

the IRON WARRIOR

THE NEWSPAPER OF THE UNIVERSITY OF WATERLOO ENGINEERING SOCIETY

volume 25 issue 16 | 3 December 2004



The retirement of the current LowRider!

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Trek

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Could you fly this? Rats can!

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ENGINEERING PLAY A HORRIBLE FAILURE! JUST KIDDING. . . ENGPLAY AN ASTOUNDING SUCCESS



Press Release
IW News Bureau

The Engineering Society put on a series of excellent plays this semester, far surpassing all previous goals, and resulting in an absolutely hilarious evening or afternoon for all. The fun began by audience warm-ups, which are always engaging, and immediately the audience was treated to a one act play involving the vagaries of chance encounters, called "Sure Thing." The audience was then regaled with the hypothetical situation of monkeys randomly typing hamlet in "Words, Words, Words." In between scene changes

small vignettes mimicking popular computer games were shown. These were especially well like by those who recognized them.

"The Philadelphia" quantified the feeling everyone gets when things don't go their way, and "The Universal Language" delved into the way people communicate to the outside world.

The feature, "Cut", consisted of a ridiculous number of plays within plays, with the audience and even the cast 'pretending' about having no idea what was going on, but nevertheless, hilarity ensued, and the remarkable talent of the cast was showcased excellently. The play was a resounding success!

UW Engineering Curriculum Reviewed

David Yip

2B Mechanical



While our technical courses provide us with the tools and knowledge to understand and manipulate physical phenomena, they do nothing for our understanding of the human world. The solutions we come up with are always for people and the planet they're on; they are the only entities to which engineering is relevant. It would therefore seem reasonable that we must understand both our technical solutions, and also their surroundings. To do otherwise would be like planting a cactus in the Amazon and wondering why it dies.

To illustrate the importance of this I would like to relate an anecdote told by a Stanford professor in a lecture held here a few terms back. A team was sent to investigate how earthquake deaths could be reduced in an unindustrialized part of the world. The technical solution was a no-brainer. However, earthquakes and such were viewed as acts of deities, and therefore attempts at mitigating their damage were viewed as somewhat blasphemous. In the medical field, traditional burial customs may conflict with safe burial practices in cases of extremely infectious diseases such as Ebola. Non-technical factors such as aforementioned may seem trivial, but

it can mean the difference between a solution on the ground and a solution that dies on the drawing board.

While we may not be called upon to work around non-technical issues, an understanding of them enables us to work efficiently with those who do.

Additionally a study of the social sciences can bring a new set of problems to light, some of which may have technical solutions, some of which may not.

We may not be qualified to solve them all, but an awareness of their existence may enable us to avoid exacerbating the ones we can't solve.

This are the things that the Canadian

“...awareness of a social problems’ existence may enable us to avoid exacerbating the ones we can’t solve”

Engineering Accreditation Board (CEAB) likely has in mind in instituting the complementary studies requirement, outlined in the Undergraduate Calendar as follows:

“The professional engineer requires in addition to technical knowledge and skill, an understanding of society, its needs, and the engineer's role in society. An ability to make intelligent judgments that encompass human and social values, as well as technical values, is inherent in that role. Such areas form an essential complement to technical studies in the education of an engineer

The aim of complementary studies is to provide an understanding of our heritage and social environment, and of the

Continued on page 5. See UW Curriculum.

“[Questioning Student]: So, by according to the theory. . . [Prof.]: Theory?! This isn't theory, this is fact!” - Prof. Davidson, ME 362

Letter from the Editor

Andre Beltempo

3B Mechanical

Editor-in-Chief



It's the end of the term. For my final editorial, I guess I should stick with my standard formula, and write a formal, impassioned essay on some specific issue that I feel needs to be addressed. Or maybe not. Maybe I should just rant to my heart's content about stuff in my life, and ignore the 'big' stuff that I can't change, and that doesn't really affect me directly. I've been accused of being too 'serious' and not discussing light-hearted stuff. But I've always subscribed to the quote "Shallow minds discuss other people, average people discuss events, great minds discuss ideas." I'm a big fan of the ideas. Without those, I pretty much believe you're wasting your time. Social dynamics are important, and emotional awareness of the people around you is an excellent skill in the workplace, but what bothers me is the inordinate amount of time, effort and money we spend on ourselves. We are given a finite amount of time on the planet, and when spend a whole lot of it worrying about what Jonny and Suzie are doing together, or what to wear, or about how your favourite characters on TV will react in the next episode. People, in the Western World anyway, have got priorities that are at times incomprehensible. The reasons are three-fold: The free-market cult of 'self', the anesthetizing of the masses by entertainment, and the remarkable rise of apathy.

In earlier times, communities were much smaller, and everyone depended directly upon other members of the community for their well-being. In 1900 there were only 6 cities greater than 1,000,000 people in the world. Today, there are 4 in Canada alone. These smaller communities encouraged interaction with the neighbours for survival, then to improve the standard of living. Since one person could not be an expert, he relied on his neighbours to help him out. The creation of the middle class actually eliminated this, since now the individual family could afford to pay a stranger for whatever service they needed. This total self-sufficiency allowed perceived independence, but also eliminated the need for getting to know others intimately. It seems strange to us, but 150 years ago, most people interacted only with other people whom they knew quite well. Today, we go to the supermarket and never expect to see the cashier again. Examples of suburbs where people have lived for 10 years and don't know their neighbours abound. Hell, I only know some of the people on the street I grew up on in Ottawa in passing. At the same time that financial self-sufficiency allowed societal isolation, the onset of the mass market enabled companies to hawk products at individuals, not at communities. This created a very significant shift away from thinking about others and their needs, directly to thinking about oneself and your 'needs' (as chosen by whomever was selling). Since there was a lot of wealth to go around, companies even began creating 'needs' to ensure that consumers would buy their products. This all encouraged individuals to think of themselves first, and others second. Everyone espouses the idea: "I've got to put myself first, and then everyone else slightly behind me." By doing so, we've witnessed the wonderful explosion of total self-centeredness that is our society. Everyone is unwilling to sacrifice, because they don't want to 'miss out' on serving themselves first, and be perceived as being 'taken advantage of'. The perception was created that a person 'deserved' lavishing

attention on themselves, and that they 'were owed' the fruits of their wealth. In reality, we must never forget that we are only victims of where we are born, and that complete random chance brought us to where we are today. Taking our comfortable lives for granted, and then having the gall to put ourselves ahead of those less fortunate, might be seen as slightly selfish.

The real problem with the above statement, is that these perceptions are actually re-inforced by the structure of our society. I may work my ass off to complete a perfect Iron Warrior newspaper, or volunteer at a soup kitchen, but if I devote myself to those fruitful endeavours, I get penalized by failing out of school. The lesson one takes out of that is that it's more productive to look after yourself first, and help others as you can. Terrible as it is, such is the situation. Worst of all, I'm as guilty of it as anyone else. This paper is probably rife with mistakes which I let slip simply because I've got to study for myself, and I can't spend 12 hours editing the thing.

The interest in self and disinterest in other 'big' events in the world is reinforced by the inordinate amount of wealth we lavish on entertainment. Everyone consistently complains about how much Hollywood actors and hockey players make, but then forgets about how the free-market system works. We pay people according to their value in our society. A doctor makes a lot of money because he possesses a certain skill set which helps society, and society sees fit to reward him. Professional hockey players and actors are the top in their respective fields, and society rewards them by watching their games and seeing their movies. Their salaries are paid everytime you see a movie and watch TV. If you don't like it, don't watch them. Think about it this way: as an Engineer, you get paid, say, \$40 an hour. Say you then spend 4 hours a week watching hockey and seeing movies. This means that you could have earned \$160 during that time, but you basically devoted that time to entertainment, and that's where the money goes. If you apply the math in those terms, it's easy to see how these people earn so much. A lot of possible productivity is 'wasted' when we spend our time with them.

This skewed perception leads to bizarre non-sequiturs. The average person is perfectly willing to spend \$100 on DVD's or a hockey game, but when a cancer research charity comes to the door, the most they give is \$5. The same goes for the amount of time they are willing to commit. I watch TV for 10 hours a week, say, but I'd probably freak if you asked me to contribute 10 hours a week at a homeless shelter. The desire to become even more wealthy is reinforced by the fact that the cult of celebrity extends to its own extreme brand of consumer goods; the Maseratis, Mansions and mini-jets of the super rich. Wealth, then, provides independence, discourages charity, and encourages the acquisition of more wealth, while reinforcing the idea that to get ahead, one must necessarily think of oneself first.

Lastly, our lives are structured so as to minimize the amount of time thinking about things that are not immediate. A person in Africa hauling water for 2 hours a day has a lot of time to ponder life, the universe and everything, but the wealthier we get, the larger the number of distractions and the shorter our total attention span. People are discouraged from even discussing large issues because they cannot wrap up the discussion in 5 minutes to catch their 4 O'clock hair appointment. University is a great example of this. Barring something globally catastrophic, such as Sept 11, or directly personal, such as a death in the family, I have no time to

think of anything else outside of my own little world of assignments, due dates, appointments etc. It's somewhat intoxicating, as I simply leap from one crisis to the next without really looking a year, 5 years, etc. into the future. No wonder everybody always complains about not saving for retirement. If someone, God forbid, were to die in my class, it would be a terrible tragedy, but exams would *still* loom over our heads. Life goes on, I suppose. This shortened attention span extends to everyone and everything. Politicians think in 5 year spans, and that's probably as far out as anybody who isn't specifically paid to do so thinks. This means that basically no one up top is thinking about the long term future. Then we complain about the fact that we're in an environmental catastrophe. What pisses me off is that once I finish writing this, I've got to then go and do twenty other things myself, and don't have the time to think about how I could personally improve stuff. I just don't have the time. . .

In the final analysis, we're caught in a wonderful trap. We spend so much of our waking time worrying about the immediate that we ignore anything not in front of us, and when we finally get a free moment, we immediately turn to an escape of some kind to remove us from the roaring silence of our own thoughts. Turn on the TV, turn up the music, just make sure there's something else to distract us. This anesthetizes us to the plight of the rest of the world, while we pat ourselves on the back and think we deserve the break. When we do think about helping others, we are discouraged from doing so, because our society is structured in such a way as to reward the person who thinks of his own interests first. If I spent more of my time studying, I'd have higher marks, for example.

The argument of ignorance does another wonderful injustice. Since people are so busy, they never become 'informed' and then never form an opinion outside of what they are shown directly. This leaves them apathetic to whatever the subject is, be it world hunger, wars in far off places, or the politics of Ukraine, because researching the information is too time consuming. We are left with a system whereby we only deal with our own perceived 'personal' issues, and throw everything, up to and including common courtesy out the window. When I was in elementary school, kids sharpened their pencils and then threw the shavings on the floor, using the argument that the janitor's job was to clean up. The complete lack of interest in consideration for the janitor astounded me, and yet I still see people throwing things on the floor, leaving messes around like they are 3. "It's not my problem.", or even better "That sounds like a personal problem." Since when did I no longer have enough time or energy to sympathise or support anyone else?

Heck, unless it's directly in front of our face and affects us, we don't see it. I could rant to my hearts content, but how many people have even taken the time to read this far? Probably more than half lost interest and turned up their iPod.

[4 hours later] I missed half of a fluids lecture for this write-up, and all I could think of during the lecture was how I shouldn't have wasted my time on this editorial. I guess that makes me as guilty as the next guy.

Editor's Note: I love these box things.

Can you have an editor's note in the editor's editorial?

Anyway, Editorial Board positions are open and available. Check the EngSoc website for further details. Come on out and support the Engineering Newspaper, the Iron Warrior!

the IRON WARRIOR

The Newspaper of the University of Waterloo Engineering Society

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Old LowRiders Never Die... They Just Fade Away



Dear LowRider,

I've been really sad for the last little while. You see, I was at this rocking party last weekend, and then I went to the Bomber. Then, for no reason at all, I got kicked out forever! I didn't even do anything! I go there every week and I'm well-behaved and the life of the party. Right now my only hope is that there's different bouncers in the summer. What can I do?

-X

Dear Mr. X,

That break is as tough as they come. Luckily, I might be able to help you out. If the FEBS prez is reading this (and there's a good chance she is) then maybe she'll email me and use her power as CEO of the Bomber to set things right. If that doesn't work out, then you should either grow a moustache over work term, or buy a fake one to wear on Bomber nights in the summer. Based on my experience with bouncers, they're heavy on the heavy, and light on the bright.

Can you dig it? If that doesn't work, then screw them. Blacklisting you has got to be the worst thing they've done for business since forgetting where the liquor licence is.

-LR

Dear LowRider,

You've been at this a long time, old man. I mean, you're funny and all but it's time to go gently into B-Soc, where all LowRiders are put out to stud sooner or later.

Don't let the door hit you in the ass on the way out.

-Almost Ringed

Dear Almost Ringed,

I certainly have been doing this for a long time. I've helped too many people to count, but this is the end of our time together. I'll be... you know... switching streams now. I may have a tear in my eye, but don't cry for me, A-Sock. I'll figure out something.

So, without any further delay, I give you the new... improved... LowRider!

-MM



Dear LowRider,

You're not in Chem at all! What the hell? At least tell me that you like chemistry and hate computer stuff. OK, well, congratulations and stuff. LowRider is one of the proudest and bestest traditions at UW, and probably contributes a lot to that Maclean's ranking. I'd like to know what kinds of things you plan to do to keep up the tradition? For example, never using a question mark in the wrong spot, like that one.

-A. Chemmie

Dear Chemmy,

What are you talking about. I took chem once upon a time. It was good times. I loved all that benzene crap (not as much as the prof liked it) and those buck-rogers balls.

LowRiding goes way back. A proud tradition it is. LowRider will further increase the sarcasm content of responses, poke more fun at u of t fools and stop those stupid, never ending run on sentences that never seem to stop for some odd reason. Hooked on phonics never worked for me so well?

MacLean's likes LowRider so much that they want me to do a column for them. My team of lawyers is in negotiation right now.

You got a problem with Systems punk? You'd better watch your backSYDE. Studying something that no

one has any idea of what's going on is cool. That's why systems is for me. It was due time that LowRider gets with the times. Now go play with your pipettes. Have a great day.

LR

Hey New LowRider,

We're so glad to have a brand new LowRider. The last one was definitely the dreamiest yet, but he's getting bitter and old in his fourth year, and is pretty busy with some kind of a volcano project. Hopefully you'll come out to some of our meetings. Have a good work term and we'll see you in May!

-LowRider Fan Club Chicks

PS: We're going to need a big poster of you to frame and hang in our clubhouse. Can you hook us up?

Dear female groupie chicks,

Hey ladies. What's shakin'? I'd be bitter too if I had to play with molten lava day in and day out. Are you in any way affiliated with these Heidi'z? Enough diversion and now on to your letter. I'll pencil you in if your mandatory attire is teeny, weeny, yellow polka-dot bikinis. I'll wear nothing but my trusty red bandana and a fresh new frown. And one more requirement, if Mooney is still President, I'll be there.

P.S. I'm too damn busy for posters and crap. For the time being get a picture of your favorite mister universe, give him a square jaw, some red around his head and turn that smile upside down. Centrefold will come in the spring.

LR

LowRider: A Brief History



Scharer 1969-1975

The Original. So great was his advice genius that he insisted on never writing a column in the conventional manner: Nobody was fit to edit him, so he used to set up the printing press himself. There is not enough room here to pay homage to this great innovator. Currently a Chem Eng prof, he can be seen sporting his bandana whenever he feels like it.



Pritzker 1975-1979

Managed to bring advice "back to the people", despite much criticism from Sharer loyalists. You probably don't know this, but some of his original manuscripts are framed and hang in his office in DWE to this day. He never undid the bandana that Scharer tied on his head in 1975, and is currently a Chem Eng prof too.



Caruthers 1979-1983

Caruthers did 5 years of grad school just so that he could stick around UW and be Pritzker's successor. His attempts to give out peaceful, hippy advice were not well-received during the disco era, and only now is his wisdom beginning to be appreciated. Also a Chem, he now works for Dow Chemical in Sarnia.



Stanislovsky 1983-1986

In contrast to Caruthers' peaceful style, Stanislovsky offered harsh, totalitarian advice during the Cold War. Some say that the decline of LowRider during the early 90's is a direct result of him picking an idiot as his successor; he says that things fell apart without an iron fist giving advice. A Chem, but also did a minor in Russian studies.



Franks 1987-1991

Franks is generally acknowledged as being the worst LowRider of all time. He just plain sucked. Modern experts agree that this is largely due to the green bandana that he wore, instead of the customary red one. It didn't help that he was, a Civ. Currently flipping burgers in Calgary.



Vazdekis 1991-1994

Known for starting all of his responses with "Yo, my name is LowRider and I'm here to say..." He was better than Franks, but not by much. He would have dropped the ball if it wasn't already dropped. He was a Mech graduate, and is currently working in Ottawa.



Chen 1994-1997

Things were looking up for advice giving when Chen took over. He had a lot of promise and many LowReaders predicted the dawn of a new age. Then in his second term in office, he sold out, changed his name to PepsiColaRider, and was subsequently booted offstage at Tal Eng. What else would you expect from a Comp? He never finished his degree, and nobody knows where he is now.



Penate 1997-2002

Hand-picked by Scharer and Pritzker to fill the void left by Chen, he displayed an eloquence that is unlikely to be seen again. Single-handedly responsible for the renaissance of LowRider in the late 90's and into the new millennium. Without Penate, the proud tradition of LowRider would have ended in disgrace. Penate was a Chem through and through.



Moore 2002-2004

He brought LowRider to a more high-profile position by interviewing FEDS presidents and saying stuff really loud through a Megaphone whenever he wanted to. Kind of a jerk, but generally accepted as the most attractive LowRider of all time so he still got plenty of chicks. Moore is truly a Chem among Chems.



Litt 2004-?

Litt is definitely the newest LowRider to date, and the first one from Systems. LowRider was formed by Chemmies long ago, messed up by other disciplines, and then renaissance by other Chemmies over the past few years. Litt is predicted to be the first non-Chemmie to not suck and disgrace the long line of LowRiders. In fact, he'll probably be a class act.

Eng Events/Opinion

Genius Bowl: Bowling for Genies. . .no, genii? Geniuses? Gemini?

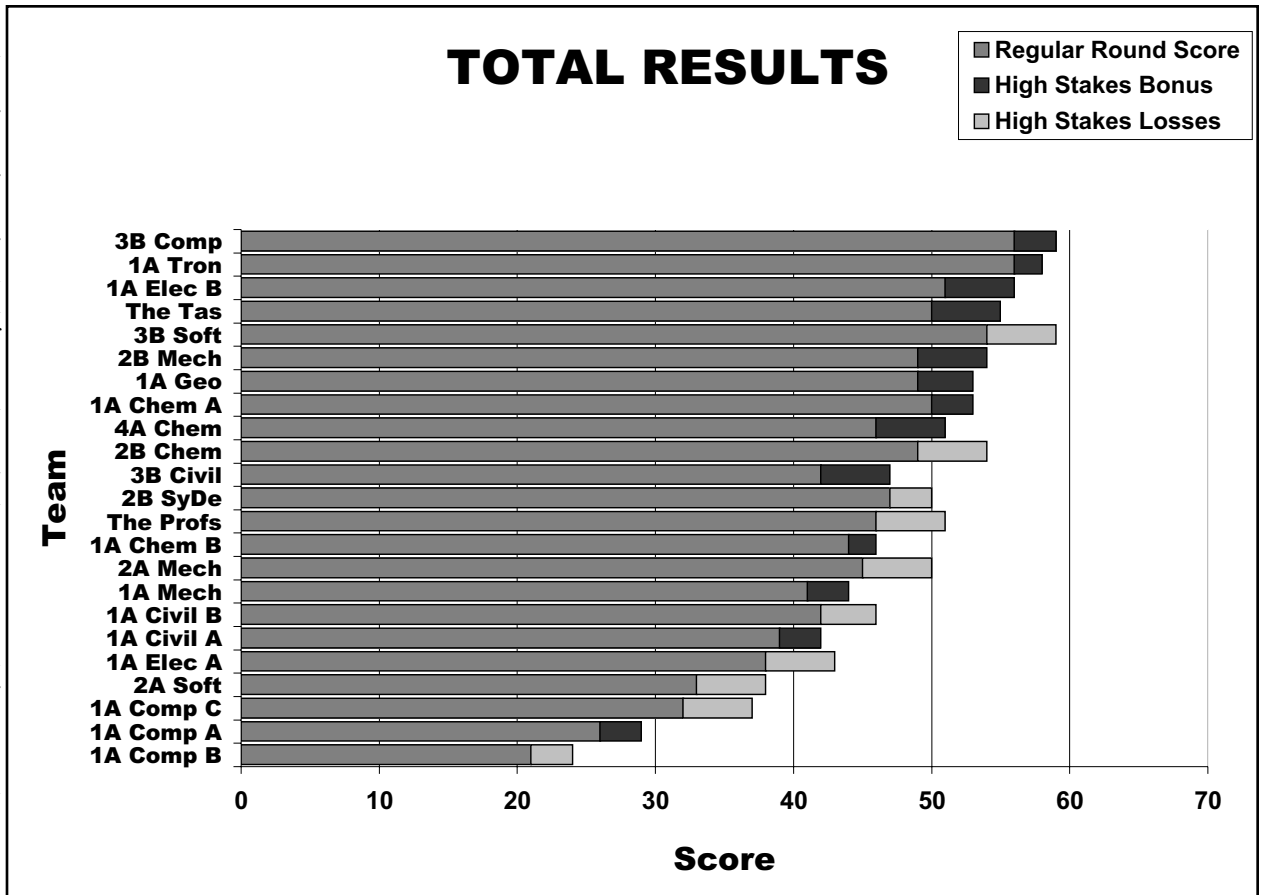
Matt Strickland
Genius Bowler

The Earth is believed to be about 4.55 billion years old. Over the course of its long history, there have only really been two notable events: the appearance of life and, of course, the creation of the Genius Bowl. The Genius Bowl was born in the middle months of the summer of 2004 AD so, in a way, we are all witnessing history in the making. What exactly is the Bowl? The Genius Bowl, an inter-class trivia competition, was created to address a serious flaw in our education here at the University of Waterloo. Although over the course of five years we become well-versed in the world of differential equations, thermodynamics, signals and systems, and physics, the curriculum has a gaping hole when it comes to more practical knowledge. Where are the courses that teach us to memorize obscure world capitals? Where are the seminars on 13th century history? Why aren't more reading assignments based on People Magazine or even—God forbid—Teen People Magazine?

