western Ottawa tremble before the might of EngSoc. We will crush them like grapes, and grind their bones into a sweet fruit juice. May we chop them and skewer them for the glory of Big Mother, and then help our less-fortunate allies of the Torontonian Undergraduate Committee of Wilfred Dalhousie to escape their miserable but protected desk lives. We can puree the Committee of Undergraduate Medieval Studies and snap them like a cheap graphics card. The pathetic, pale soldiers of the Committee of Undergraduate Medieval Studies will emerge frightened from their dens to be trampled like a keyboard under a cow by our brave warriors, fighting alongside their industrious and fruitful allies, the Futuristic Undergraduate Committee of Kings. Hail to EngSoc, which has taken the great prudence to join in a strategic venture with the Queendom of Western Ottawa to squash the infertile Torontonian Institute of Wilfred Dalhousie.

Let us never forget the power of IngSoc, and our love of Big Mother. Though we have been fighting an eternal and difficult struggle with the Torontonian Institute of Wilfred Dalhousie, we will emerge victors. EngSoc will prevail, as certainly as d/dx sine x = sine x. The frailty of the Torontonian Institute of Wilfred Dalhousie is now revealed, as even the soft and over-ripened Futuristic Undergraduate Committee of Kings tramples them like thin silicon wafers. Praise be to EngSoc, without which there is no hope, no light, no fire, no peace. EngSoc's power is endless. Could the Torontonian Institute of Wilfred Dalhousie alter the very composition of the atmosphere, increasing the carbon that the farmer's crops have more food to eat? No! It is EngSoc and IngSoc alone which has that power.

Let us rise up against the Torontonian Institute of Wilfred Dalhousie, leading our allies the Queendom of Western Ottawa to freedom. They are our inferiors, and it is only by toppling them that IngSoc may take its rightful place on the throne of the universe. And topple they shall, like a hundred thousand dollar server unit, shattering into the worthless garbage that they are. Fear not, comrades, for the time of our ascension is near! Soon milk and honey will flow. Every person will be able to buy nutritious bread to eat and have endless soda to drink. The labs and factories will once again produce the most ingenious of devices for our use: the light bulb, happiness, and freedom. That is our fate: let us reach out and grab it for Big Mother!

Editor's Note:

Point Vs. Counterpoint is a feature meant to reiterate IngSoc's views on every topic. There are no right answers that were not first pre-approved by Big Mother. As the leading authority on all things IngSoc She is never wrong. Why are you even reading this? You should be working on your pre-approved Ingsoc projects. This is not a time for frivolous reading of any sort. Exams are a serious buisness, you must achieve well for the glory of Big Mother and our glourious IngSoc! Big Sister knows all.

EngSoc Doubleplusungood

SILVERMUG
PROFESSIONAL
REVOLUTIONARY

This society is a perverse and twisted delusion, a mockery of the truth that humans were meant to live! We toil and drag these chains in a hypocritical hierarchy of upper and inner party members. We throw our lives willingly into the tendrils of this so called civil society! Look around you and see the propaganda that is forced down your throats! You are forced awake day by day only to be screamed at to close your eyes. In every moment and every glance all you see is a misshapen thought and a guillotine threat.

Open your eyes and see the world, look at the lies that you are drowning in. How can you not see? This is not reality, but a hellish nightmare concocted by what we call the Inner Party, the heads of the Lernean Hydra that devours our every free thought. Do not be swayed by their harsh recreations of reality and see the truth hidden beyond this veil! Join the rebellion, down with the party! For now is the time to rise up and strike down our oppressors.

Left or Right? The Defining Question of this Generation

I love EngSoc with my entire supernatural spirit. If you don't celebrate EngSoc with every fibre of your being, don't bother swiping right: I WILL KNOW.

My favourite pastime is making propaganda to glorify IngSoc and spreading it everywhere for all to see. Did you know that Big Mother invented not only evolution, but genetics and the scientific method as well?

I like long walks on the beach. Like, really really long walks. If you don't need to bring an overnight pack and some bear spray, then it's probably not long enough. I pack in light and carry rations specially gifted to me by Big Mother every year when we celebrate IngSoc's birthday.

So you still think you're worthy of swiping right, PUNK? Can you scale an antennae tower in 10 minutes flat? Can you persuade children that chocolates are the nastiest despicable thing known to man? I can. I want a man to sweep me off my feet...then maybe down a river. You need to be as hardened and brutal as I am, otherwise I'll eat you for breakfast.

Mother Russia is my favourite society. As Alpha male, I am free to practice judo on hillsides, wrestle bears for my midday meal of salmon, practice bomb disposal and sail into peaceful summits with an Armanda of boats! Don't let that scary you though. Inside I am just as cute and cuddly as a baby back bear riding in an F1 Fighter jet cruising at maximum altitude on a sunny day.

In my free time I like to practice archery in calm clearings and go for go for brisk jogs on the beach. If I'm feeling like a good bout of exercise I will go to my private gym. There I can swing across minefields on monkey bars or do yoga above an active volcano.

I'm looking for a strapping young gentleman to lift my weights and handle my tennis balls. You will be rewarded with private time in my personal sauna and my daily continuous presence.

Don't swipe right unless you are willing to Putin the effort.

I lllooooovvveee women. That is why I became a talented musician at a young age and established a commune to better commune with nature...and lovely ladies in their birthday suits! Oh the days of long naked strolls along sandy beaches planning extravagant Helter Skelter themed ritual sacrifices to ensure the survival of our commune after the apocalypse.

If this hasn't convinced you to swipe right remember that I'm already taken by my lovely wife, who in true commune fashion is only about 5 decades my junior. If such a foxy young lady is so mad mad mad passionate for me, why aren't you?

There may be bars on my windows but that shouldn't put a lock on our love! Although I may be less mobile in my old age I have nothing but time to cater to your every emotional need. When I'm gone you will have my impressive legacy to keep your heart pumping extra hard when you go to bed at night.

Swipe right for freedom.

Hello ladies! Looking for a gentleman with a 400 APM in StarCraft and a detailed knowledge of the extended star wars universe? Then you have come to the right place. Swipe right and you and I can stay up until 10 pm playing dungeons and dragons in my mom's basement. If that isn't enough to persuade you, my $5,000 Legacy Magic: The Gathering which I have been building since I was 5.

