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THE IRON WARRIOR

Friday, January 28, 2000

The Newspaper of the University of Waterloo Engineering Society

Volume 24 Issue 2

February 5th will be Stone Cold

TORI DE BOKX
4B Civil Engineering

Tobogganing has long been one of Canada's favourite winter activities. Spanning all ages from toddlers to grandparents, it is a winter ritual of friendship, family, and fun. Despite its popularity, tobogganing has never become the sport of which legends are made, except in the minds of the young of heart.

There are always daredevils: building ramps, catching air, taking the steepest slopes - always trying to go faster, jump higher, or slide farther. Manufacturers have risen to the call, designing toboggans to challenge the wildest imaginations. Young and old alike head to the hills as snow warriors, armed with scarf and sled and dreams of glory.

Predictably, engineering students from universities across North America have set out to out-do the manufacturers, and build a better "boggan". Students from British Columbia to Maryland are

making uncustomary alterations that turn traditional tobogganing into a contest of champions. The toboggans? For starters, they aren't made of wood anymore. Or even plastic. Students today are making toboggans out of concrete.

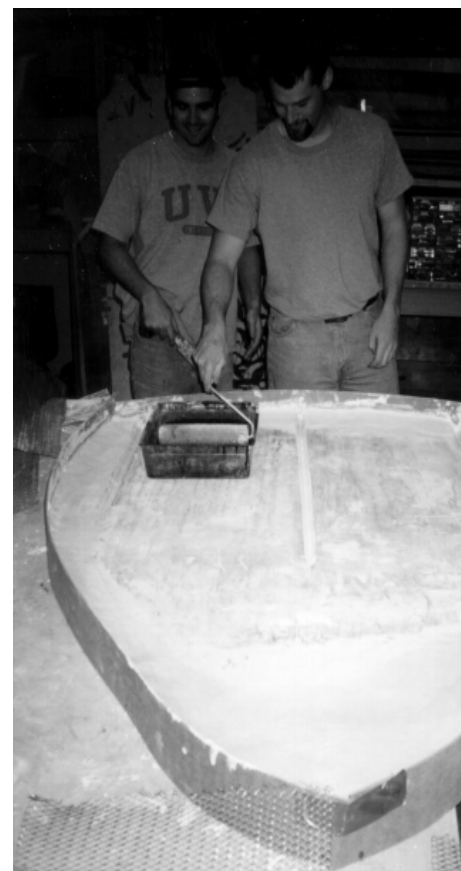
Canada's "Great Northern Concrete Toboggan Race" was conceived in response to the Concrete Canoe Competitions of our American neighbours. A regatta of custom crafted toboggans, linked by the common element of a concrete running surface, gather each year in a Canadian city for a technical exposition and some spirited competition. For the more adventurous among us - those daredevils of years gone by - it does recapture that little bit of excitement that tobogganing created in us as children.

This February marks the 26th annual GNCTR competitions, to be hosted this year by the University of Regina, Saskatchewan. Teams send 5 members hurtling down a hill on a 300-pound con-

crete slab, complete with brakes, safety frame and a whole lot of creative engineering.

Past teams from the University of Waterloo have always been strong promoters of the GNCTR, competing year after year, and hosting the 25th annual event. With the assistance of Mark's Work Wearhouse, Bell Canada, PCL Constructors, and other corporate sponsors, the 33 members of this year's "Stone Cold" team have designed and built the University of Waterloo's year 2000 entry. With finishing touches being added, test plans taking shape, and sponsor support growing weekly, the UW Stone Cold team leaves for Regina February 2. When asked for predictions, the Stone Cold team will only say that Regina will be cold. Stone Cold.

For more information on Stone Cold, or the GNCTR 2000, visit our website at: <http://www.eng.uwaterloo.ca/projects/boggan2k/>
Watch the races February 5, 2000!



Members of 4B Civil prepare for the GNCTR (Photo Courtesy Tori De Bokx)

Engineering for Humanity

GEORGE ROTER

On Tuesday January 18 about 100 students at the University of Waterloo were issued a challenge by Rae McGrath, ex-British Military Engineer, co-founder of the Mines Advisory Group, and co-Noble laureate - "get involved".

Mr. McGrath began his humanitarian career building bridges in war-torn Afghanistan, helping to return the population to some semblance of a normal life. Upon arrival, Mr. McGrath observed major infrastructure damage, and specifically, destroyed bridges that once linked the people to their livelihood. In one case, the local population had found a solution to the problem by driving their vehicles through the river, causing massive damage to both the riverbed and its banks. The United Nations surveyed that specific situation and designed a \$500,000 bridge, but the agency said it would not begin construction until after war had finished - the war still rages now, thirteen years later. Identifying the need for immediate assistance, Mr. McGrath's group utilised community resources for the design, planning, and labour of a bridge that would meet the needs of the people in the area. The total cost was \$1000.

Unfortunately for the community, it was this project that launched Mr. McGrath's humanitarian demining career. After the bridge was built, the local "commuters" continued to drive through the river instead of using the bridge. Upon inquiry, the community members revealed that the road on the other side of the bridge had been mined during the war to blow-up Soviet tanks (far be it for the community to object to a bridge being built nonetheless!). Thus began Mr.

McGrath's humanitarian demining career, and this topic constituted the body of his lecture.

Mr. McGrath began by giving the attendees of the lecture a crash course on the types mines and unexploded ordinance that are commonly encountered during humanitarian demining operations, and the techniques for clearing them. Two categories of mines were outlined - anti-personnel mines and anti-tank mines.

Anti-personnel mines come in a variety of shapes, sizes and types, but all are designed to maim, rather than kill, enemy infantry thereby engaging enemy resources. The most basic mines in this category are the buried anti-personnel mines. Upon activation with a footstep, a charge at the bottom of these mines explodes upward, driving metal, plastic, shoe soles, and the bones of the feet through the legs and lower torso of the victim. Whether the victim is a soldier, a farmer, or a child, the result is the same. Some variations on the anti-personnel mine are the Claymore and the bounding fragmentation mine. The Claymore is a fragmentation-type mine that contains thousands of ball bearings or metal cubes that are propelled outward from the mine upon activation with a trip wire. The bounding fragmentation mine is similar to the Claymore except the trip wire activated an initial charge that causes the body of the mine to "jump" out of the ground to the end of a "leash" and at this point primary charge is activated. The added height of detonation allows greater fragment dispersal and targets the upper-body of its victim, and thus, ensures severe disability.

There are three basic steps to clearing

anti-personnel mines - detection, exposure, and controlled detonation. First, a highly sensitive ferrous metal detector is used to detect a buried mine, and upon detection, the ground is carefully probed to find the mine's exact location. The body of the mine is subsequently exposed, and the mine is either detonated in-place or it is taken out of the ground for later detonation. This entire process varies with the type of mine encountered, and the clearance situation.

The second category of mines outlined were anti-tank mines, which are considerably less sensitive than anti-personnel mines but are equally as dangerous and deadly. These mines are cleared in a similar manner to the anti-personnel mines, but again, there are many different types of mines requiring slightly different clearance techniques.

During this description of mine clearance Mr. McGrath noted that nobody had ever though a great deal about demining issues, and thus, a great deal of innovation was required. In addition to varied mine types, a minefield is not necessarily the groomed pasture that we are so accustomed to seeing in Hollywood reproductions of life. Minefields can be any size or shape, and this was proved to the audience through scores of photos showing everything from shale lined hills to building wreckage to gardens outside a family's house. Each of these photos depicted a minefield just as dangerous as the stereotypical grassy ridge, and each presented a unique mine clearance challenge.