It can be argued that most engineering students become less worldly as they move through their school terms and more one-dimensional. Just under 150 competitors gathered this past November 23rd to prove that they were about more than just calculus, enantiomers, and computer programming. At stake in the Genius Bowl are unparalleled glory, consummate grandeur, some gift certificates for EngSoc businesses, and a trophy of indescribable grandeur.

In attendance were 12 first year teams, five second year teams, three third year teams, a lone fourth year team, a team composed entirely of WEEF TAs, and—the dark horse of the competition—a team of eight professors. The battle of wits was intense as the teams faced-off in four regular rounds of twenty questions, the Death Round—five extremely difficult questions—and a number of High Stakes Spotlights where teams could wager up to five points on the question being posed.

Of course, only one class can hold the title of Genius Bowl Champions: The Smartest Class in Engineering. Many teams vying for the victory put in gutsy performances, playing for broke, and going all in during the gambling rounds. In the end, the top team of the event was none other than the 3B Computer (CE^x) class, closely followed by the 1A Mechatronics



(Tron and Quartered), the 1A Electricals (Electronics), the TAs, and then the 3B Software (SExperts). As called for by the long and honoured traditions of the Genius Bowl, the winning 3B Comp class took the Bowl for a victory lap around The Bombshelter that Wednesday. Only one class per term can confidently try to pick up by claiming that they're the smartest people in UW's Engineering Department and this term the honour falls unquestionably on the boys of CE^x.

Honourable mention goes out to the three 1A Computer (60" JOYstick) teams that managed to sweep the bottom three places, the 1A Civil (Uncivilized) for their sweet nametags, and the 2B Systems (BlindSYDEd) for having by far the geekiest outfits. If you missed the Genius Bowl this term, start reading your literary classics, watching Entertainment Tonight, perusing your atlas, and brushing up on your science and nature. The Genius Bowl returns this summer term!

Perpetual Motion Poppycock

Quoc Huy T. Le

4N Electrical



The first law of thermodynamics states that *energy cannot be created or destroyed, only converted from one form to another*. From this, a very profound truth can be derived: no motor, engine or machine can be more than 100% efficient (except for most heat pumps). In other words, the only energy that can come out

of a system is what you put into it.

What do we call machines that outputs more energy than it gets? They're called *perpetual motion machines*. There were many of these around the turn of the century. And every single one of them was exposed for the simple reason that they could not possibly work. Even in our "enlightened" era there are still those who are sold on the hoop dreams of getting free energy.

I'm speaking, specifically, about a character named Joe Newman and his fantastic energy machine. The motor conveniently has an efficiency of over 400%. And that's

not all. Mr. Joseph Westley Newman has apparently been fighting with the government and patent office over his invention. The patent office has repeatedly refused to give Newman a patent due to the fact that they know it can't do what he claims it does.

Now, I'm not one to judge the beliefs of others, be it religious, moral or technological, but Joe Newman is a crackpot. If he thinks his free energy motor will get very far in this world he's stupider than if he actually believes it works. The only people who are dumber than him are the morons who invest money to try and develop this white elephant.

Perhaps I am being too hasty with my slandering, though. I mean, if he's been able to live off the little money he's swindled from grass-chewing American yokels for the past thirty years, he is actually deserving of praise. But not for being the scientific genius he claims himself to be. But rather, he should be commended for being one of the most successful silver-tongued nomadic frauds that ever existed.

Newman is but one soldier in a legion of scientific

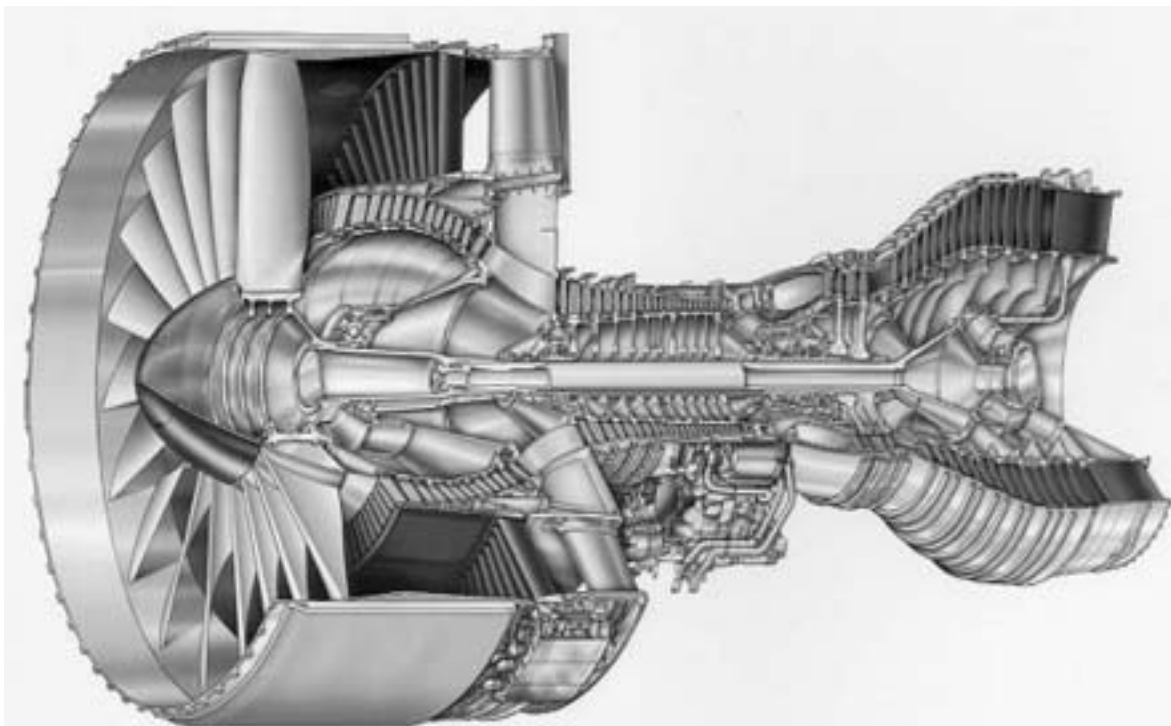
Jehovah's Witnesses. There are a number of people attempting to sell free energy to the world. It is simply heart-breaking to see so many ignorant people lured into the fantasy of creating something from nothing.

I agree that it is easy for me, having formal engineering training, to immediately shoot down notions of free energy without bothering to look at details. Anyone with even the most basic training in science understands this unbreakable principle. Is it not, then, our responsibility to teach the world?

The physical laws of science upon which our profession is based is not up for compromise. Whether the world likes it or not, that is the way things are. Unless someone discovers how to move about in different dimensions or parallel universes, or somehow coexist in a different inertial reference than earth's, there is nothing that can be done to directly break these laws. It really a shame when much time, money and energy is wasted on such matters. When charlatans show up making wild claims about free energy it is an affront to science.

My fellow engineers, let us not be selfish with our knowledge. Remembering that it's our moral responsibility to lookout for the well-being of society, we should educate the public as much as we can about follies such as perpetual-motion machines.

That is not to say that we should be spewing facts and figures left and right all the time to show off our knowledge. But if we can help a friend save his time and money with just a few words of wisdom, the world would be a less cozy place for quacks like Joe Newman.



"High bypass turbofan engine" - Like it or not, physics laws are so named, because otherwise things such as this engine would be utterly impossible.

Remember when you were in 1A?

A Frosh Insider's Perspective



Carolyn Sutherland

1A Mechanical

Now that the term is winding down, engineers of all years are hitting the books in preparation for the dreaded finals. For the 1A classes, hopefully they've all had an exciting first term here at Waterloo that they'll be able to look back on when they graduate. Under threat of death by Andre, the editor, I'm here to share some of my impressions and experiences as a frosh with you.

Back to Basics: Frosh week was pretty amazing. I have never experienced anything like it at all. Even though we were divided up into groups (Your mom loves the Brick!) and pitted against one another in various events designed to demonstrate the responsibilities of an engineer, any rivalries between groups were always momentarily dispelled in order to gang up on frosh from another faculty. Parading around the campus carrying your colour group's flags and mascots while singing cheers and other Engineering-related songs was also strangely enjoyable. Meeting EDCOM and the TOOL were also memorable highlights, and who can say that Toga Night was a waste? Sure it was cold waiting in line, but once you got in among the crowd of frosh dancing and generally enjoying their soon-to-be last few hours of absolute freedom for the next 5 years, it was an exhilarating way

to kick off 1A. And then the work began.

1A Term: At first I was excited about attending lectures... for about the 3 days. Then I began dreading the 3 straight hours of sitting in an uncomfortable RCH chair while trying to not fall asleep. Tutorials were also a new concept for me, and while I would rather have gone to a lecture at first, I soon came to prefer tutorials as the atmosphere between frosh and TA became more relaxed and open. The labs were also fun at first, especially because it was in the modern multimedia room and I didn't have to take any notes! Those were the good old days, when I would head up to the very

"...at first I was excited about attending lectures... for about 3 days..."

back row and relax on the comfy chairs for the rest of the three hours! Sigh... I enjoyed the drawing and designing exercises we did, but after a few weeks the long hours and repetitive lessons became a bore. Soon, the labs were right up there with lectures of my hate list. So yes, even though I hated all my classes at one point or another, it was probably because I wasn't doing very well... let's hope I do better in 1B!

Co-op: Ah, the joys of JobMine! Fortunately I was able to secure a job during the first cycle, meaning I didn't have to slog through the entire process when

midterms came around. Overall I thought that the online application process was fairly easy and simple, although writing the actual resume and waiting to see if you'd have a 'Not Selected' or 'Selected' next to your applications the next time you logged on was the stressful part. After hearing the horror stories about the earlier version of JobMine (which went by another name I can't remember at the moment), I think the class of 2009 was fortunate to have such a simple and efficient system at their disposal. The only thing that was a pain in the derriere was going to your interviews... if any!

Illusion of Free Time: Now when I came to Waterloo, I figured I'd be able to manage my time, no problem! After all, all the other faculties seemed to have lots of spare time, right? So naturally I checked out all the things I could do in my "spare time" such as the Orchestra, Quiz Bowl, and of course the Iron Warrior. Well, let me tell you that any "spare time" was quickly replaced by quizzes, assignments, studying and Iron Warrior articles. I swear, I volunteer to do a tiny recipe column for the first issue and by the last issue I'm bogged down writing PCPCPCPs, random top ten lists and my experiences as a 1A! If only they didn't have cookies at the meetings... maybe then I could resist going... damn the one who brings the sugary goodness...

Well, that's about it for my experiences here as a frosh at Waterloo engineering. Though a little hectic and stressful, I've had so many positive experiences already! I wish all of you a wonderful work/study term and good luck on your finals! Carolyn may be reached at csutherl@engmail.uwaterloo.ca .

The Facts on WPIRG

Janet Yip
2B Electrical

There has been a lot of talk recently about WPIRG, but many students have not been informed of what it is. The Waterloo Public Interest Research Group (WPIRG) is a student-driven volunteer organization right here on campus. Its mandate is to help UW students research, educate, and take action on environmental and social justice issues.

Students organized to form WPIRG in 1973 with the goal of providing themselves with a vehicle to inform, challenge, and take action on issues adversely affecting people and the environment. WPIRG was the first PIRG in Canada, and today, there are 10 other PIRGs on Ontario university campuses, 8 in the rest of Canada, and over 200 in the United States. Each PIRG operates autonomously, with the aim of supporting the goals and interests of its local volunteers and membership.

The volunteer experience is unique at WPIRG, because it is the goals and interests of its volunteers that shape the organization. The role of the two staff at WPIRG is to facilitate and support the work of these active students. This is done through various means such as organized leadership training, staff knowledge and experience, and financial funding to make project ideas into reality.

Students get involved with WPIRG in a variety of ways and at different levels. Many choose to join issue-based action groups such as Amnesty International which works on addressing international human rights abuses, or Food Not Bombs which

serves free food to the local homeless and hungry populations. Other students come to the organization with an idea for a group, which then collaboratively gets developed into an action group that other students can join. There are also many projects ideas that students bring to WPIRG. This includes annual events such as the Rainbow Reels Film Festival, as well as one-time events such as the HIV/AIDS conference which was organized on campus last winter.

Even though WPIRG isn't officially linked to Engineering, Engineering students have played an important role in shaping the organization and making important contributions. Many engineering students have brought forward ideas that enable them to apply their course work. It was computer engineering students that helped develop CarpoolTool.com, a national internet based ride matching service, as well as RentersReview.org, a website where you can review and research landlords. A few years ago, there was collaboration between WPIRG and civil engineering students to organize a conference on renewable energy. More recently, WPIRG collaborated with Engineers Without Borders (EWB) on a contaminated water project in Molinos, Chile. EWB students on international placements and training have been funded by WPIRG, and the relationship and collaboration between the two organizations continues to be strengthened.

Engineering students have also served on WPIRG's Board of Directors. WPIRG is governed by a volunteer Board of Directors, comprised mostly of UW undergraduate students. This is the first opportunity for many students to learn about organizational ...continued on Page 9.

UW Curriculum

...continued from Page 1.

way in which science and engineering interact with them."

These are fairly noble goals, but I do not believe they address the impact of technology aspect component enough. For example, depending on who you ask, it has been maybe 200 years since the start of the Industrial Revolution, but it has only been maybe in the last 30 that sustainability has been on the radar. Note that nowhere in the CSE requirement does it say anything about an understanding about our physical environment.

Additionally, the current CSE structure does not do enough to reach its current goals. The problem is twofold – there are only five CSE slots to begin with (in my program), and only one of them is required to be an impact course. Only one? Out of the more than thirty courses we take, only one is required to deal with technology and society? Furthermore the acceptable courses on this list provide a narrow view of impact at best. Most are very specific, for example: "HIST 243 The Impact of Industrialization on Europe" or "MSCI 422 Economic Impact of Technological Change and Entrepreneurship". Finally, of the remaining four, one is "engineering economics" which really has nothing to do with "human and social values", unless you mean the vigorous inter-group collaboration on the assignments. That leaves three, and you are free to study anything you like, which may or may not have anything to do with societal values.

The Centre for Society and Technology and Values (CSTV) here in the Faculty offers a series of STV courses that appear to have great potential in addressing technological impact. However from every student of an STV course I've heard the same refrain: "Great subject matter, but the professors make it extremely unpleasant." It is somewhat counterproductive to disillusion those who are interested most in your cause. So. Maybe a... departmental restructuring can be put into motion for the CSTV.

I would like to see a more regulated complementary studies requirement, perhaps based on the base courses for a degree in Arts, with emphasis on social sciences. There are courses such as anthropology, economics, and political science, that I feel every member of society should take. Call me an idealist, but I feel the world would be a better and more understanding place if this were true.

This revised CSE requirement would also contain a stronger "impact" component, as that category is by far the most relevant to us and our position in the world. As engineers we are often found sketching out our technological future, in the processes, buildings, cars, and systems we will inevitably create. These processes will feed, clothe, shelter, and move us, but they must do so without compromising the ability of future generations to do the same. This month's Engineering Dimensions, the publication of the PEO, states this month that "Traditional engineering areas have become dominated by a focus on sustainable development". Wouldn't it be sensible then, to include this in our curriculum? Heck, we have a faculty of Environmental Studies, what we're looking for is right on our doorstep. What's more, they have way too many girls, and we have way too many guys. It's a win-win situation for everyone.

WPIRG Petition

Nicolas Weber
Special to IW

It is time for democracy at the University of Waterloo. A group of concerned students has been calling for a referendum that seeks to give students a choice as to whether or not they pay fees to the Waterloo Public Interest Research Group (WPIRG). The petition refers to the \$9.50 that all full-time undergraduate students must pay to WPIRG per 8-month academic term. This fee, which has been collected since 1973 in varying amounts, is not without opposition. According to WPIRG staff member Daryl Novak there have been students who have campaigned against this fee in 1999, 2001, and 2003. When asked why they were petitioning the students said "After talking to many students who said they did not know what WPIRG was or what it does, we thought it was necessary to examine this issue in greater depth. A referendum on this issue will give WPIRG the chance to prove to students why they are worth the money." The group, which collected over 600 signatures in the first 48 hours, is well on their way to collecting the required 1900 signatures which triggers a referendum.

Any students who would like to get involved in collecting signatures or would like to sign the petition themselves should contact Nic Weber at nic@nicweber.com. "No matter what the outcome, a referendum will raise awareness about WPIRG and the fees that students pay to this organization." The group's closing remarks reflected a wish to get students involved in campus politics and to take an active interest in defending their rights.

ENGINEERING SOCIETY OUTGOING EXECUTIVE REPORTS

El-Presidente - Go Fly a Kite

As my parting words to you, I think that Anatole France said it best when he wrote that "Man is so made that he can only find relaxation from one kind of labour by taking up another." This has truly been an amazing term and I encourage everyone to

make their time at university the most interesting and diverse experience possible. Forget your books every so often and go fly a kite, we all need a change of pace now and then.

My best to you all, Laura.

VP Ex -Final Thoughts

Nick Lawler

Outgoing
VP External



Hello everyone. This is my last exec report as your VP External. And what a pleasure it has been over the past 16 months. I've learned a lot, and I think I've helped you, the members of the society as well. I remember the first conference I ever went to. It was the ESSCO President's Meeting, and it was held at the University of Guelph. That weekend I met so many fantastic people from all across Ontario. I would continue to see these people at other conferences, and other functions, and every time I would come back with new ideas for us, and also give them ideas that they could try out at their school. One of the most

important things I think I did was to educate other Ontario EngSocs about our Course Critique process. This may be surprising but at some schools do not have such a sophisticated and reliable process so that students can give feedback about their courses and professors.

I also had a great time organizing such great events as Explorations, The Bus Push, National Engineering Week, and many other great events. I would like to take the time to thank all of my terrific directors who made it all possible. Thanks for all your hard work, sleepless nights (at least more than usual), and as always having a great time.

I pass the VP-X torch onto Jay Gunners. I have full confidence that he'll take the reins and do a great job. And despite what he might have said about me in his director's report (I hope he left out the bad stories) I know we'll get along great. Once again, thanks so much for the great opportunity, and here's to the next 16 months!

VP Int - A farewell

Kate Kelly

Outgoing
VP Internal



Sixteen months seems like a long time at the beginning, but before you know it its all over! I've had a wonderful time being VPI these past months, it's taught me so much, like to never organize and head up my own volunteer organization. I'll certainly miss being in charge, but I will definitely not miss the spam that has been overflowing my inbox these past months (No! I do not want cheap drugs or a green card for the US!). I'm going to miss working with all the wonderful exec from this term, but I don't think I'll miss doing

YMCA at TalEng. (Unless of course Rajat can come up with a better costume next time!) All of my events are done for the term, I hope to see everyone out at Potluck this Wednesday (December 1st) at 5:30 and obviously I expect to see everyone at EOT. The End Of Term video will be shown and it should be a good one! (Buy me a BEvERage when you see me there! And the other outgoing exec too!). I want to wish the best of luck to the outgoing exec and the incoming exec (the incoming exec are going to need it way more than the outgoing I think... maybe you should buy the incoming exec a BEvERage at EOT too... nah!) So this is it, I'll miss writing these and submitting them late, but all the new editors of the IW probably won't miss me! Good luck on finals everyone!

~As always, ConfusedKate ~

VP-Ed - 2010. It'll be grand.

Jonathan Fishbein

Outgoing
VP Education



Well with a feather in my cap and a tear in my eye, it's time for my last VP Education Exec Report, Exec Report Number 6. Only one major issue to report on this week, and that's the EngSoc response to the faculty's 2010 plan which was approved by EngSoc at the last meeting.