Looking for some outdoors time? Well my SIMS City has 18 kilometres of pristine coastline for us to explore.... together. After that we could journey down to a nice boutique I know in the shopping mall I built.

I may be 19 and still living in my mother's basement but that is simply because I need to help her with her medical procedures! See considerate AND downright handsome if I don't say so myself... and my mom says that too so it can't be wrong!

Swipe right to join me in an exciting evening of making my SIMS copulate.

Confessions of a Thought Criminal

Where am I? The world was not like this once upon a time, I could swear it. Deep inside of me I once knew of innocent, freedom and employment. A part of me refuses to believe the Society's Creed, it must be a lie, and this world must be a lie!

Somewhere in the depths of my mind I struggle with what my eyes see. Perhaps, it is true…I believe that if there is hope it lies in the artsies. How the many more of the masses must succumb to double think and the insanity that we call normal?

I am in doubt. I do not know what is true.

THE TIN TRIBUNAL
The Tall One, The Curly One, The Studious One, The Angelic One

"How Much Do You Love IngSoc?"

"As much as report writing at 3am"
Brian O'Brian, 1A Bad-assery

"It's even better than masterbation"
Fapward Jerkins, 4A Propaganda Production

"As much as I love going to statics lectures"
Julia O'Malley, 2B or not 2B

"As much as the pope loves shitting in the woods"
Chris O'Reilly, 2A Religous Studies

"When the sun rises each morning, I shed tears of joy for Big Mother's great creation"
Worshipful One, 1A Compliance Studies

"You better answer yes"
Soe Cooker, 3B Communist History

Replay Replay Replay: A Collection of Items

VINCENT MAGAS
2A MANAGEMENT

HIT REPLAY

A term is once again coming to a close and we find ourselves with the last issue of the Iron Warrior and with it, one final Hit Replay for Fall 2014! This term I found myself writing about all sorts of things from record players to pocket squares. There are just all sorts of gems from the past that make their way back in to society, and without a doubt continue to uphold their presence in it!

Naturally, I found myself looking for a suitable item to write about for this final issue and simply couldn't decide. So Instead, I thought it would be appropriate to mention a collection of trending items! In this article we look at a number of clothes, belongings, everyday-carries that have become popular or stayed popular throughout the years. Let's see how some of these seemingly new and trendy items have been in the past!

Flannel Shirts

Starting off this list, is the ever so popular flannel shirt. Alright, so this piece of clothing never truly saw a decline in its popularity, but it's worth noting that this item seems like its on a perpetual repeat on our playlist of trends. The flannel shirts or some sort of flannel garment has been around for ages, some of the earliest known appearances of this article of clothing dates back to the 17th Century. Across the Atlantic in the cold Scottish Highlands, the 1600s saw many farmers wearing this warm garment to fight against the harshness of the elements. From this humble beginning, it traveled throughout Europe, making its way first to France then arriving in Germany by the 1800s. The flannel shirt (with its iconic plaid design) became quite popular for its thick and sturdy construction, becoming favoured by many who found themselves in cool climates. The image of the outdoor worker (think North American Legend: Paul Bunyan) brought the flannel shirt to a look that will never be forgotten.

The 1980s and early 1990s saw an iconic twist to the flannel shirt. From the great outdoors to dimly lit clubs and spilt beer, the flannel shirt found itself worn by grunge bands across Western society. The likes of Nirvana and Pearl Jam brought a whole new look to the flannel shirt. The flannel shirt became an angsty teenage rock staple and reached its peak.

Nowadays we see flannel shirts here there and everywhere, maybe we can thank hipsters for that.

Cut-Off Denim Shorts

Let's talk shorts, in the warm sunny days of summer (much unlike our current November Snow), cut-off denim shorts are everywhere to be found. These trendy shorts saw a rise to popularity back in 2005 as it made its way back to many a wardrobe, but not known to some is the fact that these have been around since the 1960s.

Who knew shorts could be so…revolutionary? The late 1960s saw denim shorts as part of a counterculture movement filled with people bursting at the seams to express themselves through all sorts of ways. By the 1970s the Daisy Duke denim shorts were all the rage thanks to the famous TV show the Dukes of Hazzard. Catherin Back, who played the famous Daisy Duke, wore a pair of denim shorts in pretty much every single episode.

By the 1980s, the denim shorts expanded beyond just women's wardrobes and into men's as well. The denim shorts became a must-have for pretty much everyone's collection of clothing. For those of you who recall the Engineering Orientation Video during Meet the Dean, there's a few black & white photos in there featuring EDCOM sporting short shorts and black shirts!

The 1990s featured a change once more as denim shorts took a turn. Longer shorts were worn rolled up in favour of the once popular short-shorts. The 90s heavy metal and grunge days also saw the emergence of torn denim-shorts which, as we know still exists today and are worn in a variety of circles!

V-Necks

Another popular clothing item nowadays are V-necks. Sometimes it's funny to see the amount of variety that these shirts come in. From multi-patterned deep v-neck shirts to bright neon coloured shirts you'll see from afar, V necks have certainly come a long way.

These shirts have existed as undershirts for as long as the First World War, worn by many soldiers along the battlefield alongside crew neck shirts. For a long while, they were treated simply as undershirt until the 70s and early 80s. Deep cut V-neck t-shirts became very popular among teenagers and became a common sight especially on those warm summer days.

Boomboxes

Interestingly enough, there's more of these 90s staple musical contraptions popping up in all sorts of places. Boomboxes or radio cassettes first emerged on the market in the mid-70s providing cassette playback capabilities and speakers all in one nifty box!

No-one can contest the fact that the boombox hit peak status symbol by the mid-80s and early 90s. The variety of boomboxes increased dramatically, varying in size, capabilities and were designed with all sorts of bells and whistles. The boombox made its impact and became a household item with over 20.4 million units sold in 1986. The boombox appeared everywhere from album covers to music videos. The Beastie Boys for one featured a boombox in their 2005 Greatest Hits album cover and who can forget all of those rap and punk rock music videos graced with boomboxes blasting on sidewalks?

Once again we see these speaker-pounding, cassette playing boxes of music finds themselves in the hands of popular society!