Mr. McGrath shared many anecdotes about mine clearance challenges that he has encountered, and he used these anecdotes to convey the broad impact of land-

mines on the lives of those in the effected communities. Useable arable land area is reduced, free movement is impeded, and lifestyles are severely altered. Nonetheless, mine clearance is a lengthy process for each individual minefield, and there are literally ten of thousands of minefields remaining world-wide. Although the problem seems overwhelming,

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What Do You Mean I Need a Topic?

Well, it's another issue, and that means another rant from me. This one is going to be a bit less focused than the first issue. Okay, this one won't have any focus at all, so don't say I didn't warn you.

My first random complaint: those ads for the cable modems. I've currently got a cable modem at home, and I'm relatively happy with it, but the ads still irritate me. Why? Because they don't distinguish between a standard dial-up modem and high speed connections available from the phone companies. Also, the claim that the phone network wasn't designed for Internet data implies that the cable network was designed for data. Nope, cable is meant to pump programming in one direction, from the cable office to everyone in the neighbourhood. Oh well, it still beats a dial-up connection.

Midterms. Why am I finishing all of my midterms before the reading break? This doesn't really make sense to me. Last time I was around for a winter term, exams started right after the break. This time they finish nearly a week before the break starts. Oh well, at least I'll be able to enjoy it this time.

So it's been nearly a month, and the only Y2K bugs I've seen reported in the press seem to involve web sites reporting dates such as January 1, 19100. Not quite the end of society as we know it. I personally would have liked to have seen a number of small, almost comical problems, such as the story of the automated food warehouse that junked an entire shipment of food that were due to expire in 2000, since the system believed it was some 90-something years old. Oh well, it made for a work term, and now I've moved on.

The University of Waterloo has a reputation as a very high-tech university. However, there seems to be a lack of infrastructure for student computing. Besides the number of web sites for labs that I find to be inaccessible from off campus (and I know that IST is working on this problem), there is still a lack of any campus wide accessible network for students. More and more students are bringing lap-

tops to campus with them, although we are nowhere near a school like Acadia, and there's nothing available for laptop equipped students. While I can understand the difficulty in providing high-speed network access across campus available to anyone with a computer and a network card, it's hard enough to find an electrical outlet when you're in a lecture hall. At least there's those fancy payphones outside the Davis Centre library.

By the way, has everyone realized that I'm a computer engineer, and an extremely geeky one at that? Good, let's carry on.

Some days I still miss living in Village 1. I mean, I'm not serious, the food wasn't great, the room was tiny, and it seemed overpriced. On the other hand, it was enjoyable to live with your friends a few minutes away on foot, although at the same time highly distracting. If I really wanted to go back, I'd apply to be a don, but I think I'll be fine.

Does anyone apply to co-op jobs with major typographic errors? (At this time, I'm sure someone will find a major error in this newspaper, and then call me a hypocrite. Feel free to volunteer as a proof-reader, I can always use the help.) There's a job on Access that I'm not going to name, but it claims that the start date is May 1997. Does this mean they've been reusing the same job description since before I arrived, and no one has noticed this? On a similar note, I noticed that the job titled "Tinternet developer" passed through to continuous phase last term. I'm not sure where these errors are introduced, but they make looking for jobs somewhat amusing.

So, there's this resurgence in game shows. Not just daytime game shows to be watched in POETS or when you're home sick from school, but prime-time game shows that air multiple times a week. It's clear that they're not all going to survive, and I've started to get sick of them already. To elaborate, I keep considering signing up for one of the satellite television packages, just so that I can watch the

Game Show Network, which consists of game shows 24 hours a day. Mainly repeats of older, classic game shows, but hey, who doesn't want to see cars being given away for \$3,000? Anyways, they're good to watch, but I just can't be bothered to watch the same show three times a week.

By the way, cheeseburgers for 69 cents each may be very affordable, but remember, when people are ordering forty burgers at a time, they're not giving a lot of thought to quality. As a note, you can't get special toppings on them either, unless you want to pay full price.

After reading a recent story on Wired News, I discovered that I am apparently a "clever hacker". I feel bad, because they're reporting on a hole in an online store that allows you to view the orders of other customers, which I happened to stumble across back over the work term. Oh, if only I had reported it instead of exploiting it for my own nefarious purposes and redirecting many packages to my door for free. Ok, so I didn't redirect any packages to my door, but it would have been nice to get the media attention.

On a serious note, FEDS elections are approaching. The next issue will cover the candidates for the Engineering senate position, while the FEDS executive and an at-large senator will also be elected. Well, some of the executive will be elected. I wasn't here for the year the entire exec was acclaimed, but this year is, I believe, half acclaimed. But still, it would be nice to see people voting. It takes only a couple of minutes of your time, and you get to hide behind a cardboard booth. Ok, it's not the most exciting thing in the world, but you should look into the candidates and go vote.

As a final note, if you're not happy with the newspaper, or you would just like to see your own work in here, feel free to e-mail iwarrior@engmail.uwaterloo.ca or drop by the Iron Warrior office, which is located across the hall from the Engineering Society office in Carl Pollack Hall 1323B. Feel free to knock on the door and see if anyone is in there. There's always room for more people to help out this newspaper, and so far, speaking for myself, I'm having fun.

That's all until next time, where hopefully I will have some sort of focus.



Editor's Rant

by Ryan Bayne
3A Computer

THE IRON WARRIOR

The Newspaper of the University of Waterloo Engineering Society

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Upcoming Events

January 28-29
Caveman Games (SCUNT)

February 1
Alumni / Undergraduate Pub
Night, 6:00 PM POETS

February 3
IW Issue #3 Deadline
20 Days Til IRS Pub Crawl

February 4
MOT @ POETS

February 5
Volleyball tournament in the PAC

February 9
Engsoc Council Meeting #3

Information Session a Success

IAN POLLOCK
3B Mechanical

On Wednesday, January 19th, Contact Singapore held an information session in the Davis Centre. This was advertised to both MathSoc and EngSoc students, and was both a successful and beneficial event.

The organisation is a non-profit group funded by the Singapore government. Their job is to promote employment opportunities in the country, as well as

provide a liaison between employers and prospective employees. In addition, they provide a wealth of other services, including housing placement, immigration assistance, and an orientation to the country.

The focus of the session was on the types of businesses found in Singapore, government policies and taxation, and the lifestyle and culture of the country. The presentation was followed by an in-depth question and answer period.

This organisation has conducted sessions in the past, and is hoping to make regular appearances at the UW.

In all, students from both faculties were able to come and learn about the country, economy, culture, as well as get many of their questions answered. For those unable to attend the session, you can reach the Toronto branch of the organisation by phone (416-223-8880), email (toronto@cs.org.sg), or look them up on the web at www.contactsingapore.org.sg

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

The Iron Warrior encourages submissions from students, faculty and members of the university community. Submissions should reflect the concerns and intellectual standards of the university in general. The author's name and phone number should be included. All submissions, unless otherwise stated, become the property of The Iron Warrior, which reserves the right to refuse publication of material which it deems unsuitable. The Iron Warrior also reserves the right to edit grammar, spelling and text that do not meet university standards. Authors will be notified of any major changes that may be required. Mail should be addressed to The Iron Warrior, Engineering Society, CPH 1323B, University of Waterloo, Waterloo, Ontario, N2L 3G1. Our phone number is (519) 888-4567 x2693. Our fax number is (519) 725-4872. E-mail can be sent to iwarrior@engmail.uwaterloo.ca

Origins of TOOL

JIM PIKE
Mech '69

At my 30th reunion in September 1999, I had the pleasure of meeting Dean Chaudhuri for the first time and he was telling me how the Engineering mascot - The Tool - is introduced to first year students in what he described as a "rock concert-like" setting. I was struck by how far The Tool has progressed from its humble beginning back in the 1968-69 timeframe.