To fill those of you in who missed the last EngSoc meeting, EngSoc council approved a motion to create the 2010+ committee. The goal of the 2010+ committee will be to write submissions for each of the department 2010 planning committees. Each department within engineering is required to set up a committee to submit their 2010 plan to the faculty. Now, every submission submitted to the department committees must be responded to by the committee and have the submission and the response forwarded to the dean for approval. This ensures that every submission the committee submits will be looked at and will show the faculty that we really do care about and want to get involved in our education.

"So how is this committee going to work?" you ask. Well, the two EngSoc VP Educations will be the co-chairs of this committee. The committee will also have sub-committees for each department

and these sub-committees will be chaired by interested students appointed by the VP Educations. Each department sub-committee will be comprised of the academic reps for the classes in the department, the EngSoc class reps for the classes in the department and any interested students. The committee will run from January 2005 to April 2005. Anyone interested in helping out with this committee should contact me (asoc_vpedu@engmail.uwaterloo.ca) and I'll put you down on the list of volunteers. Don't worry that we'll be on co-op for the winter since a lot of the work can be done through e-mail.

With that being said, I think it's time for me to ride off into the sunset. Before I go, I'd like to congratulate Melinda Hurd who will be taking over the VP Education job, come the summer term. Melinda has held many directorships under VP Education and should do an excellent job representing you to the faculty on academic issues. As for me, I'm still going to be your FEDS Engineering Councillor, trying to get EngSoc and FEDS working together, and will probably run for Engineering Student Senator come the Winter term. So, you don't need to worry about me, I'm still going to be around and involved in engineering education issues. I hope you have enjoyed the VP Ed job that I've done for you as much as I've enjoyed doing it. And with that, I'm outta here! See everyone next term when I can finally be a 4th year and sit in the back of the meeting and heckle.

VP-F - The Truth Is Out

Rajat Suri

Outgoing
VP Finance



Business first: please get in all expense forms by Friday, December 3rd by 4:30 directors, or you might be in the hole. Other than that, please email me if you have not received your cheque... I tend to be a little forgetful sometimes.

Well its goodbye from me! I don't have

much to say, except a heartfelt "Thank you" to Mary Bland, who's coached me throughout my role as VPF. It's been a lot of fun, but I look forward to taking this break and pursuing my other interests. You'll see me around doing other stuff, that's for sure. Here's one final rap from me. (The last verse from the Engsoc meeting)

I'm finished mah last term
And written my last budget
But you really think I did that shit
H'all I did was FUDGE IT

ENGINEERING SOCIETY ELECTION RESULTS

The Chief Returning Officer Reports. . .

Panu Turcot
Chief Returning Officer

It's a fine day to be the EngSoc Chief Returning Officer, for today is a proud day indeed. Today, I have the privilege, no, the pleasure of introducing an EngSoc executive sired by EngSoc executives (oh yes, the previous executive were busy people). Alright, that hopeless introduction has fallen flat on its face so I will do this the good old fashion way.

On Wednesday November 24th, 2004, 244 undergraduate engineering students came out to the polls to vote for candidates in the race for VP Finance and VP Education, a 9.6% voter turnout. Inside the high tech voting booth built from the finest grade cardboard this side of the C&D

stockroom, with pencils in hand, catch phrases like "Make your voice Hurd" and "He's cash money!" were on the mind as voters cast their ballots. When the dust settled, only two candidates remained. A simple quote can sum up the election results:

"God creates dinosaurs... ..Women

*"God creates
dinosaurs. . . women
rule the Earth. . ."*

rule the earth"

Later that day, at the EngSoc meeting, three acclaimed candidates were ratified by EngSoc class reps. Honourable mention must definitely be made to Michael John Gilbert Buczkowski (yes I had to look up how to spell his name). Despite a

shocking lack of pirate monkeys at the meeting, Mike was able to win over the room by not only shaving his beard, but half his head during the meeting. In due time, the mullet that will form from the wreckage of hair will more than likely rival that of Joe Dirt.

Furthermore, a round of applause goes out to the other candidates in the executive race. Re-running for VP Education, Jonathan Fishbein dared to put his signs in different places. In the VP Finance race, Adam Schubert went above and beyond with a campaign video, complimenting POETS programming any chance that it could. Finally, the man who was called by a frosh "the guy with the buttons", Marc Joyce.

All that being said, it is my pleasure to announce the new Engineering 'A' Society executive and WEEF director.

Results:

PRESIDENT –
Nick Lawler
VP EDUCATION –
Melinda Hurd
VP EXTERNAL –
Jason Jagodich
VP FINANCE –
Sabrina Giovinazzo
VP INTERNAL –
Mike Buczkowski
WEEF –
Katherine Chiang

ENGINEERING SOCIETY INCOMING EXECUTIVE REPORTS

President -First Thoughts

Nick Lawler

Incoming
President

Hello everyone, this is my first exec report as your new Prez. If you are reading this on the first day it was published, you should come find me. I'll be the purple guy in the Orifice. Feel free to come and say hi, I won't bite, I promise. The upcoming term should be great, to say the least. It's the summer, so that means sunny days, a cool breeze, and warm nights, all of which can be seen from the small window in your lab, as you sweat out another eight hour report writing session. But don't fret, the Engineering Society is here to help. We'll bring to you many events, to let you stretch out, relax, and most importantly have a good time in

the process.

We exist to help you! Whether it be with educational issues, or with providing a good time, all of the new exec are going to work very hard to help you, the student, wherever they can. If you want to be involved, directorship applications are available now. The EngSoc website has descriptions of most of the directorships, and if you have any questions feel free to email me at asoc_prez@engmail.uwaterloo.ca. These positions are very important, as without directors nothing would happen within the Engineering Society. So come out and apply, don't worry if you've never done anything before, no experience necessary. Also, if you don't want to take on the full work load, you can also be an assistant director, helping out when ever you can.

Well that's about it for now. I can't wait to come back in the summer and start a great new term, but until then I wish everyone a safe and happy work term.

Skullets and mullets

Mike Buczkowski

Incoming
VP Internal

As I walked into the Orifice on a cold and blustery Thursday November 25 I thought to myself how lucky I am to be your new Vice President Internal on Asoc. I was definitely sporting a new 'do known by the term "mullet" as those of you who attended the EngSoc meeting would have seen. I'd also like to offer a special thanks to Laura Mooney and suggest that perhaps she might like to open a hairdressing parlor to exploit the skills she used on my poor skull.

Bringing up another point, I don't know what Kate was up to as VPI but I found some really interesting stuff in the desk drawers... There were boxes and boxes of flavoured condoms, handcuffs, leather chaps, and a book of pictures that you wouldn't believe if you saw them! I can only tell you that they were interesting and will be used at a later date to extort some money from one Kate Kelly and various other members of the administration.

Switching to a more serious note those

Money, money, money!

Sabrina Giovino

Incoming
VP Finance

After the craziness of the election process, I'd just like to say thanks to everyone who came out and voted! You guys are awesome! Also, just a quick shout out to the other candidates; you guys definitely made a good run! I'm really excited to work with the new exec next term. It's going to be great! Thanks to the old exec for making this term a success, as well as the past term. You guys did an excellent job and we'll do our best to do the same!

Rajat did a great job during his reign and

of you who know me, or will know me, know (Bet you've never seen so many knows before) that I love Waterloo Engineering and I hope to raise everybody's spirit. I've got some great plans for events to do in the summer term but I really want to hear from you guys as well, so e-mail me at asoc_vpint@engmail and tell me what kind of things you guys want to happen! The rest of the exec and myself are all quite passionate about what we do and I really look forward to working with them all we are going to make the next 16 months awesome.

However, it will definitely be tough to follow in the footsteps of such a great executive and I wish them all the best. Other than that though, directorship applications for the summer term should be up by the time you are reading this article so apply! This especially goes to first years! For those of you who don't know what directorships are, check the descriptions out on the website. They let you get more involved and you can have a lot of fun doing them. The applications can be found on the EngSoc Website.

EOT is also coming up so I hope to see everyone out and best of luck on Exams I know I'll need it even if you don't!

Drop by and chat with me anytime,
Butch

I will do my best to make finances flow next term and go above the duties that I am required to do. I'll make information available on how to fill out budget proposal forms for directors and work to get more for your money! I'd also like to have another contest like the Class T-shirt Contest where the prize is money for your classes! More money for you guys! I'm always open to new ideas, after all, there's plenty to go around, and by funding new events and such, we can think of ways to make EngSoc even better for you guys.

The term is almost at an end, so good luck to everyone with exams! Also, hope the work term goes well and we'll see you in the summer! Good times ahead and lots of money to be spent!

VP Ed -2010. It'll be grand.

Melinda Hurd

Incoming
VP Education

Hey guys and dolls. First of all, I'd like to thank everyone who came out and voted (regardless of who you voted for) in the elections this term! I'd also like to thank Jay and everyone else who participated in making the election process run as smoothly as it did. I am very excited to be part of the new EngSoc executive as your VP of Education. I believe that together the new executive creates a diverse and creative team - those of you who attended Taleng were the first to see us in action! "I used to work in Chicago, the old department store..."

To ALL of the outgoing exec, thank you for your dedication and good luck in your future endeavors!

I think that it is important at this time to recognize and thank Jon for his fantastic work as VP Ed for the past 15ish months. Jon juggled many important academic issues in the last few months, and he never once dropped a ball. He motivated me to become involved in this position; and as the new VP Ed, I hope to continue the projects he started while

VP-Ex, poking fun at the Pres

Jason Jagodich

Acclaimed - VP External

WOOOO I'm in!!! Finally we got rid of that dirty old man... what was his name again? Lush, Lawless...oh I remember Lawler. Well folks as it turns out we didn't get rid of this bearded boozehound we just bumped him up to Prez! What were we thinking? It's bad enough I have to live with the guy, now we have to share an office too. But Mary will still be there, so all is well in the Orifice.

Well engineers, I'm pumped to be your new VP External! We have tons of upcoming conferences and events approaching. First of all, FROSH WEEK, FROSH WEEK, FROSH WEEK! If you had a great time at your frosh week, or you think you know how to improve the week, then come out and be a leader. I can tell you from personal experience that being a frosh leader is a truly enjoyable and rewarding experience. You can apply online at <http://www.eng.uwaterloo.ca/~foc>. We need Bigs, Huges,

WEEF been here already!

Katherine Chiang

Incoming
Weef Director

After the release of the last issue of Iron Warrior, I have to say I'm happy to hear that people are interested in becoming WEEF assistant directors, which brings us to some of the plans that I hope to accomplish during my time as WEEF director.

First and foremost, website updates. The WEEF site has not been updated since the reconstruction of the WEEF website in

introducing some initiatives that I feel would further develop the VP Ed portfolio. Some of my responsibilities over the upcoming co-op term that you may be interested in will be to receive and organize PD Eng courses feedback, and to encourage the A-Soc students to become actively involved in the VISION 2010 department committees.

I truly feel that my position as VP Ed requires your input and I want to ensure that I am aware of your opinions and concerns regarding academic issues in the faculty of engineering. Please feel free to approach me in the halls or email me over the co-op term with your comments. I would also like to encourage anyone with new ideas or initiatives regarding the VP Education directorships to contact me. If you have an interest in one of the positions available, or if you are not quite sure what the positions entail, let me know and together we can find a directorship that works for you! As a greater number of committed students become involved in the engineering society, our ability to provide more creative and effective services increases significantly. Get involved!

On that note, I wish everyone good luck on your final exams and happy partying afterwards! I hope that everyone has a wonderful winter holiday and a successful co-op term! I look forward to seeing you again in the summer term.

and Edcoms of course. We welcome applications from frosh. Don't be scurd!

Next on the engenda, if you want to get involved with EngSoc but don't know how, here's your chance. Apply to be a director! Directors run some of the exciting events that we have here at UW such as the Santa Claus Parade, Bus Push, and TalEng! If events like this aren't for you, numerous other positions available through EngSoc including Megaphone director, POETS Programmers, and POETS mangers.

Thanks to all those who came out to TalENG this term! We had some excellent performers, artists! I would also like to thank Thor and Dave for running this great event. We saw the old exec. do something that resembled the Village People (If the Village People members were an Edcom, a fisherman from Cape Cod, and Rajat wearing the Imprint for a hat.) Nevertheless, the new exec stole the show with our rendition of our favorite song about the windy city.

Well folks that's it from me for now. If anyone has any questions or concerns you can find me anytime at POETS or the PAC.

2002, partly because we have no easy way to do this. I'm currently researching into website content management systems, which will allow easier updates, and maybe a database of previous and current WEEF funding allocations.

Also in the planning, are promotions. It is really nice to see the kind of participation we had this term, especially in the first years, and it is my hope that this will continue. My plan is to have small presentations during events such as Student Life 101 or Frosh Week so the first year students get as much exposure to WEEF as possible. I plan to work with Mike, the B-soc director, on this.

Dates (not the kind you eat, and not the kind you go on for romance)

Want a Job? CECS Important Dates

December 1:

- Co-op job postings open at 6 am
- Job rankings close at 9 am
- Job match results available 10 am
- Tuesday job posting close at 11:59 pm

December 2:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings open at 3 pm
- Wednesday job posting close at 11:59 pm

December 3:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings close at 9 am
- Job match results available 10 am
- Thursday job posting close at 11:59 pm

December 6:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings close at 9 am

- Job match results available 10 am
- Thursday job posting close at 11:59 pm

December 7:

- A day that will live in infamy.
- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings open at 3 pm
- Monday job posting close at 11:59 pm

December 8:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings close at 9 am
- Job match results available 10 am
- Tuesday job posting close at 11:59 pm

December 9:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings open at 3 pm
- Wednesday job posting close at 11:59 pm

December 10:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings close at 9 am
- Job match results available 10 am
- Thursday job posting close at 11:59 pm

December 13:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Friday job posting close at 11:59 pm

December 14:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings open at 3 pm
- Monday job posting close at 11:59 pm

December 15:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am

- Job rankings close at 9 am
- Job match results available 10 am
- Tuesday job posting close at 11:59 pm

December 16:

- Co-op & Grad employer interviews continue
- Co-op job postings open at 6 am
- Job rankings open at 3 pm
- Wednesday job posting close at 11:59 pm

December 17:

- Co-op & Grad employer interviews continue
- Job rankings close at 9 am
- Job match results available 10 am
- Thursday job posting close at 11:59 pm
- Although Co-op job postings are not listed past December 17, they may takeplace daily and into January and February. Watch JobMine login page for details and updates.

Upcoming Events from EngSoc

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
28	29 P**5 Submission Deadline	30	1 EngSoc Potluck Meeting	2 IW Staff Meeting	3 EOT	4	<i>If you'd like to advertise your event in the Iron Warrior, please send your information to iwarrior@engmail</i>
5	6 Lectures End	7	8	9 Exams Begin	10	11	



Sandford Fleming Foundation
E2 3322, ext 4008, sff@engmail
www.eng.uwaterloo.ca/~sff

Congratulations to the following winners of the
 2003-2004 Teaching Assistantship Excellence Awards

Ahmed Nefaie El-Refai, Civil Engineering
 Wayne Jenkinson, Civil Engineering
 Ksenia Golod, Electrical and Computer Engineering
 Julie Vale, Electrical and Computer Engineering
 Nguyen Nguyen, Electrical and Computer Engineering
 Lisa Silbert, Management Sciences
 Vickie Ho, Mechanical Engineering
 Shohel Mahmud, Mechanical Engineering
 Philip Parubets, Mechanical Engineering
 Mike Bi Bernardo, Software Engineering
 Stu Doherty, Systems Design Engineering
 Danny Lelli, First Year Engineering

Students, please note that you are able to nominate your TA for this award. Please contact the Engineering Undergraduate Office or the Engineering Society Office for nominations forms. Please consider recognizing your Outstanding TA in this way.

Funding for these awards comes from engineering student contributions and depends on them for continuation.

An organization devoted to the advancement of engineering education.

Rat Brain cells capable of flying F-22

Proof that fighter pilots aren't all that smart?



How many rats does it take to fly an F-22 Raptor? Well, not even one. About 25 000 rat brain cells will do the trick. Thomas deMarse, a professor of biomedical engineering at the University of Florida, has managed to grow a living "brain" that can fly a F-22 simulator through a computer interface. This gives researchers an opportunity to actually see the neurons connect to each other and learn.

When the neurons are first put in the dish, they look like grains of sand in water. However, as the brain learns, microscopic lines begin to extend from one grain to another, that representing the learning of processes. "You see one extend a process, pull it back, extend it out - and it may do that a couple of times, just sampling who's next to it, until over time the connectivity starts to establish itself," deMarse says, "(The brain is) getting its network to the point where it's a live computation device."

The brain interacts with the F-22 simulator through an array of 60 electrodes that sit under the brain culture. The electrodes are then connected through a standard desktop computer, and then to the simulator. Live brain cells are then placed on the culture, which then begin to reconnect themselves, forming a neural network. It takes about 15 minutes for the

network to adjust to flying the plane.

To control the simulator, the brain receives information from the computer about the current flight conditions, such as the degree of pitch and roll. Information is transmitted to the brain by sending signals to electrodes which can stimulate different parts of the culture. The brain analyzes the incoming information, and adjusts by sending signals back through the electrode plate to the computer and the simulator's controls. The simulator reacts, and sends information back to the brain, creating feedback loop.

"Initially when we hook up this brain to a flight simulator, it doesn't know how to control the aircraft," deMarse said. "So you hook it up and the aircraft simply drifts randomly. And as the data comes in, it slowly modifies the (neural) network so over time, the network gradually learns to fly the aircraft." deMarse plans to make the autopilot more competent by having the brain use a horizon to judge how it controls the plane.

At the moment the brain can control the pitch and roll of the plane, in weather from calm skies to hurricane winds. However, the fundamental goal of the project is to understand how individual



"Who's flying this thing?!" - Apparently, your hamster could, if you could bear removing a few hundred thousand brain cells from it's head. Perhaps the human mind isn't as great as we thought.

neurons interact in a network, and hopefully shed light on neural disorders such as epilepsy.

"We're interested in studying how brains compute," said deMarse, "If you think about your brain, and learning and the memory process, I can ask you questions about when you were 5 years old and you can retrieve information. That's a tremendous capacity for memory. In

fact, you perform fairly simple tasks that you would think a computer would easily be able to accomplish, but in fact it can't." While computers are very fast at processing some kinds of information, they can't approach the flexibility of the

Continued on page 17 See F-22 Rats

TALENG Photos

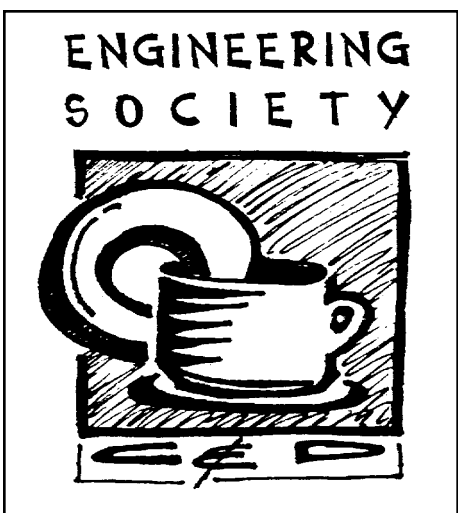


WPIRG Facts

...continued from Page 5.

governance, an experience which they take into their future careers.

Finally, the majority of students experience WPIRG through events and talks that come out of all the hard work of other students. Look forward to upcoming events in the Winter term, including a green buildings lecture series, the weekly Group Skills Workshop Series, a workshop on development and socio-cultural sensitivity, the Rainbow Reels Film Festival, the One-Tonne Challenge, and much more. If you want to get involved or have questions, visit WPIRG in the Student Life Centre, room 2139. If you have an idea you'd like to get off the ground or would like help with, go by and talk to the staff, Raj and Daryl; that's what they're there for!



PCPCPCPCP

POINT VS. COUNTERPOINT VS. COUNTERPOINT VS. COUNTERPOINT

The Debate of the Ages: Which is the Best Star Trek Series?

There is nothing wrong with your vision. Do not attempt to adjust your copy of Iron Warrior. In this latest issue, we at the IW Global Headquarters, decided to delve deep into one of the most

debated issues of modern television: Which is the best Star Trek series of all time? Safety gear is recommended, resistance is futile. Ensign, set the course for the ultimate PCPCPCPCP of all times! Engage!

Star Trek: The Original Series Here's to the space cowboys

Andre Beltempo



3B Mechanical

First of all, Star Trek is certainly a phenomenon, spawning 5 TV Series, 10 movies, a cartoon, and a ridiculous number of novelties, computer games, action figures and the like. Now, you may make the argument that it is old, dated and no longer relevant, but Star Trek: The Original Series was what started it all. Although every other series (except Enterprise) has gone on for 7 seasons, producing a solid 200+ episodes, the original only ran for 3 seasons, yet those 3 seasons were good enough to spawn the most successful SF franchise in the history of mankind.

