Iron Times
February 2010
The Official Publication of the Carleton Student Engineering Society

Wait, Another Iron Times? Too Soon?

BRIEFS

Class Distinction Between First Years and Upper Years

Perhaps worst of all, the worthless ingrates commonly fail to take advantage of the only situations where they might learn dignified social practices and gain knowledge of civilized affairs.

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I'm Sorry, but...

Many students were upset that they would be unable to ensure their schedules that were appropriately arranged for the term. Even now, January 11th, some students still remain without marks.

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President's Report

Greetings everyone, and welcome to second semester. I hope the break has everyone rested up and ready to tackle a new season of courses and all sorts of other fun stuff. I know that on the CSES end it's already tuning up to be a busy semester so keep an eye out for new activities and events.

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Be Your Own Boss

Chances are, if you're reading this, you're in engineering and have some experience crunching numbers and problem solving. So if you happen to have any other talents, whether constructing things, designing webpages, painting, or sweet-talking customers, then you might have what it takes to run your own company.

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EDITORIAL

Class Distinction Between First Years and Upper Years

Ian "Lasso" Ewing
- AERO VI -

While it perturbs my sensibilities to even deign to address this issue, it simply cannot be ignored further. Somebody of consequence must give the matter its due treatment. It is every year around this time that the great unwashed masses of engineering – that is, the first-years – begin to suffer what I can only diagnose as a common delusion of grandeur. These simpletons begin to believe the most ridiculous concepts, such as the idea that their conversations are interesting, that people enjoy their company, and most absurdly of all, that their opinions matter. I cannot abide these preposterous convictions any longer.

When they first appeared on the green fields of our lush campus, these plebeians knew their rightful place. They demonstrated an appropriate respect for their betters, and the natural order of things was maintained. It is only a recent travesty that they dare speak, unbidden, to us of the higher classes, and though it vexes me to address the proletariat at all, they simply must be put in their place.

The ignoramuses seem incapable of either proper spelling or diction. The quality of their speech and writing suggests only the barest trace of understanding of the English language, and is an embarrassment to the so-called education which the public-at-large receives. Even the most basic of grammatical rules escape them when communicating electronically, and spelling remains a black art to the commoners. With a similar disregard for matters of worldly importance, their conversation is tedious and asinine; their obtuse exhortations on trivial affairs painful to the learned ears of the aristocracy.

First-year students must also be reminded that they are not more popular than they were in high school; they have simply encountered a greater number of equally unpopular individuals with whom to associate. That they believe themselves to be of higher status after a mere four months of post-secondary education merely reinforces the depth of their ignorance. Put in the vernacular of the masses, they are no "cooler" than they ever were. The arrogance and pride they now display is utterly without cause, and should be considered an insult to the true elite they shamelessly believe themselves to be among.

Further, the naivety of the freshman population is laughable, and another demonstration of their incompatibility with we, the privileged few. Although they believe themselves to be in possession of higher intellect and greater education, it will not be for several years, a few failed classes or similarly close calls, and at least a half dozen episodes of obscene intoxication before they can begin to comprehend the true nature of the world. Their thoughtless glee, unburdened by any concerns of substance or import, is yet another indication of a mind unworthy of consideration.

By this point in their academic career, the first-year students believe themselves to be in control of their studies, sufficiently accustomed to their classes and the workload that they can begin engaging in extracurricular activities. Only time will demonstrate the fallacy of this belief, as it will become clear that they are yet woefully unprepared for the intellectual exercises that upper-year courses will require of them. Likewise, they believe themselves to be adept at providing for themselves, ensconced as they are in the womb of on-campus residence, their every need afforded them. Only the trials of obtaining suitable housing, paying monthly bills, and feeding themselves will wipe the self-assured and ultimately clueless expressions off their collective countenance.

Perhaps worst of all, the worthless ingrates commonly fail to take advantage of the only situations where they might learn dignified social practices and gain knowledge of civilized affairs, in the events and offices of the engineering community. To pass up the opportunities that we, the cultured, deign to provide is to once again demonstrate the utter ineptitude of their class. It is no wonder, then, that so few ever attain the courtly bearing they seem to aspire to.

In short, it is irksome that these foolish peasants believe themselves to be worthy of our respect, when, as has been amply demonstrated, they are merely fodder for the registrar's office and the collections department; unworthy of our time or attention. The paupers might dream of one day achieving the levels of accomplishment and capability that we, the upper-years, have long since attained, but they remain woefully ignorant of their true status. Now, having firmly established their inferiority in every regard, and having also satisfactorily informed them of the fact, let us remove the plebeians from our minds forthwith.