Back then I was Engineering Society "A" President and with John Bergsma as Eng Soc President in the other stream we were working together to cement the identity of what it meant to be a Waterloo Engineer. First and foremost on the list was a mascot followed closely by a crest. We had neither - but what we did have was tremendous pride in the University of Waterloo and particularly the fact that we were engineers and somehow all of that needed to be acknowledged with important outward signs that we could all rally around and identify with.

So a voyage of discover was undertaken to agree on a new mascot and the process was to come forward with suggestions and get to a choice that both engineering streams could agree on.

Early on in the discussion I recall that Ken Loach (Chem Eng '71) embraced the pipe wrench as yet another piece of the "plumber and proud of it" theme he had championed as a member to the Engineering Society executive. Thanks to Ken, we had the Paul Plumber award to acknowledge people who did good work on campus. And for those musically inclined, the Plumbers' International Symphony (more commonly referred to as PIS) would show up at football games and generate what could only be described as noise.

But there was competition with the pipe wrench idea - a sword of all things. Perhaps more egalitarian than a pipe wrench but in the end a second place finisher. In separate meetings of the two engineering societies, the pipe wrench

was the official choice.

What then followed was a discussion about what our new mascot would look like - some favoured a small wrench that could be used as a gavel at engineering society meetings but in the end "big" prevailed.

I was dispatched to find something and during my work term at Stelco in Hamilton I went to a local industrial supply distributor and spotted the biggest pipe wrench in the place - a bright orange handled model made by the Ridgid Tool Company. At \$350 it wasn't a cheap item and I volunteered to write a letter explaining the mascot idea and see if the Ridgid Tool Company would provide one gratis.

Being able to write with pride that we were the largest Engineering school in Canada with a distinguished reputation in academic achievement as well as pioneering the co-op movement got an immediate "when do you want to pick it up" response.

At the Hamilton industrial supply dis-

tributor two conditions were discussed verbally - could it be referred to as the Ridgid Tool and could the original colours be maintained. I said yes, threw the tool in the back of my '62 VW beetle and headed to a machine shop in Waterloo where by prior arrangement certain modifications were to be made - like chrome dipping and adding some chains for added security.

Two hours later it was all chrome coloured and I guess I should have had a Chemical Engineer along to explain what happens to orange paint in a chrome dip. And as for the mascot simply being called The Tool - I won't go there except to say that the original name got lots of mileage and notoriety. Anyway, I'm not losing any sleep about the original conditions going by the wayside.

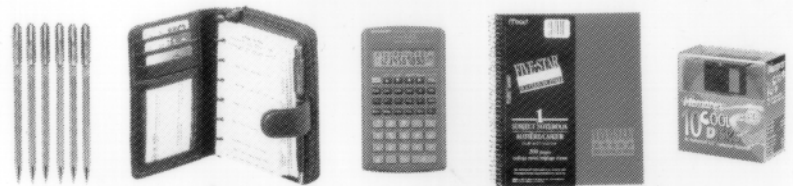
And thirty years on the Tool lives on as an affirmation of what it means to be an Engineer from the University of Waterloo.

Courtesy WEAL, December 1999



**It's not that bad.
It's only second semester.**

You can still turn things around. Get organized with a little help from Grand & Toy. We've got the stuff to help you make the grade.



GRAND & TOY
STUFF FOR SCHOOL

Hurry! Mid-term Back to School Sale ends February 19th.

Fairview Park Mall
893-3344

GRAND & TOY
ENTER TO WIN!
1 of 10 2MB Palm IIIe Organizers!

To enter, deposit this completed entry in the specially identified ballot box at participating Grand & Toy retail stores. No purchase necessary. One entry per person. Must be a resident of Canada, excluding Quebec, and have reached the age of majority. Selected entrants will be required to answer a skill-testing question. **Contest closes February 26, 2000.** Draw date: March 15, 2000. Complete rules and regulations in store.

Name: _____
Address: _____
Phone: _____
University/College: _____
E-mail: _____



*(Engineering for Humanity)
Continued from Page 1*

life goes on for the effected communities, and “finding a liveable solution” in the interim is essential. Mr. McGrath showed pictures, such as the one depicting the deminer in the foreground while a woman is working the fields in the background; the one where a seven kilometre path, 1 metre wide, had been cleared so that children could get to school; the one in which children sang on the way to school in order to alert deminers to pause their operations to ensure the safety of the children, of innovative co-operation.

This community co-operation, however, was not the only innovation in mine clearance. With the increased prevalence of humanitarian demining teams, there

was a need to establish clearance procedures and utilise proven mine clearance technology. Mr. McGrath made clear that both of these areas are continually evolving as new circumstances are encountered and as new ways approaching “typical” mine clearance situations are developed. Applying engineering practices allows superior project management of a mine clearance operation, and developing technological devices makes clearance safer, more rapid, and more reliable. By training community members to apply these engineering practices, the same people who are working eight hours a day in the minefield become the experts and the innovators.

Unfortunately, Mr. McGrath noted that the overall knowledge base of demining technology and techniques is not

shared effectively among clearance teams throughout the world. A demining team in Southern Africa may have already designed an approach and the tools to tackle a specific problem that has just been encountered in South America. Being unable to relay that already learned knowledge in Southern Africa would cause the process to be slowed in South America, and the communities would suffer. This type of situation is a major hindrance to demining activities and one that could be solved with a technological solution.

And so Mr. McGrath came full-circle with his challenge to the attendees of the evening lecture, many of who were engineers - “get involved”. He advised stu-

dents to “start small” and to get involved as directly as possible with the communities and their problems. Mr. McGrath leads by example: he began his international development career by building a one thousand dollar bridge in Afghanistan and he continues to build more bridges, now on an allegorical level, by facilitating interactions between the developed and the developing world, finding liveable solutions, and engineering for humanity.

Getting the Job Done

As we are all students enrolled in Waterloo’s prestigious Co-operative Education program, I am sure that everyone is familiar with our habit of changing residences every four months. This is my fifth term at Waterloo, and one might assume that I should be an expert packer and mover by now. That assumption, however, would be incorrect.

It seems every time I move back to Waterloo, I forget to bring something I dearly need. Almost without fail, I will be lacking one or more items that are necessary to upkeep an acceptable standard of living: laundry detergent, a mop, and an ample food supply, for example. Because of this, however, I have learned to be extremely resourceful.

Resourcefulness is a skill that should be learned and practiced by everybody. For absent-minded individuals like me, who seem unprepared for everything, resourcefulness is an invaluable tool. In general, being resourceful can prove very beneficial.

First and foremost, being resourceful means being open-minded. It means that you must keep your eyes peeled for any and all possible solutions to your problem. You have to look in places where you wouldn’t normally look.

For instance, when putting together resume packages on campus, I often find that I have forgotten to bring a stapler. So I get around this problem by hunting for staplers in various offices and study rooms. If all else fails, as it does all too often, I visit the nearest public bulletin board, remove some staples from posters, and manually assemble them into the corner of my resume packages. It gets the job done, albeit not as neatly as a normal stapling operation.

Being resourceful also means making the most out of what you have. Sometimes in Waterloo I can find myself so isolated that there are few sources to turn to for assistance. I ran into situation like this several weeks ago in my preparation of meals.

Having moved into my place for a few days, I realised that I really hadn’t brought enough food with me to cook anything resembling a meal. So I improvised. The end result was a “casserole” of rice, cream of celery soup, and cinnamon toast crunch cereal. Needless to say, it wasn’t very palatable, but it keep me alive until my next meal and I did get three major food groups out of it. Perhaps this gastro-

nomical monstrosity was more a result of sloth, silliness, and sheer idiocy, but heck it got the job done, didn’t it?