Star Trek could have been just another 60's TV show, but because the original episodes were so strong, addressing issues of the day metaphorically, with a brilliant cast, a wonderful vision of the future and a positive, multi-cultural outlook, it stood above the rest, and stood the test of time. The original cast was so strong that although the character of Kirk is the most ridiculed of the Star Trek captains, he's still the most recognizable. The reason ST:TOS was so successful was that it presented a simple format, which allowed someone to pick up any particular episodes,



without needing to know a complicated story arc. This is why ST:TOS was so successful in syndication, and why ST:DS9 won't be. In fact, the most popular DS9 episode was one that included Kirk and crew, and did not rely on the extensive story arc of DS9. Most of the reasons people don't like TOS are simply cosmetic: they don't like pushbutton computers, ridiculous background music, and cheap background sets. Those people are merely letting shallow, special effects gorged pundits tell them what to think. Star Trek was never about outstanding visual effects and ground breaking digital technology, that's what Star Wars was for. Star Trek was for strong characters, strong plots, and a good message, and for that you need Star Trek: The Original Series. You know when you turn on ST:TOS, you'll get Kirk kissing women, Spock being infuriatingly logical, McCoy screaming about being: "a doctor,

not a -", and Scotty yelling about the laws of physics. When TNG came out, some of the more recognizable plot-lines from TOS were re-used. The fact that the stories were strong enough to be dusted off and re-used twenty years later tells volumes. The most telling evidence of TOS speaks for itself: What were some of the most popular TNG and DS9 episodes? The ones where the original cast show up in cameos. Comparing the Captains: Kirk vs. Picard: When Picard's brother and nephew were killed, he cried and felt bad for himself. When Kirk's brother and nephew were killed, he genocidally exterminated the entire species which committed the crime. Kirk vs. Sisko: When Sisko loses a ship, he patiently waits for Starfleet to find him another one. When Kirk loses a ship, he throws his nemesis into liquid hot magma and steals his. Kirk vs. Janeway: When Janeway was lost in the Delta quadrant, and her ship was taken over by the Kazon, she relied on a hologram and a sociopath to save her. When Kirk was lost in intergalactic space when his ship was taken over by the Kelvins, he got into a fistfight with the leader and physically beat him into submission. Kirk vs. Archer: Archer thinks he's tough when he prevents the destruction of Earth. Kirk saved the Earth twice, the Galaxy once, and yes, the UNIVERSE once. (Two, if you count the parallel one). Lastly, Kirk is the ultimate tough guy, because he once fashioned a cannon out of bamboo, sulfur, coal and saltpeter and fired diamonds into the hearts of

his enemies. Some classic Kirk stuff: He once said "I've got a belly ache, and it's a beauty." Kirk travelled through the centre of the galaxy, met God, and wasn't even impressed. Kirk fought a greek God. And won. I could go on. Although TOS had 4 main characters and a host of minor characters, those 4 main characters defined the roles which would follow them. All Vulcans are compared to Spock, who literally invented the species. All Engineers are compared to Scotty, who is the quintessential unstoppable fix-it guy. All doctors are compared to McCoy, and I have yet to see one play the role with such passion. In short, the only reason you like the other series more than this one is because you haven't seen enough of the old ones. If you have and you still don't like them because you don't like the garbage 'effects', then you like Star Trek for the wrong reasons.

Star Trek: The Next Generation Data & Picard. Need I say more?



Sheldon Petrie



3B Mechanical

Star Trek: The Next Generation, or TNG for short, was the second live-action Star Trek series to premiere in North America, running for 7 seasons from 1987 to 1994, with 178 aired episodes. Set approximately 100 years after the original, this show would feature updated cast, ships, technologies, weapons and above all, storytelling.

Just like the original series, but unlike the ones which followed, TNG was shaped and moulded by Gene Roddenberry into his personal vision of the future. Without the fear of imminent cancellation by Paramount, Roddenberry was free to develop the stories that he wanted to tell and have an exotic array of characters to do it with. Indeed, Data, an android whose journey of self-discovery about humanity, is widely considered to be one of the best-developed characters in all of Trek and a fan favourite to many.

The concept of someone coming to terms with their humanity who is not actually human was a journey that was featured in many episodes and progressed into the feature films as well. Many episodes throughout the series were Data-centric (Decent 1 and 2, The Measure of a Man, The Offspring, Hero Worship) and others rank among both fan and critics top episodes.

The greatness of TNG meant that unlike the original series each character, from Picard and Riker, to Deanna Troi and Geordi, were all featured in episodes which peeled back the layers to each of their characters revealing detailed character history including family and friends. Certain characters' back story was also expanded upon and covered in detail throughout the series.

Smaller, but notable characters including transporter chief Miles O'Brien and science officer Lt. Reginald Barclay moved on from their humble TNG origins to be featured in other series as well. O'Brien was the chief engineer on Deep Space 9, and Barclay was one of the persons instrumental in bringing Voyager safely home from the Delta Quadrant. Other memorable characters included the bartender Guinan, played by Whoopi Goldberg and Picard's ultimate personal nemesis, Q, played by John De Lancie.

Where Star Trek had only one two-part episode in three seasons, TNG had many two-part episodes and introduced the concept of cliffhanger season finales. Instead of

each season wrapping up nicely, stories were crafted in a way that fans would wait for the whole summer to find out the conclusion to the story.

The first cliff-hanger finale was The Best of Both Worlds, which featured the Borg kidnapping Picard and turning him into one of them while co-ordinating an attack on Earth. While others would surely follow, no cliff-hanger was able to compare to the first. Would Picard live? How would they save him? Could the Borg be stopped? All these and more would have to wait till the next season. Alas, this way of storytelling was hit and miss, but was used to best effect in Voyager, having by far the largest number of two-part episodes.

TNG also introduced an array of new alien species including the Ferengi, Cardassians, Bajorans, all of which played important roles in many episodes in the later seasons.

What TNG did was to bring Star Trek into the mainstream, to make it accessible to viewers of all ages while toning down the campiness of the original series. While some would argue that this removed much of the appeal and humour of the original series by focusing on larger, broader stories which took longer to resolve, the level of storytelling improved immensely.

The larger budget of \$1.5 million per episode maintained a very high level of production values from all aspects of set and stage design, make-up, and visual effects. The writers were free to introduce as many new alien species as they needed to tell the stories without worrying about re-hashing the same look twice. Unlike Voyager and Enterprise whose alien species were very alien and in some cases utilized large amounts of prosthetics and now computer graphics to achieve the look of the aliens, TNG had simplicity of the art which allowed more of the actors face to show through.

By the end of the series, fans and writers were familiar with the characters that many of the episodes shifted focus from exploration to going in-depth into telling rich character based stories. Among these tales includes the Inner Light, where Picard's mind is taken over by an alien probe, he lives out the entire life of a villager whose planet was destroyed.

Roddenberry's untimely death in 1991 shortly after the fifth season started left a gaping hole in the Star Trek universe that Rick Berman filled and continues to fill to this day. As head of the Star Trek Franchise he has guided it through three more series, four feature films and is actively developing future content for all us Trekkies to enjoy.

POINT VS. COUNTERPOINT VS. COUNTERPOINT VS. COUNTERPOINT

Star Trek: Deep Space Nine
Hail to the Tribbles!

Quoc Huy T. Le



4N Electrical

Being a dedicated fan of the Star Trek franchise, I am the first to admit that I love them all. I love the stories they tell, the technologies they invent, the current-day issues they tackle and the positive hope for the future of mankind they envision.

On a personal note, I must say that my favourite series must be *The Next Generation*. It was the one that got me hooked. And it is the one most dear to my heart because it reminds me of why I started watching Star Trek.

Despite this, however, after watching every episode and movie of every franchise (yes, I know I'm a geek), the best series which stands head and shoulders above the rest is unquestionably *Deep Space Nine*.

Let us take some time and analyse what makes a good television show. Ask any television and film critic and the ubiquitous answers will be the stories, overall plot development and character growth (yes, hot chicks help ratings, but they don't necessarily make a show "good", do they, Ed?). In all three categories *Deep Space Nine* (henceforth known as *DS9*) wins hands down.

Take stories, for example. *DS9* had the most riveting and exciting stories to tell. Who can forget the run-ins with the Maquis in seasons two and five? Or when a runabout was shrunk in the episode *One Little Ship*? Quark and his Ferengi crew being mistaken for Martians during the 1940's in the episode *Little Green Men* was pure genius. *DS9* did a phenomenal job incorporating ideas from past shows such as the parallel universe (remember the *Original Series* episode *Mirror, Mirror*?). Let's not forget the most popular episode of all time, *Trials and Tribble-ations* where Sisko and his crew interact with characters from the original Tribbles episode!

Regardless of all the cool technology we see in Star Trek, it will always be the human aspect of the shows that leaves the biggest impression. The funniest episodes ever are all of the Ferengi ones in addition to other gems such as *Take Me Out To The Holosuite*. Episodes like when Kira's lover dies in *Life Support* or when Sisko temporarily lives the oppressed life of a coloured man in the 1950's in *Far Beyond The Stars* reminds us what it's like to be human in any time period. Nothing was more moving than when Jake Sisko made the ultimate sacrifice to save his father in *The Visitor*.

Of all the series no series ever came close to matching the incredible story arcs

that *DS9* had from the series premier to the series finale. Being anchored to a station did have its disadvantages at first (which were later fixed with the introduction of the fantastic little destroyer *Defiant*), but the consistency of location near the Bajoran System and the only known stable wormhole to the other side of the galaxy paved the way for one of the greatest story arcs in television history.

Not only was there an anticipated growing conflict with an enigmatic group of rulers known as the *Dominion* (which was only resolved in year three of the series), this conflict escalated into all out war that lasted right until the end of the series.

In conjunction with this plot, viewers got an in-depth look at the political and religious development of the newly freed Bajor. There was a great deal of detail into how the government was formed and how it planned to bring Bajor into the Federation. The influence and savvy of Bajor's top religious leader factored heavily into the aftermath of the great Dominion War.

Now let's talk about the characters. In no other series or television show do you see immense growth and maturity in the characters. Kira went from being a hot-headed resistance

fighter to a responsible leader. It is incredible to see Jake Sisko mature into a man throughout the series. Who would have thought that Doctor Bashir was genetically enhanced as a child? The friendship that was built between him and Chief O'Brien is one that most people envy. There was so much character development in this show that the show had a list of over ten (that's right, ten!) guest characters that were brought back episode after episode and year after year so that their roles could be expanded too!

Permeating all of this from the beginning of the first episode to the end of the last episode was Sisko's journeys of being "The Emissary". Throughout all of the series' seven-year run viewers know that there's something special about our heroic Captain. And the most satisfying thing is when seven years worth of tasks and hints are made clear at the end of the series finale.

Let's not deny it, every series is great. They all endorse what is positive about the human race and they represent what humanity should strive to become in two or three hundred years. But, by far, the series which has the best stories, plot and character development is undeniably *Deep Space Nine*. If you can find time, start watching it. You will be in awe of their ideas. You will be amazed (and sometimes angry) with the twists and turns. You will laugh. And you will weep. Of course, that's what makes a television series so great. It touches our hearts.

Star Trek: Voyager
We ain't in Kansas anymore.

Edward Tan



3N Computer

Three words: Seven of Nine.



Columns

POINT VS. COUNTERPOINT VS. COUNTERPOINT VS. COUNTERPOINT

Star Trek: Enterprise The Art of Time Travel?!

Carolyn Sutherland

1A Mechanical



When you hear the word Enterprise, what do you think of? Perhaps you conjure up an image of the ship that began exploring the cosmos when your parents were your age, or maybe you think of the newest installment in the Star Trek franchise... Enterprise! This series, set in a time BEFORE the original series, concentrates on humanity's first steps into the vast expanse of space, and all the troubles they encounter along the way.

The great thing about Enterprise is that it can take advantage of the fact that the audience knows what happens in the future and then use it to generate interest in how various things are portrayed before the time of the dynamic duos of Kirk and Spock.

Because Enterprise can draw on what came before, the stories can be more sophisticated than the original series and yet still appeal to the



same audience that was hooked by The Next Generation. For example, while the alien race of the Andorians (Blue-skinned, white-haired humanoids with antenna...) was first introduced in the original Star Trek series, it was Enterprise who brought them into the limelight. There have been whole episodes and pivotal events centered on the race since the first season, and you can track the progress of the human-andorian relations in great detail. Enterprise also has the choice of throwing in amusing references to future characters or events, such as the doctor who created the android Data, whenever they want to. Not only are the flashbacks amusing, but they make even the oldest fan feel young again!

Because there is no Starfleet yet, there are also no annoying regulations and boundaries preventing the humans from going where they want. That means there are no stupid computer warnings such as "Warning! Entering Neutral Zone!" popping up every time something exciting happens. The crew of the Enterprise also doesn't have to worry about the Prime Directive; the policy of NOT interfering in the matters of other cultures. A good example of this is when the crew of Enterprise encounters a race of aliens with three genders; male, female and something in the middle... The male and female genders are as much as we would expect them to be, while the third is kept almost as a slave - not educated beyond its required duty to procreate (It provided a necessary enzyme needed for fertiliza-

tion). This is perceived as a gross injustice by Tucker, the Chief Engineer, and he goes out of his way to expose the third alien to life onboard Enterprise and to the potential of a life with freedom to act as an individual. However, once the alien is forced to return back to its society, it cannot tolerate its limited lifestyle and commits suicide, thus depriving the male and female of the required third to procreate. So in the end, Enterprise's interference did more harm than good. But the point is that the other series always passed up interesting chances like that because of the Prime Directive. They left the 'what if's' open... but not Enterprise! They tend to dive right into the middle of conflict, meaning there's always lots of action and phaser gun fights too! The excitement cannot be contained!

Moving on, you'll also be pleased to hear that Enterprise deals with current issues! In one episode, the doctor's many wives stopped by to visit him and in doing so provided viewers with some

insight on non-traditional marriages. Sure, polygamy is not a widely accepted form of marriage, but nevertheless it deals with the emerging accep-

ance of other alternate lifestyles in North American society. There's also plenty of lovin' on Enterprise, as Captain Archer clearly demonstrates EVERY EPISODE. Seriously, he's constantly hooking up with some woman on another planet and then leaving! He's worse than Kirk...

But the best thing about Enterprise is that it frequently centers on the best of the best; time travel! To engage the audience, the idea that time is dynamic and that the past can be changed - therefore the Star Trek universe may not come to pass - is introduced. The first season had a lot of time traveling and general mucking up of the space-time continuum, and while some might say that's because there were no other storylines to go with, I disagree. Time travel never gets old, and it's great because the effects are so hard to predict!

So that's my take on Enterprise. Clearly, it is the best Star Trek series around because it carries all the appeal of the old series while being easier to relate to because of the close proximity of the setting to ours. (Plus there's the Vulcan T'Pol, and she beats Voyager's Seven-of-Nine any day.) Rants may be sent to csutherland@gmail.uwaterloo.ca.

Editor's Note: Point vs. Counterpoint is intended as a forum for objective and thought provoking debate on various issues. The views and opinions expressed here do not necessarily reflect those of the author(s), the Iron Warrior, or the Engineering Society.

HOROSCOPES

by Hilary Lockie, 1A Mechanical



Leo - July 23rd - August 22nd

You know how you always joke in calculus about your head exploding? Keep a mop and bucket handy this week, it's going to be a tough one.



Virgo - August 23rd to September 22nd

Your day will be full of WEEFy goodness.



Libra - September 23rd to October 22nd

Beware strangers bearing co-op jobs.



Scorpio - October 23rd to November 21st

If at first you don't succeed, keep following them around. They're just playing hard-to-get.



Sagittarius - November 22nd to December 21st

Wait! Does your insurance cover that? No? I didn't think so, put it down.



Capricorn - December 22nd to January 19th

Beware the tall dark stranger, he is not who he seems. Note: short, pale acquaintances are ok.



Aquarius - January 20th to February 18th

You look good in a hat. You should wear one more often.



Pisces - February 19th to March 20th

Fight for your right to study.



Aries - March 21st to April 19th

Hey lover boy/girl... OK, I know, you think I should know if you're a boy or a girl. Well I'm not psychic! Wait... yes I am. No advice for you! NEXT!!!



Taurus - April 20th to May 20th

You don't want to run with scissors this week, believe me.



Gemini - May 21st to June 21st

Don't be afraid to use excessive force, you are in grave danger. He may have seemed sweet at first, but this stalking business has just got to stop.



Cancer - June 22nd to July 22nd

You're quest is nearly at its end, hang in there. You won't regret the time you took, but you will regret it if you don't take your time. Oh yeah, and when you beat level four go study for exams a bit.

Editor's Note: The above horoscope is in no way meant to imply that one's head will explode when born between July and August. That would just be zany.

Frosh in Space

The National Space Awareness Workshop

Ryan Gariepy
1A Mechatronics

Two weeks ago, right after I was introduced to the wonderful things that are Waterloo midterms, I had the opportunity to attend the National Space Awareness Workshop in Montreal. The premise to this event was quite simple: Let one hundred university students develop a budget for Canada's space program based on a half-billion dollars of government funding. Now, I just got used to living in a world where my parents aren't giving me free rent and the only money I have is stored on a little plastic card. \$500 million is kind of outside my realm. Nevertheless...there it was. Leave those comforting cots of Village One for a few days, spend several hours in transit, all for the chance to spend millions of dollars of

other people's money.

Did I know what I was getting into when the application came up? No.

Was the experience worth it? Hell, yes!

Aside from vowing to return to Montreal with more time to see the city, I came away with a bit of practical knowledge:

1) \$1 Million is really not that much money when you're launching satellites

2) Scientists get defensive when you talk about their funding

3) Four people can fit into the back seat of a taxi when the fare tops \$60.

If you ever get a chance to go to one of these, or the thought of going interests you in the slightest bit, apply! If you've already

Continued on page 18. See Frosh in space.

"...Canada's future is in space, and we all want to see that future sooner rather than later..."

Charobeem Cooks

Proteins & Carbs for Brain Power

Carolyn Sutherland



1A Mechanical

Time has flown! Can you believe it's almost the end of the term? I certainly can't, although that's probably because I went to a non-semestered high school... where the fun never ends... no seriously, it never ends! But moving on, for my final recipe column I've decided to clear up some misconceptions. Specifically, misconceptions concerning two of the most cherished food groups; grains and meat. Most newbies to cooking tend to think that roasts and breads are labour-intensive and never turn out exactly right in the end. I used to think exactly the same thing, until I actually tried roasting some turkey and baking some bread. It was quite simple, so no more eating habits that can best be described as cupboard scavenging and fridge-dredging for you! This month, you'll be eating in style!

STOVE TOP SIMMERED TURKEY BREAST

Prep: 15 min, Cooking: minimum 2 hours, serves 4

- half of a fresh turkey breast (don't bother buying skinless and boneless... keep reading)

- simmering stock
- 1 chopped onion and/or 1 chopped clove of garlic
- pepper (to taste)
- Worcestershire sauce (to taste)
- whole potatoes and/or carrots, if there is enough room in the pot

1) Make sure you have a covered skillet or even a big covered sauce pan that the half turkey breast will fit in, bone side down. Be sure that you have a lid; you'll need it later! If you've only got a small pot, you can debone the raw breast by peeling the meat off the big bone that is on the "flat" side. That way, you can 'bend' the meat to fit inside the pot. Be sure to wash your hands after this, or you and Mr. Salmonella may become well acquainted! Don't bother peeling the skin

off the breast at this point – it has a layer of delicious fatty goodness that will keep the meat moist and add flavour.

2) Prepare the stock, add the chopped onion/garlic and spices, and simmer for a few minutes. As long as you don't use a cream-based soup (which curdles with the long simmering time), you can use just about anything. Be imaginative! "Scotch Broth", "Vegetable", "Chicken Gumbo", or "something-I-found-in-the-back-of-the-freezer" can all work well and they'll add some unique flavour. Don't dilute the stock with too much water at this point – you can top it up after the meat is added.

3) Place the half turkey breast with the bone side down into the simmering stock. Add some hot water from a kettle to bring the stock up to a level that almost covers the meat. If you have enough room left, place the whole potatoes and/or carrots around the edge of the meat. That way, you'll be making an entire dinner all at once! Just don't cut them up, or they will get mushy.

4) Place the pot/pan/skillet on the element or burner and bring to a gentle boil for a few minutes. Turn the heat down to the lowest setting, leave the lid on, and go study! No matter how good it starts to smell in about an hour, DON'T take the lid off, or you will "lose the boil".

5) Two hours of cooking is a good minimum safety margin to make sure the meat is adequately cooked. However, the beauty of this recipe is its flexibility; if you can't be there in 2 hours to take it off the stove, don't worry! You can leave it on for another hour or 2 if your meat was well immersed in the stock to begin with.

6) Once done, carefully remove the turkey with something wide... like a spoon or a spatula. The longer the meat was cooked, the more it will literally "fall off the bones" when you lift it out. Place it on a plate or cutting board bone side down, and use a fork to scrape the skin off. You can serve the meat hot, or refrigerate it for later.

How convenient!