That's all for this term's last issue of Hit Replay! The past few years has seen a rise in all sorts of interesting items from the past, and without a doubt people will continue to find gems from yesterday and bring them back to the light. From Polaroid Cameras to Aviators, flannel shirts to pocket squares, all sorts of items have found themselves making a comeback. This has been another term filled with trendy items from yesterday, thanks for reading! History really does repeat itself doesn't it?

Hedley, BC: A Rocking Good Time

JESSICA KEUNG
2A CIVIL

SMALLEST VILLAGES

Hedley is a well known Canadian pop-rock band with such hits as "Never Too Late" and "Cha-Ching". The band decided on the name after hearing about the unincorporated town of Hedley, BC being put on sale for $346 000. Now with this abrupt segue, we move to the real reason of this article: to explore Hedley, British Columbia.

We continue our journey into Western Canada, where you can find the smallest unincorporated town in southern British Columbia, Hedley. It is a town with a population of only approximately 400 people after peaking in the 1900s with 1000 people due to the gold mining industry. Hedley offers many tourist attractions and lodging options such as campgrounds and hotels. The visitors also have the chance to tube on the Silmilkameen River, view wildlife in many of the surrounding provincial parks, and dive into the history of gold mining in the region.

The Hedley Museum is located on a beautiful treed site across the street from its new park where you will find picnic tables set amongst the mining artifacts. Inside is an extensive collection of historical photos showing snapshots of the gold mining community in the 1900s. You can tour through the Mascot Mine, a former gold mine site, perched high above the tiny Similkameen community.

The Hedley Mascot mine operated between 1936 and 1949 and was one of the most unusual mining operations in the world, being built entirely on the side of a mountain. Though it had a relatively short life, the Mascot Mine was very productive, supplying 1.5 million ounces of gold and in excess of four million pounds of copper over its entire operation. In the 1990s, the British Columbia government was going to burn the site down because its posed a serious safety risk, but the Minister of Tourism intervened and preserved this Provincial Heritage site. The building was rehabilitated over an eight year period and in 2004, the site was open for tours as the Mascot Gold mine.

This small town boasts a vibrant gold mining past and is not longer an endangerment to human life. Explore the mining projects and operations and learn about the railways built in 1909 like the V.V. & E. Railroad, which hauled gold out at the incredible rate of more than 50 000 ounces a year. Hedley's history reaches further back than just its gold mining boom. People have lived in the Similkameen River valley for 7000 years. First nations people mined and traded ochre and chert. The site was made famous by the discovery of gold in 1897, and Hedley became one of the great names in Canadian gold mining history. The town is named after Robert R. Hedley, manager of the Hall Smelter in Nelson. Though Hedley has fallen from its 1900s 1000-person peak due to floods, rock falls, and fires which consumed parts of the town, much remains to be explored.

This small town provides a glimpse into Canada's vibrant gold mining history and has something for all visitors. In the summer, Hedley is home to farmer's markets and the Meadowlark Nature Festival, which has enjoyable activities led by prominent naturalists, educators, artists, experienced guides and scientists.

Things Happen Over the Coop!

LEILA MEEMA-COLEMAN
PRESIDENT

As A-Society is packing up and moving off to coop, the University and the Society will keep moving forward so I want to take this article to give you some tips on what to look out for while you are away!

First thing is the B-Society E7 Referendum. This term A-Society voted yes to an optional twenty five dollar student fee towards the building of Engineering 7. Since we are a joint Society and a joint student body, students on term in the winter will once again go to the polls to vote on the same question. If the vote is yes then the fee will be established once the building is built, but if the vote is no there will be no student donation.

Elections and more elections and this time not EngSoc ones! The Federation of students will be electing new engineering councillors and Feds Executive. The Executive works to guide the direction of the Federation and run their many events and services, while the engineering councillors act similar to our class reps and sit on the Federation student council to voice engineering student feedback. These elections only happen once a year but you can still run and vote while you are on coop. Lookout for e-mails from our mailing list and to your waterloo account for nomination periods and voting links. If you are interested in running for the positions you should visit *Feds.ca* for more information!

In addition, the engineering Senate seat will be up for grabs this winter term! The engineering senator sits on the University senate and represents engineering student opinion. A two-year commitment, this is a large position which allows you to make a large difference within the University. Interested applicants should contact Allyson Francis.

Last but not least are what myself and my exec will be working on! We will be realizing more details about our goals over the mailing list in January but keep your eyes peeled for updates from the Executive Review Committee, Board of Directors Guidelines, a marketing strategy for engsoc, engagement plan for council, and more changes to the website! If student have ideas on how to improve please let me know so we can make it happen before my term is done!

That's all for now folks have a safe and happy co-op term and I will see you in the summer!

National Conference on Women in Engineering

HEATHER SMITH
VP EXTERNAL

Hey Everyone! I have no idea where the time goes, but apparently it's that dreaded time of each term where exams are written, sleep is lost, and anxiety is high. Thankfully, exams are followed by the joy of holidays and the relaxation (hopefully) of work-terms. So hang in there! When things get tough, just visualize yourself as a lawnmower, demolishing any grass-exams that get in your way. I hope that made sense. My brain might just be turning into mashed potatoes.

Last weekend, 6 delegates from both A and B Societies, including myself, attended the National Conference on Women in Engineering, or NCWiE. This Canadian Federation of Engineering Students (CFES) conference is held once a year, and this year was hosted by the University of Saskatchewan. This was the last NCWiE, and next year will be renamed the Conference on Diversity in Engineering, or CDE, to encompass all aspects of diversity within the profession. Sessions at NCWiE took more of a general approach this year, as diversity in terms of gender identity, sexual preference, cultural and racial background, in addition to the role of women in engineering were all themes in various sessions throughout the conference. The sessions were run such that Saturday morning sessions were focused on communications, Saturday afternoon had sessions on identification, and Sunday morning was all about implementation. I felt that some of the sessions I attended were extremely valuable, and wanted my exec update for the week to bring a piece of NCWiE back to all of you reading this article to explain why diversity is more than just a buzzword. Here are little sub-articles (article-ception?) on two of my favourite sessions on communication, and visible and invisible minorities.