Being resourceful means knowing who and what is available to help you. Having three roommates has been a great blessing for me. Benefits to me: a manila envelope, milk, cheese, a pair of wool socks, lifesavers, hairspray, and of course a stapler. Benefits to my roommates: milk, socks, a razor, a hat, mittens, and a chicken pie, to name a few. Knowing what you can “leech” off of others is an important part of being resourceful.

And so, you might ask, what is to be gained from all this? Well, for one, I’ve learned to live comfortably with relatively few belongings. I’ve found that the task of packing and moving becomes easier with each term, because I know I can bring less each time. By the time I reach my 4B term, I wouldn’t be surprised to see myself moving to Waterloo with only a suitcase in hand.

Furthermore, knowing how to make use of limited resources gives birth to innovation. Why use shelves and tables when you can use cardboard boxes? Why use a screwdriver when you can use a knife? Why use a freezer when you can use cold outdoor temperatures? Why use mittens when you can use socks? Why use oven mitts when you have ski gloves?

I’m sure that many of you can name some examples of being resourceful that are a bit more practical than the ones I’ve mentioned.

If you are a resourceful person, you will never be caught off-guard in any situation. Even if you are totally unprepared, you will not be afraid to dive in head first, knowing that you will somehow find ways to do things. The resourceful person does not let a lack of resources hold them back; they find a way to make things happen. Being resourceful allows you to focus your efforts on what you do have, instead of what you don’t have.

In conclusion, don’t be afraid to do things a little differently. Never think that something cannot be done. You might be lacking in time, supplies, or manpower, but you will always possess the ability to think, innovate, and be resourceful. So the next time you see me roaming the halls with my face turned a funny shade green, looking like I had just eaten a chocolate-mustard-raisin-sandwich, please don’t make fun of me. It got the job done, didn’t it?



The Big Picture

by Raymond Ho
3A Mechanical



Rae McGrath spoke on campus about his humanitarian efforts against land mines.
(Photo courtesy Rob McArthur)

Covering your Costs

MARGARET PARKHILL
3A Civil

Holiday bills, rent to pay, tuition, grocery money, phone bill... they just keep coming and coming! You’ve cut back to one meal a day, haven’t bought any textbooks, and you’re still experiencing a cash-flow drought? Scholarships, bursaries, emergency loans are available to engineering students, all you have to do is apply for them.

Within the boundaries of UW, there are twenty-one scholarships... that’s right, you heard me, twenty-one scholarships just for engineers. The requirements range from high marks to special areas of interest. Amounts awarded can be as much as \$2,500. Information on these scholarships can be found in the Undergraduate Calendar, or at UW’s Student Awards Office webpage (www.adm.uwaterloo.ca/infoawards/). Deadlines vary, so if you are going to need some extra cash, be sure to check these out soon.

There are other ways to get some extra cash. For example, UW has a work-

study program, where you can earn up to \$1,000 per term, working between 5 and 15 hours a week (ever heard of WalkSafe?). Positions available are posted at the Registrar’s Office (2nd floor, Needles Hall) and in the Career Resource Centre (1st floor, Needles Hall). Application forms are available from the Student Awards Office, 2nd floor, Needles Hall.

Emergency loans are also available from UW’s Student Awards Office, most based on donations from individuals. These loans are provided on an interest-free basis for a short period of time (generally 90 days). There are several emergency funds specifically for engineers. To be eligible for these funds, you must be in good academic standing and provide proof of an acceptable source of repayment. Applications are available at the Student Awards Office. A list of the loan funds can be found at www.adm.uwaterloo.ca/infoawards/loan_funds.html.

In the next Iron Warrior, a list of additional resources to help you through your school term cash crisis.



Unleash your creative side! Send your drawings, photos, poems, comics, and short stories to The Iron Warrior mailbox in the Orifice (CPH 1327). Written submissions may also be sent to iwarrior@engmail in .txt (text only) format.

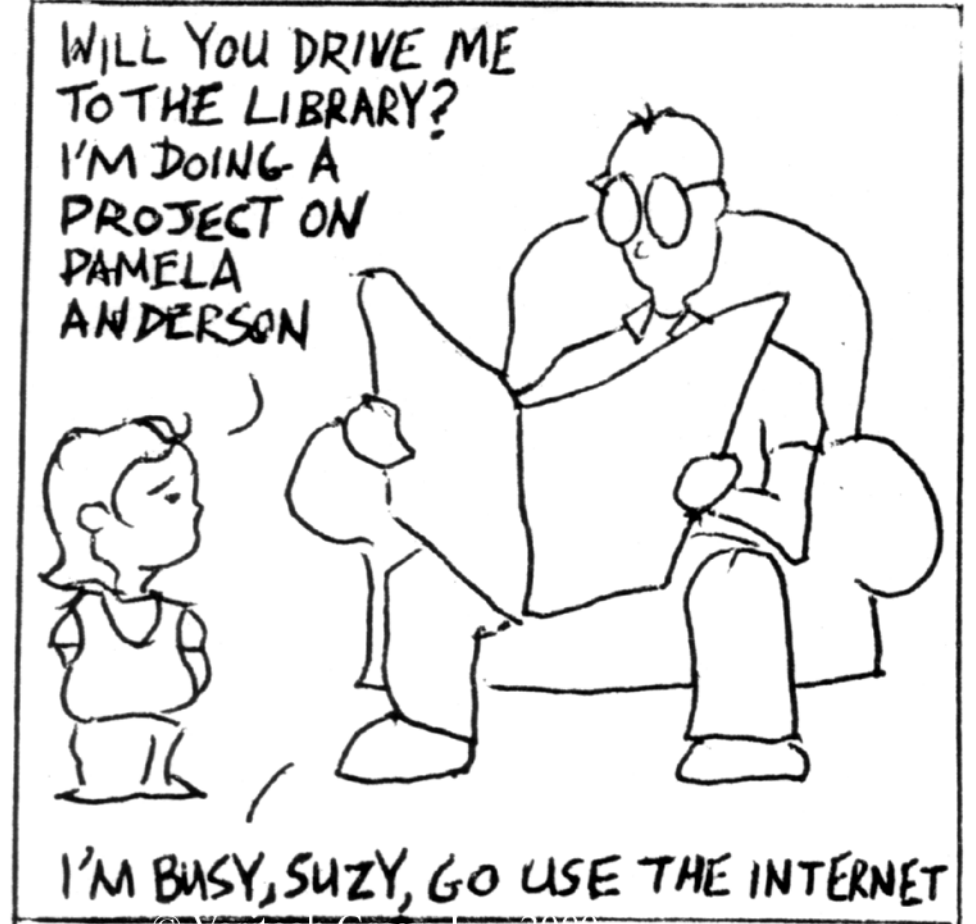
Extant

Not everything is meant to be known
As we search for truth
The answers we seek are rarely shown
And enlightenment remains aloof
Life will often take a turn
In a complex fashion
Everyone's soul needs to burn
Away, with the fire of passion