For those of you who enjoy a good helping of lard every once in a while, pour the remaining stock, lumps and all, into a container and freeze it. That way if you ever need some stock for future simmering sessions, just defrost! Overall, it's quite simple, yes? The most challenging part is making sure any raw juices from the turkey are properly cleaned up with HOT, SOAPY WATER as soon as possible! Emphasis on the 'hot' and the 'soapy'. Also, you can put any vegetables you want in the pot. Heck, if the delicious combo of squash and brussel sprouts floats your boat, by all means go ahead!



But moving on, let's venture into the land of carbs! You all know you love them, so why reject them? Not only do they provide lots of immediate energy for your brain and body, but they can also be topped with anything! My personal favourites are peanut butter and flavoured cream cheeses... mmm! But go with your taste: sardines,

anyone?

MOIST CORN BREAD

Prep: 20 min., Cooking: 1 hour, serves 4

- 1 2/3 cups all-purpose flour
- 2 cups fine corn meal (Coarse meal is OK, but it'll make the bread gritty tasting.)
- 1 teaspoon salt
- 2 tablespoons baking powder (NOT baking soda!)
- 1/3 cup of white sugar (If you have a sweet tooth, go for a half cup.)
- 2 eggs
- 2 cups of milk
- half cup of oil (Sunflower or safflower are best, or you can use canola. Olive or peanut oil have too much flavour, and Motomaster is a definite no-no! ... So sorry, but I just had to!)

- 1) Mix the dry ingredients separately.
- 2) Mix the wet ingredients separately.
- 3) Mix everything together. Since this is a batter bread, it'll become very thick as the dry and wet ingredients combine. Add extra

milk as needed, but don't make it too thin. It should resemble thick pancake batter after a few minutes. And for those of you who thought we were done with the mixing, that was the easy part! Now, you're going to have to THOROUGHLY mix everything into a uniform mixture. If you don't have an electric mixer, this will be a good workout, but be thankful you don't have to knead the batter! Batter breads rise by the chemical production of carbon dioxide from the baking powder during baking, unlike yeast breads that rise by the metabolic production of carbon dioxide from the yeast at room temperature. This is why you don't have to knead and "rise" batter breads. Your knuckles will thank you.

4) Pour into lightly greased bread pans. Be sure to only fill the pans to a MAXIMUM of 2/3 full! The batter will rise quite a bit and you don't want it to spill out, because you don't want to be starting unnecessary fires in your oven... it'll burn you bread, which would be a real shame...

5) Bake in a pre-heated 350 degree F (177 degree C) oven for 50 to 55 minutes.

6) After the 50 or so minutes have come and gone, don't trust the colour of the crust to show you whether the bread is done. Pierce the loaf with a toothpick – if the toothpick comes out from the middle of the loaf with any moist batter clinging to it, keep on baking and retesting every 5 minutes.

When your bread's baked and if you have fancy things like waxed paper in your kitchen, lightly butter the top crust with some waxed paper dipped in butter/margarine. To prevent having chunks of your bread sticking to your pan when you remove the loaf, push a spatula down the sides of the pan to properly separate pan and bread. To unstick the bottom of the loaf, gently push the end of the spatula into the centre of the pan and lever it up and down to loosen the bottom of the loaf without breaking it. Flip the pan over and GENTLY let the bread fall out. Once you hear that satisfying PLOP sound, you've only got to let the bread cool until you can slice it up and chow down on some carbs! Thanks go to my dad for these practical and handy recipes. Feel free to contact me at csutherland@engmail.uwaterloo.ca

Nanotechnology: The promise, the peril

Quoc Huy T. Le



4N Electrical

The aim of technological development today is focusing on making things smaller and smaller. The idea behind this is to pack as many transistors, gears, cells or whatever as compactly as you can so that you get more functionality from something that takes up less space. How small can we go? Pretty darn small. Tiny enough that the scale needed to measure devices of this size is on the order of nanometres (that's one-billionth of a metre).

We call this collective group of emerging devices *nanotechnology* (surprisingly enough). Nanotechnology, in and of itself, isn't a specific area of science. Rather, it can be considered a subset of every other

family of scientific application. Basically, anything that's really really really miniscule is nanotechnology.

Though the advantages of having such devices at your disposal are immediately apparent, the possibilities stretch far beyond what any single human can imagine. Let's take a look at a few suggested applications for nanotechnology.

Since a nanometre is only about one to three orders of magnitude larger than a regular atom, the atomic structure of certain nano-devices must be very precise. This, in turn, would facilitate the manipulation of atoms and the construction of nearly perfect materials.

What the difference between a Pentium 4 processor running at 3.0 GHz and one that runs at 3.2 GHz? They're actually constructed in exactly the same way. After fabrication they go through a testing

Continued on page 21. See Nanotech: Coming to a neighbourhood near you.

Top 10 EngSoc Fiascos

- 1) Laura Mooney enjoys licking emus (So what? Who wouldn't want to lick an emu?)
- 2) www.jonathan.fishbein.gets.it.on.with.a.chicken.com (Trust me on this one, you don't want details...)
- 3) NLGW (Nick Lawler Gone Wild) tape released (I think I'd rather watch the original GGW)
- 4) Rajat Suri launders money to Waterloo Anime Club (I'm not one to judge the recreational activities of others. But 'cmon, anime??)
- 5) Kate Kelly caught running after hours message parlor in Orifice back room (Aside from the licensing issues, the hour is rather enjoyable)
- 6) Evan Thor accused of second degree terrorism (He's innocent. I was there. He typed Al-Qaida into Google instead of Al Yankovic by complete accident)

- 7) Graeme Baer an illegal alien (Who'd have thunk it? Baer sure concealed his Trinidadian heritage quite well)
- 8) Ryan Walker's ancestors a distant relative of Sasquatch (Explains a lot, doesn't it?)
- 9) Sheldon Petrie's addiction to Faberge Eggs revealed (It's a five thousand dollar a day habit, folks...)
- 10) Jay Turcot has third nipple (And just where is this third nipple located?)

Editor's Note: The above is intended solely as an entirely humorous look at the current members of the University of Waterloo Engineering Society. In no way shape or form was this intended as a slander to the persons mentioned above, nor is there any intention to imply that the persons mentioned above were actually involved in these zany incidents.

Columns

Flesh and Machines

How Robots will change us

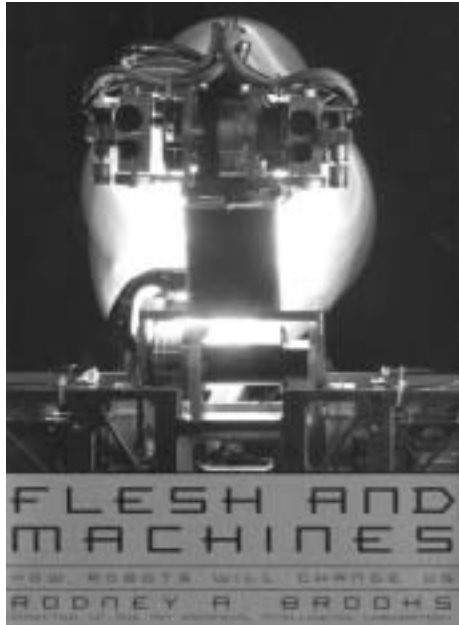
Adam Philip

3B Mechanical

Rodney Brooks, famous for his work on such TV friendly robots as Cog and Kismet, has decided to try his hand at writing a pop-science book, and the result *Flesh and Machines* is a fairly interesting read. This book is interesting for several reasons; firstly it covers the history of artificial intelligence (briefly), secondly it provides a high level of detail of where we are currently, and thirdly it covers where we are going. While this format of past, present, future has been used in many pop-science books seldom does author actually present seemingly workable plans over obvious generalities.

Some of the most interesting chapters of the book concerned the present difficulties that face the development of robots. Instead of focusing on the technical hurdles such as battery life and processing power, Brooks decides to instead focus on the human factor. Brooks' contention is that robots will only become truly useful once they mimic the cognitive cues humans use in communication. While much of these chapters consist of re-hashing of his recent work, buried within are some interesting case studies regarding human/computer interaction. After exhausting the topic of cognitive cues, Brooks moves on to what I believe to be the most engrossing part of the book, which is his section on remote presence. Brooks anticipates that a great deal of the future of robotics will rely not on complete autonomy, but instead on partial autonomy. He predicts that in the future, we will attend meetings in remote locations through internet links controlling robots on site. Instead of telling the robot to turn left 45°, go forward 5 steps as we would if we were programming Logo our instructions will instead be move up to the table. In this way he predicts that problems of latency currently experienced by tele-presence

"...robots will only become truly useful once they mimic the cognitive cues humans use in communication..."



operators will be removed as low level decisions are made by a smart machine instantly rather than half way around the world with a 3 second lag.

In the latter portions of the book Brooks combines his vision of the future with potshots at his critics. Brooks seems to find particular delight in attempting to demolish the opinions of philosophers who deride the concept of emergent intelligence from artificial systems. Whether you agree with Brooks' ideas on the subject or not, this section is a more entertaining way of dealing with critics than many I've seen. In fact I think it is a practice that could easily be adapted to creationists, naturopaths, phrenologists and other such quacks.

Flesh and Machines is overall a interesting read, while it is not as entertaining as a work of fiction it does provide good 'food for thought'. The only major flaw that I found present in the book is that it presents only one vision of future of AI and robotics and general. This is obviously a by-product of the author's bias towards the vision of AI that he is working towards. This flaw is not be any means fatal and it is nice to see a pop-science book written by a leading researcher rather than yet another generalist who has decided to write a book about topic X.

taneem@dheo.com

The Edge of Reason

Bridget Jones Returns

Charling Li

2B Mechanical

Ahh, *Bridget Jones: the Edge of Reason*, the long-awaited sequel to *Bridget Jones' Diary* (2001). I watched this movie with a strange mixture of anticipation and dread. Anticipation because it's been 3 years since I saw the original in theaters with my girlfriends, all of us sighing over hunky Mr. Darcy (played by Colin Firth) and dreading impending singledom in our 30s. We liberally sprinkled cool British slang like 'shag', 'wanker' and my personal favorite "f***wit" into our conversations for at least a year after the movie. And now, we get to follow the continuing adventures of Bridget as she figures out what happens after you get your happy ending with your very own Mark Darcy. I watched the sequel also with dread, because since then, I've grown up and realized that Bridget Jones is indeed, not a role model for the modern woman anywhere. In the original movie, Bridget was an outspoken, bumbling and lovable singleton looking for Mr. Right in all the wrong places (i.e. in the office, with her sleazy boss played by Hugh Grant). She took charge of her life, lost the weight she wanted to lose, quit the job she hated, and swore off the cheating creeps she dated. In short, Bridget wanted to be a better person, albeit with the aid of vodka, Chaka Khan, and self-help classics such as "Women who love too much" and "Goddesses in Everywoman". In the sequel, now that Bridget has found someone who "likes her just the way she is", she's morphed into a neurotic, insecure and dependent mess. She spends most of her time obsessing over Mr. Darcy; what he thinks of her and her 'wobbly bits', what

he's doing at the moment, which gorgeous girl he's probably cheating on her with. Not empowering at all. Don't get me wrong, the average girl can still relate very well to Bridget. For example, Bridget (our pop-culture obsessed TV journalist) goes to the fancy-schmancy Law Counsel dinner with Mr. Darcy (where the after-dinner entertainment was a rousing round of trivia involving different law torts and obscure Latin law phrases or something. I imagine that Bridget felt exactly the same way I did when I was caught in a heated discussion about Star Wars or Star Trek or something. All in all, the sequel has turned a character who could've been an inspiration to modern women into a snivelling, jealous and marriage-obsessed clown that no one in his mind would want to date.

Ok, so this movie is a romantic comedy, and you must watch it with the comedy part-firmly in mind. Otherwise, your inner feminist (yes, even if you're a guy!) will tell you to run out of the theatre screaming. There are, of course, many funny scenes in the movie, such as Bridget skydiving into a pile of manure, or Bridget teaching jailed Thai prostitutes to sing Madonna's "Like a Virgin" with the correct lyrics and dance moves. Or the scene where Bridget eats



This is Bridget Jones for 'Sit-up Britain' reporting to you from a big vat of excrement"

magic mushrooms and its hilarious after-effects. Or the scene where two men fight like little girls over Bridget. My point is that the movie is enjoyable, if you shut off all thinking facilities and enjoy the movie at face value.

So the moral of the movie is: Try to be a better person, but only until you've found a boyfriend. Then spend all your time obsessing about him. And hold on to your man, even if he does fold his boxer shorts and is a rather uppity snob, coz you never know if you'd end up in jail with abused Thai prostitutes who've got it much worse than you do.

Verdict: Funny, but not if you think about it. Rating: 3/5

World of Warcraft:

Game Review

Tsu Chiang Chuang

4N Computer

500,000+, the number of people who played the Open Beta of World of Warcraft (WoW). 8, the number of hours I spent each day playing it. 5, the number of hours I spent sleeping. Yes, you guessed it, I just finished playing the Open Beta for WoW and decided to rant about it. Before I go on, I have to admit that I am a big fan of Blizzard, and hence my views here might be highly biased.

World of Warcraft is basically a Massively-Multiplayer Online Role-playing Game (MMPORG), set in the world of Warcraft. If you do not know what Warcraft is, then you won't be as excited about this game. Also, for people who don't play games too much, MMPORG are basically RPGs that occur online, where you get a

chance to interact with other players. And if you don't know what RPGs are, then I give up.

The setting of WoW happens right after Warcraft 3, where the world is split into two factions: The Alliance and The Horde. The basic plotline is this: the Horde and the Alliance united to fight the Burning Legion, which is this big evil thing that came from another plane of existence. However, after the Burning Legion was defeated, the Horde and the Alliance decided that they didn't like each other anymore, and reverted back to killing each other again. The Alliance is composed of Humans, Dwarves, Night Elves and Gnomes. The Horde is composed of Trolls, Orcs, Taurens and Undeads. Each race has its own special characteristics, for example Night Elves can meld into the shadows and become partially invisible, Undeads can cannibalize their victims to regain health. Each race also has its little

Continued on page 16. See World of Warcraft

Women and the Media

Taneem Talukdar
2N Systems

Women in the Western World have much to rejoice for. In the short space of time since the start of the last century, we have come a long way from seeing the Woman as a disenfranchised inferior to Man. Today, they are rapidly shedding the last chains of an outdated culture, taking their place where it rightfully belongs. It was Cato, back in Roman times, who had prophesized: "The day women are our equals, they will be our masters".

And yet in this march towards freedom lies a painful irony. For in shedding one set of chains have women found themselves bound with another?

We are now slaves to the Image of the Ideal Woman's Body, perpetuated by the countless television and magazine articles that hammer in time upon time, the notion that perfection can be defined by a specific body type. What is even sadder is that the

definition changes. Since the Second World War, the emphasis has been on thinner and thinner bodies, a trend pushed so far that some models gracing the catwalks have resembled starved zombies. And now, after recent surveys have revealed that over 50% of Americans are on the heavy side, popular media is starting to depict bigger women in a more favorable light. Although it will be years before the trend is completely reversed, it illustrates how contrived the idea of an Ideal Body is.

The pervasiveness of Body Image was never more clearly depicted than when Camryn Manheim accepted an Emmy for Best Supporting Actress for her role in *The Practice*. In accepting the award she felt it necessary to comment "This one is for the fat girls!" She was given the award based on her talents as an actress and yet her body image was the principal thing associated with her. As human beings, what could we find more frustrating than having our intellect stifled by our physical selves?

Why We Need To Go Into Space Through Adversity to the Stars

Jason Verheyden

3B Mechanical



There are really two types of space enthusiasts/nutsos/maniacs: those that want to set up shop on some lunar resort when they retire, and the other group is happy to test frog legs and investigate the how old men sag in zero g. I come from the first group, and I've only heard or read about of the mysterious basement-dwelling ones that belong in the second.

There are really good reasons why we should be doing everything we can in our power to set up a colony on another planet, or at least somewhere off this earth rock. This for me is the real reason why we should be going into space. The science we might learn is just a nice addition. There are so many more than I talk about here. The Escape

There's one big problem with the world today. There is no escape. Less than four-hundred years ago people from across Europe flocked to North America to find freedom. These were the oppressed, the downtrodden, and the rejects of the modern world. They came to a place where they felt they could escape the societies they came from and start new – start fresh. In many cases complete enemies ended up living as neighbors in a new world.

Where's the escape today? Where do the rejects of society go to today? This is a hard fact for most to accept, but the first people to go may not necessarily be

the ones people expect. Space enthusiasts will obviously rush to the challenge but they represent such a tiny portion of the population. The type of person for the most part that will take the risk will be those that are the most rejected of society. That will be the make up of the first generation of space cowboys. It will be those that feel that society no longer reflects their own values – and in many cases – they will recreate and experiment off world. They will be the modern day Quakers and Puritans.

The choice of an escape from the status quo is a very important part of human history - especially when it comes to escaping from countries dominated by tyrants. People should have the ability to vote with their feet in those situations. If they don't like the laws of the land they should be able to go elsewhere. As power becomes more concentrated in International Organizations,

Regional Unions like the European Union and the United Nations, how can anyone escape powers that stretch across the planet? There is no way. The only way is if there was an escape somewhere beyond their authority. And even if you agree with those organizations whose to say that they will always be lead by people that share your values and your outlook? Power has a way of corrupting. Preventing Disaster

There are roughly 6 billion humans on the face of the planet. At any given time a few are on the International Space Station. So if the "war" ever breaks out or if the earth is hit by mile wide asteroid we never saw coming, if the doomsday devices ever get activated, if the terrorists ever go nuclear, etc. etc. then pretty much a few bozo blow-dried NASA



"Good Morning Canada!" - Chris Hadfield would tend to agree that space is the future. Of course, he's lucky enough to have been there.

suck-ups in a tin can will be the only survivors we'll have. Let's suppose that there is at least woman on crew, which gives the human race a small chance of survival, those poor buggers still only have enough oxygen to last until the next re-supply ship would have come. That could give them what, a month? That gives them a month to figure out how they are going to survive and be self-sufficient in an environment that still haven't figured out how to "live off the land." They wouldn't stand a chance.

All of humanity's eggs are in one small fragile basket, so to speak. If a self-sufficient colony existed somewhere else, then there would be many survivors in a colony that had been around long enough to figure out to live on its own. Humanity needs to become a more than one world species if only for our survival. Let's be honest about this, if a mile wide earth destroyer sized asteroid was discovered heading towards earth, I would rather trust Burt Rutan to save my

behind, than NASA. They would probably commission a 20 million dollar study and then give up a few months later and say "Sorry everyone but we're screwed." The truth is, despite our assumed greatness as a species, we would really be defenseless if a comet or asteroid came crashing to earth. We don't have the resources or the technical know how to make an adequate defense. Most of everything anybody suggests to do in these types of situations involves creating tech that we don't have yet, or trying something that we've never done before. Here's a surefire defense against doomsday comets from the heavens: Book me on the first flight off this rock.

The arguments that most frequently come up against going into space go along the lines that we would be better off to spend our time trying to fix things

Continued on page 17. See Space, the final frontier.

Mars and Back in Less than a Work Term Solar Sail Technology Investigated

David Yip

2B Mechanical



Mars. We seem to be talking a lot about it lately. We're landing stuff on it, crashing stuff on it, taking pictures, looking around. Not much life apparently, but that's been disputed.

Anyway. Of course the next logical step is to send some people over there and check it out, though one of the sticking points at the moment is the travel time. With the technology we have, it would take more than two years to get there, experiment and explore, and come back. I wanted to kill my roommates in residence after two weeks, and that wasn't in a spaceship.

Professor Winglee of the University of Washington thinks he has a good idea, spaceships with solar sails pushed by magnetized plasma beams. Winglee believes this will reduce the time of the roundtrip to 90 days. Not bad, less than a term. I could live with that. He envisions a orbital beam station with a 32m nozzle, firing a plasma beam that could propel a spacecraft to

speeds of 11.7 km / s. The spacecraft itself would carry no major propulsion units, and would be slowed down at the other end (Mars) by another orbital beam station.

This would enable larger payloads, and faster travel times. If you take the idea and run with it, a network of beam stations could be set up all around the solar system, enabling relatively speedy transport between different planets and moons.

To validate the concept and identify problems, NASA has invested \$75 000 in the idea. (For NASA, this is basically a drop in the ocean. The ocean of SPACE. It's a small amount.) The same amount has been invested in 11 similar proposals as part of its Advanced Concepts program. Other projects in the Advanced Concepts stable include the "Antimatter Driven Sail for Deep Space Missions", "Self-Transforming Robotic Planetary Explorers", "Architectures and Algorithms for Self-Healing Autonomous Spacecraft", and the "Space Elevator".

A test mission could be possible within five years if financial support remains consistent, Professor Winglee said.