It is a sad state of affairs that they must even be reminded of their station, but one supposes that nothing else could be expected. After all, the filthy wretches are barely human.

CUSA Elections

Evan Heyes
- MECH III -

Reading the Charlatan last week, yes yes I know shame on me, my spirits once again dropped. CUSA elections are on the horizon and closing fast. We can look forward to another gaggle of students making claims they cannot keep, attempting and failing to keep the name of our student body out of the mud, and the debacles of the laughing stock which is their elections office.

Needless to say, I am against the body which is CUSA. Since my first year I have questioned the usefulness of paying money to students who deliver very little. At least if the places CUSA runs was part of the University administration they would be able to either hire effective managers of the CUSA store, BECAMPS, Roosters, and all the other things that essentially run themselves under CUSA's banner. Or at least be able to shut them down when the cost us money, perhaps then our fees will actually drop. Hint Hint.

This year and last have shown a startling new trend with CUSA, the direct challenging of the student body. Any who attended Carleton last year and was remotely knowledgeable will remember the debacle which was Brittany Smyth and Shinerama, and the Election disqualification controversy. This year we have seen the CUSA council continue this trend by attempting to stop a CFS defederation petition rather than await the results and then campaign to the CFS for us. Which if I may remind the outgoing council, as well as the new comers, is what we pay you for.

Is it any wonder then that the CUSA elections only manage to convince 15% of the student body to vote, substanially less for Engineers and Computer Science students if I am not mistaken? It should be, they are there to represent us, the fact that they are failing to do so should mean the voting percentage goes up not down.

I have voted every year I have been here, and voted the same way. "Abolish CUSA". Yes my ballot is spoiled, but the spoiling of ballots means something subtly different than simply not voting at all. Spoiling your ballot means you care about what is going on, but do not trust, or agree with any of the candidates. Not voting simply means you don't care, and thus when CUSA inevitably falls on its face next year I will have the right to complain, and you will not. We however can all laugh together.

So do yourself a favour, and if you think that CUSA needs to get its act together, or be removed all together, vote for "Spiderman"at the next election.

Iron Times

The Iron Times is a free publication of the Carleton Student Engineering Society.

Submissions are welcome from articles to photos, from news to entertainment to opinions, and everything in between. Anyone may send their submissions, complaints, questions and concerns to irontimes@cses.carleton.ca

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Thanks to all the writers that contributed.

Let's agree to respect each other's views no matter how wrong yours may be.

Letters To The Editor

Jeff Teutsch
- AERO III -

Dear Sir,

I am, quite frankly, appalled by your recent condescending column dismissing first-year students as worthless plebeians. I am afraid I must be brutally honest in saying that I find the view you have stated to be quite insulting. Not only is it quite rude, but several of the facts in the article are severely misinformed. A mere half hour of research would have indicated as much, and it is clear that you have not spent even a single minute searching the Internet for expert opinions on the matter at hand. Therefore, let me set you straight:

It is not fair to openly lambast first-year students for what they have been involuntarily given. They have been placed in the lower echelons of society and have not yet been given the chance to be educated at a higher level. Now let me be clear on one thing: condescension is not the sentiment with which we should be regarding these people. Rather, the correct way to approach these plagued souls is with gratefulness. For just as the great Roman Empire relied on slaves to maintain its glory, we as upper-years rely on those less fortunate to keep our society where it is. For if the first-years were not first-years, we would no longer have classes which we could TA, and thus we would have less income. If the first-years were less ignorant, than who would make mistakes from which we could learn? If they were more popular, we might be overrun. We must therefore be grateful for what we have that they do not, and hope that they never achieve their goal of spiting their betters and entering the ranks of those that have passed first year. It is our duty to take up the flame and TA first-year courses poorly, teach them in any language other than modern English, and generally mark them unfairly, so that they may fail in their goals.

As a rightful member of the upper class, I feel that your article paints us in a rather sombre light. I am dismayed by how you indicated that we look down on our lessers because we are better than them. While it is true that we are superior to first-years in almost every way, this is not the reason we treat them as we do. Rather, we treat them in this fashion because it what is required of us. I have already outlined what might happen if we were to relinquish in this matter. Furthermore, it has been the legacy of every great society in history to have a thriving class system upon which to base itself, from the formic societies of the hymenoptera order, which corral aphids into doing their bidding, to the Egyptian Pharaohs who garnered a plethora of peasants to build the majestic pyramids. More modern history shows how the United States of America built its thriving civilization on the foundations of a once-ubiquitous slave trade. But now the slave trade has been abolished, and what was until recently one of the most powerful and respectable nations on the globe, is on the decline. They have become dependent on foreign imports for everything from cotton, once produced domestically by legions of profoundly denigrated slaves, to oil. Chaos and destruction now run rampant in the Middle East as the United States tries to control other people as it could once do lawfully.