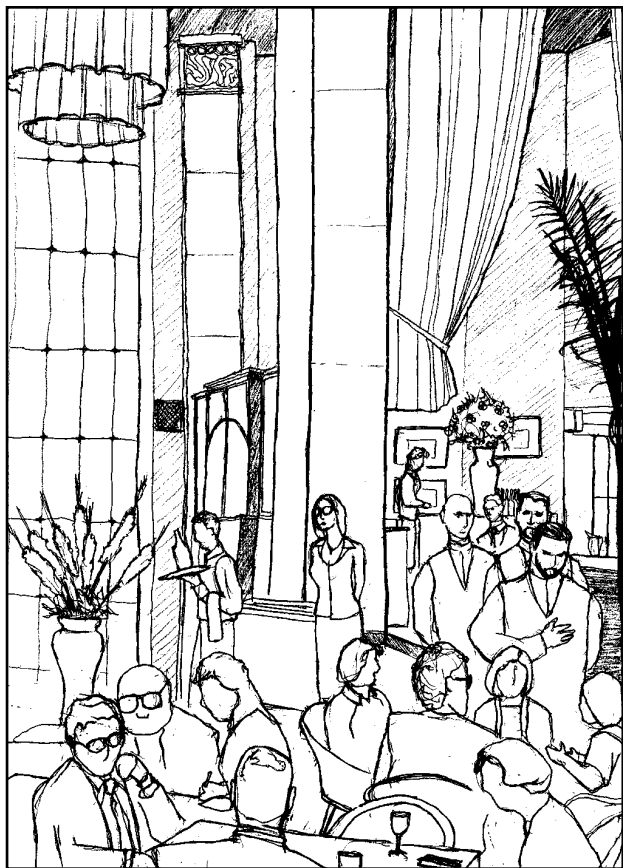
People can judge you, but don't mind what they say
As you struggle through life
Remember to do things your own way
And ignore the cut of ignorance's knife
Days pass, and months turn to years
Infinitely, as time's banner is unfurled
Stay true to yourself, your hopes and fears
Exist with the world

Simon Dimuantes
3B Systems Design Engineering

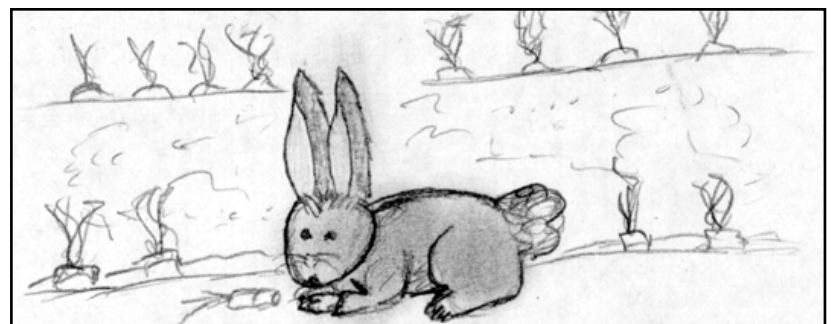
myWaterloo



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Left - Buffet
Ian Tien
3A Computer Engineering

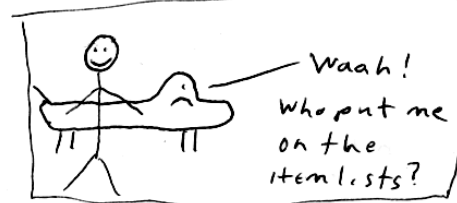


Right - Rabbit in a Carrot Patch
Jessica Gross
3B Chemical Engineering

Mutant Dog Goes Scanting



© 2000 Ryan Bayne



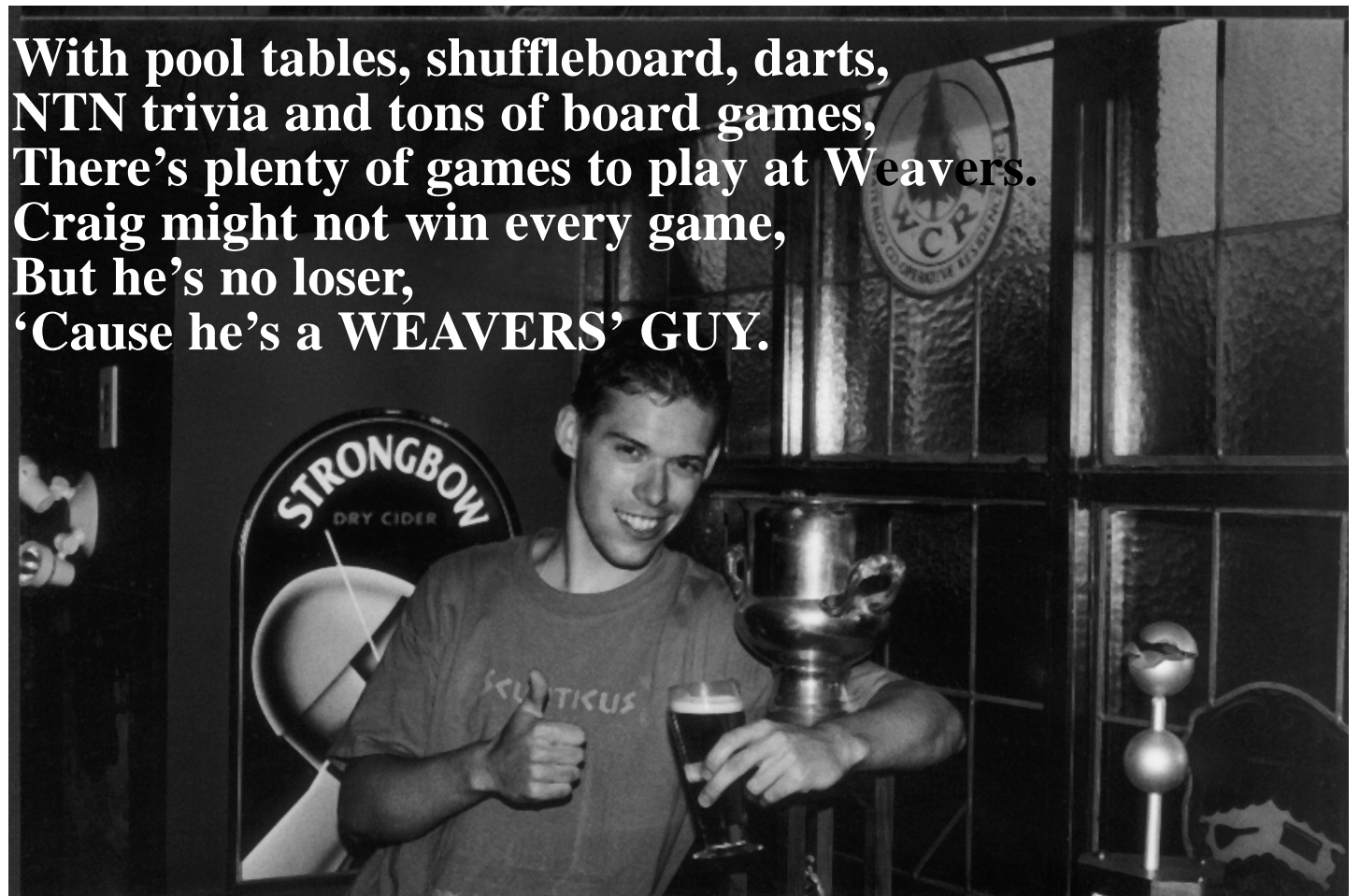
Weavers Arms



Pub, Restaurant,
Pizzeria, and
Pool Place

Open Monday, Tuesday and
Thursday 12 noon to 1a.m.
Wednesday, Friday and
Saturday noon to 2 a.m.
Sunday noon to midnight

With pool tables, shuffleboard, darts,
NTN trivia and tons of board games,
There's plenty of games to play at Weavers.
Craig might not win every game,
But he's no loser,
'Cause he's a WEAVERS' GUY.



Directors and Treats

Hi all. I hope that the first month of class has treated you all well. I must extend my deepest apologies for not being as available as I would have liked to be thus far. My weeklong excursion to Winterpeg had left me a little traumatised, from which I'm still recovering. But never mind that now.

Finally, I've set up the photocopier/phone codes. They can be found in the Orifice on a nice pretty little list. Also, please kindly pass your current phone number along to Betty, so that we have a list in case someone needs to track you down, and the dogs aren't available.