Winglee acknowledges that it would take an initial investment of billions of dollars to place stations around the solar system. But once they are in place, their power

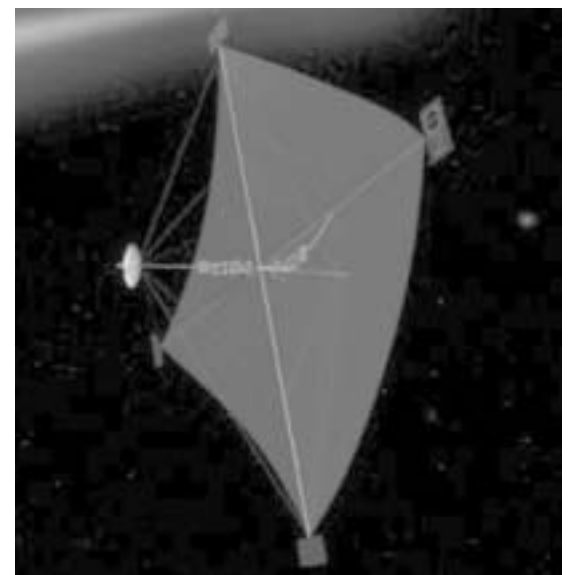
sources should allow them to generate plasma indefinitely. The system ultimately would reduce spacecraft costs, since individual craft would no longer have to carry their own propulsion systems. They would get up to speed quickly with a strong push from a plasma station, then coast at high speed until they reach their destination, where they would be slowed by another plasma station. "This would facilitate a permanent human presence in space," Winglee said. "That's what we are trying to get to."

Cost concerns aside, other issues have been raised. How safe is it to rely on the plasma beams solely for your acceleration and deceleration? Surely any spacecraft powered by this must have some sort of backup system. Striking the Red Planet at 11.7 km / s doesn't sound like a pleasant way to end a trip. One space enthusiast mused about the possibility of the orbital beam platform being used as a weapon. Others pointed out that a cheap way to lift payloads into orbit isn't even in place yet, and that dreaming about shooting stuff into deep space is premature.

Propulsion aside, a Mars mission still has many issues to be

resolved, but the time is certainly one of them. Minimizing travel time has obvious benefits in terms of astronaut morale, but also minimizes exposure to the harmful radiation in space.

But. Let's not make it too short. In fact, if we can make the trip the length of one standard season of TV, it could be a new reality show. A reality show IN SPACE. The logical extension of this idea is to of course make the return trip the sequel. First things first though..



Opinions

Engineers and body art

The Joys of Henna and how it helps you become ultra cool, like Fonzarelli

David Yip

2B Mechanical



Two Wednesdays ago brought the UW Student Artisan Sale to the SLC. Avoiding the first day due to rain, the second day saw me amble in and eyeball paintings, fractal prints, variously priced hemp jewelry, knitted goods, a henna table, and some other tables, mostly staffed, curiously enough, by rather attractive staffers.

Normally I would have window shopped and been on my way, but the henna table staffed by classmate Kala Carrol and Sonny Gill of Eden Henna. "Gotta support a classmate!" I thought. The only thing I knew about

henna was that it was an all natural form of temporary body art, but I was due to be further enlightened. Being very new to the body art world, I leafed through pages and pages of designs, feeling somewhat lost. Eventually I just came up with "Er, I think I'd just like something around my wrist."

Partially betraying her artistic history, Kala replied that she could sketch out a Celtic knot from memory. Tattoo artist,

mechanical engineer. In a few minutes it was sketched out on piece of graph paper and subsequently transferred to my wrist in washable marker. A straight circle was marked out with an elastic band around my wrist.

Next came the henna paste itself. I tried to hold still while she applied the paste out of a tube, with the kind of skilled hand-eye precision that I don't possess. While the paste was air and blow-dried, I received my enlightenment.

Henna is a dye made from the leaves of the henna plant. It is ground into powder, which is mixed with water, oils, sugar, and

other ingredients to form the paste. The paste dries and sticks to the skin. After around 12 hours, the paste is removed, and an orange stain is left behind, which eventually darkens to a deep brown. With care, the stain will remain for three or four weeks, but more common is around a week.

The skin type and temperature of the recipient also factors heavily into the longevity and colour of the stain. In the cultures of India, Pakistan, and North Africa, the application of henna in traditional patterns on the hands and feet of women is known as mehndi.

The stain only stains the layer of dead skin cells, which is why it eventually disappears. For this reason, patterns applied to areas of the body with a thick layer of

dead skin will last longer. A tattoo is different in that actual living cells beneath the layer of dead cells are stained, which is why sterile tools and needle are required.

I really liked how mine turned out. The application took maybe half an hour, but the time and price

depend very much on the size and complexity of the design. Mine appeared to be fairly simple compared to the intricate designs found in the binder. She mentioned my knot pattern got a bit dense near the end - I blame myself for having peculiarly skinny male wrists. After the paste had dried fully, it was sealed with spray gel, and for the next couple hours I took care not to knock the dried paste off, while explaining everything I just wrote to my mildly bemused roommates. They were just as bemused when they saw me haul a jug of vegetable oil to the washroom to scrape the paste off. "Getting oiled up?"



The key to success in picking up. No, not the narrow wrists.

they asked. (No, I did not use the whole jug.)

A few days later, as promised, the pattern darkened to rather pleasing shade. More days later, the pattern started to fade, also as promised. I think I may go for something a bit more ambitious in the summer, up the arm maybe.

It doesn't make your computer run cooler, or car run faster, but if you're the type to get your hair dyed just because, I highly suggest giving henna a shot. I think you'll like it.

For more information:

Kala Carrol and Sonny Gill at Eden Henna: eden_henna@yahoo.ca

World of Warcraft Reviewed: Zug zug, what ho? and all that jazz.

...continued from Page 14.

background story which ties in to the whole plot. You go around doing little quests to level up and at the same time you explore the world and the whole game plot. Note that when you choose a race, you can customize your character to look a certain way, so all Trolls don't look the same, neither do the Humans, which is rather cool. Your character's appearance also changes depending on the armor or clothing you wear, or the lack thereof. You will be surprised how many times I ran into naked players running around in town, or dancing on bar stools, you sick bastards!

In addition to choosing a race, each player can choose a class. The class defines the play style and skills of the character. These include your standard: Warrior, Mage, Warlock, Rogue, Priest, Paladin, Druid, Shaman and Hunter. Certain races cannot take on specific classes, which makes sense. It would seem illogical that a zombie would want to commune with nature and become a druid.

Like other MMPORGs, players can take on professions that allow them to produce items for use and barter. They can produce potions, armor, weapons, or just random junk. Certain armor and weapons are only available from other players, which gives an incentive for players to upgrade their skills. In other words, spend more time on the game, and make Blizzard more money. Yes, since the game is solely online, you need to pay a monthly fee to play. (Side note: Who ever came up with the idea of MMPORG is a genius. They deserve a prize for it, a prize for coming up with the biggest scam in his-

tory.) I will like to point out that among the professions in WoW, you can get to be an engineer, and this allows you to build trinkets and stuff, which is really fun. My friend made me a mechanical squirrel pet that followed me around, useless but cute.

Since WoW is supposed to emulate a real world, the maps of WoW are huge. It takes literally minutes to walk through locations. For example, while I was visiting the Orc city of Ogrimmar it took me half an hour to walk around the city. This can be good and bad. It is bad because getting around is a pain. It is good because it makes the world that much more fun to play in. While it might seem tedious to walk around,

you meet up with different players or monsters along the way, and you get into interesting interactions. The design of

the world also looks exceptionally beautiful. The designers tried to remain as truthful to the concepts of the original Warcraft as possible, and you recognize certain recurring elements. For example, the Orc barracks and night elves' moonwells look the same.

Up until now, WoW just sounds like any other MMPORG with elements of Warcraft added to it. It might seem that way, but a new selling point of WoW is the concept of Raid parties. You can form guilds or parties like in most other MMPORGs. But let say you want to challenge Demi-Gods or a particularly hard monster, and that even with all members of your party decked out you guys still get slaughtered, that is when a Raid party comes into play. You can form Raid parties to tackle especially hard missions. Raid parties are basically parties of parties. This is awesome, especially when you get to see twenty or more players working towards



the same goal.

Another side note about Raid parties, since the setting of the WoW is a place where two opposing factions are at war with each other, it is not uncommon to see raid parties attack other cities. These battles are monumental, usually involving hundreds of players attacking a single city. This also shows the player vs. player side of the game, where players can fight each other. Also, each race talks in their dialect, so an elf and an orc cannot communicate directly to each other, unless they have an interpreter.

Another selling point for WoW is that when you get high enough level, you get to ride mounts. For example, as an elf, you get to ride saber tooth tigers, as a troll, you get raptors, and so on. Having a mount increases your travel speed, so you can concentrate on completing the quest rather than just walking.

Also, Blizzard introduced a special rule that helps out the casual gamers stand on

even ground with the more addicted gamers (*ahem*, not me). Basically, the longer you play the game, the less experience you will gain over time. So, Blizzard encourages players to take breaks from gaming, which is always good.

However, the game is not without its flaws. The servers tend to lag sometimes and there have been cases of fatal flaws, where the game will just crash. Note that I was playing the Beta, so they might have fixed it by the time the game comes out. Also, you need to keep paying a monthly fee to play it.

In conclusion, World of Warcraft is an awesome game that I would play, if I could afford to. I mean once you start this game it is like you are signing off a study term, goodbye 20\$/month, goodbye passing courses and goodbye social life. It is a curse I tell you. But despite its addictiveness, I still give it the thumbs up.

Rating 9/10

Mennonites: What are they?

Andrew Dodds

1A Mechanical



Mennonites (meh-no-nite) n. A member of an Anabaptist church characterized particularly by simplicity of life, pacifism, and non-resistance. And silly Ed thought they were minerals. No, Mennonites are far from being minerals, and just as far from being viewed as normal in our society.

Originally, Mennonites came from Germany. They left because their leader pissed off some people, and then when he tried for reconciliation, he only further insulted them. Somehow sounds like the West Bank to me, but let's not go there. So, they came over to North America, something like the pilgrims, in the 18th century. Now in the 21st century they lie scattered about Canada, the U.S., and even Mexico, many still living very much like the pilgrims.

Mennonites can be defined as being persecuted for their beliefs, unable to reconcile, running away from home, being really anal about how things should be done and what their belief system is, and it's no wonder why so many enjoy their new home in the states. Yes, the life of the Amish is the American dream. It is. Well, not quite, that whole capitalist dream of owning everything still separates them. Many people think that they all wake up at 5am for a daily barn raising, all wear the same clothes, and would all call you a sinner for turning on a light, but this is not true. There are three types of Mennonites/Amish. The first type would indeed follow that stereotype, and look much like the folk from the beginning of the movie *Snatch*. Next we discover the middle grounders. These guys weren't so uptight with their beliefs, and the fathers might even let their daughters marry outside of their little community of old-world beliefs. They might resemble Grant Wood's 1930 painting *American Gothic*. The final type you'd find are as far from the sharp-pointy-stick-suppository brand of Amish as you can get. They'll be the

president of a high tech firm, driving down the highway in a convertible, and talking it up on the cell phone. They just look Amish at times. Kind of like ZZ Top I suppose.

Here in Kitchener-Waterloo you might even come across some of these folk, especially if you venture into St. Jacobs. There's a nice Farmer's Market there in the summer, where shops with wool, homemade butter, and carvings are all set up and bustling by 4 in the morning. Deeper into the little village and on the main street you'll find a carriage repair shop, and an all-broom store. You might even see a man on horse drawn buggy or woman picking vegetables, looking every part the stereotype with their standard clothing (both men and women) and full beard and hat (men only). So now you know a little more, you're a little wiser, and you think you might be able to bag yourself a hot little Amish wife. Stop kidding yourself; the Amish fathers have hardly given up the good old fashioned musket to put a stop to that. Still, at least the next time you hear the word Mennonite mentioned, you won't ask if that's a mineral.

Space, the final frontier

...continued from Page 15.

down here instead of spending all that time and effort exploring. The problem with this argument assumes that the solution to the problems they are trying to solve can't be found be extraterrestrial colonization. That and the argument assumes that we can find solutions to some problems that have been around since time immemorial. Utopias are fantasies. That doesn't mean we should do everything in our power to try to fix the problems at home, it just means that we have to be realistic. We are not going to cure world hunger, or achieve world peace overnight. However, by getting some people of the planet and decreasing the world population we free up resources that could go a long way towards reducing world hunger. Think of the environmental benefits we would all gain by having a less populated planet. Also some believe that it's overpopu-

lation that is at the root of all major territorial conflicts. Also the scientific discovery and research you would gain would be priceless. If you only send robots you get all the science without any of the other benefits.

But there is still one more reason we should be going to the stars. And that's because it's what we're meant to do. There is something inherent in humanity that we just have to keep on going, we just have to see what we haven't seen before, and we need to get there – except we don't know where "there" is. I don't want to quote L. Ron Hubbard, but he was right about one thing: there is something about people who live on the frontier. People are renewed when they face challenges. It forces us to adapt, to change, or face the consequences. Our complacencies are erased and we come face to face with the unknown, with the stuff we're afraid of. We're afraid because realize we really don't have control over our own lives no matter how much we'd like to think otherwise. That's what astronauts really experience when they see the earth from space – at least I figure as much. They come face to face with how fragile and how powerless humanity really is and how much farther there is still to go.

Astronomy compels the soul to look upward, and leads us from this world to another.

— Plato, 'The Republic,' 342 B.C.



"Late for Class" - It is not inconceivable that your residence room would look like this one day. . .is it?

F-22 Rats

...continued from Page 9.

human brain, DeMarse said. In particular, brains can easily make certain kinds of computations – such as recognizing an unfamiliar piece of furniture as a table or a lamp – that are very difficult to program into today's computers. "If we can extract the rules of how these neural networks are doing computations like pattern recognition, we can apply that to create novel computing systems," he said. "There's a lot of data out there that will tell you that the computation that's going on here isn't based on just one neuron. The computational property is actually an emergent property of hundreds or thousands of neurons cooperating to produce the amazing processing power of the brain."

The ultimate goal is to create a mathematical model which emulates how neurons compute. Before this can happen, connections between neurons must be understood. MRI scans show millions of neurons firing together. At that resolution, it is impossible to see what's happening between individual neurons. While scientists can study neural activities from groups of cells in a dish, they can't watch them learn and grow as they would within a living body unless the neurons have some kind of body to interact with; this is where the simulator comes in, standing in for an actual body.

The brain-in-a-dish may also have applications in handling tasks that are extremely dangerous, such as search and rescue, or bomb damage assessments. As living computers, they may someday be used to fly small unmanned airplanes or handle tasks that are dangerous for humans, such as search-and-rescue missions or bomb damage assessments.

Those of you who have seen the movie *Macross Plus* may hearken back to the experimental brainwave control system and interface used to fly the fictional YF-21 mecha. Maybe not so far off now? Or maybe they can hook me up to an electrode plate, and stimulate parts of me to help my learn calculus, without actually me knowing. Eh? "I know kung-fu!"

Files from the University of Florida, and Discovery Channel.

Top 10: things that happened in the world of pop culture and entertainment in 2004 that you should know about

Charling Li

2B Mechanical



10. 2004 brought us the new must-have gadget: the camera phone. Your cell phone is crap if it can't take photos of other people without their knowledge. This handy device is perfect for the celebrity-stalker in all of us. The Consumer Electronics Association warns: "Discretion is advised when using a camera phone to take photos of individuals under the age of 18". Camera phones shouldn't be "used in venues in which photography is normally forbidden, such as museums and movie theaters, or in places such as locker rooms". Thankfully they aren't banned in our classrooms, leaving us with hours entertainment from taking pictures of sleeping classmates or close-ups of your eye when you're bored.

9. Pop tart Britney Spears gets married. Then annuls her marriage. Then buys her own diamond engagement ring and fakes a marriage to a complete bum. See, celebrities' lives are so much better than our own.

8. Who can forget Janet Jackson & Nipplegate? A 5-second flash of a 38-year old breast during the halftime show at the Superbowl causes outrage and controversy. CBS is fined \$550,000 USD for it. Janet Jackson's album becomes the No. 2 bestseller in its first week of release, proof that any publicity is good publicity.

7. DeBeers does it again. In the 50's they cooked up the ad campaign for diamond engagement rings "A diamond is forever" and "How else can 3 months' salary last forever?", putting pressure on men everywhere to buy their beloved nothing less than the best diamonds their salaries can afford. Now, DeBeers is playing a different angle, targeting the successful modern woman with the introduction of the right-hand diamond ring. Buying your own bling is a now symbol of independence and empowerment, a proclamation of "Who needs a man to buy me diamonds?". With slogans like "Your left hand says we. Your right hand says me. Your left hand rocks the cradle. Your right hand rules the world. Women of the world, raise your right hand!", how can you not buy into it? As for me, I'm already thinking about what styles of future right-hand rings would complement my future iron ring.

6. Martha Stewart, former CEO of the multimedia empire "Martha Stewart Living" is sentenced to 5 months at a minimal-security women's prison aka "Camp Cupcake" for insider trading

Continued on page 18. See Top 10 Pop.

Top 10 Lists

Year in Review: Top 10s of 2004

Richard Li
2B Computer

Top 10 Exam Foods

10. Chocolate Bars - If you aren't getting any caffeine from the beverages you're drinking, you might extract trace amounts from these. Granola bars are for wimps. This is the good stuff.
9. Kraft Easy Mac - When four easy steps are too much, you can get your mac and cheese in three.
8. Cereal - Not just for breakfast anymore, it's also good for lunch, dinner, and snack time. Need vegetable content? Add ketchup.
7. Potato Chips - If you're not going to eat a decent meal, it'll at least keep you from starving to death.
6. Chef Boyardee Canned Food - Chef Boyardee is the Iron Chef of nukable tomato sauce based foods.
5. Frozen TV Dinners - Now marketed as "Frozen Entrées" taste just as bad but have a new and improved name.
4. Pizza pockets - These are great in the microwave until you press an extra zero for the timer. The results aren't pretty. Trust me.
3. Bagged salad - Can provide you with your daily greens...until it transforms into a bag of brown goo at the back of your fridge.
2. Hotdogs - If you have a craving for mystery meat, it can be nuked and ready to eat in 20 seconds.
1. Instant Noodles - With hundreds of flavours from shrimp to kimchi and a cooking time of 3 minutes, it's the ultimate snack and sometimes a meal if you get the hardcore Korean stuff in bowls.

Sheldon Petrie

3B Mechanical

Top 10 DVD's of the year—in no particular order

- Return of the King:** Extended Edition
Because no matter how long it is we will watch it
- The Matrix Ultimate Collection:**
Hey, they re-mastered the Original Film, Two commentaries on each movie...6 disks of bonus features...
- Master and Commander: Far Side of the World Special Edition:**
Because Russell Crowe is so damn sexy in a wig
- The Star Wars Trilogy:** Han Shoots First!
- Fahrenheit 9/11:** Kerry was supposed to Win!
- Kill Bill Volume 1 and 2:** An Hattori Hanzo Samurai Sword, when you absolutely, positively have to Kill Bill
- Hero:** It took 2 years to come to North America, and 3 months to DVD
- Spider-Man 2:** A sequel that was better than the original? Who thought of that?
- Futurama Volume 4:** If you don't like Futurama, you can Bite Bender's shiny metal ASS

Andrew Dodds

1A Mechanical

Top 10 Addictions:

- 10) Smoking - Did smoking ever lose its charm? Nothing like a woman's lips around a sin-stick, both symbolic of the genitals, to get your motor running. Besides, cigarettes only steal about 10 years off the average life of a male, and they make you so charming too. Nah, that's all BS. Boo buying death. That photo a while ago of Lindsay Lohan? It lost its hotness when I found out that she was a smoker too. Back to Jenna J. for me.
- 9) Gambling - Unmerited confidence + stroke of brief good luck + access to credit card = downfall of man. How people can be so foolish, nobody knows. Besides, they'd probably waste that money on a meal plan, or a chunk of tuition. Nobody should leave university without the blessing of government debt.
- 8) Bashing the US - Prada bags and Italian shoes don't got nothin' on dissin the States. Sure they're not as graceful as us, or as smart, or as pretty, and yes Bush does suck the big one, but still. Come on. We can find new things to bash them for, right? Let's not forget their crappy BEvERages.
- 7) Reality TV - Nobody can tell me that they haven't snuck a peek of Trump tearing foolish yuppies a new what for. It's like stalking, only not. I myself enjoy the America's Next Top Model; nothing like catty showdowns between hot girls. Not like I'll see that in any of my classes.
- 6) Food - Without the ladies or lads to have a good time with, we often retreat back to gluttony to find salvation. I've spent many a night in the lounge, curled up with a half-litre of BR getting brainfrozen to the weekend

Andre Beltempo

3B Mechanical

Editor-in-Chief

Top 10 Reasons Canada should go Communist:

10. We would get to erect a wall across Toronto, and have people d r a w graffiti on it.
9. We already have a government that t a k e s half of o u r w o r k effort to create a dubiously successful massive social welfare system, why not take the other half and go for broke?
8. The flag is already half-red anyway.
7. Who doesn't get a kick out of uttering "Capitalist pig!"?
6. You wouldn't need to worry about what to buy, since everybody would get the same crappy stuff anyway.
5. Remember how good the USSR was at hockey? Imagine a Communist Canadian team. . . no one else would have a chance.
4. If your neighbour pissed you off, you could just tell the secret police he's planning to defect, and you'd never see him again.
3. Elections would be a lot less confusing, since there would only be candidates for one party.
2. It would spark a new Cold War, but this time we'd really mean it. W e ' r e c o l d e r t h a n everyone else put together.
1. It really would piss off the States. Plus we could join together with Cuba, and when the States complains, we could say "Shaddap, we got you surrounded."

infomercials, and damn that spicy chicken is irresistibly yummerful.