You need look no further than all failed attempts at communism to understand why the class system must be kept intact. Removing the barriers that keep classes separate is akin to removing the natural obstacles that prevent a seal from devouring a polar bear. Were the differences that separate the two to be withdrawn, the entire ecosystem would collapse. As such, it is our role, as near-omnipotent members of our society, and the role of the world as a whole to keep first-years where they belong. Without a proper proportion of plebeians, as you so correctly used the term, our planet may, quite literally, self-destruct.

I fear greatly for our society, when people like yourself hold positions of high esteem in our media such as you do.

Sincerely,
Mr. Jeffrey Teutsch

Dear Sir,

Since penning my previous letter to you, I have been sitting at my desk pondering the matter at hand, and I worry that perhaps I took too strong a position in what is clearly a delicate issue. My original correspondence was written hastily and in anger, and I wish to apologize for any discomfort I may have caused.

I would like to take this opportunity to concede that you had many good points in your original column. Upon reviewing both sides of the argument, I have realised that it is not as simple a matter as I had at first believed. I now see your viewpoint that while it is important to keep the less fortunate populace in its place, this should not prevent us from demanding a certain level of literacy and respect.

And if they believe that they are ready for the world of engineering, we must not berate them, but gently remind them of their place and that it is simply the way the world works. Should this method do nothing to cull their aspirations, however, we must do everything to prevent an imbalance in the ratio of plebeians to patricians. Should this imbalance occur, how would our society generate the resources necessary to continue to grow and continue to be successful?

Respectfully,
Jeffrey Teutsch

To whom it may concern,

It has just been brought to my attention that my recent letters to the editor may have offended the delicate sensibilities of the lower class. At the time I was unaware that these less fortunate people have feelings, or are, for that matter, fully sentient. Thank you for the correction and I apologize for my ignorance.

Yours truly,
Jeff Teutsch

I'm Sorry, But...

Nicole "Nickers" Waldrum
- SOFT III -

"...the engineering undergraduate office is closed from Dec. 24 to Jan. 4th." was the message engineering students received upon contacting the undergraduate office during the Christmas break. Being Christmas, the administration is equally entitled to the holiday as the students are but this has the unfortunate side effect of putting students in academic uncertainty and limbo due to Carleton Universities' deadlines.

The return from the Christmas holiday was a bittersweet one for the students of Carleton Engineering, if not Carleton University as a whole. The timing of the holidays left little time for administrative duties, leaving students clueless about the state of their marks. The issue, at the moment of writing this article, is that students find themselves waiting for their marks while the deadline to schedule next semester's classes quickly approaches. These marks are crucial in determining a students schedule as they will be able to keep track of prerequisites to prevent being removed from class and/or failures, which can cause a rescheduling. The deadline for registration in the winter term and registration overrides is January 15th while some students found themselves still in the dark on January 11th.

There was no sign of concession or plans to aid students in sorting out their schedules and this caused many to wonder why this particular start date, January 4th, was chosen. It is possible that the administration found itself bogged down with various special requests and overrides to accommodate students, but one would expect marks to be a high priority.

Hopefully, lessons were learned and deadlines will be changed to allow plenty of time for administrative maintenance so that students can be in a comfortable state rather than panicking at a deadline.

It is encouraged that students send questions and concerns to concerns@cses.carleton.ca so that this issue is brought to light and taken seriously. With enough voice from the student community, it would be possible to escalate the concern to greater power so that this unfortunate and inconvenient scenario does not occur again. It is up to the students to get the most out of their education.

From: The Editors <irontimes@cses.carleton.ca>

"An editorial is a piece of writing intended to promote an opinion or perspective." We would like to seriously emphasize this definition (pulled straight from Wikipedia) and reiterate that these opinions belong to their respective author and do not necessarily reflect the opinions of CSES as a whole.

These editorials are meant to voice an opinion involving the engineering society and not with malicious intent. In extension, none of the articles presented in the issue or this publication as a whole is not intended to be malicious is any manner.

Madness, it's that quiet little voice at the end of the day saying "Hey, is there room in your head for one more?"

CSES

President's Report

Rob "Merlin" Stalker
- AERO III -

Greetings everyone, and welcome to second semester. I hope the break has everyone rested up and ready to tackle a new season of courses and all sorts of other fun stuff. I know that on the CSES end it's already tuning up to be a busy semester so keep an eye out for new activities and events.

