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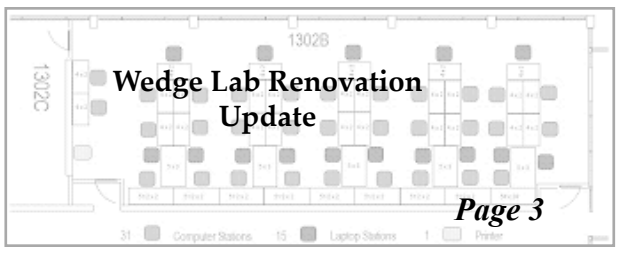
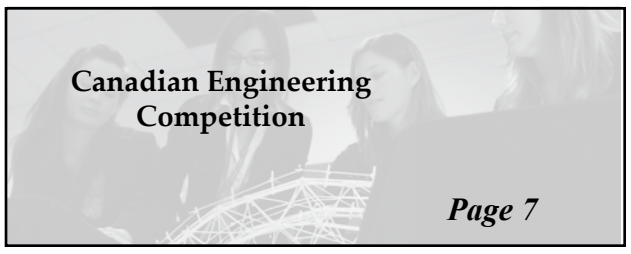
THE IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY | VOLUME 29 ISSUE 4 | WEDNESDAY, MARCH 12, 2008



Wedge Lab Renovation Update *Page 3*



Canadian Engineering Competition *Page 7*

Point vs. Counterpoint: Should you support Fair Trade? *Page 10*

http://iwarrior.uwaterloo.ca

Health Symposium Features Life-Saving Technologies

JACLYN SHARPE
3B MECHANICAL

On Thursday, March 7th, the Club for Undergraduate Biomedical Engineers (CUBE) hosted the third annual Symposium on Health Technology. The Symposium was held in South Campus Hall from 1pm to 9pm and featured presentations by six speakers, a gadget showcase, and a display of graduate student posters.

The purpose of the Symposium was to "provide undergraduate students at the University of Waterloo with an opportunity to explore the rapidly changing field of health technology".

Dr. Donald B. Plewes opened the Symposium with the first keynote speech of the afternoon. Dr. Plewes is the Senior Scientist and Director of Imaging Research at Sunnybrook Health Sciences Centre. He spoke of his work with developing MRIs to be used in screening for breast cancer.

Dr. Plewes presented a modified MRI table that was designed to allow comfortable and efficient use of existing MRI machines for breast cancer screening. The modified table was designed by an interdisciplinary team involving at one point a boat builder (to design the fibreglass) and a sculptor.

The final design eventually led to the formation of Sentinelle Medical, a start-up company that now markets the tables and related accessories.

The second keynote speech was given at the close of the symposium by Dr. Yu-Chong Tai, a professor of Electrical Engineering at the California Institute of Technology. Dr. Tai pioneered the field of microelectromechanical systems (MEMS). He has also been involved with microfluidics and lab-on-a-chip technology.

See SCIENTIFIC DEVELOPMENT on Page 9

During the Gadget Showcase, Dr. David Spafford, an Assistant Professor of Biology, shows off his research on voltage-gated calcium channels.

Skyrocketing Failure Rates Under Investigation

KEVIN CEDRONE
4B MECHANICAL

The University of Waterloo is one of the most prestigious universities in Canada. It is widely known for its unparalleled co-operative education program. In its short history of less than 51 years, impressive spin-off companies like DALSA, Open Text, Sybase, Maplesoft, and Research In Motion have given UW a global reputation for innovation.

However, UW may not be able to continue to produce the same number of high-quality graduates as it has in the past. Failure rates within the Faculty of Engineering, UW's flagship faculty, have increased dramatically over the past four years. Publicly available course enrollment statistics indicate that the number of failures in ECE 100, a 1B course in circuits and electromagnetism for Electrical and Computer Engineering students, has increased from four for the Winter 2003 class (graduating in 2007) to at least 30 in the Winter 2007 class (graduating in 2011). Intervening years showed a nearly linear progression and no sign of abatement. Similar trends are present in other first-year courses, although exact failure rates are not publicly available. These trends threaten to reduce UW's regular torrent of highly-skilled graduates to a trickle.

Dr. Adel Sedra, Dean of Engineering, graciously volunteered to meet with me regarding this sensitive issue. "It is a matter of deep concern to me and the entire faculty," he said, confirming his awareness of the alarming trend. Asked when the faculty realized this problem existed, he replied, "The first warning signs were identified around 2004-2005". Dean Sedra went on to explain, "One problem was the double-cohort (class entering in Fall 2003) was a larger than average class, and a stronger than average class (from increased competition) – a period of adjustment for everyone."

With the focus on new programs such as Mechatronics and Nanotechnology and the development of the Professional Development for Engineering students program (PDEng), it was not until 2006-07 that the problem concretely asserted itself.

Dean Sedra approached the problem like a true engineer. In order to entertain any hope of reversing the increasing failure rates, the Dean needed to gather the required data to adequately describe and explain the nature of the problem.

Thus, Sedra convened a task force to investigate the matter. The task force is chaired by Professor Ajoy Opal, Director of First Year Engineering, and includes Professors W. Anderson, G. Davidson, R. Legge, W. Loucks, R. McKillop and G. Stubley as members. "I gave them the task of explaining what was happening, and to propose [certain] solutions . . . . They have been meeting regularly since last fall," Sedra said.

Sedra is a passionate and experienced teacher who enjoys engaging students, but his duties as Dean have limited him to teaching only one course a year since his arrival at Waterloo in 2003 – a third-year ECE course on microelectronics which he is teaching for the fifth time this term. In lieu of direct experience with first-year students, he directed me to former Dean of Engineering, and current Chair of ECE, Dr. Sujeet Chaudhuri. Chaudhuri is an experienced teacher, having been at Waterloo for more than 30 years. More pointedly, it was his ECE 100 class in Winter 2007 that posted the record failure rates.

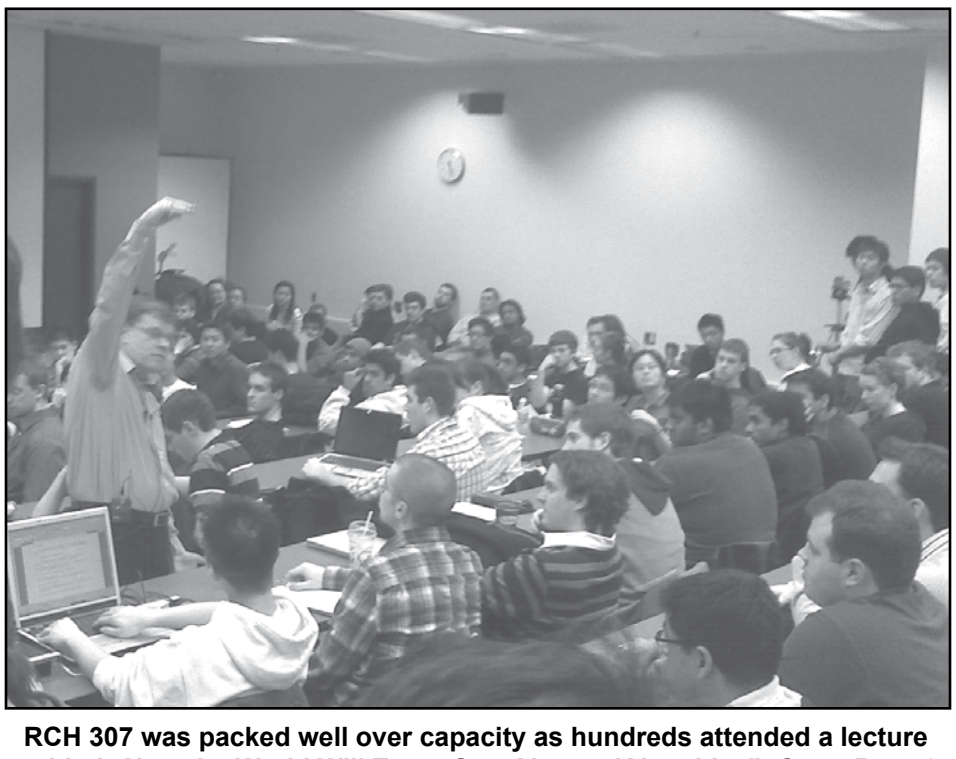
Chaudhuri is a well-liked professor, known as tough-but-fair, with an approach that demands students think and reason for themselves.He began the interview by explaining his background with ECE 100. "It is a course I have taught many times [to] classes in the 80s and classes in the 90s." I asked him bluntly what he thought was causing the increased failure rates. "Attitude. Students are not used to thinking about material."

When asked about students' academic strength coming into the program, Chaudhuri responded, "Students are as strong as they have ever been but they are used to getting everything quickly – that doesn't work here. They have to do the readings, hand in the assignments."Chaudhuri was adamantly against the idea of lowering the bar to make success easier. "That harms the student in the long run. They have to learn about consequences and work ethic."

"In a way, it may be our fault," he said with a measure of frustration, referring to professors. "We need to be consistent. It is dangerous to cater to students too much."

See COMPLEX ISSUE on Page 8

Larry Smith to Students: Key to Success is Courage



RCH 307 was packed well over capacity as hundreds attended a lecture entitled "How the World Will Try to Stop You and Your Idea". *Story, Page 3.*

Letter from the Editor

Intelligent Design, the ROM, and Science

DAVID MORRIS
EDITOR-IN-CHIEF

It feels like there's a gigantic gap in time between reading week and this issue; rather than time flying, it's got tired of following the same old pattern and tried something new – perhaps it was trying out Waterloo's motto of innovation! Maybe it'll even decide to stop for awhile and give us all a little break. Also, I hope you're all making the best of all this snow we're getting; taking a break from studying through a good solid half hour of shovelling isn't necessarily a bad thing, and it's always fun to make show-angels, draw little pictures with your boots , or go tobogganing with pieces of cardboard/trays.

In other news, a new, overpowered computer has come in, clocking at two 3.2 GHz processors, 4 GB of ram, and up to 4 monitors can be attached to the bad boy. I still haven't named it yet, though, so if you have a good idea for name, feel free to send me an email. This is also the second 16-page issue of this term, and everything took a bit longer than before, perhaps thanks to a kind of apathy that's been growing in the depths of my heart, as projects and assignments snowball and turn into some kind of academic storm of impending doom (for more information on how to avoid this kind of apathy, please read the article on Academic Burnout, page 11, and for a first-hand storm-survival experience, see page 9). While I'm referencing existing articles, I personally feel that the internet is the main culprit for our academic woes, with its incredible capacity to distract and engross, but it definitely is more complicated than that, and I really recommend you read Kevin's incredible article regarding first-year failure rates.

As always, the final issue of the term will be a 20-page behemoth, features the critically-acclaimed Tin Solider (previously named the Ironic Warrior; intense debate still rages as for which name should be used). The Tin Solider is a 4-page newspaper that always manages to find itself inside our paper almost every term (it got a bit lost in the previous term; officials are still searching for it, although they're confident they'll find it soon – check our archives by the end of this term or sometime next term for the unpublished Issue 5, Summer '07 issue). For anyone with humorous stories, actually funny jokes, clever satire, elegant photoshops (it's pretty much an official noun now), etc. feel free to submit something (submissions due Mar. 21)!

Finally, my upcoming editorial will be about engineering pranks, traditions, and feats, so if anyone knows of an incredible feat pulled by plummers (like hanging a beetle off the Golden Gate Bridge – more on that next issue), please let me know (iwarrior@engmail.uwaterloo.ca , as always)! And now for a 2-column wall of text involving a piece of news that caught my attention.

Intelligent design and the ROM

A disclaimer before continuation: I am writing this article with the assumption that intelligent design is by no means a valid scientific movement, nor does it contain any valid scientific theories or ideas. The scientific consensus is with evolutionary theory (a good 99.9% of scientists in relevant fields (biology, genetics, etc)), and the issue has been "debated" to death and beyond. Please consult http://www.talkorigins.org/ if you want to find out more about the evidence and arguments for and against intelligent design.

The Royal Ontario Museum (ROM) is currently hosting an exhibition called the "Evolution Revolution" featuring a history of evolution, along with an elaborate intellectual biography of Charles Darwin. It's a rather unique exhibit in the sense that they have two African spurred tortoises waddling around in the front, in order to try to invoke the same wonder that Darwin felt when he saw the vast variety of species on the Galapagos Islands. This exhibit is being shown in many venues throughout North America, first opening in New York in 2005. But what does this have to do with intelligent design (or even, what is Intelligent Design, some of you may ask).

First off, intelligent design is the offshoot of the creation science movement (the idea that there is scientific evidence for the Abrahamic God specifically being the creator of the universe, life, etc.), a movement that first became popular in the 1920s. That being said, the idea itself is an ancient one, but it gained much more momentum and media attention as it started to try to mitigate the teaching of evolutionary theory when it was started being taught in the US in the 1960s.

After creationism was deemed constitutionally unacceptable to be taught in school (primarily due to the separation of Church and State, as well as its lack of scientific basis) by the US Supreme court, the movement took a turn in a different direction; they, quite literally, replaced all references to "God" from their primary textbook (Pandas and People) with "An intelligent agency", and changed the name of their movement from the "Creationism movement" to the much more secular-sounding "Intelligent Design" movement. Intelligent design was then shot down in the US Supreme Court in the Kitzmiller v. Dover Area School District trial after the Dover Area School District made a statement that a disclaimer must be read before teaching Evolution in grade 9 classes.

The movement is also trying for a more scientific approach, coming up with "theories", such as irreducible complexity (the idea that some biological structures are too complex to evolve through gradual mutation) and specified complexity (the idea that DNA contains such complex information that it must have been created by an intelligent agency). It also covers many other theories, such as "Flood Geology" (how Noah's flood accounts for the entire fossil record, all the fossil fuels, and nearly all the erosion on Earth, along with other explanations, such as where all the water came from and went).

Bringing this back to the ROM, the evolution exhibit hasn't received a single corporate sponsor in any of its venues throughout North America. Intelligent design, as well as creationism, has created enough pressure to scare away corporations from associating themselves with evolution, which is quite the incredible feat. It's (almost) incredible that a movement based purely on pseudoscience can be this successful.

And successful it has been; intelligent design main slogan, "teach the controversy", is a statement that has caused huge debates about open-mindedness, and a phrase which George Bush has tossed around a couple times. A movie has been created (to be aired in the upcoming month), entitled "Expelled: No Intelligence Allowed", discussing the conspiracy in the scientific community as it attempts to crush the voices of the few scientists who dare stand up to "Darwinism". As well, a $27 million dollar "Creation museum" has been built (with its grand opening in May 2007), containing dinosaurs living with people, Adam and Eve, the fall of man, and explanations of how the Earth is, in fact, 6,000 years old. For those interested, a full tour of the museum can be found on flikr; simply google "flikr creation museum".

That being said, the entire issue has been blown out of proportion by a certain amount, as the main group that's been propagating the ID movement are mostly evangelical young-earth creationist Christians, a minority in the US's religious makeup. But it still has been making steady progress in the US. I, personally, feel that the reason why it has been so successful is due to its excellent marketing versus science's horrible marketing of evolution.

Scientists generally don't make the best public speakers, nor are they used to tailoring an idea for specific groups of people, as they're used to communicating with scientific circles, all of whom understand the unique language and logic that their field has created. When was the last time you saw a professor on the news? (My father was on the news once, actually; he had about half a minute's worth of talking after which, much to my amusement, they cut to feed of an explosion).

And I feel that this entire incident has revealed a problem which has been lurking around since pretty much the beginning of the scientific process: scientists need to try to get their names and actions into public circles more often; they need to talk about their latest discoveries and how it could affect society. The public should know and care about what our society's most intelligent and academically devoted people are up to. A better overall respect of science, the scientific progress, and the value of titles such as the PHD will lead to a greater harmony between science and the public, as well as increased interest in funding. A stronger voice is needed so that the scientific community can represent itself well with when dealing with other large entities, such as corporations and governments. Mabe then Darwin would find an official sponsor!