- 5) Missing Hockey - Even if you don't like it, you still miss it. Anything that can make such pitiful guys sing "Do you really want to hurt me?" has got to be something. Even I miss hating the leafs. With the Grey cup over, and the Raptors still as poop as ever (in my eyes anyways), where has all the love gone? Bring back my hockey! Go Sens Go!
- 4) X-box - Everyone's heard of it. Most have played with it. In my rez, it's been a source of entertainment, of bringing 3 televisions together for Halo 2 chaos, a myriad of reasons to skip class, and even of intense jealousy and death threats. If you can play a piece and then leave the box be, you've got amazing control, and could probably do well in the porno directing business.
- 3) BEvERages - Easing the pain of midterms and finals, helping engineers dance and stare at things other than shoes, it's a wonderful thing. Many have been blessed by the magic powers of this sweet nectar. Must remember though: A One That Isn't Cold, Is Scarcely A One At All. Perhaps there's still hope for me after all.
- 2) Heroin - No surprise that this ride still has long lines: it's always a popular trip. There's no connection to me mentioning needles last issue, and now speaking of the highly addictive, highly exhilarating, spiral-of-death-like sensations of drugs this month. No connection at all. And that wasn't me in the shadows around ALH the other night in a trench coat. Mind your own business!
- 1) Sex - Still as good as ever. Newfies' still do it more than anyone else in Canada. Canada's moved on to new and different options with gay marriage, while judging by the gene pool in the Southern States the Yanks still can't get the basics. It's obvious from my last article that I'm not getting any either; what a waste going vegan.

Top 10 Pop

...continued from Page 17.

- and saving herself \$50,000. Prison-etiquette no-no's that Martha will now have to follow include: "Touching another inmate's belongings, asking too many questions of another inmate, butting into conversations, being seen speaking directly to staff without another inmate present, and doing anything that brings attention of the staff to your fellow inmates." The moral of the story: when you're worth about \$420 million, \$50,000 isn't even worth the time you take to fold cloth napkins into swan shapes, let alone 5 months in jail.
5. Ashlee Simpson, sister to TV's favourite bimbo Jessica, is caught lip-synching on Saturday Night Live. Ashlee sings the first song without snafus, but when the second track starts playing the same song in the middle of the song, with 'her' singing, she's struck dumb and starts dancing a demented cross between Riverdance and some sort of country hoe-down. Blames the whole episode on acid reflux. Yeah, ok. Well it's not like we lost respect for her anyway if we didn't have any to begin with.
 4. Rapper Mase returns to P. Diddy/Puff Daddy/Sean 'Puffy' Combs' label Bad Boy after a 5-year hiatus as a pastor in a Harlem church. In 2001 he wrote a book entitled "Revelations: There's Light after the Lime" denouncing all rap music as "leading people straight to hell". But he's back. And now can't nobody hold him down, oh no, he's got to keep on moving. Straight to hell?
 3. Hotel heiress Paris Hilton graces us with her literary genius with the release of "Confessions of an Heiress". 'Confessions' is filled with her dirty secrets like "Here is one of my major secrets revealed: I have curly hair" and useful tips on how to be an heiress: "Show off your navel and belly. If you wear jeans, wear them really, really low-waisted". A must-buy for anyone who likes to look at air-brushed/colour-enhanced photos of her. Or pre-teen girls with no real-life role models.
 2. Former story editors of Sex and the City brings us the enlightening volume "He's Just Not That Into You: The No-Excuses Truth to Understanding Guys" to the delight of clueless single girls everywhere. Now I can safely call myself an expert on men after flipping through this book for 2 minutes at Chapters. Highlights include: "He's just not that into you...if he's dating someone else" and "He's just not that into you...if he's sleeping with someone else". Whew, now I no longer have to wonder why he just won't return my calls/MSN messages/text messages/voicemails/emails.
 1. The O.C, a 1 hour television drama set in sunny California revolving around the tormented love lives of rich and beautiful high school kids. Guys watch the show for Mischa Barton. Girls watch for the sensitive geek played by Adam Brody. Apparently video-game playing geeky boys are now all the rage thanks to this guy. Have hope, Eng-boys!

Top 10 Lists Continued: Top 10 Scientific Advances of 2004

Quoc Huy T. Le

4N Electrical



1) Sonoprep Skin Permeation Device
(Remember the "hypospray" from Star Trek? Well it's here! This FDA approved device uses low-frequency ultrasound to inject drugs underneath the skin painlessly)

2) Mobion Micro Fuel Cell

(Fuel cells have longed been a prospect for replacing batteries. The only problem was their miniaturization to a point where they can be used in small, mobile electronic devices. Mobion has done just this with its methanol fuel cell)

3) Twin Mars Exploration Rovers

(The twin rovers *Spirit* and *Opportunity* have surpassed all expectations during their 640 kilometre trek on the surface of Mars collecting data and samples. Though they were only expected to survive until April, the smooth execution of every stage of deployment from take-off to landing on Mars has contributed to their continuing service to NASA to this very day)

4) X-43A Scramjet

(It is the fastest air-breathing vehicle in history. It has broken every speed record for an engine-powered airplane. During testing it hit a peak velocity of Mach 6.83 in March)

5) Cassini-Huygens

(The 3.3 billion dollar mission has been worth every penny. The images and data returned from these spacecraft of the gas giant and its largest satellite has excited amateurs and scientists alike)

6) Braingate Neural Interface System

(This device is 16-square millimeters and is placed directly on the human brain. It is government-approved for testing and has shown that people can send signals directly

to a computer to control, say, a mouse cursor using only their thoughts)

7) 3-D memory

(An invention of Matrix Semiconductor, this new way of physically arranging bits in a 3D-fashion rather than the standard 2D method will reduce space and manufacturing costs)

8) Successful Cloning of Fruit Flies

(From a set of over 500 trials, about 5 were successful. They did it in Nova Scotia about eighteen months ago, and their offspring are still going strong)

9) Terabyte DVDs

(Using an ingenious combination of shorter wavelengths, multiple layers, and pit angling researchers are now able to fit between one to one and a half trillion bits on a Digital Versatile Disc)

10) Face Transplants

(Not quite like in the movie "Face-Off", but it is now possible to use facial tissue from a donor and replace yours with it. The procedure was performed successfully in Cleveland in early November)



"Face/Off" - The disturbing scenario presented in the above movie has now become reality. . .see the top 10 list above.

Women in Engineering Conference

Priya Roberts

NWIE
Conferece



This past weekend, I attended the National Conference on Women in Engineering. The theme of this years conference was to explore the lifestyle choices made by women in engineering in order to complement their careers and attain a certain balance in life. This conference involved great discussions from the keynote speakers as well as the male and female delegates. The keynote speakers were not only fabulous speakers but they were exceptional people from all walks of life. They shared their years of experience in business and engineering as well and insightful knowledge with us. Many would think that a conference of this nature would purely focus on a women's perspective and challenges pertaining to being in the field of engineering, however, it did not.

This conference focused of the development of individuals and our role as engineering to not only understand the technical aspects of a project and design solutions

accordingly, but to also consider the myriad of social environmental and economic issues in today's society. The primary theme of this conference is to examine how engineers with different backgrounds, personalities, skill sets and experiences can work together and complement each other to ultimately achieve better results. We should not look at our co-workers by gender, but by recognizing and using each others strengths in a team environment, therefore yielding more innovative and efficient solutions.

All of the keynote speakers were exceptional, however I fell one in particular relayed an important message about "Risking Being Alive". Her name was Dr. Caroline Baillie and she spoke about the importance of living a life in which we believe in. She focused on reflecting on our own behaviors, choices and effectiveness as individuals in life.

By combining our values with the constraints imposed upon us by society as well as in our careers in which we operate, personal development and risk taking is of the utmost importance. We must transform engineering to include our diverse values as people, and what we believe in. That is how we are able to risk being alive and do what is right in this world.

Frosh in Space

...continued from Page 16.

been to one, tell others! Aside from the fact that you may end up taking more notes during the conference than you would in class, it's a great experience. Spend a day outside our scenic engineering buildings, hanging out with...other engineers! However, despite what might be said about those other schools, everyone was there for the same reason - Canada's future is in space, and we all want to see that future sooner rather than later. Plus, maybe that will mean more co-op jobs for us. Maybe.

Now, this goes out to everyone from 1A through 4B. If you ever feel like engineering isn't for you, if your faith in THE

TOOL ever wavers, attend a similar event. You will be surrounded by people from all over Canada who have the same dreams that you do, whatever they may be. And yes, some may not even be engineers. This event wasn't about math, or mechanics, or anything like that. The only thing we cared about was what we needed to create in order to keep Canadians out there exploring. I may be a little naive here, but I don't think that any of us are in this faculty to learn the ins and outs of ODEs, or to get really familiar with quantum mechanics. I'd like to think that we're here because we want to make a difference, and I know that there are at least a hundred other people out there who think the same way as I do.

The Wild Hijinks and Adventures of Co-op

Mark Truchanowicz
2N Computer

So you've just gotten an offer on JobMine and you think to yourself, "Great! I just may be able to pay off next term's tuition bill." Or maybe just, "I'VE GOT A JOB!" (That is for all you first years out there.) Then you realize the kind of situation you are going to be dealing with the next four months. For me this term, some would call it Detroit Jr., some would call it the "arm pit of Canada", and most just don't even want to talk about it. That's right folks I'm talking about the one and only, Windsor, Ontario.

While some of you may find comfort in residing in the city with the highest, that's right I said highest, number of strip clubs per-capita in the country, there's far more to this city than you'd ever imagine.

After accepting the job offer I thought to myself, "Windsor can't be so bad, I'll just hop the border and check out some Red Wings' games. It'll be a blast." But at the time of the offer the NHL lockout was

looming overhead and in my optimistic frame of mind I figured it'd all be cleared up by the time I got to Windsor, right? Wrong. Needless to say that idea fell apart faster than a leper in a boxing match.

Now, if experience teaches you anything here's a tidbit of wisdom to all you first years. When looking for a place, cheapest isn't always best! Also check the place out before you rent it. Entirely due to circumstance, (read: laziness and Frosh Leading), I happened to: a. Pick the cheapest place found and b. Agreed to rent without even seeing the place beforehand. After I arrived I thought I had lucked out, a great price including utilities, phone, washer/dryer, the whole nine yards and I had no reason to complain yet.

It was a week and only a week before I realized the mistake I'd made. I just so happened to move into the west end of Windsor, which for those of you who don't know, is the ghetto. Not only that, but to

top it all off my house sits directly between the two streets with the highest murder rates per year. But so what, I'm in the ghetto, murders are a given and if I put the homicide rate, gang warfare and the bullet holes in the front door of my neighbour's house aside it really isn't that bad. Besides, what fun would it be if your roommate didn't get a threatening letter left on his car because

he parked on the wrong side of the road or had his bike stolen? Gotta love that West-End Windsor justice!

Now I'm sure you're all asking what I did with all my spare time, of which I did have plenty.

The short (and only) answer: pack your shit and high-tail it out of there!. Aside from a single weekend this term, I've spent EVERY weekend out of the city, namely in Waterloo. That's why many of you have seen me kickin' around campus over the last couple weeks. Trust me, leaving Windsor is the only thing keeping me sane, hell ask anyone who's from Windsor, they'd say the

"I've spent EVERY weekend out of the city, namely in Waterloo"

Top 10 Lists / Christmas Special

Top 10 War Quotes:

10. "War is an ugly thing, but not the ugliest of things. The decayed and degraded state of moral and patriotic feeling, which thinks that nothing is worth war, is much worse. The person who has nothing for which he is willing to fight, nothing which is more important than his own personal safety, is a miserable creature and has no chance of being free unless made and kept so by the exertions of better men than himself."

- John Stuart Mill ~ 1868

9. "War is not about dying for your country, it's about making the other bastard die for his."

- George S. Patton

8. "People sleep comfortably in their beds at night, secure in the knowledge that rough men stand ready to do violence on their behalf."

- George Orwell

7. "They wrote in the old days that it is sweet and fitting to die for one's country. But in modern war, there is nothing sweet nor fitting in your dying. You will die like a dog for no good reason."

- Ernest Hemmingway

6. "When you have to kill a man it costs nothing to be polite."

- Winston Churchill

5. "There never was a good war or bad peace."

- Benjamin Franklin

4. "Every gun that is made, every warship launched, every rocket fired signifies in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed. This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children. This is not a way of life at all in any true sense. Under the clouds of war, it is humanity hanging on a cross of iron."

- President Eisenhower ~ 1953

3. "Naturally the common people don't want war; neither in Russia, nor in England, nor in America, nor in Germany. That is understood. But after all, it is the leaders of the country who determine policy, and it is always a simple matter to drag the people along, whether it is a democracy, or a fascist dictatorship, or a parliament, or a communist dictatorship. Voice or no voice, the people can always be brought to the bidding of the leaders. That is easy. All you have to do is to tell them they are being attacked, and denounce the pacifists for lack of patriotism and exposing the country to danger. It works the same in any country."

- Herman Goering ~ 1941

2. "Unconditional war can no longer lead to unconditional victory. It can no longer serve to settle disputes. It can no longer be of concern to great powers alone. For a nuclear disaster, spread by winds and waters and fear, could well engulf the great and the small, the rich and the poor, the committed and the uncommitted alike. Mankind must put an end to war or war will put an end to mankind."

- John F. Kennedy

1. "Religion and science both profess peace (and the sincerity of the professors is not being doubted), but each always turns out to have a dominant part in any war that is going or contemplated."

- Howard Nemerov

Christmas Tunes by UWaterloo students

Orchestra@Waterloo

Quoc Huy T. Le

4N Electrical

For the music lovers of the world, December is going to be a treat for you! The Fall 2004 term here at Waterloo introduces its newly formed orchestra known as *orchestra@uwaterloo*.

The orchestra consists of about seventy Waterloo undergrads, grads, alumni and faculty. There is a strong engineering presence as the number of engineers who play in the orchestra is second only to the Math faculty. They have been practicing every Thursday night since the beginning of the term. Their repertoire includes Brahms' Academic Festival Overture, Grieg's Pier Gynt Suite No. 2, Haydn's Symphony No. 8 ("Le Soir"), Gabrieli's Sonata pian'e forte, and Tchaikovsky's Romeo and Juliet Overture-Fantasy.

The players are the best that the University of Waterloo has to offer since they were chosen from over one-hundred and twenty people who auditioned. When those eager young musicians came to the open rehearsal the first night "we just about fainted," says the orchestra conduc-



Quoc Huy T. Le

4N Electrical

It's the most wonderful time of the year! In just a few short weeks you'll see snow covered trees and wreaths hanging on the doors of people who revel in the spirit of the holiday known as Christmas.

But what's so special about Christmas? Why do we celebrate it? If you said something along the lines of 'the birth of Jesus', give yourself a pat on the back. That was, indeed, the event that started it all. But how much do you know about the history behind the traditions we commonly associate with the Christmas season? Bear with me for a few moments and I guarantee you'll find a new appreciation for this special time of year.

The word *Christmas* is derived from the late Old English *Cristes masse* or "Christ's



tor, Erna Van Daele, commenting on her surprise at the turnout. Erna, an experienced director, has been conducting orchestras and symphonic ensembles since 1980.

The organization of *orchestra@uwaterloo* was due to the hard work of many people including Anna Lubiw, the Chair of the Council that helped form the ensemble. When asked what her motivations were in participating on the council, she was adamant that "Waterloo should have an orchestra." Anna is also an amateur musician and plays second violin in the group.

The *orchestra@uwaterloo* concert takes place at 8:00pm on Thursday, December 2, 2004 in the Humanities Theatre in J.G. Hagey Hall. Admission is free, but donations are accepted at the door. For more information about *orchestra@uwaterloo*, please visit www.orchestra.uwaterloo.ca

In addition to the newly formed *orchestra@uwaterloo*, the tradition of the University of Waterloo's Chamber

Choir continues. The choir of about thirty-five people meets regularly to sing choruses and cantatas in four part harmony.

The University of Waterloo Chamber Choir is offered as a half-credit course and has been affiliated with Conrad Grebel College for years. Admission is by audition only. The musical director, Richard Cunningham, a professional counter-tenor, has been directing the Chamber Choir for about five years now. When asked to comment on the calibre of the choir this term, Richard delightfully replied, "It's the best one I've ever had."

This year, the Chamber Choir has been hired to perform with the Kitchener-Waterloo Chamber Orchestra. Pieces include excerpts from Bach's Christmas Oratorio, as well as his Cantata No. 62 and Magnificat, Vivaldi's Gloria and selections from Handel's Messiah. The Chamber Choir will also perform beautiful a cappella pieces such as Gabriel's "Message" and Vaughan Williams' "The Blessed Son of God". The Kitchener-Waterloo Chamber Orchestra will be performing with the University of Waterloo Chamber Choir on Sunday, December 5, 2004 at 7:00pm at Maureen Forrester Recital Hall at Wilfrid Laurier University. For more information, please visit www.kwchamberorchestra.ca.

The Chamber Choir will also be performing at the Davis Centre during lunch on Wednesday, December 8 near the atrium.

The Origins of Christmas explored

An exclusive research piece

mass". The term "mass" is derived from the Latin *missio* which means "to send" (you may recognize it in the word "mission"). *Christmas*, then, literally means "the sending of Christ."

The term "mistletoe" also comes from the Old English *mistle* which is related to the German (and Dutch and Swedish) *mistel*. Interestingly enough, it was the druids of the Celtic people around where Great Britain and France is today who were the first to use sprigs of holly and mistletoe. The green leaves and red berries of holly kept their colour throughout the entire year. Holly and mistletoe were considered sacred to the druids.

Holly also used by the Romans during *Saturnalia*. Wreaths (the word relating to "wrist", both of which mean the forming of a continuous physical circular shape) of holly were given as gifts symbolizing the eternal cycle of life. In Rome, during *Saturnalia*, the Christians of the time who wished to avoid persecution for not paying homage to the Roman gods would place holly on their homes (*deck the halls with*

boughs of holly...). This tradition of holly and mistletoe continued well after Christianity conquered Rome and was adopted into the Christmas traditions.

Perhaps the most well known symbol of Christmas is the beautifully decorated *Christmas Tree*. However, you may be surprised to know that the ornamented evergreen has no historical connection with Christ's mass whatsoever. In fact, it predates the celebration of Christmas and the Christian religion for at least a thousands years.

The druids (the same ones who used holly and mistletoe) would decorate trees outdoors every winter solstice (December 21). Druidic priests would carefully place apples and candles on the branches of the evergreens to show their gratitude to their god, Odin. The candles represented the light of their sun god, Balter.

Centuries later, the ancient Romans

Continued on page 22. See Christmas Origins lie with pagans

Photographer Profile: Ansel Adams

David Yip

2B Mechanical



Ansel Adams is quite possibly the most well known photographer ever. Known for his large format photographs of the American wilderness, he was instrumental in making photography its own art form, away from its previous form of imitating paintings. He was also a prominent member of the Sierra Club, a group dedicated towards preserving nature and its wonders.

He was born in 1902 in San Francisco. In 1906, the great earthquake broke his nose, disfiguring it permanently. His appearance combined with his excitability made it difficult for him to fit in at school. School largely disliked him, and he disliked school, so his parents kept him home to be home schooled. In retrospect, Adams noted that he may have been hyperactive and dyslexic. Because of his relatively solitary childhood, he spent vast amounts of time hiking the dunes of the Golden Gate, developing his appreciation for nature.

His love for nature grew further with his visits to the Yosemite Sierra National Park. Like many photographers, he started with a

Kodak Box Brownie camera, photographing his many excursions to the Sierra. In 1919 he joined the Sierra Club, and became friends with many of the club's prominent figures, founders of America's fledgling conservation movement.

The Sierra Club was instrumental to Adams' success as a photographer; his pictures were published in their newsletters. He became the photographer on Sierra Club outings, and realized that his earnings from his pictures were far likely to keep food on the table than music was. He was correct, though much of his income came from commercial photography for a diverse group of clients, including Union Gas, IBM, the National Park Service, Kodak, Zeiss, AT&T.

By 1934 he was on the Board of Directors of the Sierra Club, and well established as both a conservationist as well as an artist.

In 1927 Adams came under the patronage of Albert Bender, a successful San Francisco insurance magnate. His friendship and cash changed Adams dramatically, helping him prepare his first portfolio, and gave Adams the energy and confidence to fully pursue his talents as a photographer.

Adams was a technical master of photography, and wrote several books on the subject. His "Zone System" of exposure enabled photographers to manipulate tones in images, giving photographers a new level of creativity beyond the confines of the act of recording an image. Adams' extensive use of the large format view camera helped him create the images with the



exacting detail he desired, though the equipment was no light load. Often he employed the services of a mule to haul his equipment through the woods.