There are still some positions open within the directorate. These include one each for Competitions, External Special Events, Internal Special Events, Handbook, and Internal Conferences. If you are at all interested, please talk to someone on the exec, or email engsoc@steam.uwaterloo.ca

If you're not interested in holding a directorship, but still want to take part in

some organisation of events, etc., sign up for the task team in the Orifice, or contact Phil Daley at pdaley@engmail. The task team is a group of people who don't necessarily have time for directorships, but want to help out at individual events when they can.

By the time you read this, SCUNT will have already begun. I encourage everyone to get involved, even if only for a couple of events. Other events coming up include an Alumni/Undergrad pub night in POETS on Tuesday, February 1st at 6 pm. The first beer

and some pizza are covered. It will be a great opportunity to meet and talk to former UW students now working in the region. February 3rd is the 40 days pub-crawl, followed on Friday by MOT, and a volleyball tournament on Saturday. I hope everyone will find something they can come to.

If you have any questions or concerns, just drop me a line at irpolloc@engmail.



VP Internal

by Ian Pollock
3B Mechanical

Budget is Looming

Hello all. I hope your term is progressing well. I presented the EngSoc budget on Wednesday January 26th, so all who were interested in hearing me speak should have been there. The past Wednesday was the the draft budget and was voted on, then in the next EngSoc meeting I will present the final budget.

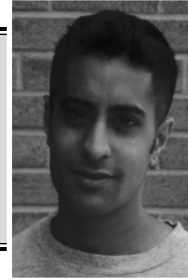
Scunt is looming around the corner and I will be one of the scunt gods. It will be an interesting weekend. XXXedys has put alot of time in preparing this years scunt which is called

Caveman Games and will start on Friday January 28th and end on Saturday. I hope to see alot of you out there. Oh yeah, there will be NO bonus points for hasseling a particular scunt god, it was all just rumors.

My office hours are still Wednesday @ 1:30 to 2:30 and Thursday @ 12:30 to 1:30. My email is

gsodhi@engmail.

Good luck and God speed. The Leafs Rule!!!



VP Finance

by Sunny Sodhi
2A Systems Design

WEEF Proposal Time

The refund period has been over for a week and it looks like we will be having the worst participation ever. The official numbers won't be in until next issue. I believe this is due to the recent tuition increase and also the fact that people don't think that their \$75 will make much of a difference. Well just so you know that \$75 dollars has the same impact on the 3.3 million dollar principal as it did when the principal was only \$200,000. I would like to take part of this space to thank those that have contributed to WEEF and support the student cause of making Waterloo

Engineering a better place. So, THANK YOU, THANK YOU, THANK YOU.

Over the past decade, and WEEF has only been around for one decade, the WEEF principal has grown to 3.3 million dollars and WEEF has supported \$1,627,633 in projects, lab upgrades, computer upgrades and student projects. A general breakdown of the WEEF donations can be seen in the table accompanying this article. For a more specific look at

the purchases that WEEF has made then check out our homepage at <http://www.eng.uwaterloo.ca/groups/weef>. The other table that should be near this article is the funding decision for Fall'99. Our board of directors finally met earlier this term to approve the funding decision and the money for these projects is slowly being allocated.

And now that the refund period is over that means it is time to start accepting proposals. Proposals will be accepted starting February 1, 2000 and the proposal period closes on March 3, 2000. The presenta-

tion meetings where everyone who makes a proposal presents to the WEEF Reps are on March 14 and March 16. Information on submitting a proposal and some simple guidelines can be obtained on our homepage. All of our proposals are submitted electronically so I guess you are forced to go to our homepage.

If there are any questions or concerns please contact me in the WEEF office (x4893) in CPH 1323C or email weef@engmail.



WEEF

by Mark Cesana
3A Mechanical

Funding Allocation - Winter 1999	
CHEMICAL	
1 Conductivity meters and spectrophotometers	\$9,830.00
CIVIL	
2 WEEF Proposal for Civil Engineering, 4th Year Study Room Monitors	\$614.00
3 Visual Presenter for Projection System in CPH-3385	\$2,168.46
4 Upgrade WATSTAR Undergraduate Computer Lab Equipment Department of Civil Engineering	\$2,466.18
ELECTRICAL AND COMPUTER	
7 E&CE Digital Lab Power Supplies	\$2,625.00
8 E&CE Digital Lab Computer Memory Upgrade	\$4,350.00
11 Portable Computer Enhanced Projection System	\$5,500.00
ENVIRONMENTAL	
12 HACH Spectrophotometers	\$8,538.55
MECHANICAL	
15 LECO MHT 200 Vickers Microhardness Tester	\$8,500.00
16 Calibration Standards	\$3,000.00
SYSTEMS DESIGN	
17 Undergraduate Multimedia Lab Equipment	\$2,681.60
18 Bench Power Supplies for Workshop Lab	\$3,631.63
19 Laptop for Systems Design Department	\$2,990.00
MISC	
20 Equipment for Student Shop	\$3,008.08
21 Faculty-wide Server for General Purpose Waterloo Polaris and Unix File Serving	\$4,000.00
Sub-Total Departmental	
	\$63,903.50
STUDENT	
22 University of Waterloo Alternative Fuels Team	\$4,000.00
25 Team Advancement For The Formula SAE Project	\$3,870.00
26 Midnight Sun V Solar Car Project Request for Funding	\$5,000.00
27 Computer Upgrade for IEEE McNaughton Centre	\$1,290.00
28 "Northern Camel" Supermileage Vehicle	\$500.00
29 UW CASI Free Flight Glider Team 1999	\$758.00
30 University of Waterloo Aerial Robotics Group	\$5,000.00
31 Antenna and Triplexer	\$678.50
Sub-Total Student Groups	
	\$21,096.50
TOTAL	
	\$85,000.00

WEEF Spending 1991-1999	
Discipline	Amount
Chemical	\$ 161,548
Civil	\$ 204,273
Electrical & Computer	\$ 251,567
Environmental	\$ 51,044
Geological	\$ 11,881
Mechanical	\$ 200,530
Systems Design	\$ 139,987
Engineering Computing	\$ 216,655
General Engineering	\$ 114,986
Student Projects	\$ 275,161
GRAND TOTAL	\$ 1,627,633

Co-op News and Other Highlights

Hey everyone!

Hopefully the term has been going well for everyone. There is a lot going on in the co-op area in the next couple weeks, so here are some things to watch for:

Feb. 2nd: CSAG (the Co-op Students Advisory Group) will be having a special presentation put on by the people looking at improving the process. Come out to SLC 2134/5 at 4:30 to find out the proposed changes to co-op and give your feedback.

Feb. 9th: CSAG will be focusing on recruiting strategies (especially for international placements) so if you've got ideas, we'd love to hear them. SLC 2134/5 at 4:30.

Feb. 16th: SAVE YOURSELF SOME \$\$\$! Ok, now that I have your attention on this one, we've got someone coming in to do a tax tips seminar for students to help us pay less taxes while we're in school and (frankly) can't afford to pay more. Come on out to the SLC Multi-Purpose room at 4:30 for more info.

That's about it on the co-op side. Mitch and Nessa have posted office hours to help people with their resumes and interview skills — email them at



VP Education

by Jenn Motuz
3B Mechanical

maevalen@engmail or vwchoy@engmail for more info. Also, keep your eyes out for student workshops to help you gain some useful not-usually-covered-in-your-courses skills.

Also, come on out to the SFF Technical Speaking Competition Finals and watch your fellow students give presentations on their workterms. They're looking for student judges too, so you may have a bit of power too. The finals start at 10am on February 11th in DWE 2534.