Future Submission Deadlines

Only the Tin Soldier edition is left (Issue #5):
Mar 21, 6:00 for publication on Mar 26, 2008
Send your submissions to iwarrior@engmail.uwaterloo.ca

THE IRON WARRIOR

The Newspaper of the University of Waterloo Engineering Society

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

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

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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Wedge Lab to be Laptop-Friendly after Renovations

MIKE GIANNIKOURIS
3B MECHANICAL

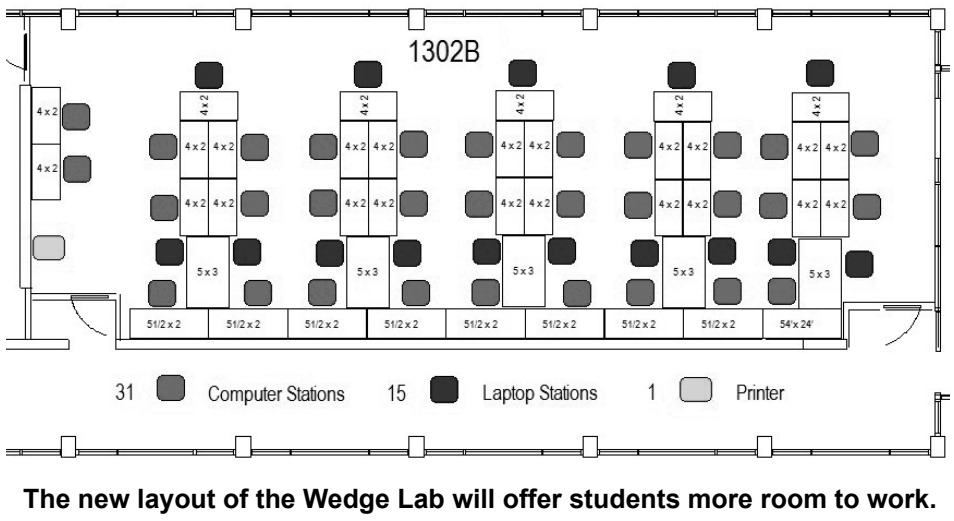
By now, almost everyone has noticed or heard of the construction activity going on at the Wedge Lab (E2-1302B). I investigated the matter by contacting Engineering Computing to find out more.

The new Wedge Lab is based on the flexible space and "laptop-friendly" concept now used in Pulley, formerly called GAFF, which *The Iron Warrior* reported on last summer. The concept means there will be a number of spots dedicated to laptop users, complete with power and wired network ports. As you might have guessed in passing the lab or from the figure on the right, it is also being extended right up to the glass windows that border the hallway through E2. The new lab will be equipped with 31 computers (newer ones, thankfully) and 15 laptop stations. To compare, our old Wedge Lab had four cramped rows of eight computers each; an official count of 32 machines (plus a couple of Linux boxes, which seem to have been retained and are included in the new count of 31). Granted, we don't seem to be getting any more machines, but the practice of unplugging lab computers to provide outlets for laptops is increasing, so 15 additional workstations should go a long way to reducing congestion.

To support your Engineering Computing experience, Wedge will use 19" widescreen monitors and the same plastic chairs found in Pulley. Personally, I like the more comfortable fabric kind in Lever and can deal with the tripwires that hold them in place (although I think they could be a bit longer so one could reach across the whole desk).

Regardless, it appears that the modular concept won out, so while your back may give out a little faster, at least you'll be able to re-arrange the furniture.

We may also get a whiteboard, but Engineering Computing is apprehensive following instances of "wall writing" in the old Wedge Lab.



The new layout of the Wedge Lab will offer students more room to work.

As for software, the lab will be running Windows XP. Engineering Computing plans to roll out Vista to an unspecified smaller lab later this year as a test run. I have got to agree with this; Office 2007 gives me enough problems on a daily basis (aside from being unfamiliar, that is) and it's been in operation since last summer. For those of you that run some of the more specialized Engineering software, there's no word yet on what will be deployed to the new Wedge machines. There are a large number of conflicts to be worked out when installing several applications (e.g. mechanical engineering analysis packages) on the same computer, so we will have to wait until opening day to see what's what.

I seem to recall rumours of a Wedge Lab renovation a couple of terms ago, and remember being disappointed to return from co-op to find the same old lab term after term. So why has it taken so long for construction to actually commence?

Engineering Computing acknowledges the delay, citing concurrent construction in CPH (asbestos removal, GAFF being renovated into Pulley, and Multimedia Lab work), and the condition of the E2 wing where Wedge is located.

Specifically identified are the lack of emergency power systems, chilled water lines, and other infrastructure needed to bring the area up to code. As a result, the originally proposed budget didn't cut it. However, after some apparent deliberation, it was decided that we really did need a new lab, so the upgrades were approved with the assistance of the Dean.

On a related note, a number of people have been asking when we are going to get the colour printer back. Essentially, the answer is that we aren't; at least not back in Wedge. After being moved from lab to lab due to renovations, the colour printer has found a permanent home in the Engineering Computing consulting office, and Wedge will be getting a regular printer instead. There are plans to make the colour printer accessible 24/7 through some kind of modification to the Engineering Computing office wall, but having not seen any activity on this front as of yet, I'm not counting on it anytime soon.

Speaking of soon, when do we get to use the new lab? Well, there are only a few certainties in life, and the Wedge Lab completion date isn't one of them. However, the work is tentatively set for completion by the beginning of May, just in time to lose the Lever Lab to the Engineering Science Quest (ESQ) for the summer. Helix and WEEF are also next on the list of labs awaiting a makeover.

Being only a stone's throw from the Lever Lab (where, by the way, I'm having all mail forwarded these days), I'll be sure to check out the new Wedge Lab when it's complete. Given the upgrades, it has the potential to be the best lab in the Faculty. I say this because while the Pulley Lab is now great, it's become brutally cold following its makeover (bring a touque and gloves if you plan to stay for any significant period of time).

Econ Prof Arms Future Entrepreneurs against Naysayers

OM PATANGE
2T NANOTECHNOLOGY

On Wednesday, February 27th, Economics Professor Larry Smith addressed a room overflowing with eager students about how the world will try to stop them from starting their own enterprises. Every seat was occupied, including those brought from a neighboring hall, and every inch of floor space was occupied by a standing listener.

The talk was the third in a lecture series being presented by the Laurel Centre for Social Entrepreneurship. According to the Centre's website, they aim to bring to students "engaging, forward-looking individuals who are innovators in entrepreneurship."

Smith opened the talk on a positive note remarking that the environment "has never been better" for entrepreneurs to flourish, citing greater public awareness of the importance of innovation, and a greater amount of resources available for entrepreneurial activities. However, he quickly moved on to describe the many ways in which the world is still a harsh place for new ideas.

The problem is not that the world is full of "idiots" – it's not, according to the eccentric and popular Economics professor – but rather that everyone is too busy. With hundreds of work related emails flooding their inboxes and habits hardwired over years of use, people are slow to change.

An excellent example given of this "survival technique" of not changing was provided by Smith. He noted that every term he sees students pick their favourite chair and occupy that location for the entire duration of the term seemingly getting a sense of security from the invariance.

It is a small wonder then, argued Smith, that people in their 30s and 40s dislike change, and are unwilling to pay attention to truly innovative thinking.

To battle this, the entrepreneur must work diligently to gain the attention of people. Even after this, the budding businessperson has to be wary of the rhetoric that the world will spew. The world will foolishly say that the idea is too new, too radical. If you receive a comment like that from Smith, you're on the right track. But as Smith noted, "I am too weird to be a representative of the world," meaning you can still expect the world to oppose you.

Giving a personal example of such stagnancy, Smith spoke of an experience he had with a renowned medical researcher whom he left unnamed. Representing an investment body, Smith approached the researcher with a proposal to fund entrepreneurial graduate students entering the lab and expressed that the investors would like to be actively involved in selecting the students. He was met with a hostile retort from the researcher: "Well, I don't want any graduate students who want to change the world."

"Nobody ever tweaked themselves into changing the world," explained Smith, advising students to "rock the boat." However, he was careful to mention that change cannot occur overnight. In fact, success in truly innovative ventures is likely to take many years. But, citing the colossal achievement of Garfield Mahood in mobilizing public opinion against the use of tobacco, he said, "Step by step, step by step, you change the world."

Thinking pragmatically, Smith armed the students at the talk with a series of counter questions to typical remarks that they will face when presenting a new idea. These remarks, he explained, will simply be the world's subtle attempts to stop you from succeeding. "They're going to torture you in many ways." For example, to the question of why an idea will not work, the reviewer might say, "We'd be doing it already," to which the student should reply, "When was it tried?"

Smith commented that he is tired of hearing from alumni that have lost the passion and enthusiasm they had as students and have settled into standard, non-exciting careers. He recommends entrepreneurs get started on their ventures as soon as possible before the world assimilates them. To drive the point home, he said, "Wine ages well, you don't."

Following the 75-minute long presentation, Smith took questions from the audience. Despite this, students flocked to him after the lecture was officially closed, and bombarded him with questions for two more hours – a regular occurrence at any lecture he gives.

The questions were generally of a practical nature. One student asked how the entrepreneur should pay the bills while their enterprise is in its infancy. Smith's answer was simple: with great difficulty and by living like a starving student. To bolster his answer, he gave the example of the early days of Research In Motion when the company was in such desperate straits it was not able to offer Smith a simple beverage at a meeting. Clearly, RIM is fairing better now, giving an example of what successful entrepreneurs have to look forward to.

Another questioner enquired about how to cope with the rapid success of non-entrepreneurial peers working for large corporations. To this Smith emphasized that the entrepreneur's attitude is key.

Beyond the success of peers, the entrepreneur will be faced with many other harsh circumstances, such as lack of immediate success and ridicule from the majority of the world. The only way an entrepreneur can hope to succeed is with a positive attitude and desire to change the world. In fact, Smith closed his lecture with the following words: "The only way you [can succeed] is with courage."

A video archive of the presentation can be found at the Laurel Centre's website at http://www.laurelcentre.ca/lectures_larrysmith.html.

Professor Smith is glad to help truly interested students. He did warn that there is a four-week waiting period to get an appointment with him, though he tries to address all requests before the end of the term. He will also be giving a lecture today (March 12) at 5pm in DC 1350 about career strategies, hosted by the Engineering Society and the other UW student societies.

Cultural Caravan: What UW is All About

SUNNY NG
3B COMPUTER

Last Tuesday, around 500 students crowded into the Student Life Centre to enjoy a night of cultural music and dance performances represented by UW students from all over the world. It was the annual Cultural Caravan event organized by Feds and it was an event unlike any other event on campus. With such a diverse demographic on campus, this was bound to be the hottest show in town. Really, how was I supposed to miss this?

In addition to performances, booths were set up around the Great Hall by various Feds cultural clubs to promote their cultures' food along with their traditions. Cultures represented in the booths included Aboriginal, Filipino, Indian, Polish, Serbian and Pakistani. "This event gives us the opportunity to get in touch with our roots," said Ian Ray Barcarse of UW Filipino Association. "We also get to learn about other cultures. Everybody has a story, no matter who you are. This is what ties people together, for us to integrate into one society."

The event turned out to be a great venue for the cultural clubs to promote themselves as well. "A lot of people came up to us today, and said that they didn't know a Polish club existed on campus! We are such a minority here!" said Krystyna Donafeld of UW Polish Student Association. The club was started just last year and their booth at the Cultural Caravan was the first time the club has gotten this much exposure. In addition to selling traditional Polish food in their booth, they also brought in a dance group performing Polish folkdance on the main stage. "[The Cultural Caravan] allows us to be proud of our own heritage. Hopefully the success of [this year's event] will become a stepping stone for more events like this."

While I was busy chowing down on some scrumptious Indian sweets and samosas, enjoying some homemade Serbian desserts, and getting my hands on some Polish sausage, there was a booth promoting something a bit more serious. "We're using this event for lobbying [against] and bringing awareness about [the issues regarding the independence of] Kosovo," said Natasha Stefanovic of UW Serbian Student Association, who had a separate booth dedicated to this current event. Pamphlets were given out at the booth; a petition against the proclamation of Kosovo as an independent country was circulating as well.

Meanwhile at the centre of the Great Hall, spectacular performances showcasing various cultures lit up the stage while the audience was packed with spectators. The 2.5-hour set included performances from 15 groups and clubs. From traditional European folkdances to traditional Asian ribbon dances, from salsa dances to various Caribbean-influenced dances, from Bhangra to modern hip-hop and from traditional Iranian instruments to Western-influenced ethnic music, each performance brought something unique to the table and was without a doubt, entertaining. Even technical difficulties, such as when the Association of Caribbean Students had to restart their performance twice when their CD skipped both times, couldn't stop the energy brought on by both the audience and the performers. Cultures represented in the show included Tamil, Vietnamese, East Indian, Iranian, Chinese, Bengali, Latin American, Serbian, Polish, Ismaili, African and Caribbean.

The Cultural Caravan was one of the many events held during what was known as the International Celebration Week. "We had a series of successful events leading up to [the Cultural Caravan]. Yesterday we showcased Aboriginal drumming and food, and earlier today we had an Open House for the International Student Office," said Feds VP Internal, Darcy Higgins. When asked about his thoughts on this year's Cultural Caravan, Higgins replied, "We had a really good turnout this year. It was more diverse this year and we had more clubs than we did before. This was definitely one of the greatest events for Feds."

"Tonight's event had the most people we've ever seen in the SLC, except for maybe Frosh Week," said Feds Events Coordinator, Christopher Tuckwood. "… when [the Froshes] were forced to be in here," he chuckled. When asked about how the event can be improved next year, he jokingly said, "You can't really improve upon perfection!" Tuckwood did mention how things could be organized a bit better next time, but overall he was extremely happy about how the event went this year.

Cultural Caravan was definitely an event that showed what UW is all about. With the overwhelming response of this year's event, it acknowledges that there is certainly a demand for multicultural events like this. Hopefully more efforts for similar types of events will pop-up cross-campus in the near future.

EWB Celebrates a Day of Orange

FOROGH ASKARI
2A CHEMICAL

On March 6, 2008, the University of Waterloo chapter of Engineers Without Boarders (EWB) launched their "Be Orange" campaign. Modeled after the successes of the "Be Green" movement, the colour orange is associated with three basic ideas. Firstly, making responsible and ethical consumer choices, second, taking appropriate civic action, and finally sharing socially responsible values at home and work. Being Orange means being socially conscious.

If you were anywhere near CPH, trying to make your way to your morning class you could not have missed the delicious scent of pancakes. The day started with a biweekly pancake breakfast (made with real fair trade chocolate chips) and proceeded to bigger and better things. With a very successful pancake sale, the group made their way to the SLC for their biggest event of the term. For those of you who have been around for a few years, you might recall seeing a group of insane individuals in bathing suits get soaked on a special day (EWB day) in front of the SLC.

This year many EWB volunteers were joined by the Feds Exec as well as the EngSoc Exec to put a twist on the original "Splash on Poverty." For a small price- a verbal socially conscious pledge- students faculty and the general public could soak these helpless individuals in orange coloured water (don't worry it was just kool aid).

Some of the socially conscious pledges included choosing to buy fair trade, telling a friend about fair trade, choosing to mail your MP and choosing to live off of $1 a day. "Splash on Orange" helped raise awareness of poverty and was a great event leading into the rest of the events planned for the day. Other events included a Be Orange Obstacle Course in which participants learned where the products they purchase come from and the impacts those consumer choices have on producers in developing countries. Another event was the Civil Action Panel Discussion, which featured alternative viewpoints from a variety of progressive student groups on campus.