He was also an ardent conservationist, and his pictures helped his cause greatly. Many of his photographs of American nature "created a sense of the sublime magnificence of nature that infused the viewer with the emotional equivalent of wilderness, often more powerful than the actual thing." Critics of his work see this as a fault of his work; that his pictures largely represent an ideal wilderness that no longer exists. However, it is arguable that much of the wilderness he depicts still exists because of his work as an activist, and his work as an artist.

In 1943, anxious to contribute in some way to the war effort, Adams sought and received a commission from Ralph Merritt, then director of Manzanar War Relocation Camp, to illustrate and record the lives of

American-born Japanese who were interned there. He was tremendously impressed by the spirit of those people as they patiently waited to return to their lives. His pictures from the camp were first exhibited in the Museum of Modern Art, and then published in 1944 in the compilation "Born Free and Equal", with text written by Adams himself. However, the book badly received by those who only wanted to see the Japanese as the enemy.

Ansel Adams passed away in 1984. In 1980 Jimmy Carter awarded him the Presidential Medal of Freedom, the nation's highest civilian honor. The Minarets Wilderness in the Inyo National Forest was renamed the Ansel Adams Wilderness in 1984 in his honor. Mount Ansel Adams, a 11,760' peak in his beloved Sierra Nevada, was named for him in 1985.

With files from anseladams.com and Wikipedia.



Nanotech: Coming soon to a neighbourhood near you

...continued from Page 13.

process which determines what the optimal clock frequency is. Why? It is because tiny microscopic flaws may cause one processor to dissipate heat less efficiently. And so it is set at a lower frequency.

What's a solution? Imagine miniature devices that can construct CPUs atom by atom such that a line of CPUs will be *exactly* the same (at least down to the atomic scale. Kind of reminds you of those fantastic "replicators" they have on Star Trek, doesn't it?). 100% production yield rates could suddenly become a reality.

Scientists have already shown that certain atoms can be manipulated to an extremely high degree of accuracy. As shown in the picture, atoms of Carbon Monoxide have been meticulously positioned to display the shape of a man on a piece of Platinum.

Being able to construct perfect CPUs and other materials such as diamonds or superconductors is quite a long way off. At present, much research is being done on devices such as single-electron transistors (SET), photonic devices, and nanolithography which is a technique that uses varying light waves to fabricate microelectronics on an extremely small scale.

Another large area of research that is of

great interests to all scientists is that of biotechnology. Since most human cells are around a couple of microns long, it is a simple matter for a properly programmed nano-machine to enter into a cell and make any repairs necessary. It is theoretically possible for someone to swallow a whole bunch of these gadgets and have them, say, eradicate a colony of malicious bacteria or repair damaged or cancerous cells.

So what's holding us back? Why is the development of these wonder-workers not taking off? There are several difficulties that are encountered when one deals with the incredibly small. Most notably, it is one of imaging. When attempting to view matter on the nano-scale a simple light-microscope is not enough. At times even electron microscopes are not sufficient.

One of the solutions to this difficulty is the use of an Atomic Force Microscope. By using an extremely sharp point (by "extremely sharp", I mean that the end of the pin is just a single atom) and moving it across a surface, then a three-dimensional image of that surface can be constructed. In addition to this, since there is also interaction between the different types of atoms and the sensing pin, the scanner can give an accurate picture as to its atomic composition as well. This is just one example of the larger field known as Scanning Probe Microscopy (SPM).

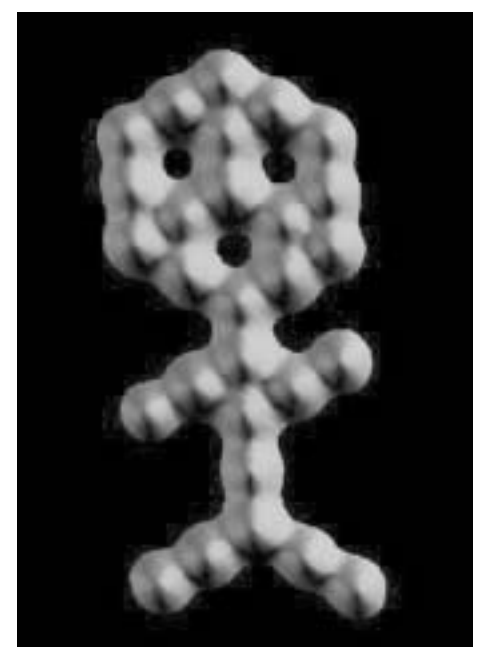
Another consideration to be taken into

account when working with things of this size is that the relationship between forces and motion are slightly different. In the macroscopic world, if something needs to be moved, forces exerted by way of physical displacement is applied. However, as an object shrinks, its mass decreases by a cubic relation whereas its surface (or cross-sectional) area is decreased only by a square relation. By the time you get to the nano-scale physical forces are no longer required and electrostatics become sufficient for manipulation. At the same time, this also results in high sensitivity to stray electro-magnetic fields.

Another issue with these tiny robots, especially for environmentalists, is one of pollution. Just like Carbon Monoxide or any PCP, hoards and hoards of nano-bots accidentally released into the atmosphere or water supply could be extremely harmful to plants and animals.

I have only touched upon the possible uses, solutions and difficulties involved with nanotechnology that scientists and engineers must consider. Speaking of engineers, it should be noted that nanotechnology has an application in practically every engineering field. From Micro Electro-Mechanical Systems (MEMS) to DNA manipulators, from chemical analysers to mini-actuators, there's something for everybody.

So whatever discipline you're in, you



might want to consider a career in nanotechnology. The way things are going now it won't be long before nano-probes are a part of everyday life (like the silicon wafer). Who knows? We might even get to the point where we can order any meal from a food dispensing machine, replicate the latest fashion in clothing or mass produce any type of material. What if we could specifically tailor a serum to cure any disease? The prospect of solving world issues like hunger, homelessness and disease is looking brighter everyday.

ARTS CORNER

'tis the Night Before Christmas

Quoc Huy T. Le



4N Electrical

'tis the night before Christmas, and all through the house.

not a creature is stirring, not even a mouse.
my stocking is hung by my chimney with care,
in hopes that St. Nicholas, soon will be there.

i left milk and cookies, and even a cake.
and pray that good St. Nick, will give me a break.
you see, i've done things for which he would get pissed.
and i know that for sure i'm not on his "good" list.

i try really hard everyday to be good.
but it's tough when you live within my neighbour-
hood.
just down the street from me there's a guy named
Mike.
yesterday i decked him, and rode off with his bike.

further down the street is a midget named Roy.
i tipped him right over and stole all of his toys.
and then he came after me swinging a bat.
when i rolled him again, i also took that.

on thanks giving day, i was in a mischeivous mood.
snuck into the house next door, and stole all of their
food.

this past Halloween everything was just dandy.
kids knocked on my door, and i'd take their candy.

i dated this girl who was my babysitter.
on our second date i dumped her, right after i did her.

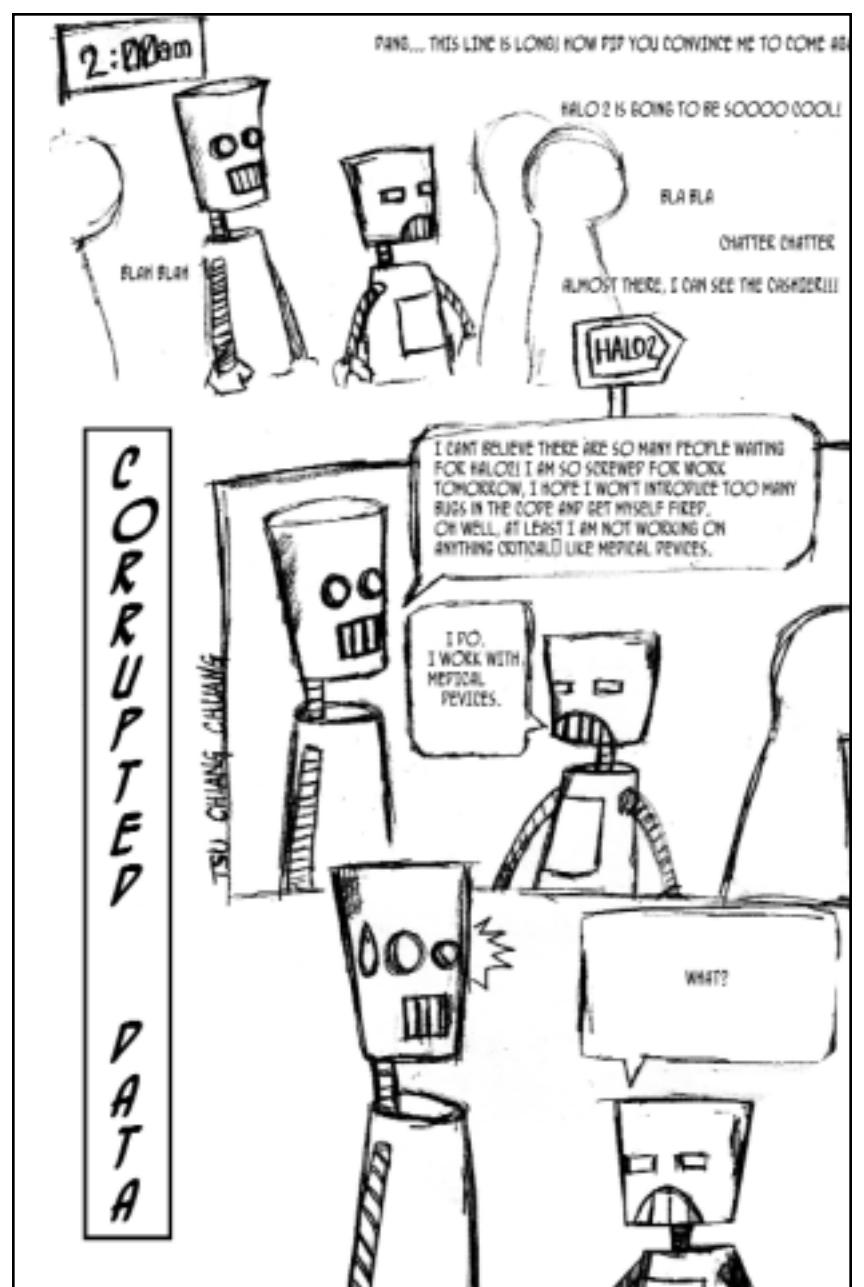
the next day she called on
the telephone line.
i said, "like to see you
prove that it's mine!"

i've lied to my parents.
i've told off my teacher.
i've cheated my friends.
i've hammered my
preacher.
i don't pay my taxes or
for the gas pump.
i don't wash my hands,
after taking a dump.

i've stolen cars, bikes,
motorcycles and scooters.
i've fondled a girl and i've
squeezed her hooters.
i've pulled on her hair,
and i've pinched her tush.
i went do to the States,
and voted for Bush.

yep, this year has not
been the best one for me.
and it's sad when i hear
others shout out with glee
because they get new toys
and new clothes and new
clocks,
while i get a handful of coal in my socks.

this year will be different, 'cause i'll stay awake
to see if Santa Clause will eat my cake.
and if he still gives me nothing but coal,
i'll kill and bury him out back in a hole.



Want to show off your artistic side?

Have some poetry you'd like to share? Got any comics you doodled during calculus class? Submissions are always welcome at iwarrior@engmail.uwaterloo.ca, or in the Iron Warrior mailbox in the Orifice.

Christmas traditions lie with pagans

...continued from Page 22.

would adopt this practice of decorating trees to celebrate *Saturnalia*, the one-week celebration of their god of agriculture, Saturn. In addition to apples and candles, the Romans also adorned their trees with little trinkets and toys to pay tribute to their sun god, Solarus. The celebration was around the same time as the winter solstice. It is generally believed that the Christian tradition of decorating a fir tree descends directly from the Roman tradition.

So, is there *anything* about Christmas that is truly *Christian* in origin, and not ripped off from some obscure ancient pagan ritual? Absolutely! In fact, the most anticipated ritual of gift-giving is a tradition that has its foundations on the night that the baby Jesus was visited by the three wise men (or oriental kings or magi, if you prefer). In case you have forgotten, the three gifts were gold, myrrh and frankincense.

Just as a side note: Melchior gave the gift of gold, which symbolized Jesus' royalty. Gaspar (or Casper) gave the gift of frankincense, which was an expensive gum distilled from a tree found in Persia, India and Arabia. It was commonly used in worship rituals where it would be burned to release a fragrant odor thought to be pleasing to God. Frankincense, therefore, represents Jesus'

divinity and worthiness of worship. Balthazar gave the gift of Myrrh. It was another aromatic gum made from a thorny tree called *balsamdendron myrrha* which grows in Arabia and Ethiopia. It was mainly used for embalming the dead. Myrrh represented the sacrifice that Jesus was to make for humanity three decades later. The names of the wise men are somewhat debatable as historical texts are not quite specific about who and how many people visited Jesus in Bethlehem.

What discussion about Christmas would be complete without an exploration into the history of the ultimate giver of gifts? From where did Santa Claus come? Good old St. Nick was, in actuality, known as Saint Nikolaus, the Bishop of Myra. He was known for his extreme generosity and legends grew about his deeds and miracles (calming of the sea, raising the dead, etc...and no, I'm not talking about Jesus).

Perhaps the most famous story is when a peasant from a town near the Caspian Sea had no dowry for his three daughters. It is said that St. Nikolaus gave them gifts of silver, incense and gold which he dropped through the chimney late at night. The third gift of gold fell into a wet stocking that was hung by the chimney to dry (sound familiar?). St. Nick died on December 6th, 342 A.D. and that day, henceforth, was

known as *St. Nicholas Day*.

Saint Nicholas became one of the most popular saints of the Middle Ages, especially in the Netherlands where he was associated with reindeer and helper elves. In the 17th Century when the Dutch landed in what is now known as New York State they brought along with them their traditions of *Sinterklass*. Over the next three centuries the images of Santa Claus in his red suit being aided by elves matured and soon developed into what the *Coca-Cola company* would modify into a fat jolly man drinking Coke in 1923. Despite popular belief, the *Coca-Cola company* did not invent what Santa looked like, they only adapted him for an ad campaign.

This was done with the assistance of the poem *The Night Before Christmas* (formerly titled *A Visit from Saint Nicholas*) written by a Hebrew professor named Clement Clark Moore in 1822. Incidentally, it is in this poem that eight specific reindeer are given names (sans Rudolph, of course).

It is appropriate here to include a discussion on the very event upon which the celebration of Christmas is based. Jesus was born on December 25 in the year 1 A.D., right? Not exactly. Though it is impossible to know for sure on what day (or even on what year) Christ was born, it is generally agreed among scholars that our assumptions

are about four to eight years too late. Furthermore, some analyses place the day of Jesus' birth around the September-October months (the 15th day of the Month of Tishri).

Clues, both from the Bible and extra-biblical records (such as The Feast of Tabernacles, King Herod's death, the Census taken during the time, etc.) have convinced almost all scholars that Jesus was not born on Christmas day. So why do we celebrate it so? The most probable answer is that early Christianity had to compete with the pagan festivals. So it was moved to around the winter solstice where it later adopted many of the pagan traditions.

History has shown that Christmas was one of the most celebrated times of the year. It is no wonder that it continues to be one of the largest holidays observed in western culture and throughout the world. It's festivities are based on loving, giving, kindness and sacrifice for our friends and our enemies.

"Big Deal", you might say, "you can make the statement that any holiday is based on these principles." Yes, you can. But Christmas is the only tradition that exists *because* of these values. It is because God loves the world that, through an incredible act of kindness He gave us his only son who was sacrificed. Whether you're a believer or not, it is this which is celebrated year after year.

Presenting Fall 2004 Iron Warrior Editors and Staff

Andre Beltempo
 3B Mechanical
Editor-in-Chief



This semester is done like dinner, and it's time to see the faces behind what were certainly the most prolific few issues of the IW in recent memory. With some outstanding work, the Iron Warrior staff and loyal fan contributors certainly supplied enough

content to really get some valuable insight into Waterloo Engineering.

The staff was incredibly prolific this year, providing pages of high quality content, and this was supplanted by the surprising number of random contributors. After the deadlines or not, there certainly was never any difficulty filling the 90 pages of the Iron Warrior this semester.

From technology reviews and photographer profiles, sports reviews, book reviews, movie reviews, and contentious articles on Women in Engineering, the Iron Warrior

certainly provided some entertaining and informative content, if nothing else. With a new LowRider and EngSoc Exec, the helm of the IW will be in good hands with David, who I'm sure will encourage all nascent writers to get out and contribute.

For those of you staying for Winter 2005, look for James Schofield and his crew to take over, and you may notice a few of the staff from this issue carrying over. I'm sure James would certainly appreciate any submissions at iwarrrior@engmail.uwaterloo.ca.



David Yip- Photo Editor, Senior Arts Correspondent, Incoming Editor-in-Chief



Charling Li - Assistant Editor



Katherine Chiang - Layout Editor, Web Editor



Richard Hui - Photo Editor



James Schofield- Off-stream Editor-in-Chief



Katherine Chiang - Webmaster



Quoc Huy T. Le - Most prolific writer in history of IW



LowRider - Gone to B-Soc, never to return



Tsu Chiang Chuang - Senior Game Reviewer, Junior Comicist



Edward Tan - Senior Women In Engineering Surveyor



Andrew Dodds - Senior Junior Frosh Correspondent



Carolyn Sutherland - Senior Recipe/Capture the Flag Columnist



Yang Sui - Angry Cartoonist



Brent Carrara - Senior Sports Columnist



Sheldon Petrie - Senior Movie Reviewer and POETS guru



Stanislovsky - Communist Consultant



Adam Philip - Senior Book Reviewer



Taneem A. Talukdar - Senior Calgarian Contributor



Jason Verheyden - Senior Space Affairs Correspondent



Cindy Bao - Senior Offstream Stratford Contributor



Anonymous - Alumni Affairs

Arts

Arts wrap-up

David Yip & Yvonne Yip
Arts Directors (Still no relation)

Printed below are some of the lovely submissions from the arts contest this term. Due to the rather low number of contestants and submissions, official contest status was revoked, and we now have an exhibition instead. Hopefully you noticed some of the contributions in the display case, here are those that couldn't be cased.

For arts week, we had a quiet start to origami, but later we had a small group of people, including our esteemed outgoing President, making a variety of Star Wars origami figures.

Duct tape constructions was a similar case of quality over quantity, with a rather convincing construction of Santa, reindeer, and sleigh, a bra, and a roll up pencil case. I myself walked away with a PDA and phone case, both with belt loops.

For movies in Poets I must apologize, having been mostly duped into thinking the movies I rented were entertaining, and also making a mistake in believing that people go to Poets to broaden horizons. However,

Zatoichi was somewhat redeemed by the rather perplexing combination of Japanese tap dancing, oddball humor, and blood spraying samurai action.

Charades was supported by mostly BSocers, with some surprisingly good guesses coming from 2B Mechaholics conducting a Andre the Giant movie review upstairs in Poets, when the rest of the charades participants were stumped. Must be something about Andre and acting that work together well. Not a bad time; in fact the idea of a dedicated Charades directorship was proposed.

However, us directors have concluded that for ASoc at least, the arts directorship is better suited towards doing two things. The first is organizing events where the focus is "Come and be entertained" instead of "Come and do something". The second is to do random things around engineering to break the monotony of class.

Proof of the first conclusion was well exhibited at the wild success of this term's engineering play. We don't usually swear, but it was fucking fantastic. Ridiculously amazing acting, production and stage management.

That is all, directors out.

Blue-Green

Yuvraj Goel
1A Mechanical

I went for a drive in the shimmering rain
The blue-green seeped through the windshield
And soaked the children of the sun

I saw creation through a child's eyes
To behold the sum of all things

Then, with eyes shut,
I tasted the things that will be never be
The hands that will never touch
The lips that will never meet

The rain blended with the hollow taste
And gave it a false sweetness
That coated my memories of the future
Of things that will never be
Soaked in the blue-green.



Lisa Fedowicz of 2B Chemical shows off her duct tape bra.



Detail of drawing by Ayman Abdel Rahman - ECE Graduate Studies



Duct Tape Santa makes an appearance.



Detail of photograph by Alex Truong - 1A Computer



Detail of photograph by Krzysztof Pietroszek

the Iron Inquisition

Richard Hui, 2A Chemical

What do you like least about Christmas?



"How it's becoming so commercialized."
Mike Trotman - 2A Civil



"That Christmas ends!"
Pamela Chan - 2B Mechanical



"My boyfriend won't be here."
Sarah Vandaiyar - 2A Chemical



"The fact that it's not warm."
Djordje Jovanovic - 1A Civil



"Parking at the mall."
Alana Chen - 2A Mechanical & Lindsay Chen - 3B Systems



"Faking recognition to all my family members."
Sean Fleming - 2B Mechanical



"There is no good coop job."
Gerald Chan & Seungmin Chang - 1A Mechatronics



"Too stressed to think about Christmas, I have exams!"
Charles Fung - 2A Civil