Keep your eyes peeled for informa-

tion about the Tuition Forum where Dean Chaudhuri will give a bit of a presentation on what is going on and get our feedback on how we're doing. There will be debt-load surveys coming soon (hopefully by the time this issue comes out) so make sure you fill one out and give Dean Chaudhuri information on how differential tuition is affecting students.

Just one last thing — a correction from last time — Ian Tien is the student who is responsible for appeals so he is your contact (itien@engmail). I am amassing copies of academic policies though, so if you have a question about your rights as a student or groups which may be able to help you, let me know and I'll point you in the right direction.

Frosh Week 2000, Buying Novelties On-Line, Roast Strip Loin of Beef

1. Federation Orientation Leaders

Mark Cesana and Meghan Ternoway will be representing Engineering Society A on the Federation Orientation Committee (If you're in school now, you're in Engineering Society A; if you're on your workterm now, you're in Engineering Society B). Mark and Meghan in conjunction with Stuart Doherty and John Smegal from Engineering Society B will be responsible for organizing Frosh Week 2000.

Mark Cesana is in 3A mechanical engineering and currently serves as the director of the Waterloo Engineering Endowment Fund. Meghan Ternoway is in 3B mechanical engineering and she is co-founder of Circus Eng, an annual engineering society outreach event benefiting young children in the community.

Applications for orientation leader positions will be available later in the term. Past orientation leader positions have included Bigs, Huges, and Edcoms. All orientation leaders participating in frosh week will need to complete an 8-hour training course provided by the Federation Orientation Committee. If you've already completed this training course, you will not need to re-attend the training sessions.

2. EngSoc-Novelties.com?

The engineering society currently sells novelty items out of the engineering society student office in CPH 1327 (in the corridor between CPH and E2). Items for sale include T-shirts, wristwatches, Swiss army knives, Frisbees, and a wide variety of beverage containers all branded with our wholesome, quality-suggesting Waterloo Engineering logo.

The engineering society is looking into spinning off our novelty product service into a self-sustaining operation similar to the C&D. The new store will be located just outside POETS in the door now marked "Engineering Society Media Room".

In the future, we hope to be putting together an on-line catalogue of engineering society products. This will allow alumni to purchase items from anywhere in the world, but more importantly it'll let all of us feel like we're a part of the e-commerce/vapourware-IPO revolution.

If you're interested in helping the engineering society in providing this service, or if you just want to help develop a web-based retail system, please mail engsoc@steam.uwaterloo.ca.

3. Roast Strip Loin of Beef

I spent my 1B work term at Leitch Technologies. The company makes television broadcasting equipment and in the summer of 1998 there were 15 of us Waterloo co-op students working in their R&D department in sunny North York, Ontario.

One co-op in particular (who shall remain nameless) managed to earn himself the prestigious nickname of "Dumb Frosh". This kid talked too much and he was always asking stupid questions.

A couple of weeks ago, during a lecture, one of my professors replied to a student's comment with "I don't believe there's such a thing as a stupid question."

This was a very noble and magnanimous statement on the nature of the human condition, but upon further contemplation the argument appears to be fundamentally flawed, as the non-existence of stupid questions would imply the non-existence of stupid people (Stupid people, however, do exist, and if you stay in politics long enough you will encounter them in great abundance).

But seriously, he's right. People ask questions because they need information. Even if said information is blatantly obvious to you personally (what does "Is" do?), a lot of people may be unaware of the ways things work. It's up to everyone in the engineering society to make the organization more palatable to our fellow students.

One of our biggest challenges in running the engineering society is getting people involved who are unfamiliar with the linguistic peculiarities of the engineering society "clique". We don't say engineering society, we say "EngSoc". We

don't say engineering society student office (CPH 1327), we call it "the Orifice".

When I was a first year student hanging around the "cool engineering society" folks, people would say things to each other like "If you want me, grab me in the Orifice", "The Orifice is packed, I've never seen so many people in there", "Is the Orifice still open? I need to make some photocopies."

When a first year student hears such comments, his first question is not "where is the engineering society student office?" as much as it is "who's Orifice are we talking about, and how did he fit a photocopier inside?"

Another habit of the engineering society clique is the assumption of universal familiarity with popular engineering society personalities, "talk to Ryan if you want to write for the IW", "talk to Craig if you want to make a request for POETS programming."

The use of proprietary jargon coupled with the assumption that everybody knows everybody is causing a pronounced polarization in students' feelings towards the engineering society. To some students "EngSoc" is the best thing since Oatmeal Raisin Crisp Cereal, to others it brings back memories of the high school student council dissipating large quantities of money for no apparent reason.

The question on many people's minds is: How much is EngSoc costing me?

\$14 of the money you pay on your tuition fee statement goes to the Waterloo Engineering Society. The Waterloo Engineering Society runs POETS, the C&D, the photocopiers in CPH 1327, the Iron Warrior student newspaper, the engineering society semiformal evening, and a big whack of other athletic, social and outreach events. We also organize guest speaker lectures and information sessions.

But that's not all! We also provide representation for the University of Waterloo undergraduate engineering students. The Waterloo engineering society is invited to meetings, events and confer-

ences through out the year. We represent Waterloo engineering to the Canadian Federation of Engineering Students (cfes.ca), the Professional Engineers of Ontario (peo.on.ca), the Engineering Student Society Councils of Ontario (essco.ca), and the National Association of Engineering Student Councils (naesc.ca) in the United States. We also meet with committees and organizations internal to the university, such as the Council of President's, the Co-op Students Advisory Group, and the Examinations and Promotions Committee.

All this official business-type stuff is a lot of work, especially when all of us are full time engineering students. The organization of a large portion of the activities and events is delegated to a group of volunteer directors. The co-ordination of directors and responsibility of student representation is the job of the engineering society executive, who are elected and/or acclaimed every 16 months.

There are currently five executive positions, President (me), Vice-President External (Micah Potechin, 3B Systems), Vice-President Internal (Ian Pollock, 3B Mechanical), Vice-President Finance (Sunny Sodhi, 2A Systems), and Vice-President Education (Jenn Motuz, 3B Mechanical). The latter position was newly added in the last election.

Engsoc@steam.uwaterloo.ca is our group mailing address. If you mail to that address we'll all receive the message. If you want to reach me personally, try eng_prez@engmail.uwaterloo.ca, or you can drop by the engineering society student office (CPH 1327) and see if I'm at my desk. My desk is near the back by the windows.

I have a little cardboard placard on my desk made out of red construction paper that reads "Ian Tien" on the front, on the back it reads "Roast Strip Loin of Beef". I picked it up at an awards dinner last fall, where I was served a roast strip loin of beef. The strip loin of beef in question wasn't as roasted as it was supposed to be and I ended up getting food poisoning. I thought I was going to die, it hurt so much.

But I'm okay now, and that's what's important.



President

By Ian Tien
3A Computer

More Than Just the Engineering Buildings

Hello again everyone. These last two weeks have been action-packed, full of guest speakers, conferences, and all-important industry events. Here's what happened, and some of what is yet to come:

On the conference front, two teams from A-Soc, 2A Geo and 2A Systems, competed in the ESSCO'lympics last week. They didn't win, despite what they may have told you, but they did have a great time.

This past week, we had visits to the school by Nobel co-laureate Rae McGrath, who gave a fascinating talk on

the landmine problems in various developing countries (see the article on page 1), Contact Singapore spokesperson Betty Lim (page 2), who recruits university students to work in Singapore, and the first Bridging the Gap lecture, on the myth of the Iron Ring, delivered by English Professor Beam.

200 Waterloo engineers also had the

opportunity to see the Barenaked Ladies in concert at a RIM sponsored event. The "Go High-Tech, Stay Local" job fair took place at Fed Hall on Tuesday and Wednesday, January 25-26.