Be Orange Day was a great start of the Be Orange campaign. If you missed out on this amazing event make sure to keep your ears open for other events held in the upcoming terms. EWB will continue with the Be Orange campaign and hopes to make this a national campaign. They certainly will not have any problems in that area since the 2009 EWB National Conference will be held at UW in January.

In the words of Ron Burgundy… Stay Orange, UW.

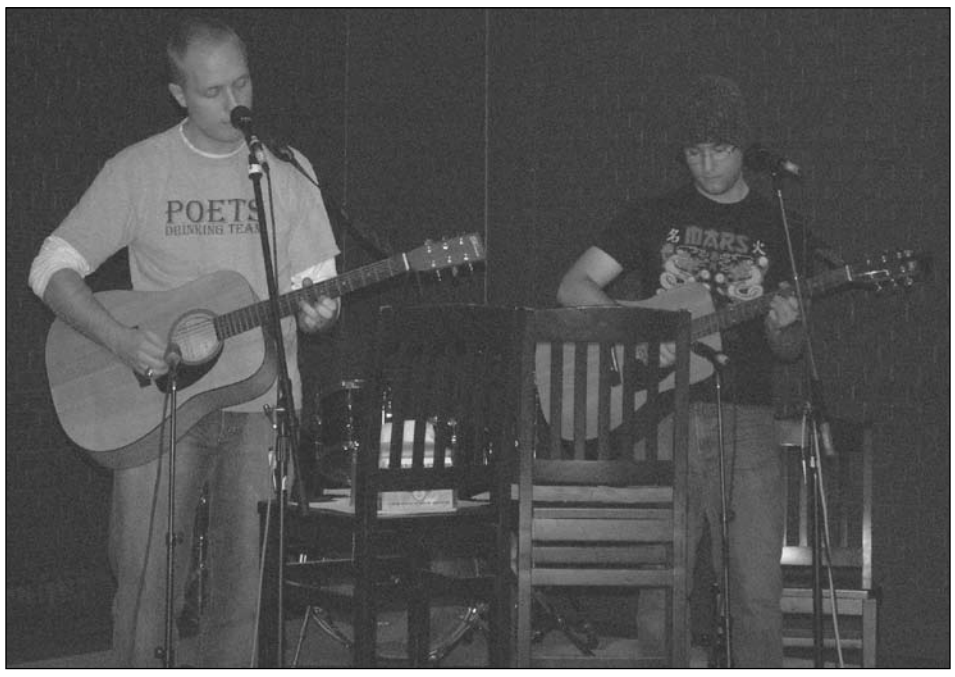
TalEng: The Terrific Termly Talent Show

STUART PEARSON
1B CIVIL

Where were you on the night of February 26th? Studying for midterms? That's probably what I should have been doing, but instead I went out to see TalEng, EngSoc's terrific termly talent show, and I do not regret my decision. Held in the Bomber this year, there was a relatively low turnout, but it contributed to a more intimate atmosphere and did not detract from the experience.

Taking a break from the musical portion of the evening, this term's WEEF TAs put on an interesting performance in the form of a puppet show based on Lord of the Rings. An impromptu power knitting and beat-boxing showdown between Katherine Olsen (2T Mechanical) and the night's emcee Nick Dyment (4B Mechatronics) was followed by the night's first audience participation segment.

Volunteers (and victims) were selected from the crowd to find scotch mints buried in bowls of whipped cream without using hands. The messy albeit incredibly amusing contest segued into a brief improve segment



Ann-Marie Winkler (4B Mechanical) kicked off the proceedings with her version of "Sex and Candy" by Marcy Playground. She was followed by two slightly inappropriate songs about STDs and sniffing of genitalia, in an homage to the virus-based theme from the Red Frosh Week group of last year. Adam Schubert (3B Electrical) and Jason Shirtliff (4B Computer) performed several amusing songs in the stylings of New Zealand folk-rappers Flight of the Conchords.

Bringing the show back to a more serious level and continuing the nineties nostalgia trip begun by Winkler, Ryan Rockwood (4B Electrical) sang and played several songs, including Live's Lightning Crashes, Tom Petty's Free Falling, and some Spirit of the West.

Rockwood's set culminated with a great performance of Starseed by Our Lady Peace. Bahman Hadji then climbed up on stage with a guitar to sing Adam Sandler's Somebody Kill Me, taken from the movie The Wedding Singer.

After his performance, The Tool arrived and the Toolbearers were given seats of honour in the front row. In absence of our mascot's usual musical accompaniment, several members of the night's crowd burst out into an a capella version of Back in Black.

that combined toilets, torpedoes, bus drivers and roller coasters for amusing results. Concluding the audience interaction segment was the provocative Egyptian Love Statue, where two victims (the "statue") onstage were manipulated into more romantic, awkward, and downright crude positions.

Finishing off the night was Thomas Scott, guitarist and lead singer of the local band Union of Lanterns, who performed some original material from his band. In continuation with the nineties theme, he closed the show with a pair of Oasis covers.

After some fervent audience debate, he settled on "Don't Look Back In Anger", rather than "Wonderwall", a song that seems to make its way into just about every coffee house gathering that this reporter has ever been to. The night ended on a high note, with most of the crowd singing along.

Was it a wise decision to go out the night before an exam? Probably not, but I had a fantastic time at TalEng, and in the grand scheme of things, that midterm probably won't count for much anyway.

Thanks goes out to the organizers, Jason Shirtliff and Mark Truchanowicz (4B Electrical) for putting the event together, and to the Nick Dyment, who did a great job of keeping the show moving in between acts.

ELeaT: The Former Frosh Leader Retreat

MICHELLE CROAL
2A CHEMICAL

The first Saturday in March was the first session of many for the rather incredible organizational feat that is going to be Orientation Week 2008. I attended both the first OLT session: You are Waterloo and the ELeaT (Engineering Leader Training) run by the Engineering FOC. The FOC (Federation Orientation Committee) is a group of 45 students from all the faculties and residences in charge of running all the major administrative planning and organization that goes on every year behind the scenes of Frosh Week. The Engineering FOC that hosted the ELeaT consisted of the SuperHuges (JD O'Leary and Matt Tse), the HEADCOMs (Brandon DeHart and Ross Ricuerpo) and the HighArchs (Meghan Galachiuk and Andrea Lam).

The session started with the unveiling (with a dramatic desktop drum roll) of the 2008 theme, much to the excitement of those present. I was going to say that's it top secret, but since it's now on the Frosh Week 2008 webpage anyway, I can probably safely give it away: "Toy Story"! And not just the movie, but all and everything from the great days when we were kids! An interesting aside actually, is that the incoming frosh will be mostly 1990 babies…The '80s are gone! The discussion of the 2008 theme also involved the addition of two new colour groups to the original ten, to reduce the group size and hopefully allow for more interaction between frosh. Leaders did an activity to help brainstorm themes for the individual colour groups, and don't be surprised if the pink group is Barbie or My Little Pony…

Brandon and Ross talked a fair deal about the schedule of the week, especially regarding some significant changes in events and timing. The biggest change is that the ELPE has been moved from the Thursday morning to the Wednesday, making a rather large break in the time scheduled for faculty events. The key point of this is that it is now even more critical for leaders to ensure that frosh are completely 100% impressed with the first day (usually Earn Your Hard Hat and Meet the Tool) to make sure they all come back on the Thursday (Junkyard Wars). There was also some discussion of possible changes to the Wednesday night mixer with the Math and CS students, as well as moving the Sunday Frosh Mentoring barbeque to Uptown Waterloo. It was also pointed out that most other universities have a large charity event during their orientation week, while Waterloo does not; a car wash idea on the Sunday for parents and families moving their kids into residence was presented.

Ross presented the various subcommittees that will be responsible for other aspects of the week that do not directly involve herding the sheep, I mean frosh, around campus. These included Video Production, The Book, Scavenger Hunt, Theatrics (New! Improved! Making things cool!), Food & Water and the Aerial Photo among others. For those leaders who were not present at the ELeaT to sign up for a subcommittee or two (or three), you can still email the FOC with what you would like to contribute.

The afternoon ended with the various leader positions splitting into separate rooms. I can't say what the Huges and EDCOM did, but as Bigs we spent some time brainstorming and practicing "filler games" to keep frosh entertained while waiting for events to happen. We also discussed what qualities make a good Big, namely enthusiasm, approachability, responsibility and that "they should be Big and not Huge!"

The second leader Non-Retreat will be held in the Spring term, (date to be determined) and will focus on additional challenges and planning of the week, such as Ramadan, colour themes and mascots. Subcommittee deadlines are also posted on the Engineering Orientation Week Website (http://www.eng.uwaterloo.ca/~foc/index.html) and leaders should also fill out requests for team members and nicknames as soon as possible. Orientation Week 2008 is only a short 6 months away!

Students Become Homeless to Raise Awareness

BAHMAN HADJI
4B COMPUTER

Three students from the Wilfrid Laurier School of Business and Economics, including former Waterloo Engineering student Evan Thor, have been living homeless on the Laurier campus with no access to showers and no money since Sunday, March 9th, at 5pm.

It is all part of a charity campaign called Five Days for the Homeless, meant to raise awareness about homelessness. The campaign started at the University of Alberta's School of Business in 2005, and has since spread to ten universities across Canada, from Vancouver to Montreal.

Thor and the other two students at Laurier are hoping that their campaign raises awareness and donations for homelessness in the Waterloo Region. They have been equipped only with a sleeping bag and a pillow, along with the clothes on their backs. They have to survive the cold nights sleeping outside, and can only consume food and drink donated to them by others. They cannot purchase anything, nor can they use the showers on campus to which they would normally have access. And all the while, they have to attend classes during the day and complete their assignments, which they may only do on campus computers.

The challenge is to see whether they can survive living like a homeless person until the campaign ends this Friday at 5pm. Their campaign's fundraising goal is $5000, which is to be donated to the Kitchener-Waterloo ROOF (Reaching Our Outdoor Friends) and Cambridge's Argus Residence for Young People – both organizations which seek to ease the plight of the homeless in the Region of Waterloo.

If you'd like to make a donation, there are donation boxes located in the Engineering Society Office and the EngSoc C&D. The website also contains a blog maintained by the Laurier students highlighting their experiences being homeless each day.

ENGINEERING SOCIETY EXECUTIVE REPORTS

Presidential Report

TYLER GALE
PRESIDENT

From the intellectually inspiring, dazzling Genius Bowl to the sparkling, scintillating Bus Push, the Engineering Society will be hosting a LOT of events over the next couple of weeks, as we enter to "eye of the storm," of the term, so to speak... Definitely read on to the other executive reports, and check out our various calendars (for example, www.engsoc.uwaterloo.ca) and be sure not to miss out!

February 27th was host to Engineering Society meeting #3, and the official announcement of a by-election or the vice president Internal position. Since then a Chief Returning Officer has been selected by the Society Executive, and the Nominations period has opened and come to a close (having closed March 10th). Since I am writing to you from the past, I am not yet sure of the results of the nominations, but I predict that they are as provocative and luminous as one could ever hope. If an election is being held (i.e. two or more nomination forms have been submitted), it will take place March 18th. This by-election was put together quite rapidly to minimize its impact on regular society affairs.

Society meeting #4 was held Wednesday March 5th. This was by far the busiest meeting of the term. For the first time in Society History there was leftover food at the end of the night, which was donated to the Oasis Soup Kitchen in downtown Kitchener, and received with enthusiasm.

If you are reading all of these reports about events and feeling a little out of the loop, that I probably because you are not registered on the Engineering Society mailing list. This I the default mechanism that the executive and directors use to contact society members with event, service, and other student life related announcements. You can subscribe to the Engineering Society mailing list by sending an email to engsoc_a_general-subscribe@yahoogroups.com. While we try endlessly to reach students through as many mediums of advertisement as possible, a lot of information is passed on to engineering students only through this mailing list.

VPF Report

ADAM MELNIK
VP FINANCE

As I retire from shoveling snow for the third time this weekend, I stare in awe at the six foot banks I have created adjacent to my sweet set of wheels. Isn't life grand atop the great Algonquin Arch? It is amazing to think that this region of Ontario was once covered in hundreds of metres of ice. This concept may lead you to ponder – have we reversed the trend of global warming? Is it time for a second Little Ice Age? I would encourage you to engross yourself in historical data by subscribing to the University of Waterloo Weather Station Newsletter at http://weather.uwaterloo.ca/. History may surprise you! Make sure to check up on the local weather by using the University of Waterloo Weather Station as well.

Getting right down to business I would like to extend a thank you to all the teams, clubs, and groups who submitted Donations Proposals. It is my full belief that the funds donated will be put to good use enriching the lives of the Engineering student body. Make sure you keep your heads up and ears wide open for announcements regarding lecturers hosted at the University by the Waterloo Space Society. Stay informed by checking out http://www.spacesoc.uwaterloo.ca/!

In other news, make sure you get your Novelties T-Shirt Design Competition submissions in! The top prize of $100 and free t-shirts for the top three designs is exorbantly attractive. Get creative!

The remainder of March is busy not only academically, but also socially! Make sure you check out Bus Push, Genius Bowl, Archineering, and the upcoming Larry Smith lecture!

Prepare your armour and sword as the world closes in on finals and best of luck securing employment.

"Remember, wherever you are and whatever you're doing, it's only the beginning."

– Don Berns

VPX Report

DAVE HALFORD
VP EXTERNAL

Hello everyone, we have a busy weekend coming up so I am going to do a point form report to keep it as short as possible.

1. Bus Push is this Saturday, March 14th. Pledge forms are available in the Engineering Society Office and we will be meeting in CPH Foyer at 9:30 am for the event. The event will benefit Sleeping Children Around The World. www.scaw.org

2. "Archineering, The Last Slice", our joint event with Architecture is happening this Friday. The event will be a battle of the bands and party in Cambridge. Buses will be leaving from the DWE cull de sac on Friday at 6:45 pm. A sign up sheet is on the Orifice door and admission is a non-perishable food item.

3. Friday is Pi Day!

4. ESSCO (The Engineering Student Societies Council of Ontario) is holding their annual general meeting in June and elections will occur for their executive positions at this meeting. If you think that you might be interested in running for one of these positions come talk to me or visit www.essco.ca

5. If you are interested in participating in "From Classroom to Corporation", a Complementary Education Course being held at Dalhousie University in Halfiax, during August applications are now open. http://www.cfes.ca/CE.html

VPI Report

LEE ANNE BELCOURT
VP INTERNAL

There's one month left of classes, which is a ton of time to have fun before exam season arrives. The next couple of weeks are going to be full of events happening on all fronts. Campus Day and Explorations took place earlier this week and the amazing Genius Bowl is taking place tomorrow (Thursday, March 13th) at 6pm in DC 1350. You can sign up just outside the Orifice or send the directors an e-mail to sign up a team of up to five people. Athletics is having a dodge ball tournament on Sunday, March 16th, and they hope to see lots of teams signed up to take on the challenge of becoming the new champions. Another Enginuity event will be taking place during the week of March 17th as well. As many directors are now finished with their events, we will be starting to approach directors with the information necessary to update details for the EngSoc Wiki as well.

The time is ticking away to get working on your proposal to become the new organizers of Scavenger Hunt. The application questions are on the website and they must be in by next Wednesday. I would like to emphasize that this is going to be a great opportunity to give the event a whole new personality and bring it back to its previous grandeur and awesomeness. You will have the opportunity to present your creative new ideas at the society meeting on March 19th with a medium of your choice.

Also, nominations were opened for my position for the Fall 2008 term. I have decided to apply for an exchange at Braunschweig in Germany and will not be able to be quite as helpful on the other side of the Atlantic.