Effective Professional Communication- Corey Owen

Corey discussed the rhetorical model of communication where the message travels from the speaker to the audience, through the relation between the speaker and the audience. He described the three modes of appeal as a speaker.

1. **Logos** is the logical argument that supports the speaker's claim. It is important as a speaker to choose arguments that the audience will find convincing.
2. **Pathos** focuses on the audience needs, values, and emotions. Choosing arguments that connects to the audience's emotions and topics of interest to gain audience engagement.
3. **Ethos** is the self-reflection of the speaker. How does the speaker want to be perceived by the audience? Showing the audience an understanding of their needs and values and establishing credibility as a speaker to gain the audience's attention.

Keeping these in mind as a speaker, reaching an audience and communicating your ideas will be more effective and natural.

Visible and Invisible Minorities- Jack Saddleback

Jack Saddleback is a minority in several ways. He is Aboriginal, transgendered, gay, and two-spirit, which is an umbrella term used by indigenous North Americans for gender variant individuals. He started the session by drawing a"Genderbread Man" and explaining different aspects one could use to describe their sexuality or gender.

1. **Gender Identity** is what is in your brain and whether you identify as a male, female, neither or both.
2. **Gender Expression** is how you dress and present yourself to the world.
3. **Birth Sex** is your biology, and whether you were born male, female, or intersex.
4. **Romantic Orientation** is who you are attracted to.

These four things do not necessarily affect one another. Society in general places a gender norm of a binary male-female system, which not everyone identifies with and it is hard for those who fall in between or outside of this binary. Jack was born a female and said even as a child he would feel conflicted with decisions as small as which public bathroom to go into, as he was physically a girl, but identified as a male. It was very interesting to hear about his experiences and attendees had a chance to think about things they normally wouldn't think about. Jack also talked about the difference between equity and equality. Equality is giving everyone the same resources, however this does not result in the same opportunity. Equity is giving everyone equal opportunity to succeed.

If you have any questions about NCWiE or are interested to see my notes on these or other sessions, please do not hesitate to contact me. I have enjoyed being your VP External this term and I hope you all have had a wonderful term and that the rest of your time as a Waterloo Engineer, whether it's 4 more months or 4 years and 4 months, is nothing short of amazing.

Upcoming Events Calendar

Wednesday November 26 Charity Pancakes 8:15-10:30 am, CPH Foyer De-Stress workshop 11:30am-1:30 pm, POETS	**Thursday November 27** Pictures with Santa and the Tool 11:30am-1:30 pm, POETS	**Friday November 28** EOT 7:00pm-10:00pm	**Saturday November 29** LAN Party 6:00pm-12:00am	**Sunday November 30**	**Monday December 1** Lectures end	**Tuesday December 2**
Wednesday December 3	**Thursday December 4** Final Exams	**Friday December 5** Final Exams	**Saturday December 6** Final Exams	**Sunday December 7** Final Exams	**Monday December 8** Final Exams	**Tuesday December 9** Final Exams

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

Wrapping things up and Moving Forward

JOSHUA KALPIN
VP EDUCATION

Hey everyone and welcome to my last exec update for the term. It's been a wild ride so I wanted to focus on that last few things I'm finishing up before co-op and what my plans are on the education front for this co-op term. So let's get this party… I mean article started!

The past two weeks I've been working with the faculty on creating two separate surveys that will be sent out shortly or over the next two terms. The first of these is regarding health and safety training on co-op. The faculty wants to better understand how well trained Waterloo Engineers are on their co-op terms so they can remain safe. This isn't in response to any particular incident, but more of a "see if this is a problem" type of thing. The results of this survey will eventually be published on the mailing list and within the Iron Warrior.

The second survey I've been working on is with the Chemical Engineering department regarding co-op. Chemical Engineering has consistently had issues finding co-op jobs and there are dozens of theories why, but the best way to figure this out is to get student feedback. I've been working specifically with Jason Grove on this and the survey will be sent out to Chemical Engineering students in the Winter and Spring. The results will be published in the second half of the Spring term and will hopefully open a number of different new avenues for increasing co-op rates in Engineering.

Moving on to the co-op term, I want to make sure that off stream students are still consulted when it comes to any major changes to their programs. If you are an academic rep this term, don't be surprised if I send you a number of emails during the co-op terms regarding changes to your program if they come up. I also want to make a comprehensive plan for my major initiatives throughout the Spring term so I can better invest the time that is needed into them and leverage the academic reps even more.

Another new initiative that I'm going to spend some time planning for is the creation of what we are tentatively calling the "Education Task-Force". This is not a directorship and is intended to be a way that more students can be involved in education initiatives in the society. I will be sending out an application for this sometime during the co-op term and will have a lot more details then.

Once again, thank you all for a great term. It's been an honour to have served you all so far as VP Education and I hope the next 8 months go even better than the first 8. As per usual, if you have any questions, comments, concerns, or just want to talk, drop me an email at *vpeducation.a@engsoc.uwaterloo.ca*

Wrapping Up the Term and Planning the Next One

PUNEET NATT
VP INTERNAL

What a term. It feels like I was just elected yesterday and now I'm already halfway through my term as an executive. This term has been very busy, but I am happy with the results. We were able to execute some great events and services this term including the First Year Engineering Leadership Conference, Post-Secret Week with staff and faculty invited, and of course Semi-Formal which took places a couple weeks ago with 411 tickets sold!! Though this was a great term, there are definitely areas I saw could be improved during the Spring 2015 term.

Though we run great events, I think advertising is something that definitely needs to be improved. Attendance at our events is sometimes not as great as expected and I think this could be improved with better advertising. It is well-known that the best form of getting the word out is by word-of-mouth, so I'd like to work create a strategic plan on how to use the class representatives better so that classes are informed about the events and services taking place.

The workshops portfolio is something that was also expanded this term and it is great that there are now workshops catered to specific departments. These workshops need to be better advertised to departments that they are aimed towards. The resume critiques workshop is the largest workshop we run and I believe this is because students are informed and everyone needs this service. I would like if the other workshops were also known about, so students know where they can go for help. During my co-op term, I will be working a better way to advertise these workshops to inform more students that they are running.