As to what's gone on in the last little while, December was a low-key month. With most of us hibernating due to exams, not much went on at CSES. January started off right with a few events and our council is getting back into the swing of things for this semester.

By the time this article hits the press, the CSES Winter General Meeting will have already occurred, so I hope everyone attended. In addition to bringing the members up to date with the council, we plan to make a few changes to the constitution and policy manual, mainly regarding elections. We have received a lot of feedback from last year, and we'd like to present several options as to how we can best update the constitution. Then it's up to you, the members, to decide what's best. With the position of VP Academic currently vacant, we also plan to elect a member at this GM, as well as ratify the VP Social, Mr. Andrew Campbell. All in all it should be (was) an interesting meeting.

With elections in mind, I'd also like to point out that the CSES general elections are coming up. This means that there will be eight executive positions up for grabs (including the coveted position of President) as well as four councilor spots, one for each engineering department. If you have any interest in one of these positions, don't hesitate to ask anyone currently on council, as we'll be happy to answer your questions. The people we elect are the key to the success of the society in the coming year. If you would like to directly contribute, then a council or executive position may be right for you. Getting fresh blood into the society is always great as well, so don't be afraid to run. It can be stressful at times, but it's worth it, as the people you work with are amazing and the opportunities and experience you gain is unparalleled.

That's all from my end, and if you have any questions about CSES don't hesitate to drop by Alexander's Office at 2090 Minto.

VP Internal's Report

Luke "High Roller" Siemens
- AERO III -

Hey C-Eng.

The CSES Executive is starting something new with this issue of the Iron Times. Every issue the executive will be giving updates on what we've done, what we are currently working on, and upcoming things.

Recently I attended the CFES Congress 2010. For those of you who don't know the CFES is the Canadian Federation of Engineering Students. More information can be found from their President-Elect, our very own Rob Stalker. Congress is a chance for engineering students from across the country to exchange ideas, discuss the future of engineering, learn and teach others, make some friends, and generally have a good time. At Congress, Carleton was asked to present a talk on diversity in the C-Eng community, and ways to increase diversity in engineering. Our talk touched on Q, WISE, IEEE-WIE, and International Students. Our proactive attempt to increase diversity and the different ideas we presented were all well received by other delegates. An example of one of these initiatives is our diversity funds specifically earmarked to help different groups increase their presence in C-Eng.

Currently I am working with our President on re-vamping the election procedures in order to present in time for the Winter GM. Due to a record number of candidates, complaints, and voters, holes in our current electoral policy have been shown. The new policy should be a step in the direction of rectifying the situation. Another current project we are working on is fixing the problems that the current CSES constitution contains. Our President and myself will present a constitutional change at the Winter GM.

Those of you who are awaiting your engineering jackets, we have news. Jackets are due to ship on the 22nd, and arrive on the 25th. (OF WHAT MONTH?) Graduates: be on the lookout for Pewter Mug forms. The order form will be available as soon as possible. As in years past, a deposit for the mug will be required and will be returned upon picking up your mug. If you do not pick up the mug, your deposit will be kept. We are trying to get these mugs ready for graduates in time for Reflections. Those students who do not plan to attend Reflections should be able to pick up their mugs soon afterwards.

VP Pub's Report

Luke "Senator" Russell
- BIOM IV -

Hey Carleton Engineering,

I've had a long and busy several months as VP Publications, and I've learned a lot. It started back before May, when I began working on the April 2009 Iron Times issue with the editing team. We also began forming the Handbook before I officially took the helm.

This past semester has been an incredible amount of work. I was left with nothing from previous years about the Handbook; my Handbook director, Jon Wong, and I ended up putting it together completely from scratch.

This term, we ended the Yearbook Saga. CSES has always been at least a year late with publishing yearbooks, and by the time they are done, no one wants them anymore. We have finally caught up, and hopefully we'll never have to go through that again!

I have been hard at work with my directors to ensure the passports were done and in the Frosh kits, and the handbooks were completed in time for Academic Orientation Day. This proved to be a huge success, as we ran out of all 750 handbooks within a week and a half.

We have also kept the website updated with Webmaster Noah Kipin working on that behind the scenes.

The Iron Times published only once last term, but is back on track this term with a little restructuring. Johnny Koh and Nolan Hunder are at the helm, with Ian Ewing, Rumbi Muvingi, Iwona Lazur, and Meghan Sali as Jr. Editors. Sebastian Traczyk also keeps C-Eng well photographed with all his snapshots. A big thanks goes out to all the editors and contributors of the Iron Times!