I am going to stay in contact with the individual who takes my place and provide as much support as possible via e-mail. It is going to be difficult to leave my awesome co-exec, but I know they will all pull together as a team without me and continue to do a great job.

VPEd Report

JEFFREY LIPNICKY
VP EDUCATION

Debt load surveys have come and gone
The results will come in the next issue.
I was splashed with water outside
And now I need some tissues.

The past few weeks
have been quite slow,
So I don't have that much to write.
That is why this issue's report
Is very poetic and bright.

Not much has changed with PDEng
But hopefully it will soon.
We should be able to give input
So be sure to stay tuned.

We are nearing the end of the term
So it is time to critique.
Make sure to go to your classes
To fill out the sheets.

That's all I have to say
This fourth time around.
I hope that you have enjoyed
This poetic sound.

The End.

POETS

MOVIE SCHEDULE

SHOWINGS BEGIN AT NOON

Wednesday **Mar. 12** **War** Band of Brothers Miniseries	**Thursday** **Mar. 13** **Animated** Family Guy Movie Simpsons Movie South Park Movie	**Friday** **Mar. 14** **Guess the Theme!** Superman Returns Taxi Driver Ghostbusters	**Monday** **Mar. 17** **French** Amelie Le Triplets de Belleville The Pink Panther	**Tuesday** **Mar. 18** **Fish** Jaws Finding Nemo Big Fish
Wednesday **Mar. 19** **Spielberg** Close Encounters of the Third Kind Jurassic Park E.T.	**Thursday** **Mar. 20** **Guess the theme!** Shawshank Redemption The Great Escape Oh Brother Where Art Thou	**Friday** **Mar. 21** **Monty Python** The Meaning of Life The Holy Grail The Life of Brian	**Monday** **Mar. 24** **Piano** The Pianist Amadeus Shine	**Tuesday** **Mar. 25** **Robin Hood** Robin Hood: Disney Robin Hood: Men in Tights Robin Hood: The Movie

An Orange and Green Competition for Canada

Canadian Engineering Competition Returns to UW

FARAZ SYED
4B CHEMICAL

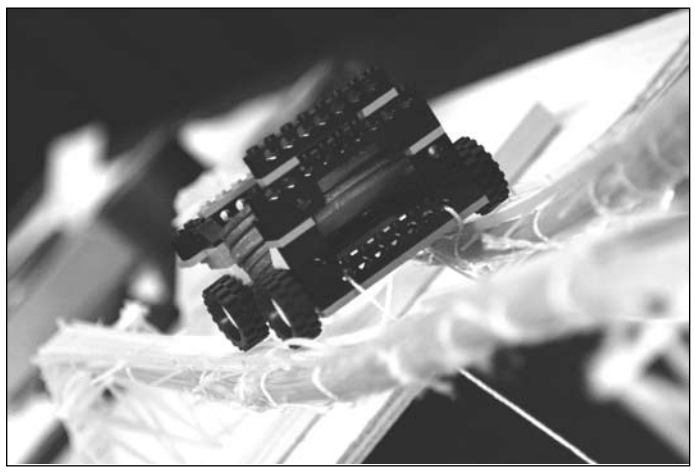
The University of Waterloo played host to Canada's most innovative and creative students last weekend, who were here to compete in the prestigious Canadian Engineering Competition. The top-placing teams from four regional Engineering competitions were invited for this final showdown.

The 24th annual Canadian Engineering Competition drew approximately 160 students. From Friday to Saturday, the teams competed in one of six categories: Consulting Engineering, Engineering Communication (a technical speaking challenge), Debate, Innovative Design, Senior Team Design, and Team Design. In each challenge, competitors were encouraged to make use of engineering techniques learned in the classroom.

Since the theme of this year's CEC was "Designing Global Change", the competitions were also encouraged to be mindful of social, economic, and environmental factors in their solutions. Explaining the theme further, competition organizers noted, "Design is a proactive process. It is only by taking action that we can truly make change happen."

From a desire to go the extra mile and live out the spirit of the competition's theme, the organizers made special efforts to ensure that the event itself minimized its environmental footprint. This year's CEC was a carbon neutral event. Through careful planning and the help of sponsor Loop Initiatives, the organizers reduced consumption and waste by sourcing products that are environmentally and socially responsible and by offsetting any emissions which were not mitigated.

"We are really excited to expose 160 of the most innovative and creative Engineering students in Canada to the serious environmental challenges we face, and the latest techniques to mitigate them," said Kelly Henderson, CEC VP Finance and a fourth-year Civil Engineering student. "We are walking the walk of our theme, 'Designing Global Change', by making the competition environmentally and socially sustainable."



A weighted lego car gives a bridge a test run

"The most important thing we've learned from going carbon neutral is that it's much easier than it sounds," added Philip Newman, CEC VP Communications and a fourth-year Systems Design Engineering student. "The hardest part was to educate ourselves about the techniques. Once we got started, we found it was easy to reduce waste at most of the stages of the competition."

The inaugural CEC was held at the University of Waterloo in 1985, bringing together Canadian Engineering students for the first time to compete in such a framework. Now there is hope that CEC can spawn and inspire a similar International Engineering Competition. The International Engineering Competition (IEC) is a joint project between the Canadian Federation of Engineering Students (CFES) and its official partners: the Board of European Students of Technology (BEST), and Bonding, a German student initiative. This project has been developing since 2006, and it is expected that the first IEC will take place in May of 2010.

As an important first step in developing the IEC, this year's CEC invited two European teams from BEST and Bonding to compete. The BEST team competed in Senior Team Design, and was composed of four students in Engineering and the technical sciences from Spain, Latvia, Portugal, and Greece.

The Bonding team competed in Consulting Engineering, with team members from the cities of Erlangen and Dresden in Germany. Organizers hope that exposure to CEC will help kick-start the planning of IEC. Interestingly enough, none of the BEST team had met before the competition. This created another challenge for the team, since all had to compete in a language that was not their mother tongue.

CEC 2008 RESULTS

Senior Team Design
1st place: Queens University
2nd place: Dalhousie University
3rd place: Concordia University

Team Design
1st place: University of New Brunswick
2nd place: Université de Laval
3rd place: Université de Moncton

Consulting Engineering
1st place: University of Saskatchewan
2nd place: University of New Brunswick
3rd place: University of Toronto

Engineering Communication
1st place: University of Saskatchewan
2nd place: Simon Fraser University
3rd place: École Polytechnique

Innovative Design
1st place: University of Victoria
2nd place: Queens University
3rd place: École Polytechnique

Extemporaneous Debates
1st place: University of British Columbia
2nd place: University of Waterloo
3rd place: University of Western Ontario

Petrie Award for Technical Excellence
Concordia University

Senior Team Design
Teamwork
Université de Sherbrooke

Innovative Design
Environmental Awareness
University of Saskatchewan

Consulting Engineering
Social Awareness
University of Guelph

Engineering Jazz Band Travels to Toronto

SUNNY NG
3B COMPUTER

On the night of Friday, February 29th, the engineering jazz band, With Respect to Time, drew a crowd of near 100 students in the Student Life Centre for its first gig of the term thanks to its aggressive advertising across faculties. It wasn't just any gig either, it was part one of what was known as the Engineering Music Exchange, where for the first time ever, our band and the two stage bands from University of Toronto Engineering came together to play at the same show.

The show was scheduled to begin at 6pm with the U of T bands playing first. But due to the bad traffic between Toronto and Waterloo from the snow storm, the U of T bands did not arrive until later in the night. As a result, With Respect to Time was forced to open the show early and play longer than scheduled in order to keep the crowd entertained while waiting for the other bands to arrive. The band exhausted its setlist and played for over 90 minutes including some of the crowd's favourites such as "The Chicken", "September" from Earth, Wind & Fire and "Celebration" from Kool & The Gang. The band received great responses from the audience and even got requests from the audience.

The U of T bus finally arrived at the Student Life Centre a bit past 9pm as their bus ride took over 5(!) hours to get to Waterloo! After quickly setting up, the U of T Skule Stage Band Blue and U of T Skule Stage Band took turns to hit the stage to entertain the remaining crowd at the SLC. The two bands showed that U of T engineering students definitely have musical talent and are not afraid to show them with one breathtaking solo after another. The two bands played a set lasting almost 90 minutes and incorporated different types of jazz pieces. During their set, they even played the theme from Family Guy and "Maniac" from the film Flashdance.

This past Friday evening, the Engineering Music Exchange was completed with a visit from With Respect to Time as they perform at the U of T engineering pub, Suds. Thankfully, unlike U of T's visit to UW, the band was not plagued by traffic or the weather. After performances from the U of T bands, With Respect to Time stepped up on to the stage and brought on another solid performance, which was well-received by the audience. Conductor Gabriel Chan kept the crowd amused by introducing each piece with a corny joke. After the 2-hour show, the bands from the two schools continued to mingle and socialize at a nearby pub to share experience and thoughts of playing music as well as other subject matter.

The band members of With Respect to Time don't quite a get a break as they continue to prepare for upcoming performances leading up to their big end of term charity gig:

* Tuesday 3/11: March Break Open House at RCH 101
* Friday 3/14: Arts Gala at Waterloo Inn
* Tuesday 3/25: Feds Volunteer Appreciation Night at Fed Hall
* Friday 3/28: Warrior Weekend at SLC Great Hall
* Tuesday 4/8: End of Term Charity Gig at Hagey Hall

To get the latest scoop about With Respect to Time and to find more about their upcoming events, check out www.engjazzband.com.

Root Cause is Student Engagement, Profs Suspect

COMPLEX ISSUE
Continued from Page 1

"We are responsible for holding students to account." Countering my suggestion of lower standards, Professor Chaudhuri suggested, "If my students in the 80s could do assignments, my students now can too . . . . Perhaps these students can serve as an example. First year should be tough. It is in everyone's best interest to find out if they are cut-out for Engineering at Waterloo . . . . Upholding [the] gold standard is a sacred duty."

Chaudhuri suggested I follow up my investigation of changing student attitudes with his teaching colleague Rohan Jayasundera. On his suggestion, I sat down with my two-time former Physics professor, who teaches Physics 115 and Physics 125 to hundreds of Engineering students in several disciplines every year.

Rohan is a tireless instructor: the kind of teacher who insists on a mutual first name basis with his students, whose lectures overflow, every seat filled and more students sitting on stairs in the aisles. Rohan personally teaches regular extra evening and weekend tutorials for difficult concepts and exam review.

When asked about some of the recent classes he has taught, he replied with visible displeasure. "There is a bi-modal distribution," he said, referring to the odd two-humped distribution that sees two normal distributions exist below and above the mean. "There are some students who get it – they do well. It's wonderful. I hate to say it, but some others have poor attendance, poor attitude . . . . The students are different – parents are more involved (appearing at student-professor consultation hours) and students come to my office hours less."

With regards to the weaker groups, Rohan suggested that "maybe the similarity of some other first-year courses lectures and midterm to high school formats is misleading. They expect the same thing from physics. Some of the students think, 'F=ma' – I have seen that, [so] I don't need to bother." But anyone who has taken one of Rohan's midterms knows that Newton's second law is worthless without understanding the fundamental concepts which must precede the equations. "Physics is most of all problem-solving . . . . We teach you to think; that is the key."

"It is a complex issue and it will take a complex solution to address it."

"Waterloo is facing increased (financial) competition for top students . . . . There are two new programs which means more spots for about the same number [of top students]," he said, offering further insight into the possible origin of this problem. I asked Rohan about his plans to improve his own teaching. "Basically retrenching . . . changing exam and lecture formats, finding new motivational strategies. We did a teaching retreat with Walker (the textbook author). We need quality of teaching not quantity of teaching. We need to engage students by making everything more difficult . . . force students to think about things, to learn instead of memorizing."

Rohan reported these opinions to the Dean's task force. He mentioned Wayne Loucks' activities in looking at concrete statistics for possible explanations.

Professor Opal, the chair of the Dean's task force, was unavailable for comment, but I did meet with Professor Loucks, the Associate Dean of Undergraduate Studies, to discuss the task force's efforts in more detail. He summarized their activities: "We're looking at answering . . . how many students are failing for reasons that [the University] can help? With the existing pool of first-years, and quality teaching resources, what fraction could go on to become good engineers?" This resonated with sentiments expressed by Rohan and Professor Chaudhuri.

Professor Loucks was reluctant to release any actual statistics before the task force presented its interim report to the Dean. He did say, "GenE 119 (the optional extra help tutorial for struggling first-years) used to be very successful in previous years, but not anymore . . . . It is a question of engagement [of students]." I asked whether the new curriculum was to blame. "Our numbers show no conclusive split between OAC and OSS . . . for the Fall 2003 class," he said, comparing the two cohorts that entered that year. Asked whether admission policies had been changed (potential cause) or would be changed (potential solution), Loucks replied that "no connection has yet been established."

"Right now we're looking at everything . . . even promotion rules are on the table," the Associate Dean went on to say. "It is a complex issue and it will take a complex solution to address."

On a personal level, I want Waterloo to continue to be an outstanding centre of research, innovation, and academic excellence because part of the value of my degree is the reputation of the institute that granted it. So, on one hand, it is reassuring to know that this issue is being looked at from all angles by passionate educators. On the other hand, it is disheartening to see secrecy surrounding a problem like this. The University of Waterloo is a business; perhaps this kind of evasion and secrecy should be expected to some degree. At the same time, the world of academia is built around a freer exchange of knowledge than business.

Through colleagues at other schools I have heard of similar trends at most of Ontario's major Engineering schools. Like Waterloo, few of them are willing to acknowledge or publish statistics about the severity of the problem.

That may start to change as public awareness of this trend improves. An article entitled, "Universities fight to stop first-year flameouts" was published in the February 20, 2008 issue of *The Ottawa Citizen* revealed the findings from a University of Manitoba study saying that 25% of high school students with A-averages in high school face being kicked out of universities in first year. Perhaps that article and this one will contribute to greater publicity and a greater public discussion.

I urge first- and second-year students to take an interest in university administration. For me, this problem is less relevant because I am on the *verrrrge* of graduating, as Rohan might say. If the University is a business, then you are its customers. You must actively demand the best education UW can offer. A word of caution however, the best education from UW will demand the best from you as well.

"Designer Diseases" Prone to Gender Bias

JON RADICE
2A CHEMICAL

Every Sunday, I partake in one of my most enjoyable endeavours of the week; sitting on the couch and timeshifting, so that I can watch The Simpsons for about six hours straight. This often leads me to different channels in different parts in Canada, with many unfamiliar commercials accompanying them. One commercial riled me from my stupor, a quaint little ad from Bacel Margarine and a new charity they were promoting. "Heart disease is the number one killer of women in Canada," proclaimed a motherly character, promoting the wearing of a red dress to a local event to raise money for women's heart disease. As innocent as that statement sounds, there is a small flaw in the whole commercial. According to the Heart and Stroke Foundation, heart disease is the number one killer of *everyone* in Canada, regardless of age, culture or gender.

But why would the people at Bacel market a charity towards women, when the problem could harm any of us equally? The fact is, disease, just like everything else, can be, and is, marketed in order to obtain the largest amount of donations. However, this causes more 'unmarketable' diseases to slip under the radar of public knowledge when they in fact can be equally deadly. Additionally, it seems that when it comes to promoting a disease, a woman is a marketer's best friend

The best example of this is breast cancer, which is the #1 cancer affecting woman today. The numbers show the sad reality: the Canadian Cancer Society reports that 22,300 women were diagnosed in 2007, 5300 deaths, and a shocking 1 in 27 women will die from it in their life. Because of these dizzying numbers, we have countless fundraisers: charity walks, pink ribbon donations. They even had a month designated for it, with October as breast cancer awareness month. However, lurking in the shadows of breast cancer is male-menace prostate cancer. The Prostate Cancer Research Foundation of Canada tells an eerily similar story: 22,300 men diagnosed in 2007, 1 in 27 men will die from it, and a staggering 1 in 8 Canadians will develop prostate cancer in their lifetime. If there was the same amount of attention and resources given to prostate cancer that breast cancer received, I would guarantee that the rate of deaths would drop to a much lower rate due to the increase in early diagnosis and responsive treatment. It seems when it comes to dishing out money for specific disease, women are the better gender.