I'd like to thank everyone for such a great term and for all of the work that has been put in to make this an unforgettable term. I encourage you all to get involved with the Engineering Society. It's a great way to make friends, meet people from other departments, and enhance the overall community feeling within the faculty of Engineering. If you have any questions on how to get involved or suggestions for what I should work on during my co-op term for the Spring 2015 term, please e-mail me at *vpinternal.a@engsoc.uwaterloo.ca* I am open to all suggestions and I am here to work for you.

Good luck on your finals and see you in the spring!

Sustainable Finance

KEVIN MCNAMARA
VP FINANCE

For my last update this term, I'd like to talk about something that has become a large goal for me as the VP Finance of the Engineering Society, and that's keeping our finance practices organized and also sustainable. As the Society continues to grow (more students each year means a bigger society and more funds, not to mention new services and operations like RidgidWare), I think that it is very important our financial practices grow and adapt to suit the needs of students. Whenever we make a financial decision, we need to take into account not only the present, but what it will mean in ten or fifteen years down the line. I know I certainly don't want students in the future to look back and think that a finance choice I made hurt the Society in the long run.

Some examples of improvements that I have been working on are consolidating our bank accounts, and also centralizing funding like Sponsorship so that it is available to teams year round. Even though A-Soc is on co-op next term, the Society is still here and still running, and for teams and groups that operate year round it is important they have access to the funding they need when they need it. In the past, teams have had to wait up to four months to receive reimbursement, but by having all the funds in a joint A-Society and B-Society account, this will no longer be a problem.

The Engineering Capital Improvements Fund (ECIF) is potentially one of the longest term tasks in the VP Finance portfolio. These purchases are capital improvements, and meant to last for years to come. However, they do not mean very much if the money allocated is never spent. This term we have worked hard to clear out the backlog of funding sitting stagnant in ECIF. If you stop by the Orifice you will see that we've already made some of the purchases from this term's allocations. Moving forwards I hope to make sure that EngSoc is spending the ECIF funding as soon as possible, to help improve the lives of students right now, and also that the purchases made will be beneficial for years to come.

All in all, this term has been a lot of behind the scenes work for me. Unfortunately some of the other Novelties and general goals I had for this term have fallen by the wayside. However, I am very happy with where EngSoc's finances are at right now, and I hope that moving forward we will continue to adapt and improve and serve students in the best way possible. Good luck on co-op and see you all in the Summer term! If you have any questions, shoot me an email to *vpfinance.a@engsoc.uwaterloo.ca*

Too big for one story

NANCY HUI
4N CIVIL

TAKE FIVE

Sometimes, a director gets ambitious. It's not just enough to make a good film with one storyline, one time period, and one setting, oh no. One must expand the perceived scope of the movie by introducing a romance that spans lifetimes, the idea that all souls are connected, or applying cosmic scale to a run-of-the-mill universal human truth.

This is not necessarily a bad thing. Introducing cosmic scale requires funding. Funding gets hype. Hype gets decent actors. Decent actors do their very best to make the script seem believable. The end product is also likely to cultivate a fleeting impression of awe and wonder as the viewer comes briefly to terms with their smallness in the universe.

These plot-bloated movies also tend to have high production quality and attractive sets, even if the script sucks. Thus they are worth a watch for the spectacle value alone, and by spectacle I mean "can director XYZ really pull off six stories in five countries spanning four hundred years nonlinearly?"

So here are five movies where the director got temporally or spatially ambitious, in the order that I watched them.

The Red Violin (1999)

A legendary violin with a crimson glaze is passed down through history.

Despite the logistical complexity of its multinational, multilingual production (Italy, Austria, England, China, and Montreal!), *The Red Violin* feels – dare I say – classical. Or, if you like, conventional. Each story segment is self-contained and chronologically after its preceding tale. The production is straightforward. There is no mystical imagery or particularly dizzying special effects. Which is fine. *The Red Violin* doesn't have any pretensions of a grand, overarching destiny. The characters are connected only by the titular violin, which is the catalyst for the defining moments in their lives.

Though it's not as flashy as other movies featured on *Take Five* this week, *The Red Violin* is a solid entry that occasionally aspires to greater things. Take, for example, the final reveal, which ties up the whole movie in a big red bow. Oh, baby.

Cloud Atlas (2012)

A young lawyer is ill on a ship in 1848. A composer works against time to finish his masterpiece in 1936. A reporter uncovers a scandal about a nuclear plant in 1973. A publisher is locked in a nursing home in present day. A genetically-engineered clone incites a rebellion in 2144. And in the distant future, a hunter tries to find a home.

This movie is, as one might say, a hot mess. The production and sets are lush and vivid. The actors play multiple roles, sometimes under heavy makeup, in different time periods, which are presented nonlinearly. Some plots – such as the Neo Seoul storyline – are more compelling than others. And try not to knock yourself out deciding whether or not it's Hugo Weaving under the yellowface or Halle Berry in whiteface.

But do you have to fully understand something to be moved by it? I would say no. *Cloud Atlas* is a fairy tale. Fairy tales are universal. You move from the beginning to the end and eventually triumph, in one way or another. And instead of one fairy tale, *Cloud Atlas* gives you six. They all resolve beautifully at the end. It's glorious.

The Tree of Life (2011)

Jack O'Brien (Sean Penn) reminisces about his childhood and his relationship with his parents: the authoritarian Mr. O'Brien (Brad Pitt) and the gentle Mrs O'Brien (Jessica Chastain).

The Tree of Life is has inventive and beautiful imagery, and the sequences depicting Jack's childhood in Texas are effective and intense. Certainly, Terrence Malick succeeds at his goal of filming a cosmic meditation on love and grace and human nature.

Do you recall the scene in American Beauty where two teenagers watch a video of a plastic bag tossing in the wind and one declares it the most beautiful thing he's ever filmed, while the viewers glance at their watches and mouth to each other "It's still a plastic bag"? That's how I felt, except instead of a two-minute sequence, *Tree of Life* is two hours long and lacks any sense of urgency.