And last but not least, kudos to all my volunteers and directors for helping to make last term a success. If you are currently not involved and would like to be, shoot me an email at publications@cses.carleton.ca

The best leaders inspire by example. When that's not an option, brute intimidation works just as well.

VP External's Report

Hillary "Dirty Bird" Flesher
- CIVE II -

Hey all,

This month has been busy in the external portfolio and a lot has been getting done. The month began with a presentation from the ESSCO President, Spencer McEwan. Carleton students in attendance learned about both the society and about its initiatives. ESSCO is the Engineering Students' Society Council of Ontario. They connect all the schools across the province, liaise directly with the PEO, and promote initiatives that encourage high school student involvement in engineering.

On November 4th, both the PEO and OSPE came to campus to give a brief session about licensing and governing of the engineering profession. A representative from the Ottawa PEO chapter, Sucha S.Mann, P.Eng. PMP, gave us his life story and some insight into the engineering profession. Lee Weissling, OSPE manager of business development spoke about their student membership program and ways that students can benefit from their services. Manoj Choudhary, P.Eng. student liaison coordinator was the last to speak to us and he talked about all of the requirements to getting your P.Eng. All parties involved came out of this session in a positive manner.

This past weekend delegates from Carleton were sent to both NCWIE and PEO-SC. Students in their second, third and fourth year of study at Carleton attended the National Conference on Women in Engineering. Myself and three other delegates attended the Professional Engineers of Ontario Student Conference. It was here that we learned all about equity in the engineering profession.

Also, this past weekend was the LAN and Magic tournament here at Carleton. As mandated, I must hold at least two of these per year, so we're off to a good start. We had an excellent turnout for the magic tournament, which created an intense competition. As for the LAN side of things, there was unfortunately very little interest shown. We are definitely going to look into ways of changing that for the next time that we host this event.

Charity cookbooks have arrived from the Canadian Federation of Engineering Students. You will be able to purchase them in Leo's soon. They are $10 each and the money goes towards supporting the Canadian Red Cross.

Look forward to specific conference reports from your External in the next couple of weeks.

VP Services' Report

Adrian "Dog Pile" Bongers
- ELEC IV -

Greetings all,

I hope everyone had a great holiday and welcome back. If you have not noticed already but Leo's is now home to a new till. Yes, it's finally up and running (barely). Also in Leo's you will have noticed new EngWear, including lab books, beer mugs and patches. And there is more on the way. We are looking to get more clothing in but we need your help! We will be running a design competition, so get some shirt designs made up and send them to engwear@cses.carleton.ca . If we choose your design you will receive a complementary t-shirt that you designed. Please submit them as soon as possible.

Also, in the Student Group Resource Center (SGRC), we will be installing locks on the cabinets. Therefore, if any student groups need room to store documents and other materials on campus, then send me an email (Services@cses.carleton.ca) and we will get you hooked up. These cabinets should be available shortly. Also keep in mind if you would like to book the SGRC for your next meeting, submit a request online at http://sgrc.engsoc.org/.

Signing off for now,

Adrian

VP Finance's Report

Cindy "Cindy Bear" Coleman
- ELEC IV -

Hi C-Eng,

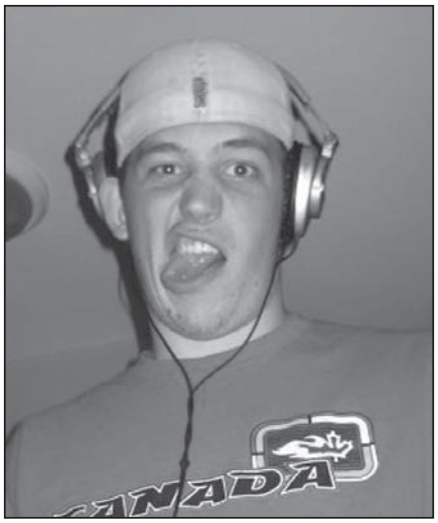
As most of you should know by now, I am Cindy Coleman, the Vice President Finance. For those of you who do not, I hope that was an introduction. So where has all the money you paid in student fees gone to these past few months? I would have to say to a lot of places, such as events like curling, Whirlwind, Design Competition, EngBowl, Charity LAN, and the President's Meeting. If you read the Iron Times, then you will probably have already seen pictures of these events.

A significant part of the CSES budget goes towards funding student groups. Money that was handed out in the fall semester amounted to $6000. Yay! Money for the people! On that note, there will be a second round of funding given out this semester. Watch out for an announcement and applications in Leo's and the CSES office.