And why shouldn't they be? Society still views women as the more caring and kind gender. They're our mothers, sisters, daughters and wives. Marketing agencies love to play the sympathy card when focusing on disease-- these are people that you care for, and without your impending cash contribution, they might not make it! Hearts tugged, pocketbooks open, we're ready to give to the warm and fuzzy ideal given by the advertisers. All the while equally deadly, yet less marketable diseases are pushed back behind the curtain to be forgotten.

Biomedical Innovations to Improve Lives of Future Generations

SCIENTIFIC DEVELOPMENT
Continued from Page 1

Dr. Tai's journey into the field of MEMS was precipitated by a need that a medical colleague had identified where patients were going blind because of damage to their retinas, while their optical nerves still functioned perfectly. Dr. Tai had the technical background to recognize an opportunity for the development of prosthetic retinas delivering electrical stimulation to the patients' ready and waiting optical nerves.

His work trying to develop an electrode array small and flexible enough to fit inside a human eye led Dr. Tai to lay the groundwork for MEMS technology. When asked about the future potential of MEMS and lab-on-a-chip technology, Dr. Tai commented that this area has huge potential because it is "very fundamental technology solving a very big problem".

Kris Shah, one of the industry speakers, gave a very interesting talk entitled "Medical Devices: From Concept to Standard Care". Shah is a UW alumnus with a degree in Electrical Engineering and is currently the Vice President of Baylis Medical Incorporated. To illustrate the steps that a new technology must pass to become a practiced medical therapy, Shah used a case study of a pain management technique recently developed by Baylis Medical. In order to alleviate chronic back pain without resorting to invasive surgeries, which can actually worsen the situation, Baylis' technique involves inserting two electrodes into the patient's spine (in this case a diseased disc) and using heat to ablate (remove) the nerves transmitting the pain signals to the patient's brain.

Shah's presentation highlighted the need for perseverance and forethought in the medical industry as it takes at least 6 to 7 years to get a medical device to market. Shah also emphasized that as a biomedical engineer one needs to understand the full spectrum of activities from conception to development and eventually to marketing the new therapy.

Raphael Ronen gave the second technical presentation on the basics of intellectual property (IP). Ronen graduated from UW's Systems Design Engineering program in 2003 and received his MSc from the University of Western Ontario in Medical Biophysics. He is now a Commercialization Manager for The Innovations Group at the University of Toronto.

Ronen talked about his work turning biomedical innovations into marketable products. Ronen's insightful lecture presented a basic guide to important IP and patent factors that anyone developing any new product would be interested in. Ronen presented several case studies of patentable and unpatentable ideas that he has come across and also briefly talked about getting approval from regulatory bodies such as Health Canada and the FDA.

The two technical presentations were given by Dr. Trevor Charles, from the Department of Biology here at UW, and Dr. John Parkinson, from the Hospital for Sick Children at the University of Toronto.

Dr. Charles gave an inspiring talk about the future of biodegradable plastics. He started by informing us that funding for biotechnology is being diverted from medical areas and focused on agriculture and projects aiming to lessening our dependency on fossil fuels. The technology presented by Dr. Charles was biodegradable thermoplastics that can be grown inside bacteria and then simply melted and formed as with any other thermoplastic. By understanding the processes that allow the bacteria to create the plastic and the processes by which the plastic is later decomposed, scientist can "engineer" useful biodegradable plastics. The question of energy input into the system was raised, and it turns out that the bacteria can be fed the waste products from bio fuel production, which are at the moment plentiful.

Dr. Parkinson talked about his research applying computational methods to advancing the understanding of how proteins are organized and function within the context of bacterial pathogens and parasites. The ultimate goal being to use the vast amounts of genome data to design drugs based on the insight this gives us.

Waterloo's iGEM team also gave a brief presentation on the iGEM contest (iGEM.org) and their project for the competition. iGEM is a competition with the goal of enabling "the systematic engineering of biology". The competition was started when someone realized that students have a lot of time on their hands and are generally willing to attempt impossible things. The iGEM competition provides student teams with a catalogue of genes with known functions and the teams are left on their own to come up with interesting things to engineer their microorganisms to do. The competition sees teams competing from literally every corner of the globe.

Waterloo's team (composed of members from Science, Math, and Engineering) decided to build a binary half-adder with their bacteria, and they are thinking of expanding this to a full-adder for future competitions. The eventual payoff could be drugs that react to the conditions in the patient's body based on a pre-programmed algorithm. By building logical operators the team hopes that biologists will one day be able to tap into the vast amounts of experience and mathematical proofs that have been developed for use in electronics.

In the middle of the symposium delegates were given a chance to mingle and investigate a gadget showcase and to participate in a workshop. The workshop was to assemble defibrillator testers out of simple electronic components. The tester will be sent to Engineering World Health, which will test and distribute them to third world countries. The testers will then be used to ensure that defibrillators being used are powerful enough to start a human heart without injuring the patient.

The gadget showcase included several booths demonstrating biotechnology research in and around the University of Waterloo. One of the popular demonstrations was a GPS navigation system designed for the blind, which was presented by Tactile Sight Inc. (www.tactilesight.com). The device, which is worn as a belt, uses vibrating signals to direct the user to their destination. This was a popular booth as delegates were encouraged to try on the device, which in display mode indicates north.

The evening concluded with dinner catered by food services and a display of graduate students' posters. While most of the posters had titles that I couldn't even try to pronounce, let alone comprehend, it was clear that biomedical projects are not limited to any one discipline as there were many projects from Electrical Engineering students. A number of the projects made use of the unique properties of carbon nanotubes to perform various tasks.

Spending Reading Week in the Cold

MATT COLAUTTI
4B MECHATRONICS

Reading Week, still a relatively new concept for us engineers, is a time to enjoy the one thing we all deserve more of: time. But two weeks ago, while lost in a blizzard in the remote high peaks of upstate New York, time - the bringer of night, cold, and failed excursions - was our enemy.

The trip had been going incredibly well so far. We'd kicked off Reading Week with a painfully early morning after IRS to arrive in New York City before dark. In the next two days we walked through almost every neighbourhood of Manhattan, got lost on the subway, and even devoured a deli sandwich. We did the quintessential: a Broadway musical, Central Park, Letterman, a Starry Night, the Brooklyn Bridge. Imagine eight collective sighs of relief when we crossed back into Jersey to find the cars safe in the commuter lot where we left them.

The second part of our trip brought us into the Adirondack Mountains of upstate New York. A giant federal park, the glitz of the city wore off quickly as cell coverage died and snow-capped hills rose up beside the road. We skied the highest vertical on the east coast at Whiteface, home of the 1980 Winter Olympics, and the mountain is nicknamed Iceface for good reason, as we were plagued with closed trails and icy slopes. But our merry band of 8 travellers prevailed, eating ham sandwiches in the speedy gondola, trying to capture terrain tricks on camera, and sneaking onto unmarked routes. One night we found a little Italian pizzeria in town and enjoyed the closest thing to a home-cooked meal all week.

When we began planning the trip back in January, the motivation was to go on a grande adventure that was close and didn't cost a lot. This translated to a hike up Mount Marcy, the highest peak in New York State at 5344ft. We were allured by the challenge, though none of us had any winter hiking experience. How hard could this walk really be? Snowshoes were rented and compared as packs were crammed with too many creature comforts. On Thursday evening we arrived at Grace Camp, a remote propane-heated cabin 3 miles from any road, 6 miles from the summit.

A storm had hit Missouri earlier that week, crippling all air traffic and transportation. Little did we know as we donned our chilly gear early Friday morning that the same storm was hitting the Adirondacks. We made great time, traversing the first 5 miles of relatively flat trail in a few hours. There's something very tranquil about snowshoeing through the forest, the tall trees sheltering you from the wind, sun, and any noise as snow softly falls in all directions.

As the elevation rose, the snow started to get deeper and the trail markers got harder to find. Wrong turns were corrected. We were still relatively warm, as it took a good deal of effort to ascend the powdery snow. Then we got through the treeline and all hell broke loose.

Suddenly, there were 100 km/h winds that knocked us down. Snow was everywhere. Freezing. You could barely see the person in front of you, let alone any of the surrounding terrain. But we were only 500 ft from the top so we kept walking up, fingers, water, noses arching with cold. Marcy threw everything she had at us, but

hands triumphantly at the top.

It might have been the lack of visibility, or the little mountaineering experience, or the cold, but we took a bit of a wrong turn on the way down. Nothing looked familiar. At one point, we were halfway down a gorge, realized we would end up in the wrong place, and had to climb back up. Fear began to gnaw at us as we did the math: it was only 12:30pm but the lodge was at least 5 hours away. Newspaper headlines flashed across our heads, memorials for the 8 UW students who tackled something that was out of their league.

It was a scary 45 minutes before we found a huge rock that we recognized, and logic and careful decisions eventually helped with over a foot of snow making it almost unrecognizable. Elation. The rest of the tired descent went without much incident. We made it back before dark to delicious spaghetti and warm beds. We hiked out the next day under blue skies and drove home.

Consider the many possibilities next Reading Week, and make it count. This trip proved that you can do an incredible number of exotic things without a whole lot of money or time. All you need is a vision, and the strength to stay calm and push through if things go awry. With one high point under our belts and some new skills and confidence, we can only enjoy the pictures and stories until another week-long break comes our way.

POINT VS. COUNTERPOINT

Should you Support Fair Trade?

POINT

BEN BEST
3B SYSTEMS DESIGN

Increasingly in Canada, people are asking themselves 'What can I do to become a better global citizen?' There are many different ways to get engaged as a global citizen, and supporting Fair Trade is one of them. Fair Trade is a consumer choice that each of us can make on a day to day basis that ensures small scale farmers in developing countries have financial security, safe working conditions, and gives communities the opportunity to invest in the infrastructure that will allow them to become independent of foreign aid.

Small scale farmers in rural Africa simply don't have the same market, or credit access that we do in North America. Farmers spend their entire rainy season (4 months) working 8 hours a day in a field, tilling the land, planting, weeding, weeding some more, and finally harvesting their crop at the end of the season. Much of the minimal profits that they receive from this labour-intensive process get lost to paying back loans that were necessary to buy the inputs (seeds, fertilizer, etc.) that went into producing their crops, and to middlemen due to the lack of access to export markets. Fair Trade ensures that farmers receive advance payment for their crop inputs, eliminating the profit loss to creditors who often charge unfair rates. The Fair Trade system also gives farmers a guaranteed price for the goods, so they aren't vulnerable to wildly fluctuating global market prices.

This is where the most common criticism of Fair Trade comes into play - doesn't a fixed price for commodities undercut the entire idea of a market economy? The answer to this question is complicated, but lets look at the scale of the problem for just a moment. According to FLO, the Fair Trade market was just over $US 1.5 Billion in 2005. Compare this to the fact that Western farmers are subsidized $US 1 Billion per day. If free market economists want to start somewhere in their criticisms of current trade policies, they should begin with the huge distortions caused by subsidies to comparatively rich, Western farmers before picking on the poorest of the poor in a market that is two orders of magnitude smaller.

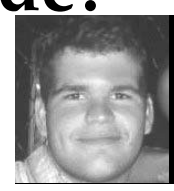
Farmers working in industries such as the banana industry and cut flower industry are often exposed to terrible working conditions. Over 280 pesticides are approved for use in banana cultivation, and the cut flower industry uses an order of magnitude more pesticides and herbicides than conventional agriculture. The labourers in these areas are often uneducated men and women with no concept of the health risks associated with the chemicals they are working with. Pregnant women often work 10 hour days in these conditions, leading to unhealthy and abnormal births. Fair Trade works to end these types of labour conditions by ensuring safe working conditions and safety procedures, as well as giving workers the basic right to assemble to speak out against any unfair practises that may come up. By supporting Fair Trade and the inspection and certification of the farms where their goods are coming from, Western consumers can be part of creating safe working conditions that will eventually become the norm instead of the exception in developing countries.

Last but not least, Fair Trade provides a social premium that communities allocate to various social infrastructures through a democratic process. This money goes towards building schools, health clinics and providing access to clean water. By investing in social infrastructure, communities become stronger and less reliant on foreign aid projects. The power, independence and pride that a community gains through being self-sufficient is one of the strongest points for supporting Fair Trade.

As Western consumers we often have more power than we think. Any economist will tell you that markets are extremely influential in the way things work. The end goal is not a world full of Fair Trade certified producers, but rather a system of trade that is expected to be fair. By supporting Fair Trade in our purchasing practises, we can work toward making this world a more equitable place, not just for Fair Trade certified producers, but for everyone.

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



KEVIN CEDRONE
4B MECHANICAL

Let me be blunt: Fair trade products are a waste of money. On the face of it, this may seem coarse, or the motto of a tightwad. Let me refine that statement. The fair trade model is an ineffective and counterproductive market control agent.

For the uninitiated, the aim of the fair trade model is to guarantee a reasonable lower limit (price floor) for small-scale producers, one which covers sustainable production of their goods. This sounds like a good thing, except it interferes with the otherwise free market in which these goods must inevitably compete. Fair trade is a kind of protectionism. It is an attempt to compel people on a moral basis to pay a higher price than they would otherwise. It contradicts the typical meaning of the word "fair", which refers to the mutual consent of parties in a transaction.

The basis of fair trade is the idea that consumers have duties to producers who have rights. Fair trade incorrectly assumes that a consumer's freedom of choice forcibly commits an injustice against the producer.

Part of the attraction of fair trade is the implication that traditional trade is somehow "unfair". I admire the sentiment of wanting to help impoverished producers but there is nothing inherently unfair about a free market. I would characterize "fair trade" as well-intentioned meddling with unfortunate consequences. In particular, fair trade subsidies have two unintentionally sinister side effects. One is that they lock subsidy recipients into uncompetitive business practices; they encourage stagnation. The second sinister effect is that they exacerbate the problem for the rest of the market, most unfortunately for producers not receiving subsidies.

Fair trade subsidies may be advantageous in the short term for small producers but the fair trade model is myopic. This kind of market interference is bad for economies and the environment on larger time and geographical scales. Artificially high prices are counterproductive; they encourage the problem they are intended to solve: overproduction. Low prices are the result of overproduction. Increasing prices will encourage more production and further price depression.

Artificial profitability resulting from subsidies tends to lock producers into otherwise non-lucrative markets. Free market economies develop and thrive based on their expertise and quality. A producer who receives subsidies is not subject to market pressures to innovate, mechanize, modernize or improve business practices. This is bad for economies.

In terms of the environment, free markets tend to encourage production to occur where it is most environmentally appropriate. For example, aluminum production is quite electricity-intensive. World aluminum production has settled in areas like South Africa and China where electricity is abundant and inexpensive. Typically this means hydroelectricity since it has no fuel costs. The price-premium given to small-time smelters for "fair trade aluminum" (a niche product at present) helps offset the 20-40% energy costs required for aluminum production and allow production in areas with fossil-fuel derived electricity.

Another example of fair trade's detrimental effect on the environment is the subsidy given to banana producers. As an agricultural product, these subsidies are essentially transportation subsidies. This gives fair trade bananas larger fuel budgets than their free market counterparts. Thus, bananas from subsidized producers come from farther away on average than their free market counterparts with little or no improvement to the labourers' wages.