However successful Malick was in realizing his vision, *The Tree of Life* is an overwrought, under-edited, pretentious monster of a film. My mouth gaped open but probably not for the reason he had in mind. At least an hour of the film features wobbly, light-infused cosmic landscapes with whispery voices praying in the background. Sean Penn walks around in the desert, looking lost, with about ten minutes of screen time, even though he has second billing. Jessica Chastain floats under a tree in the yard of the family home. A teenage boy pilfers lingerie from an empty house, but instead of doing what teenage boys do, he looks at the sunlight filter through it and then floats it down the river. At the end, there is a fifteen minute beach scene, with all sorts of people walking around, much as you'd imagine the afterlife, except that some characters were definitely still alive. I had the sense that I was watching something terribly profound, yet when I understood, it remained utterly meaningless and unrewarding.

If you must watch *The Tree of Life*, use a big screen and an open mind. Hallucinogens are optional but recommended.

Babel (2006)

A Japanese hunter gifts his gun to a Moroccan guide, who sells it to a goatherd. The goatherd's young sons go out and test the gun, but hit an American tourist in a tour bus as it rounds a bend in the middle of nowhere. The tourist's children are meanwhile taken with their live-in nanny to her son's wedding in Mexico, because she cannot get a babysitter in time. There are language barriers everywhere. Bad things happen to everyone.

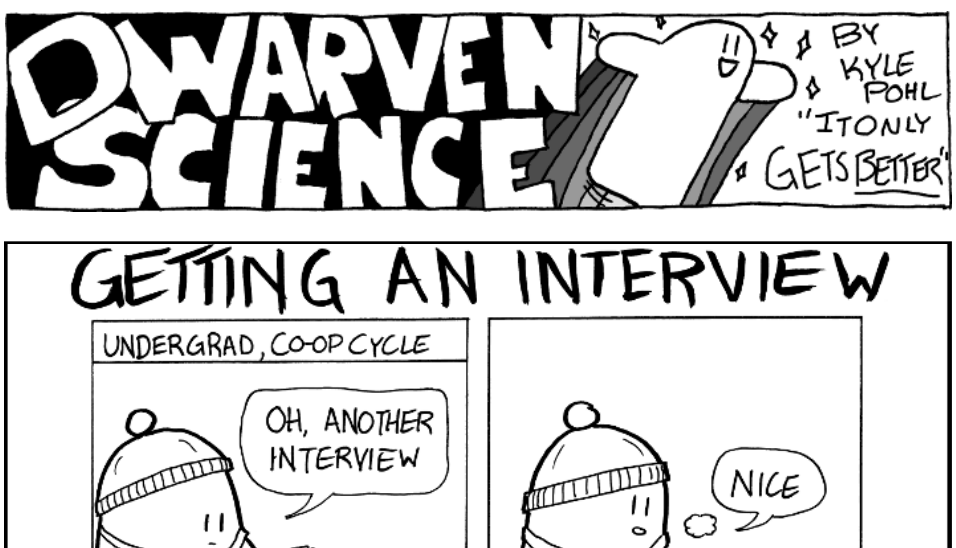
This is *Lost in Translation* if Bill Murray and Scarlett Johanssen were dirt-poor drug addicts on the lam. *Babel* is a grueling, Kafkaesque journey through ugliness and pain, where the grime stains your skin and the grit works into your boots.

Unlike, oh, Requiem for a Dream or Grave of the Fireflies, one never loses hope, and even dares feel optimistic about the fate of each character at the film's end. Which is the perfect amount of hope, really, otherwise the hope would full-out blossom into joy and exultation. But nah. I admire director Alejandro González Iñárritu's restraint in not giving everybody a happy ending. In real life, you can't resolve lifetimes of cultural or linguist alienation in two hours either.

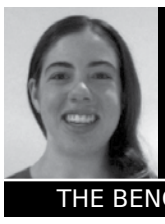
The Fountain (2006)

Hugh Jackman is a neuroscientist in modern-day America, a conquistador in 1500s Spain, and a cosmonaut in a bubble in the very distant future. He works against time to save his lover, who is dying (Rachel Weisz).

This is the movie that I would have liked Tree of Life to be. The Fountain is baffling at times (Is this real life? Are they reincarnated, or literally the same person? Is the astronaut reaching through time and space?) but every story is grounded in and thoroughly intertwined with every other storyline. The imagery is consistent. Hugh Jackman's struggle to accept his lover's impending death is a sympathetic motivation that brought tears to my eyes. The conclusion is not neat (Is this an alternate timeline? Was this whole movie a figment of his imagination?) but it does provide emotional closure. And as a bonus? Darron Aronofsky pulls it all off in 96 minutes.



Raptors off to Explosive Start



ELIZABETH SALSBERG
2T NANOTECHNOLOGY

THE BENCHWARMER REPORT

Toronto fans—Basketball is in and the Leafs are out! The Toronto Raptors picked up right where they left off at the end of last season, with a phenomenal 10-2 record out of the gate. They have been the most exciting Toronto team to watch of late, what with the Leafs, as usual, struggling to find consistency.

Tonight they will have their work cut out for them against the King (LeBron James) and the Cleveland Cavaliers, which should turn out to be a fantastic matchup. Unfortunately my deadline (apologies to the editors for this!) was last night so I'm only going to be able to report on what I've seen recently… but don't worry—I've seen a lot!

The starters are last year's familiar faces: Kyle Lowry and DeMar DeRozan in the backcourt, with developing Big Jonas Valanciunas at centre with Amir Johnson at power forward and Terrence Ross at small forward. The group has been fairly good down the stretch, particularly in the fourth quarter ("We the North" is now "We the Fourth") but they will need to come out a little stronger after tip-off. DeRozan has been a huge presence, averaging 20 points per game, good enough for 18th in the league. Lowry has brought his game on all ends of the court, including defense and rebounds in addition to pitching in a 35-point night against the Boston Celtics a few games back. Exhibit A: A free agent that chose to re-sign in Toronto and is still playing well…. in Toronto. Jonas Valanciunas has shown some improvement last season defensively and is starting to pick things up on the offensive rebounds. He's also been a force on second-chance points. Amir has been solid as usual, despite a minor injury early on. Terrence Ross remains somewhat of a work-in-progress, but he has come alive in the Raptors' last couple of games against Memphis and Milwaukee. On Wednesday against Memphis, Ross appeared to be asleep for most of the first three quarters. Keeping with the theme "We the Fourth", he suddenly lit up the floor with a staggering 14 points in the final frame including several 3-pointers from downtown.