If you have any financial concerns regarding book trades, events, or student group funding, give me a shout at finance@cses.carleton.ca.

Toodles,

Cindy



VP Social's Report

Andrew "Rocksteady" Campbell
- MECH III-

Hello C-Eng,

My name is Andrew "Rocksteady" Campbell. I have been filling in for VP Social until the winter GM where someone will be elected to take over. So far, I have planned and successfully completed C-Eng Bonspiel where lots of people came out and had a grand old time. Future events will include Valentine`s Day Pub where on the 11th of February we will head to Ollie's to grab some beverages and get close with our friends. Yuk Yuk's II will be happening on February 25th, where for only $7 we can all go out for a night and see some professional comedians at play. Tickets will be on sale in Leo's at the beginning of February. The upcoming semester is full of events, so make sure to take a look at the bulletin boards to see what is coming up next. Until next time: study hard, so you can party harder.

Any simple problem can be made worse if enough meetings are held to discuss it.

NEWS

Project Orion: Riding the Atom to Space

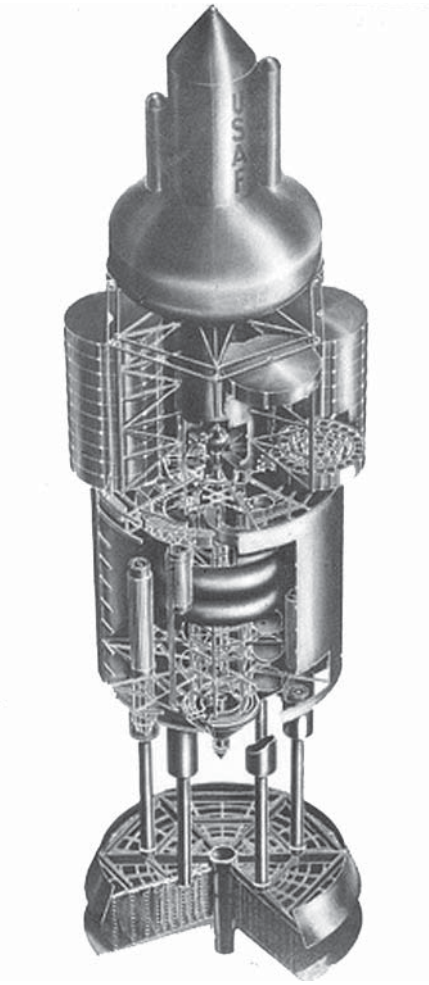
Gilles "Nightstalker" Messier
- AERO III -

In last month's article I wrote of project PLUTO, the Cold War effort to develop a nuclear ramjet-powered intercontinental cruise missile. As outlandish and terrifying as PLUTO was, however, it was far from the only bizarre application of nuclear energy proposed at the dawn of the atomic age. After all, in the 1950's, "our friend the atom" was touted as a miracle solution to all technological problems. But while most scientists and engineers focused on improving the yield of nuclear weapons or the efficiency of power plants, a handful of dreamers turned their gaze to the sky and sought to harness nuclear energy in the pursuit of the era's second great obsession: the conquest of space. The project they would initiate, code-named ORION, was unparalleled in its ambition and potential and remains one of the strangest chapters in the history of space exploration.

Despite their near-exclusive use in space travel, conventional chemical rockets suffer from severe limitations. Even modern propellants develop relatively low specific impulses, so large volumes must be carried to reach space. Consequently, most rockets consist mainly of fuel tanks with low relative payload capacities. So conventional rockets are practical for orbital or even lunar launches, at the dawn of the space age it became clear that interplanetary travel would require different technology altogether. In 1947, Polish physicist Stanislaw Ulam – father of the hydrogen bomb – conceived of a potential solution: a spacecraft driven by atomic bombs, the most powerful energy source then known. In Ulam's design, nuclear warheads or "pulse units" would be ejected sequentially from the rear of the spacecraft and detonated 100 metres away. The resulting plasma fireball would impact a massive pusher plate attached to the spacecraft, pushing the whole assembly forward. As implausible and frightening as this proposal seems, it had significant advantages: nuclear reactions release millions of times more energy than any chemical reaction, allowing a nuclear-powered spacecraft to reach almost 30,000 m/s and produce many meganewtons of thrust . Furthermore, the need to withstand a nuclear fireball meant that such a craft's effectiveness would –unlike chemical rockets – increase with size. Thus, a practical nuclear-powered spacecraft would be the size of a ten-storey building and be capable of lifting several thousand tons of payload into space. Even today, such performance is unheard of.