In the coming few weeks, there are a lot more events happening, as well. There will be a Student/Alumni bar night in POETS (February 1), and a job fair at Bingemans

(February 2), to name just a couple of events. In addition, applications are available for the First Year Integration Conference (FYIC), happening March 4th weekend. They can be found in the Orifice, or online at

<<http://engsoc.uwaterloo.ca/ASoc/fyic.html>>

Please note that only first year students are eligible for this conference.

If you have any questions or comments about the upcoming external events, don't hesitate to write me at mipotech@engmail.



VP External

By Micah Potechin
3B Systems Design



uw.feds

The place to catch up on the latest FEDS news

Through Coventry Did Ride

Welcome back to our ongoing saga of European travels. When we last left our three heroes (hosers) they were fleeing the city of London to the greener pastures that awaited. To places where the isle is emerald and the beer is a dark ruby colour. A land where drunks roam freely and stop travelers on the sidewalk to entertain them with tales of a Canada once visited.

GODIVA WAS A LADY ...who through Coventry did ride, as did Mike, Eric and Jasen on a fine Wednesday afternoon in April. By contrast to the good lady, however, they were somewhat more clothed to the joy and thanks of that city's inhabitants. Coventry, as some of you may know, is about 100km north of London and was a prime target for the Luftwaffe in WWII. The town of Coventry, however, has been largely reconstructed with that civil engineering favourite, plain, grey concrete. The town is, as a result, lacking in anything you might consider picturesque and can be skipped by even those most committed to the Plummer's Hymn. However, if you happen to know a bloke in town that can put you up for a few nights, then by all means check it out if for no other reason than to see how the Limeys live.

HOW LIMEYS LIVE. Escaping London proved to be only half the battle in the war to keep expenses down. Staying with a friend helps even more and is also a great way to see places that you might normally overlook. England is, as a whole really expensive but the bus service is good and gets you pretty much everywhere you need to go in the short time you'll be able to afford to be there. For the adventurous types who want to see some countryside as well as get the odd adrenaline rush, might I suggest renting a car? Our experiment in car renting

proved to be a hair raising but ultimately rewarding experience. My only advice is to leave the London area before you rent and if you are at all hesitant with a clutch, make sure you get an automatic.

ENGLAND'S BACK YARD. Don't let the Welsh hear you call Wales that, but the euphemism does accurately describe the landmass on the southwest side of England. After our brief stay in Coventry we headed west with the aim of reaching the Dublin ferry by that evening. Playing chicken on the narrow roads with transport trucks proved to be too much for our nerves and so we took a friend's advice and spent the evening on the north Welsh coast in a beautiful little town called Llandudno. Finding a lovely little bed and breakfast we explored the area on foot before retiring to the hotel bar for a fantastic evening of alcohol fueled karaoke.

GUIDE TO THE EMERALD ISLE. There several sea routes to Ireland from England and one of the more common ferries runs between Holyhead and Dublin. The Holyhead - Dublin run, is affectionately known as the booze cruise, as you can get your case of Amstel for 10 punts (Irish pounds) at the on-board duty free shop. The trip soon degraded to a drunken sing-along to which anyone may join. Even if you don't know the words, just try to get in a few jabs at the royal family and you'll fit in just fine. Whichever way you go, you're best to leave the car in the parking lot if you have one. Return fare with a vehicle is over 200 pound sterling, three people on foot are a mere 60.

Dublin, in our opinion, gave the worst first impression of any city we visited.

The bus from the ferry lets you off along one of the main canals (do take the bus from the ferry, it's a really long walk through the dockyard) and walking along the canal is depressing especially when all the aluminum shutters are down. You'd be well advised to walk south a block or two to reach the much more touristy Temple Bar area. In any case, the Brazen Head (oldest pub in Ireland), the Guinness Brewery and the Jamieson Distillery make Dublin worth a visit.

If green Irish hills are more your style, then Dublin is not the place to be. The only green grass we saw was

behind fences in church courtyards. So, acting on advice from the very friendly staff at the Brewery Hostel (I highly recommend it) we took the Dublin rapid transit (DART) a few whistle stops south to a lovely little town called Bray. There you will find some lovely Irish countryside as well as a hill or two to climb accompanied by a nice walk along the beach. And so, recharged by some physical activity and the rolling Irish hills we headed back to England the following day. Despite Dublin's dreary appearance, Ireland is a beautiful place and worth of much more than the few days we had to spend there.

NEXT STOP, NOWHERE. Leaving Dublin on the morning ferry, we summoned all our courage and faith in Mike's driving and headed east Towards Liverpool and the M1. By this time, Mike had pretty much mastered the roundabout and making good time we were half way to Edinburgh by the time the sun was going down. We stopped in the lakes dis-

trict near Carlisle in a tiny little town called Greenhead. The area is steeped in history as the Roman emperor Hadrian constructed a wall along that parallel to protect the south from the barbarians of the north. Despite it's construction in 200 AD, the wall still stands, and provided these three Canadians endless amusement until we found some sheep that were much more entertaining.

GO FOR THE SIGHTS, STAY FOR THE HAGGIS. Shortly after noon the following day we checked into the High Street Hostel, just off the Royal Mile in downtown Edinburgh. Edinburgh is truly a special place with all the history of London, friendlier people, a lower cost of living and HAGGIS. The city was even more special for us because it was there that we met up with ten other Waterloo travelers at a pre-decided pub on Rose St. called Dirty Dick's. Needless to say, the Canadians took over the bar for the evening and much to the dismay of everyone else I couldn't suppress my acute need to speak in a terrible Scottish accent.

Meeting up with friends made the city all the more fun. The following day we took in a tour of Edinburgh Castle and a very entertaining 'Ghost Tour' of Edinburgh. No visit to Edinburgh would be complete, however, without seeing the city from the hill that overlooks it, Arthur's Seat.

The following morning, with heavy hearts, we set off to our next destination. It was with tears in our eyes that we left Edinburgh, having hardly gotten to know the wonderful city. But, we'll always have the memories of our short stay, and Edinburgh, well, it will always have a few cleverly placed Engineering Society Stickers.

Until next time.



No Fixed Address

by Jasen Higgins
RINGed



Sheep crowd the roadside in Llandudno, Wales
(Photo courtesy Jasen Higgins)



Jasen and his friend Eric stand outside the Guinness factory in Dublin
(Photo courtesy Jasen Higgins)



The Sandford Fleming Foundation
4306 Carl Pollock Hall, University of Waterloo
Waterloo, Ontario, N2L 3G1

Engineering Debates: Will be held March 13 and 14 from 11:30 a.m.-1:00 p.m. in DWE 2534. The finals will be held in POETS on March 17 at noon. Please plan on participating or attending.

Student Travel Grants: Available to students participating in technical conferences. Contact Prof. Herb Ratz, x5175 for further information.

Emergency Loan Funds: SFF has made available funds for short-term emergency loans, interest free for 90 days. These loans are available to engineering undergraduates, on either an academic or work term. Contact the Student Awards office for further information.

The John Fisher Award for Leadership

The John Fisher Award for Leadership is made from time to time to a graduating student whose activities throughout his/her academic career have made significant contributions to Co-operative Engineering Education. Nominations for the Award can originate from student groups, faculty members and the Foundation. Nominations should document the nominee's contributions and other support for the nomination. Contributions are to have a professional orientation and can involve student activities, the Sandford Fleming

Foundation work or other appropriate functions. Letters from colleagues, faculty members, and others knowledgeable of the nominee's efforts will be given consideration.

The Award at Convocation, consists of a Citation and an Honorarium of \$1,000. For more information, contact the Sandford Fleming Foundation. The deadline for nominations is April 1, 2000.

Waterloo Campus Activities
888-4008
sff@dean