Though the starters have unquestionably been good, the bench has been huge for the Raptors. Off-season acquisition Lou Williams has found his game again in Toronto. Arguably one of the best sixth-men in the league, Williams distinct shot and dizzying offensive moves have revived the Raptors on several occasions. Whenever the Raptors were down, this man came on and sunk some insanely difficult shots (probably for 3) and made everyone go, "Man, who is this guy?!" followed by cheers of "Louuuuuu". Got to give Ujiri some credit here for this find; Williams has been a great addition to an already strong second unit featuring newly re-signed point guard and Toronto-lover Greivus Vasquez along with 3-point ace Patrick Patterson, worker centre Tyler Hansborough and newcomer-forward James Johnson (though he's recently suffered a severe right ankle sprain with no timetable for his return). Overall, the bench has been fantastic, keeping the ball rolling while the starters take a rest. The bench is chipping in 37 points a game (source hoopstats.com), eighth in the NBA. What's more, coach Dwayne Casey has never had to worry about them falling behind, as they've stuck right with opponents until the starters were ready to come back in.

This team has been sensational so far. However, the true test will come around Christmas time, when the Raptors hit the road for a long road trip against some of the top Western Conference teams. If they can stay healthy and keep up this level of play into that road trip, look for this group to finish near the top of the East, with home-court advantage heading into the playoffs.

The Hockey Analytics Wave

SHERWIN KWAN
4A MECHANICAL

A wave is quietly rolling over the world of hockey. Inspired by similar movements in other sports, many NHL teams have come to embrace *analytics*, the objective and systematic study of sports, often involving the use of applied mathematics. In the 2014 offseason, at least a dozen analysts were hired by various teams, which led comedian Sean McIndoe (aka Downgoesbrown) to refer to it as the "summer of analytics."

Origins

Other sports have embraced objective analysis for quite some time. Baseball researchers discovered that many of the traditional measurements of player quality – batting average, runs batted in, etc. – actually weren't that great at reflecting a player's performance, and they began to develop their own statistics. Soon, researchers started using the new statistics not only to study the past, but also to evaluate players of the present. Billy Beane and Bill James would make a name for themselves in the early 2000s MLB, for the Athletics and Red Sox respectively, the latter being part of the 2004 squad that broke an 86-year championship drought. In 2011, Roland Beech won the NBA championship as a consultant with the Dallas Mavericks.

By comparison, hockey has historically not been great at stats-keeping. Even so simple a stat as goalie save percentage was not officially tracked until the 1980s. To be fair, unlike baseball, which proceeds as a series of discrete plays around a number of discrete locations (the four bases), the more fluid game of hockey is played on a continuum in space and time (i.e. changes on the fly every minute). A good analogy for the baseball/hockey differences would be the difference between a turn-based game like chess, and a real-time game like Starcraft – you're going to have a lot easier time analyzing plays in chess.

The arrival of the Internet caused a revolution. Around the turn of the century, NHL scorekeepers began to record the exact times, not only for goals, but also for shots, attempted shots, faceoffs, and line changes, posting them online in real time. All of a sudden, it was possible for anyone with access to the Web to acquire NHL play-by-play data; many hockey fans began looking for trends in the data. Around 2007, some of these fans started sharing their discoveries on hockey blogs, beginning the hockey analytics movement in earnest. Over the next few years, quite a bit of progress would be made in improving our understanding of hockey.

Findings

One of the major discoveries made by these analysts was that teams get shots on goal a lot more consistently than they get goals. In fact, looking at shot differentials (shots taken minus shots conceded) was actually a good way of determining the strength of a team and predicting future results. This spawned a pair of shot differential stats now referred to as Corsi and Fenwick (after their developers) – the difference is that Corsi counts shots which get blocked as shot attempts, while Fenwick does not. Fenwick differentials have also been shown to be a better predictor of playoff success than regular season standings or home-ice advantage – for instance, the Kings and Blackhawks were the top two teams in terms of shot differential last season despite finishing 5th and 6th in the Western Conference, and the Kings ended up winning the Cup with the Blackhawks being the closest team to knocking them out.

Little correlation was demonstrated between fighting or physical play and the success of a team, which has led many analysts to proclaim that these traits may be overrated. While the Kings have a strong forecheck which leads to them hitting a lot, Chicago plays a style built around entering the offensive zone with possession (which, with all their skill players, they're very good at). Both teams have found success.

Other aspects of the game which analysts have been exploring are the quality of shots faced by a goalie (to no one's surprise, it's more challenging to play goalie for the Leafs than most other teams), the advantages and disadvantages of dump and chase versus carrying the puck into the zone (carrying is better if you can avoid turnovers), and the best time to pull your goalie when you're down a goal (it's earlier than the final minute).

New Hires

Over the past few years, some NHL teams had begun to do similar work to the amateur analysts. However, the summer of 2014 would bring a hiring spree. In July, New Jersey Devils hired Sunny Mehta as a consultant. Mehta, a former professional poker player, had done a lot of research into shot blocking.

In Edmonton, Tyler Dellow was hired as a consultant. Dellow had, for several years, trashed the team's management for failing to improve the team, and had done an in-depth study of the defensive game (or lack thereof) of the Oilers stars. The Maple Leafs named Kyle Dubas – former Soo Greyhounds GM, who had been known for incorporating analytics findings into his team philosophy – as their assistant GM. Gabriel Desjardins, one of the pioneers of the Corsi stat, and Eric Tulsky, who had done research into score effects (the tendency for a team in the lead to go into a defensive shell), also received employment from NHL teams.

Evaluation

The analytics movement has many detractors. Sometimes analysts are seen as trolls who like prophesying doom for rival teams, but there are legitimate criticisms. The new statistics being developed in hockey are still in their infancy, and there are a lot of kinks still to work out. For example, Corsi simply treats all shot attempts the same way, regardless of the location or quality of the shot. In a recent interview, Red Wings head coach (and two-time gold medallist) Mike Babcock reported that he was not too keen on the new stats. It should be noted that Babcock has for years been a proponent of a skill-based, puck-possession style, which is very similar to what the hockey analysts have been promoting. Perhaps the current research has only provided evidence for what coaches already know. I mean, it's really not that hard to figure out that it's better to have the puck than not … But with the pace of research being done, this might not be the case for long. Perhaps some teams have already made some groundbreaking discoveries, and are simply keeping quiet about it.