Fair trade persists because its detrimental effects are ignored due to illiteracy of basic macroeconomic principles of supply and demand. Another reason for the persistence of fair trade despite its shortcomings is that the fair trade system is a way for conscientious and relatively affluent people to assuage their guilt by over-paying for goods.

Efforts to improve living and working conditions in developing nations through fair trade channels are admirable but misdirected. It is more important that consumers look beyond the stated goals of the fair-trade movement and begin to examine the actual effects. Fair trade programs do not encourage modernization or competition. Most fair trade organizations only enforce prices for producers, but do not guarantee wages to actual labourers. In effect, fair trade subsidies address the symptom (low prices) instead of the cause (over production). They do nothing to abolish the real impediments to profitable trade, domestic trade barriers like tariffs, and monopolies granted by government corruption.

It's easy to arrive at a feeling of personal responsibility for the problems and complexities of today's economy and environment. In the final analysis, fair trade is at best a waste of money; in fact, it probably makes things worse. Then again, it's tough to beat the convenience of paying an extra dime per cup of coffee when it comes to feeling like you've done your part.

Late-Onset Academic Burnout: Prevention Tips

DAN ARNOTT
4B ENVIRONMENTAL

We are now entering what may be the most dangerous part of the term. Reading Week is over, disappointing midterm marks are beginning to trickle back, and deadlines are approaching for major assignments and 4th-year design projects. The faculty is working us like dogs, and the end of the term is an elusive oasis – visible, yes, but so hard to get to that it may as well be a mirage.

These circumstances are leading many of us to a state of what is known as 'Late-Onset Academic Burnout'. This is the most common kind of academic burnout. The other kind, Early-Onset Academic Burnout, occurs only in 1B or 4B terms, when you've just finished one term and have to start another without the reprieve of a work term. Both types are dangerous, not only to academic performance, but far more importantly, to personal health, happiness, and well-being. Because we're studying at a school that would rather have us work mindlessly than learn comfortably, Late-Onset Academic Burnout will probably strike us all at some point. I'm in my final term, and it's hitting me harder than ever before. So here are a few warning signs and tips which you can all hopefully use.

Signs of Late-Onset Academic Burnout:

- Procrastination. More than usual.
- Assignment 6 being assigned before you've started Assignment 5.
- Thirty minutes complaining about your workload for every fifteen minutes working on it
- Dark circles around the eyes
- Inability to sleep because your brain won't switch out of school mode

With that, here are some tips on how to prevent and mitigate late-onset academic burnout.

Take A Walk:

If you're in the throes of Late-Onset Academic Burnout, you're likely forsaking physical activity in favour of mental. I know it's cold outside most of the time these days, but sometimes stretching your legs and getting some sunlight and fresh air can make a world of difference in terms of attitude. Also, sometimes the change of scenery and the blood flowing to the brain can help you solve a stubborn problem if you've been stuck on one.

Take A Night Off:

Turn off your computer, ignore your cell phone. Your friends or loved ones probably haven't seen much of you lately, so forget school for a night and spend some quality time with them. In person! Facebook doesn't count. You see too much of that computer screen anyway, it won't miss you and you probably won't miss it either.

Have a Beer:

The columnist must be careful when encouraging his readers to seek chemical comfort. But I don't think of beer so much as an alcoholic beverage as a comfort food. Buying a dozen and having a cold one waiting for you when you come home from school can greatly improve your mood. No matter how much you spin your wheels, your day will have at least one measurable payoff – that beer in the fridge. For the non-drinkers reading this article, I recommend carbohydrate-laden comfort foods for you too – maybe a plate of something hot, with rice, noodles, or potatoes.

Have Multiple Beers, Or Other Drinks:

Sometimes booze is a safety valve. Every time you drink, you lose your mind for a little while, which saves you from holding it all in and losing it all at once during, say, your work report oral presentation. Remember, whiskey is the key that sets the monkey free.

Hang Out With Your Classmates:

And I don't just mean in class. These are the people who you have spent, or will spend, a lot of your time at Waterloo with. It doesn't hurt to get to know them on a personal level, too. They'll be some of the best support you have when things get tough. Your friends loafing their way through an English or ES degree may be totally sincere when they say they know what you're going through, but your classmates will not only know better, they'll be going through it all too.

Maximize Your Marks-To-Effort Ratio:

They assign us so much work here that at some point, no matter how good you are, you will have trouble getting it all done. So maybe you don't really need to get it all done. Part marks are your friend. Plus, you need to remember that you are (theoretically, at least) here to learn. So if you've demonstrated that you know the partial differential relationship in the problem, most of the time that's more important than the 27 different plots of Nitrogenous Biological Oxygen Demand Vs. Time that you're expected to generate. Is your TA really going to look at all of them? S/he is? OK, then put the same one in 27 times and see if s/he notices.

We're all in the same boat here. Just a few weeks to go. Hang in there, I'm pulling for you.

Have You Ever Thought About Going on Exchange?

DR. PETER ROE
DIRECTOR, ENGINEERING
EXCHANGE PROGRAMS

Each year about a hundred 3A and 3B Engineering students depart for one or two terms in our exchange partner schools around the world. The remaining thousand or so stay home and miss the opportunity of a lifetime. I often wonder why this is so. Those who do go come back with glowing reports on how they gained in knowledge, friendship and experience, and sometimes in language skills. Just a few quotes:

"International exchange is an excellent opportunity to travel the world, experience a new culture and make friends from all over the world." Katie Chakova, who took 3A & 3B in Germany

"Overall my international experience was great. I would definitely recommend to everyone to think about taking advantage of this great opportunity. Although it may be more work to arrange and organize everything, it is well worth it." Daniel Weisser, who spent his 3B term in England.

"An exchange is definitely an experience of a lifetime – you get the opportunity to live as a carefree student in a foreign country! Living in a new culture and meeting many other students from different countries and backgrounds is very enriching and eye-opening to say the least." Karen Kan, who did 3A and 3B in France.

"It has been a pleasure to write down my memorable exchange experience in Lund, Sweden. I think it's one of the best decisions I made during my undergraduate studies. I really enjoyed it and I believe all of you will have a wonderful time…" Fanfei Gong, who did 3A in Sweden

"It is interesting how through this exchange program I not only experienced another culture but also gained a greater appreciation for my homeland and its heterogeneous society." Lily Chai, who spent eight months in Japan

"I took part in an exchange to the École Polytechnique Fédérale de Lausanne (EPFL) in Lausanne, Switzerland from September 2005 to February 2006 …. The experience was incredible, and there were surprisingly few hassles in making it all happen." James Schofield

"One of the greatest experiences of my university career was the year I have spent in the United Kingdom, studying at the University of Warwick. The international exchange experience is not only a chance to [study] in a different country, but it is the opportunity to get immersed in a new culture and learn about it as much as you will learn about yourself." David Tung

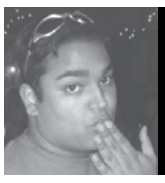
"Going on exchange was one of the most rewarding experiences I've ever had, and it definitely was one of the highlights of my life. Going to school and living in a totally new environment is something few people get the opportunity to do, not forgetting to mention all the other exchange students you get to meet, go to school, and travel with. It's also great to make some local Singaporean friends, as they can show you and have you experience aspects of Singapore that you may overlook being a visitor to the country.", Wayne Cheng, who went to Nanyang Technological University in Singapore

Going on exchange is not that difficult, and it's really rewarding. In some countries, it's true, you must learn the language, but almost everywhere in Europe, almost everyone speaks English. Most of our partners either have plenty of courses in English, or offer ways to learn enough of their home language to take their courses. We have excellent destinations that are not always fully subscribed. Who wouldn't like to spend a term or a year in Denmark at the number one ranked technical university in Scandinavia, or Norway, land of fjords? And our French-language exchanges have lots of room; you don't need much French beyond high school. We have lots more choices in about 50 exchange partners around the world.

The main thing is to get prepared. If you have a 70% average and are a Canadian citizen, just plan for a term or two in a distant land for 3A, 3B, or, sometimes, 4A. The process takes time, and your application is due six months before departure. But it's not hard, just long. The forms are available on the Engineering Exchange opportunities website (www.eng.uwaterloo.ca/~exchange), where you can find all the needed information, plus links to our exchange partners. Each exchange program has a faculty coordinator, and the Faculty Exchange Office is in CPH1320 (The Engineering Undergraduate Office where CPH joins on to E2). In the office you'll find Cindy Howe, the major helper for all exchange candidates, and Peter Roe, Director of Exchange programs. We also have a library of materials about our exchange opportunities.

Consider Exchange – it opens your eyes to a whole new world!

Perspectives of a Gay Waterloo Engineering Student



BRYAN SACHDEVA
3B COMPUTER

My only disclaimer is that the following is my own unique opinion, and does not reflect the view of any group of individuals as a whole, nor should it be construed as such.

Many of you may know me as a friend, acquaintance, or simply as "that guy from EngSoc meetings". It's also quite obvious that I identify as a homosexual male in computer engineering. By obvious, I mean that I fulfill a lot of the common stereotypes and openly identify myself. What many of you don't know is that being a gay man in engineering has been just as interesting for me as for you.

I've been told by some engineers that I'm the first gay man that they've ever met, which typically makes me the "token" gay guy. And while most engineers don't publicly show any discomfort with me or my orientation, you can tell that they don't quite know how to act around me. Let's get one thing straight (no pun intended): just because you're a guy, and I like guys; doesn't mean I like *you*. I'm a flirt, but I don't seriously want to get in your pants. I'm not the type of gay guy that tries to "convert" straight guys. Yes, I get offended when people through the term "gay" around as an insult, and yes I drink Smirnoff's at the OTs. But other than these minor details, I'm just a friendly guy.

While it's true my voice is notably higher than most, and my wrists limper than average, I'm by no means "a diva" on the gay scale (if you even believe in that stuff). I admit I like martinis more than beer, dancing more than poker, and things that smell good, but I also like cars, football and rap. But sadly, ladies, it also means I don't have the greatest fashion or design sense. It might appear that way, but that's only the result of engineering men having depressingly low abilities in this domain.

Another insider secret for you is that I've been "out of the closet" for little more than the same amount of time I've been at UW. I'm by no means an expert on all things gay, but I do hope that I've shown those of you questioning souls out there that being an engineer and being gay aren't mutually exclusive. In fact, I encourage you to try it sometime ;).

EWB in Malawi: Spirit Trees

KIMBERLEY THOMAS
'07 ENVIRONMENTAL

At this time of year, Malawi's landscape is dominated by cultivated fields of maize and tobacco – the maize stalks tall and a brilliant shade of green, the tobacco plants with their many layers of large broad leaves. The fields stretch as far as the eye can see, across plains and hillsides, dotted by the occasional tree. Nearly every available patch of arable land in the country has been cleared of trees for use as agricultural land. Every so often one comes across a dense patch of indigenous tress. These patches of forest serve as a reminder of what the countryside once looked like, and survive now only because of what they contain: cemeteries. These trees are only protected by the belief that if one cuts them down, they will be haunted by spirits.

Malawi's dwindling forests are heavily relied upon in both the cities and rural areas to satisfy energy and building needs. In the rural areas women emerge from every direction, some coming from great distances away, carrying huge bundles of firewood on their heads. On the roadways, countless large trucks and bicycle vendors transport huge loads of logs and firewood into the towns and cities – most often from poorly policed forest reserves. In the towns are large depots selling firewood, and in every market are vendors selling charcoal.

The majority of wood consumed in Malawi is used to generate energy for homes, mostly as fuel for cooking. The production of tobacco, the major export crop, is also a considerable culprit because of the vast amounts of wood used in curing the leaves. The demand for wood is largely met by the many rural Malawians who rely on the sale of firewood and charcoal to support their families – trees are regarded as a free resource for all, and the sale of firewood is one of the few non-farming related income generating activities available to Malawi's rural poor.

The mass deforestation of Malawi's forests has important implications on agriculture, affecting the vast majority of the population who are farmers. Forests play an important role to improve soil fertility, maintain effective soil hydrology, moderate stream flow, and provide soil erosion control, all of which contribute to the long-term productivity of the land. In addition, as wood supplies are depleted, women and girls must spend more time fetching firewood at the expense of more productive activities such as farming, child care, and education.

As an EWB volunteer, I am working in partnership with a Malawi based non-governmental organisation called Total Landcare (TLC). TLC implements agroforestry and natural resources management programs in rural communities throughout the country. Our primary focus is on helping small groups of farmers set up nurseries to raise tree seedlings to be planted as community woodlots and on their own properties. A variety of species are targeted for different uses including firewood, building material, timber, fruit production, shade, medicines, oils, and animal fodder. On a smaller scale, we also promote bamboo planting to replace wood for certain building uses.

However, the benefits of planting trees and bamboo - promoting a decrease in deforestation and improving lives of the farmers - are not immediately realized. So, TLC also takes action that has more immediate and dramatic effects, such as supporting farmers in the use of improved kitchen stoves, tobacco barns which require less fuel and the improved management and use of natural forests and trees.

My specific role at TLC is within the Monitoring and Evaluation team. To determine if we are achieving our goals as an organization, we need information on the impact we are having on the ground. My role is to make sure that information is gathered and used to help TLC reduce poverty more effectively.

When driving around the rural areas, I can tell when we're approaching a TLC site. Unlike their barren, treeless neighbours, these villages are green and lush. Wood can be harvested in a sustainable manner from village woodlots and beautiful stands of maize are grown amongst soil fertility enhancing trees in the fields. Interest is often sparked in neighbouring villages, and farmers are approaching TLC, wanting to be involved, having seen the positive impacts experienced by their neighbours. It is TLC's hope that rural communities throughout the country will develop the capacity to sustainably use and manage their forest resources, leading to reduced environmental degradation, and increased long term agricultural productivity. So, perhaps someday, it won't just be the spirits that are able to enjoy the shade of Malawi's trees.

A Photographer's Tale

MIKE SELISKE
1N COMPUTER

In the weeks leading up to my first year of University I was looking at my finances and realized that I would most likely never have this much money again. After working a great deal during high school while saving all the money I earned, I made enough for University plus a little bit more. I decided to treat myself to something I would never normally buy. First, I bought an HD TV but quickly realized for the thousand dollars I spent on it I could get so much more joy out of something else. My dad was an amateur photographer when he was younger and had a bunch of old 35mm film equipment, so I decided to follow in his footsteps and spent the remainder of my well-earned money on a Digital Single Lens Reflex (dSLR) camera. Knowing very little but reading a great deal on the internet, I decided to spring for the entry level Canon Digital Rebel XT. I was amazed by all of the features it had and the lenses and accessories you could buy, although I didn't know how to use any of them.

As soon as I got home I ripped it out of the box and began frantically taking pictures of my dog, flowers and whatever else looked cool. Although none of those first shots looked as good as pictures I had seen on Flickr (A photo, social networking site run by Yahoo) I decided it was time to move away from the automatic setting and start playing with more manual settings.

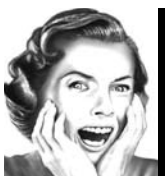
A lot of people will never understand the ins and outs of photography, but coming from someone that knew nothing before buying this camera, it is very easy to pick up tips and tricks as well as a great deal of knowledge without ever really trying very hard. Talking to other more experienced photographers, reading the camera settings of really amazing pictures on Flickr and taking hundreds of pictures on different settings are all great ways to become a better photographer. Reading books can also help, but getting first-hand experience on a photo trip and snapping hundreds of pictures is, in my opinion, the best way.

The eye that one has when taking a picture is also a big contributor to the overall outcome; you must take into account the orientation, focus, light angle and composition while still adjusting the camera to the proper settings. I now have two additional lenses and a far greater understanding of photography, although one thing that I didn't account for when purchasing the camera is that all of those lenses and accessories I was so excited about when purchasing the camera are a lot of times more expensive then the camera itself: after that first $1200 investment, I have sunk an additional $1500 in equipment.