Following the launch of Sputnik in 1957, Ulam submitted the concept of nuclear pulse propulsion before the US government, who were sufficiently interested to green-light a conceptual study code-named Project Orion. Orion would be headed by Dr. Ted Taylor of General Atomic and consisted of around 15 scientists and engineers. Upon hearing of the project, famous physicist Freeman Dyson even left the Institute of Advanced Studies in Princeton for a year to participate. For its time, Project Orion was extraordinarily ambitious: whereas contemporary rocket engineers were struggling to loft even grapefruit-sized satellites into orbit, the minds behind Orion were already dreaming of reaching Mars or Jupiter within 10 years. Yet despite the loftiness of these goals, there was some evidence that Orion would actually work. During the Castle Bravo hydrogen bomb test at Bikini Atoll in 1954, engineer Lew Allen proved that graphite-covered steel spheres could survive a nuclear fireball undamaged. During the 1957 Pascal B underground shot of Operation Plumbbob, experiment designer Dr. Brownlee calculated that the blast could theoretically accelerate a 900kg steel capping plate to 6 times escape velocity. A camera was trained on the plate during the test and although it showed up in only 1 frame, the footage confirmed Dr. Brownlee's calculation. The plate likely never reached orbit, probably burning up due to atmospheric friction.

Despite this encouraging evidence, the Orion team nonetheless faced a daunting list of technical challenges. The first of these was whether a spacecraft pusher plate could withstand a series of sequential explosions. To find out, the Orion team conducted a series of experiments at the Point Loma Naval Base outside San Diego. They suspended scale models of the Orion craft from a gantry and set off small C4 charges below. The initial results were not promising: even small detonations dented the steel pusher plate or ripped the model apart. The solution to this problem was to make the



pusher plate thicker at the centre and taper towards the edges. Graphite-based oil would be sprayed onto the plate to prevent its ablation (boiling off) under the heat of nuclear plasma. The greatest problem facing Orion, however, was acceleration. Even a small nuclear detonation would produce instantaneous accelerations too massive for humans to withstand. Thus, massive shock absorbers between the pusher plate and the spacecraft would be needed to smooth out the ride. At first, the Orion team tried using large gas bags, but these tore themselves apart upon rebounding. In was finally determined that springs or pneumatic cylinders would work best.

Now that many smaller details had been worked out, the major question remained: would pulsed explosive propulsion even work? Would the craft remain stable or careen wildly? To prove the concept, the Orion team built a scale model nicknamed "Hot Rod" or "Putt-Putt" using conventional explosive pulse units. On November 14th, 1959, Hot Rod launched itself from the Point Loma test site and rose some 56 metres on explosive pulses, remaining stable the entire time. The Orion team was elated: without a doubt, the concept worked. Buoyed by this success, Project Orion began planning for a full-scale test. By this time, Ulam had finalized the configuration of the pulse units, which would be 300-lb 6-inch diameter cylinders designed to be handled by scaled-up machinery from vending machines (on which Coca Cola apparently consulted). Each unit was designed to focus its blast into a narrow cigar-shaped plasma plume that would transfer maximum impulse to the pusher plate. Optimum detonation distance to minimize pusher plate ablation had also been worked out. For their first full-scale test, the Orion Team planned to build a 4000-ton "base model" to be launched from Jackass Flats on the Nevada Test Site. The model would use 0.15kT pulse units, each of which would add 30mph to the craft's speed. It was calculated that 800 such detonations would be required to lift the craft into low earth orbit (200km).

Yet official interest in Orion was quickly waning. Because it utilized nuclear weapons, Project Orion was classified as Top Secret and its members could not lobby congress directly. Furthermore, Orion had one major problem its designers never overcame: radioactive fallout. Even if conducted far from populated centres (for example, from a barge on the ocean), an Orion launch would release a long trail of fallout that would spread around the globe. Though this fallout would represent less than 1% of that generated by nuclear weapons testing, public opposition to atmospheric detonations was such to severely cripple Orion's credibility. In desperation, team leader Ted Taylor presented the Hot Rod test footage to Werner Von Braun of NASA, who was enthralled by the concept and became a great supporter. Unfortunately, due to the Top Secret nature of Orion, NASA – committed to staying open and public – could offer little aid to the project. The Orion engineers suggested circumventing the fallout problem by assembling their craft in orbit, the founding of Project Apollo in 1961 left NASA with no sufficiently large rockets to spare. Finally, in 1963, the signing of the Limited Test Ban Treaty – which banned all atmospheric nuclear detonations – drove the final nail in Orion's coffin.