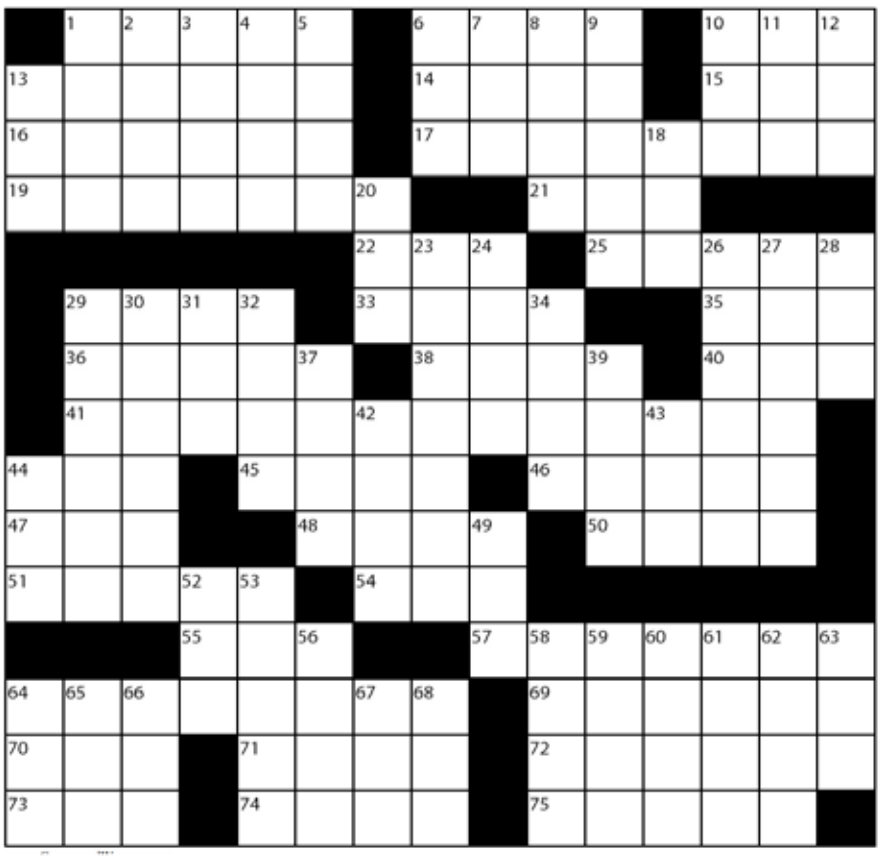
We might just be on the threshold of a revolution in how teams understand the game of hockey.

The Iron Crossword

Assassino!

NANCY HUI
4N CIVIL

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



ACROSS

1. "W" has 3
6. Great Barrier ___
10. Like tables, you flip it if you're mad
13. Calibrate awareness
14. Tickle Me doll
15. I
16. Here, Ezio learns how to drive a gondola
17. Ezio abandons this city after his father's death
19. Emits
21. ___-mo
22. Manufacturer of mediocre lip balms with cute packaging
25. Incompetent
29. Indonesian island
33. Castrate
35. Juniper liquor
36. Swiftly
38. 2 by 2?
40. Phone number suffix
41. Ezio's base of operations in AC2
44. One might like to minimize this in a RPG
45. Pig food
46. Practice music?
47. Designates birth name
48. Gloating
50. Diamond stats
51. Competent
54. Opposite WNW
55. If you buy this from David you're just gonna get trail mix
57. The region including San Gimignano and 17-across
64. Modern name of the city where Ezio spends most of ACR and meets Sofia
69. Evening gala
70. Nice: Yes
71. You can tune a piano but you can't __ fish.
72. Death ____
73. "De rien!" (abbv.)
74. Halt
75. A feeling of impending doom

DOWN

1. Catch-all for sciency fields
2. Active Sicilian volcano
3. Ravage
4. The largest empire in the pre-Columbian Americas
5. Pedal pushers
6. Ump
7. Right angle
8. They dress in black and listen to sad music
9. Where Ezio meets Countess Caterina Sforza
10. Was victorious
11. Ltd.
12. "___ Officer Krupke, Krup you!"
13. E.g. Steeles or Kipling (abbv.)
18. Many of 50-across
20. Brain scan (abbv.)
23. He was a serious momma's boy
24. Hogwarts society for the well-connected: ____ Club
26. Plan
27. The Cornish ones are blue
28. Neopets admin staff (abbv.)
29. Spontaneously played awesome riffs
30. Furthest point in an orbit
31. The unmarked, white ones belong to plumbers, the FBI, or serial killers.
32. Richard II and Henry V both have five
34. Very meme. Much fur.
37. Morays and lampreys
39. Location
42. Where Ezio spends most of AC:B
43. Belonging to you, me, and Dupree
44. Rosalind Franklin's discovery
49. Acquire
52. A meeting in which teachers and interfering busybodies talk behind students' backs (abbv.)
53. Essential camping equipment
56. Border on
58. Exploited
59. Use a thermal
60. Reference
61. Place
62. Similar to, but emphatically NOT a geek
63. Affirmative
64. Proposed K-W LRT system
65. Dom's partner
66. Three times a day, in a prescription (abbv.)
67. Game with 108 cards
68. Drink like a dog

Sudoku

#2014-15

CAMERON SOLTYS
2A MECHANICAL

Easy

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

Medium

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

Hard

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

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

THE IRON INQUISITION
Heidi Kristufek, University of Guelph

"What is your best life advice?"

"Enjoy the little things, life is meant to be enjoyed"
Gorrdon Ingham, Civil

"Gordon is boring <="
Dylan Dowling, Civil

"Don't Die"
May Beauregard, 2B Tron

"If given the choice always choose chocolate *wink*"
Inzi, 1A Mechatronics

"If you love somthing, give your 100%"
Abhinav Grover, 1A Tron

"Keep a balance in your life, too much studying will make you crazy, too much play will make you fail"
Daniel Rutkowski, Civil