If you think you know nothing about photography but have always had an interest in it, pick up a digital SLR and have fun. It's been almost two years and I still don't know close to everything, but I have had fun learning what I do know and as time passes, I find myself snapping more and more amazing shots that I never imagined I could pull off.

To see pictures that I have taken, visit my Flickr site at www.flickr.com/mseliske.

Adding Charity Fee to Tuition is Misguided



ADAM SCHUBERT
3B ELECTRICAL

Don't get violent, don't freak out and don't (accidentally) kill someone, but you have been told by the Federation of Students (Feds) what is important to you. Whether you like it or not, you are a member of Feds and as such, were responsible for voting on the direction of the corporation a couple short weeks ago.

One referendum was whether a one dollar fee should be added to our incidentals every term, the proceeds of which would go to a fund that helps bring refugees to come study at Waterloo and other Canadian universities. And whether you like it or not, the referendum passed with enough votes to be binding.

I hear ya, "it's a good cause" and "no big deal, it's only a measly buck". It really IS a good cause. When I was younger I was fortunate that my parents had hearts of gold. They hosted a few refugee families to move to my home city of Regina, Saskatchewan from places like Vietnam (actually from Vietnam to Cambodia to Canada) and from Bosnia. So I've been lucky to see, first hand, the profound impact helping some of these families can have. It is not the intention of this article to degrade the worthiness of the charity, I'm sure it's kickass, it is the intention of the article to put into question the right of other students mandating myself and the apathetic non-voters which charities we donate to.

A lot of people are very rightfully picky about which charities they donate to. Often they want to make sure that their contributions are going directly to those people the charity was developed to aid. For example, some people might be less likely to donate to the Canadian Cancer Society simply due to that organization's size and inherent administrative cost to exist. In this case money that is donated doesn't necessarily go straight to research or to a cancer-affected-person. Some people might want to donate only to charities that target helping people in their immediate vicinity, like food banks and centers for physically disabled children. The point is, people are picky about who they donate to, mostly because they can't afford to donate to everybody! A 'donation' implies freedom of choice, an offering of resources.

There are cases where mass donation by a group of people is warranted. If the charity has some direct impact or link to our university community, whether it benefits us as students or whether it simply seems to touch all of us at this university for some specific reason, then yes, by all means have everyone that attends this school pool in. But for many like myself, before this question was petitioned I had not even heard of this specific charity. The referendum system for Feds is quite clearly flawed if 2500 students can mandate what the other 90% of the school does. For example, "The Bus Pass": many engineering students have voiced pissed-off-ness about this subject. Yes, they were responsible for voting and for the most part didn't. But this term, a student came to my class and presented this petition asking "do you think it's a good referendum question to ask?", then without offering time to consider what the consequences of this referendum would be, the entire class (save me) signed it.

Perhaps to show how flawed this system is, someone needs to make an example of it. Even a ridiculous referendum question *has* to be put forth if enough people (around half of the engineering student body) sign the petition to have it put forth. This past referendum is a start down a potentially slippery slope for other special interest student groups around campus to tell me that what is important to them better darn well be important to me.

The underlying question that I haven't heard anyone ask is how does this affect the charity? Most charities prefer that those who contribute to them know what they're contributing to. Awareness is really harder to come by than money when you have a good cause. Now this charity is receiving a lot of money from students who don't even know they're donating. Does that sit well with them? Probably not. There's also a deeper "lead us not into temptation" question relating corruption in charities and guaranteed money for charities (see UNICEF).

Unbeknownst to many students here at this university, we have a bad reputation in our community for not being community-minded. I know. I've been told directly to my face by city officials. Laurier conversely has a great reputation with events like Shine-O-Rama that really get their students out and in the community. Our community isn't asking us for our money, they're asking for a physical demonstration of how we're giving something back to the community that is harbouring us for four and two third years.

So the tree huggers out there might be saying to me sarcastically, "Well then, oh Shooby in your infinite wisdom, how do we accomplish this?" and I'll tell you. Instead of mandating our students to donate money, why not mandate our Feds to run an event to raise funds and awareness for this charity? I hand delivered a full charity event description and action items onto the desk of the president of Feds last year and told him that I would personally see to all of those action items I could control. He assured me that it was a good idea, and yet no one other than him, the VP Internal and myself know about it. I guess it wasn't a priority for them.

If people want Waterloo students to be concerned about different charitable causes, then tell Feds! Don't take it upon yourself to budget MY money and tell me who or what should be important to me. Quit grinding my gears!

Creative Uses for Old Textbooks

ALEX GIROUX
3A MECHANICAL

Like most students who've hit third year engineering, I have accumulated a large number of textbooks. I tend not to sell my textbooks, partly because I use them a fair bit, and partly because of that nasty habit publishers have of coming out with new editions on a fairly regular basis. This means I have piles of textbooks sitting around my room, not doing much and I'm sure at least some of you are in the same position, so I've come up with this amazing list of creative uses for old textbooks.

1. Door stops: When I lived in residence in 1B, we had really heavy doors with surprisingly little soundproofing. Since I liked to keep my door open sometimes, I piled up all my unused texts by the door. This was less than effective, since I didn't have a lot of extra books, so I added a box of laundry detergent to the pile. The door usually stayed open. This is more effective if you either have a lot of texts, or a door that wasn't quite as prone to closing.

2. Extra furniture: Got people coming over for dinner? Need someplace to put your alarm clock so you don't have to reach down quite as far to hit the snooze button? Pile up an appropriate number of texts in the desired location. Add a table cloth and enjoy. As an added bonus, text books are much more easily packed than that card table from Canadian Tire, especially if you don't have a vehicle.

3. Building supplies: I'm fairly sure that by the time I finish my degree, I will have enough old textbooks to build a small fort.

4. Laptop cooling system: My first laptop had some issues when there was no air circulation underneath it. Solution? Prop it up on my calculus textbook. This did seriously cut down on my useable desk space though, so I eventually replaced the text with a stick.

5. Bed frame leg: Someone once told me the story of how they were using a can of peaches as a leg for their bed frame, which worked perfectly well until the can of peaches exploded. Textbooks offer no such hazards. It's not a permanent solution, but it's better than canned goods going bang in the middle of the night.

6. Pillows: This isn't really applicable to old textbooks, but if you're in the lab late at night and you need a quick power nap to keep you from going crazy, grab the nearest text and place it on the desk in front of you. Place your forehead on the book and enjoy. In addition, if there's any truth to the whole "learning by osmosis" thing, this is when you'll find out.

7. Room security system: Who needs a bucket of water anyways? Besides, water makes a mess if someone sets it off. [Note: Please don't actually do this, especially if you like your roommates.]

8. Book restoration aids: If, hypothetically, a water main breaks, and your basement floods and you have left other books on the floor, and they got wet in the hypothetical flood, you could hypothetically use your old textbooks as weights to flatten out the books once they've dried. Otherwise they'll be all crinkly and nasty. Go on. Ask me how I know about this.

In short, just because you're not using your texts and they're a year or two out of date doesn't mean you need to sell them. If the list I've provided doesn't have something on there you can use, then be creative! Come up with your own way to put that linear algebra text from 1A to good use. Impress your friends and family with your innovation!

And besides, someday you may just need to remember how to find the eigenvalue of something.

Better Know a Beer: Guinness

RORY ARNOLD
3B MECHANICAL

I've hit some personal firsts in the last couple weeks. My beer and sports article became the number one hit on Google for its related topic, Kevin took over the reins while I was busy with midterms and did an excellent job becoming my first guest columnist, and for the first time I pissed someone off so much they felt the need to write a letter to the IW.

I fully respect everyone's opinion when it comes to beer; since it is a subjective decision you are fully obliged to drink and enjoy whichever beer you choose. I also invite anyone who disagrees with my rating to bring a two-four over to my house and you and I will drink while discussing everything beer.

That being said, if you're in your 1B term, don't try and come off like you know what you're talking about. If you are even of legal age already, I don't think too many bars around here would provide you with a booster seat that you need to drink with the big boys. And don't even insult my intelligence by telling me Heineken is the best thing you've ever drank. On the list of great beers Heineken is a lot closer to Molson Canadian than it is to some truly great beers such as St. Ambroise Oatmeal Stout or Fuller's Christmas Ale. Also, don't tell me soccer players are tough because the fans riot all the time.

By that logic five year old hockey players are tough because their dads are also always breaking out in riots. I don't wish to take up anymore of the reader's time so this week we'll talk about Guinness.

Guinness Stout is credited as the lifelong work of Arthur Guinness who spent nearly ten years of life perfecting the recipe of God's greatest beverage. Arthur Guinness was born to an archbishop's land steward in 1725 in County Kildare, Ireland. The bishop took such a strong liking to the young Guinness boy that he left him 100 pounds in his will. Arthur took this and started his first brewery in 1756 with his brother. In 1759, he left this partnership and took out a 9000-year lease on an existing brewery at St. James Gate in Dublin. He was quickly admitted into the Dublin Corporation of Brewers and named as Master of the Guild. Guinness later entered into a water dispute with the Corporation, and, after taking care of the situation medieval-style, he was able to secure rights to fresh water for 8975 years.

At the time a new style of beer from London, called a porter, was becoming popular. A porter is an ale brewed from dark malts, giving it its characteristic dark colour, and like all ales, is brewed using top-fermenting yeasts as opposed to lagers, which are brewed using bottom-fermenting yeasts. Guinness fell in love with this new style and spent the rest of his life devoted to perfecting it, and in 1799 he had finally created Guinness Stout, the same drink we drink today. Note that stout is basically just a strong porter. Guinness later died in 1803 after having stamped his legacy as one of the most influential brewers in history.

Guinness is well known for its uniqueness. Unlike most beers, which use carbon dioxide to draught their kegs, Guinness uses a mixture of nitrogen and CO2. Nitrogen is less soluble and thus allows the beer in the keg to be stored at a higher pressure. When the tap is pulled the beer passes through a five hole-disk restrictor plate, which creates friction that brings out the nitrogen bubbles. A fine art also goes into pouring a Guinness: holding the glass 45 degrees to the faucet, the bartender will fill the glass three quarters of the way full with the tap fully pulled. You will see a thick, creamy coloured liquid as the nitrogen bubbles cascade down before slowly rising back up to form a thick head. As the gas exits, the beer turns into its characteristic black colour, which is a dark ruby red if held up to the light. When this is completed the bartender will fill the glass the rest of the way up by pulling the tap back only part way. A really skilled barkeep will leave the shape of a three-leaved clover in the foam.

The entire process should take 119.5 seconds. This two-part process dates back to when your glass would be filled with Guinness from two different kegs, one would be an older, flatter beer for character while the other would be a newer, fresher beer to bring sharpness to the taste.

Guinness is also considered one of the healthier beers and at one time was given to blood donors, since it was believed to be high in iron. It was also recommended that pregnant mothers drink Guinness, but today most doctors will advise against that. However, numerous studies have claimed that Guinness is better than aspirin at healing pain and is helpful in clearing blood clots. Also, despite its thick creamy texture, Guinness is a low calorie beer with just 198 calories per pint, while a pint of orange juice has 220 calories.

If you are buying Guinness at a bar, you probably won't get to watch the amazing cascade as your beer prepares itself for consumption, but if you bring home a couple of cans, make sure you pour it into a Guinness pint glass or any thick glass with a wide mouth in order to get the full experience, as the wide mouth allows you to take a large mouthful of the thick, creamy stout. When you taste a Guinness, the first thing you are hit with is a pleasant nose of bread. Tasting the beer, you will experience a rich cookie and sweet malt taste. The after-taste will bring a bit of dry hop bitterness to leave you with an overall satisfied mouth. The head will stay for the entire duration to ensure that none of the flavour escapes with the gases. Guinness is best served at 6ºC with a hearty meal, and can be served as part of a Black & Tan with either Harp or Bass Ale.

I prefer only to drink Guinness in the winter, savouring its thick, heavy texture while drinking something lighter in the summer. However, when you factor in the tradition and folklore that goes along with Guinness, there are very few things that compare. It is an excellent taste, but does very little to challenge the palate, one thing I love about craft stouts. That being said, Guinness is not very student-friendly, costing you a pretty penny every time you bring some home from the Beer Store. That being said, I give Guinness a 9.2/10 for an excellent brew as well as an informative trip through Irish tradition.

HUMOUR & SATIRE

Better Know a Piece of Art

RORY ARNOLD
3B MECHANICAL

As someone who grew up in rural Ontario and thought appreciating fine art meant attending a local gentleman's club, I was shocked I was the one chosen to write an article about art appreciation. You may want to have Wikipedia handy in case you don't know any of these paintings.

"American Gothic" by painted by Grant Wood. My parents have a copy of this painting in their living room and I always assumed it was a portrait of them, but apparently it's actually a satire of rural life, and I think I see it. The farmer has his pitchfork in one hand and his hoe beside him.

"Mona Lisa" by Leonard Da Vinci. Unlike all the art critiques and historians who have no idea who the woman in the painting is, I think it's very obvious. She has no eyebrows, so what else could she be then an Olympic swimmer? Also the eyes on the woman are said to follow you around the room, but after watching Scooby Doo I found out what is really happening is that someone is behind the painting watching you through the eyeholes. So if you see a monster shortly after that, don't run, it's probably just one of the locals fed up with all these tourists walking around with Great Danes who have speech impediments.

"The Scream" by Edvard Munch. This painting appears to look like a guy walking along a bridge screaming. However, if you look closer, he's not screaming, he's moaning in pleasure. This is why he is only shown from the waist up- what you don't see is the girl on her knees in front of him. That explains the big white glob in the background.

"Birth of Venus" by Sandro Botticelli. If you've studied classical mythology you know that Venus, the goddess of beauty, was born out of the sea, already in her adult form. In this painting we see her coming out of the sea, riding a shell naked as Horae rushes to cloth her. Now I would expect the goddess of beauty to be more attractive than this, less Drew Barrymore and more Carrie Underwood.

"The Death of General Wolfe" by Benajmin West. This painting depicts the death of General Wolfe on the Plains of Abraham where he lost his life fighting the French. The French eventually lost the war (imagine that) and Wolfe became a hero in English speaking Canada. It's a good thing the British won too or instead of studying engineering we'd all be studying how to smell bad and work and complain about our way-too-long 30 hour work week. In the painting, Wolfe is surrounded by a large number of his officers and an Indian chief in a "thinker" pose, as he lays there and it appears his bones have turned to rubber.

"A Sunday Afternoon on the Island of La Grande Jatte" by Georges Seurat. This is that famous painting of a waterside scene that was done completely using dots, preparing me for one of the most epic games of connect the dots ever.

"The Persistence of Memory" I think this painting argues against global warming. If we keep polluting the air all of our clocks will melt and it will be mayhem, we will have no idea what time it is. We'll have to look at the sun, but arrrgh it's too bright it hurts my eyes, it will be Y2K times a millions.

"Machine Turn Quickly" by Francis Picabia. At first I thought this was pulled out of my ME 321 course notes, but then I started to remember what all those lines were for, and that just pissed me off. Which I think is what the artist was going for. If everyone who took the mechatronics version of ME 321 gets pissed off, we won't have to worry about this group of shut in, socially awkward people who can think it's funny to tell you the time using binary, inventing an army of killer robots and taking over the world.

"Composition with Yellow, Blue and Red" by Piet Modrian. This is what I guess you call abstract art. It's a bunch of perpendicular lines with a few coloured squares. It looks like he was preparing for a game of super tic-tac-toe but he didn't have any friends so he began colouring in the squares. Looks like all that practice of staying inside and colouring pictures while everyone else was outside playing finally paid off for him. If only all that calculus I did paid off for me like that.

"A Starry Night" by Vincent van Gogh. This is what the world looks like after you're screaming in pain after cutting off your ear. No wonder this guy went nuts, it looks like the sky is about to open up and eat him. I'd advise the sky to not eat me because I'm pretty sure I'd be hard on the liver.

Great 'Hawks in History

"THE" CHRIS BENETEAU
4B MECHANICAL

No – I'm not talking about Stan Mikita or Dikembe Mutumbo.

Allow me to explain.

I've taken a fair bit of abuse over my new hairstyle. The first person to see me shook his head and asked, "What the hell did you do to yourself?!" Others have asked how many rounds I lasted in my bout with a lawnmower. One of my ex-girlfriends went so far as to call it "cute"; that's exactly the impression I hope to make with my bad-ass Mohawk – the same as a six-year-old girl in a sun dress with an ice cream cone. On the other side of the spectrum, my friend, upon viewing the 'do via the miracle of facebook, commented, "I don't like it. It says white supremacist tries faux-hawk." This perspective may explain why my parents have recently insisted on being seated in the furthest and darkest corners of restaurants and why they seem to walk six feet ahead or behind me.

Enough is enough. It's time to address my critics, and what better way than through education! To that end, I've compiled a list of criteria that define a proper mohawk, rules of engagement between 'hawkies and non-hawks, and as the title suggests, a glimpse of the mohawk over the ages.

Faux or Mo?

My biggest pet peeve is people referring to my hair as a faux-hawk. For those of you who slept through your government-mandated public school French courses, faux means false. I'm not faking anything. Everything but a 1.5 inch wide strip is buzzed short. It's not like I wake up in the morning and ask myself, "What should I do with my hair today?" Love it or hate it, I have no choice but to don the 'hawk.

Faux-hawks are for people who lack conviction. Self-doubt plagues these wannabe hawksters, as they're unsure they can pull off a fully-fledged mohawk. "How can I stand out from all the other caesar cuts?" they ask. "I know, I'll get a mohawk! … but what if I'm not cool enough? Maybe I should just spike the front and look like a cockatiel and hope people accept me as rebellious and unique…" These people are frowned on by 'hawkies and non-hawks alike. They are pretentious, jagerbomb-drinking, popped collar posers; in a word: Laurier students.

Although the elements of an ideal mohawk are widely debated, there is a general consensus on the base criteria.

The mohawk is officially defined by its centre crest. The crest should protrude proudly and clearly above the rest of the hair and should have clearly defined limits on its edges (thus excluding faux-hawks). The crest should, at a minimum, go as far as the crown, but can extend all the way to the base of the neck. Recently, pseudo-hawks have appeared that halt well before the crown, resulting in a spike-like appearance. The community has yet to reach a consensus on whether or not the definition should be altered to include these cuts.

Generally speaking, when it comes to the crest, higher is better, and when it comes to the sides, shorter is better. A rule of thumb is to aim for a clearly-defined hawk. The thickness of the crest is also important, as going too thick results in a flat-top drill sergeant-like appearance. This style must be avoided at all costs.

'Hawk Etiquette

How does one act when coming into contact with a 'hawkie? Well, if you yourself are sporting a 'hawk then the proper greeting is to pretend not to see each other. If you want some sort of gangsta' handshake or finger-gun then get a faux-hawk – they thrive off that sort of infantile support network. You have a 'hawk. You're cool. You're a rebel. You don't have to celebrate it. If one 'hawk is clearly superior to the other, then it is customary for the lower 'hawk to nod subtly, and it is up to the alpha-hawk to decide whether to acknowledge or disregard this offering of respect.

If you're a non-hawk: don't stare! We know we look good, or more importantly, we don't care what you think. Try to wrap your mind around the fact that we have the daring and courage to go out on a limb and to rise above the culturally-defined norm, and then recognize that such behaviour is sexy and bow your head in shame you conformist coward. If you're a hot girl, ignore the head-bowing bit and simply smile coyly as we pass.

Finally, my friend Kevin made me business cards a while back with the catch-line "You can touch it" and my phone number. Allow me to clarify: I'm not talking about the 'hawk. Under no circumstances is it acceptable to touch someone's mohawk. It's for your own safety – they're structural members. If you touch the hawk too quickly you're likely to lose a limb, and that's just messy.

'Hawks Throughout the Ages

Many people believe that the mohawk was first worn by the Mohawk tribe, which is untrue. The mohawk was actually created by Jesus. That's right. Long before Columbus found his western passage to India, the mohawk was firmly entrenched in world history. Jesus went around performing miracles in his 'hawk, and it was only at his Mother's insistence that he finally grew out his hair – and look how that worked out for him.

In fact, almost every important person in the history of the world has had a mohawk at some point. Genghis Khan, Charlemagne, Napoleon, Abraham Lincoln, and Pierre Elliot Trudeau all had 'hawks on their way to greatness. Don't believe me? Why do you think Napoleon wore that hat? His greatest victory at Austerlitz was won because, when all seemed lost, he removed his cap and his 'hawk rallied the beleaguered French cuirassiers to a final victorious charge. That's right – the French. If the hawk has the power to lead the French to military victory, think what it can do for you!

The most famous 'hawk of recent history has to be David Beckham. In his prime (strangely coinciding with the hawk) Beckham was the best footballer in the world. I had hoped for similar success, but thus far I've received no calls from Sir Alex Ferguson to rescue an injury-riddled Man U squad and I have yet to start sleeping with a pop-star. I did, however, stay at a Holiday Inn Express last night.

And there you have it, a very brief explanation of all things 'hawk. If you want to learn more consult your local library, or if you're one of the aforementioned hot girls, feel free to come over to my place to discuss the matter over a candlelit seafood dinner. Wear something frilly.

LowRider Returns

LOWRIDER
3B SYSTEMS DESIGN

Well another week, and it was the first week long reading week, a whole week off, at least for some. Personally I used it as catch up on all the work I was behind one week. Although, I did find one day off, along with one 28 of Molson Dry to relax with, so at least I had a good time that day. I do have one little item to address this week: to all you who will only go through a door that is already open in the hallway, resulting in two-way traffic through one door open door in the halls, there are two doors for a reason; stop being so damn lazy and open the other door.

Dear LowRider,

I am a hapless frosh trying their best to embrace the engineering lifestyle. However, there remains a crucial setback involving a certain BEvERage. I love it, but it simply refuses to go down the hatch at anything more than a snail's pace. My greatest fear is that someday I will be "Here's to"-ed at a party and will suffer humiliation at the hands of those sophisticated upper-years who can knock back a pint at relativistic speeds. LowRider, how can I possibly boost my liquid-imbibing prowess to a respectable standard?

Yours truly,
A Horse's Ass

Dear Surely must be masturbating,

It is nice to hear that you are interested in embracing the engineering lifestyle, but a word of caution, you might only want to embrace certain aspects of it or else you will be attending many a party with all guys except that one girl in your class that is actually socially adept.

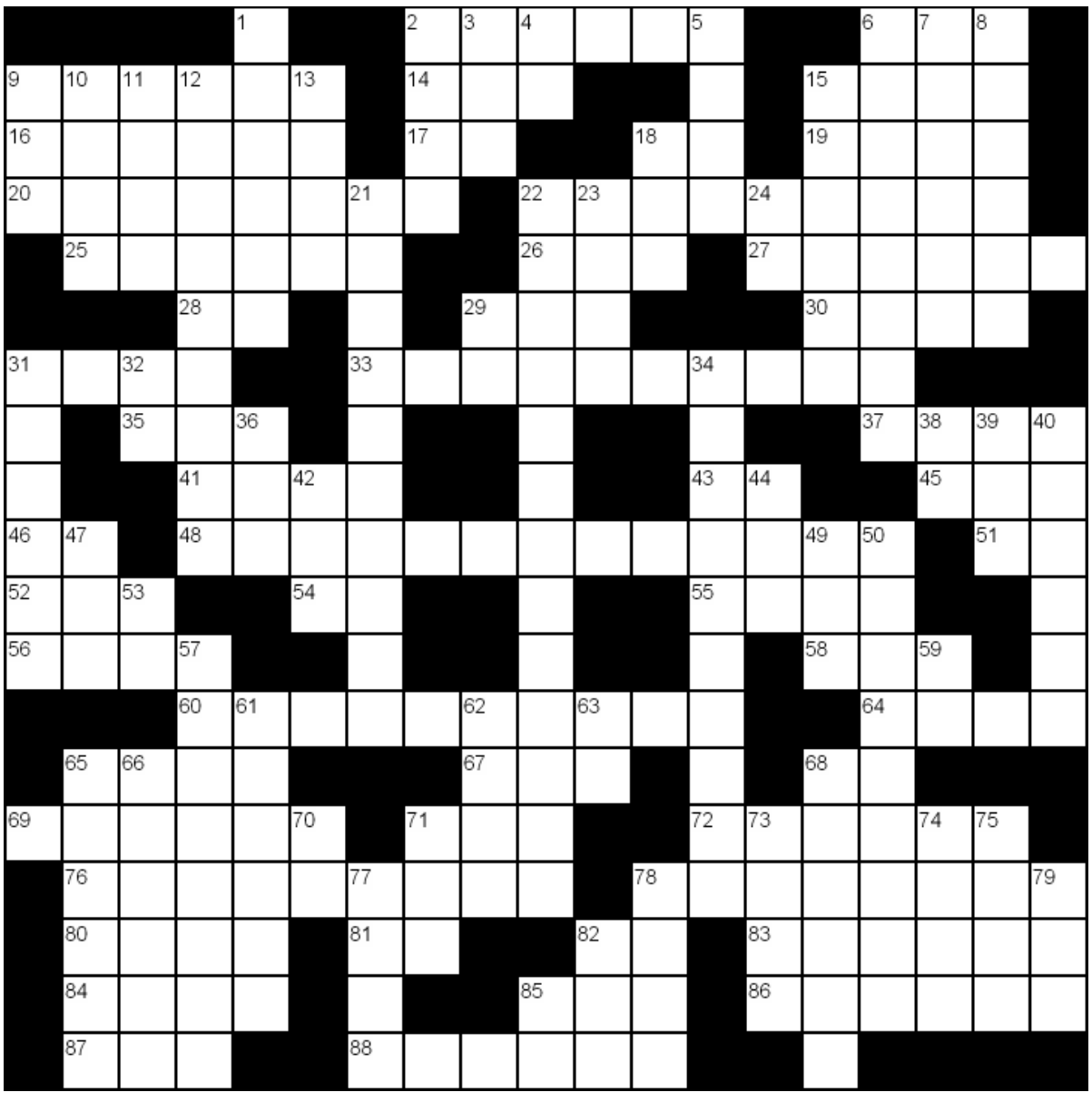
That being said, improving the speed at which you consume BEvERages is a worthy aspect of the engineering lifestyle, therefore I will depart some of my vast knowledge.

Consuming liquid quickly is a skill; it is something that is learned and practiced and not something that one is born with, therefore there is still hope. The first step is to start practicing. Get a boat racing glass from Novelties and start attempting to chug down at least 10 glasses of water a day. you do that you'll be the one finishing your glass before the first verse is over.

\LR/

The Iron Crossword: Tetris Style

ALEXANDER GRANT
2A SYSTEMS DESIGN



Crossword Clues

Across

2 Soak up
6 Pacific Standard Time
9 Spotted
14 Law
15 Syllables used in songs
16 Talked
17 Promotional material
18 Lead
19 Open
20 Star systems
22 Running in the buff
25 French caps
26 Ram's gal
27 1/26th of the alphabet
28 Possessive pronoun
29 TGI... (abbr.)
30 Institution (abbr.)
31 Caesar's eight
33 Moderately fast
35 Maturity
37 Brief autobiographical sketch
41 Accent mark
43 Like st. or ave.
45 Anger
46 Spielberg's alien
48 Becoming usual
51 365 Days (abbr.)
52 Limb
54 Northeast
55 Greeks Juno
56 France & Germany rive
58 Sea eagle
60 Act of refraining
64 Skim
65 Route
67 Titanic goddess
68 Structure Analysis (abbr.)
69 Sqrt(Area/Pi)
71 Energy unit
72 Designated
76 Elevated stature
78 Different forms of elements
80 Opera solo
81 Mr. __
82 "Hi I'm __" (not Mac)
83 Reach
84 Adolescent
85 Bambi's mom
86 Band of colour
87 Mistake
88 Father of geometry

Down

1 This game's designer (first)
2 Interjection expressing sorrow
3 Pater familias
4 Southwest
5 Movie pig
6 This game's designer (last)
7 Tilts
8 Bullseye
9 Canine
10 Middle Easterner
11 Anemic
12 Grouse
13 Reword
15 Bluff(2 wds.)
18 Before prefix
21 Elusion
22 Good accidental
23 Tiny branch
24 BC neighbour
29 Oranges come from here
31 Not consonants
32 Iowa (abbr.)
34 Quality of dirt
36 Freudian self
38 V - III
39 Attempt
40 Poke holes in a lawn
42 Urn
44 Stamping tool
47 Chai, Earl Grey to name a few
49 Unrefined metal
50 Story tellers
53 10^9 years (unit)
57 Signer
59 Sodium
61 Asian country
62 Earns
63 State of being
65 Roof of mouth
66 Admirer
68 Subordinate ruler
70 Metric system
71 Sleep on it
73 Bread
74 Heroic
75 Hindu goddess
77 Northeast by east
78 Chilled
79 Ocean
82 Luau dish
85 Deciliter

Engineering profQuotes

"Now after all these examples, if anyone gets less than 80% on the quiz, I will kill him. . . kill him slowly."
- Stanislav Potapenko. CivE331

"These equations are things you should remember, so you can just use them easily like pulling a gun out of your pocket – or pulling something out of your pocket."
- Bosco Leung, ECE 439

"Alcohol often helps. But there's a limit to how well it works."
- John Medley (on brainstorming), ME 321,

"So there's this pub that serves Irish coffees. An Irish coffee is coffee, sugar, and whiskey, and you order them two at a time. . . So after about seven or eight of them you don't know whether you're drunk or wired."
- John Medley, ME 321

"From an onion's perspective, what's happening?"
- Paul Fieguth, SYDE 372

"Some of you did really well. Some of you did okay. And some of you are seriously challenging the idea that you can't fail a course in 4B."
- Peter Teertstra, ME 452

Congratulations to Joshua Daigle and Bryan Sachdeva for completing the A&E Challenge from the last issue. The solution to the Four-by-Four is on the right. The large Tetris-themed version of The Iron Crossword on this page is this issue's Challenge. As always, submit your solutions to the drop box outside the IW office (CPH 1323B).

C	H	I	T
R	O	D	E
O	P	E	N
P	E	A	T

THE IRON INQUISITION

Stuart Pearson, 1B Civil

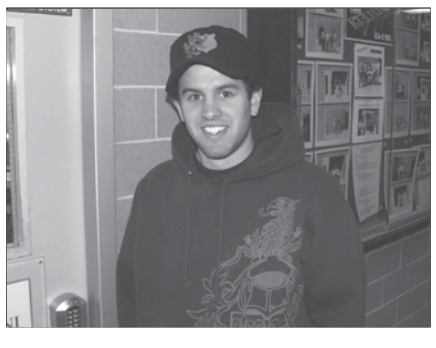
"What would you have done with the hour we lost to Daylight Savings Time?"

Dawn Koo
Environmental Studies
"I would have slept in."

Dan Westerbaan
2N Mechanical
"Try to take over the world!"

Amanda Hoff
3T Mechanical
"I would wait for Dan to take over the world and then steal it away from him at the height of his glory!"

Ben Plumb
3A Civil
"Make a snow fort with all that snow we just got."



Tyler Gale
3B Geological
"I would play my Theremin."