Though its seems like yet another hare-brained scheme from the nuclear 1950's, Orion remains the highest-performance propulsion system possible using modern technology. An Orion-type spacecraft could potentially reach 3% of the speed of light (0.03c) using conventional nuclear warheads, 0.1c with thermonuclear (fusion) warheads and even 0.5c using antimatter. This would allow travel to the moon in mere hours, to Mars in months and to Jupiter in less than a year. The sheer payload potential of such a vehicle would allow for missions of unheard-of scales: indeed, a single Orion launch could have carried two International Space Stations into orbit and –according to Freeman Dyson – would have been able to establish a permanent moon base. The possibilities were endless. Unfortunately, Orion fell victim to the unavoidable side-effects of nuclear energy and the turbulent socio-political climate in which the project was born. Such is often the case with engineering: even brilliant, visionary ideas can fall to regrettable doses of reality.

Textbook Expense

Nicole "Nickers" Waldrum
- SOFT III -

Many students feel the economic crunch of the depression but in addition to this there is the high tuition fees, school supplies, food, rent, phone, cable and let's not forget the expensive textbooks. Each year professors change editions or textbooks, these changes are an enormous expense to an already expensive degree. For 10 textbooks (5 per term) an engineering student will average between $1200 and $1500 each year. Textbooks for engineers on average cost between $150 and $200 unless you're looking at getting the solutions manual which is an additional $50 to $100 per book.

It's surprising to know that other students complain when their textbooks for the year cost $600. There was a student at the bookstore complaining that their books was "so expensive" at the hefty price of $70. By the Winter Term, most engineering students get to weigh the pros and cons of eating in March and buying that Thermo textbook.

It comes as no surprise that students attempt to scrounge textbooks from anywhere they can in an attempt to pass courses. While some students do not require textbooks, as they are able to learn adequately without them, it is difficult for students that do require them to purchase all their textbooks.

Sometimes students can find textbooks at a bargain at the CSES Book Trade, that takes place at the beginning of each term but with the continually changing textbook editions and switching of textbooks from year to year. Students will feel the crunch even more of attempting to purchase their books.

CSES has also attempted to update their Textbook Library, where students can borrow textbooks to be used for study. However, with the changing editions and textbooks it will be difficult for CSES to cover the expense of constantly updating the library.

There used to be stability in the textbook process, it would take 2 or 3 years before textbooks would change editions but it seems the cash cow being discovered in textbooks has caused more editions to be pushed through. It is unfortunate that students much suffer because of their need to learn material and attempt to attain good grades in order to graduate. Why won't someone please think of the children?

Be Your Own Boss

Katherine "Lil K" Newcombe
- SYSC III -

Chances are, if you're reading this, you're in engineering and have some experience crunching numbers and problem solving. So if you happen to have any other talents, whether constructing things, designing webpages, painting, or sweet-talking customers, then you might have what it takes to run your own company. Think about it: work the hours you want, work on the project you want, and no more taking orders from a boss that doesn't know what he or she is talking about.

Now, starting a company takes money, as does going to school. As it happens, the government of Ontario has decided that's a perfectly good reason to pay you to work for yourself for the summer, and then pay you to go back to school. It's by no means a get-rich-quick scheme, and being engineers, it won't cover your full tuition. But for anyone who has thought to themselves, "Someday I'll start a business," it makes a hell of a lot more sense to do it now when the government is willing to foot so much of the start up costs, give you free access to all their business support programs, and then pay you to go back to school. That's as opposed to in a few years, when you'll have to pay for it yourself.

So what did I do? I started Creations3K making and selling original jewellery. Did I make a lot of money? No, I started too late in the season to get in all the trade shows. Lesson: apply now, not a week before the deadline, to be accepted prior to the backlog of last-minute applications. Did I learn a lot? Sure, I don't ever want to be a sole proprietor or primary sales person for a company again. Did I get something unique to add to my resume? Definitely, and lots of fancy tools I couldn't have afforded otherwise. Was it better than working in a factory all summer? Absolutely.

Be Your Own Boss, check out www.ontario.ca/summercompany to apply. Registration is already open for 2010.

What's So Important About Emergency Radio?

Daphne Ong
- BIOM III -

These days, technology is everywhere, from computers and cell phones, to satellite cable and wireless Internet! So what happens if all of these are wiped out? The moment a disaster strikes all of these things become useless. Now what?

This would be when Emergency or Amateur Radio comes into the picture. This involves the use of many types of radio equipment through wireless communications. But how's that possible you ask? How could all of today's modern technology be wiped out if we're so advanced? Well it can. It happened during Hurricane Katrina, and at one point amateur radio was the only means of communication.

Presently Amateur radio is often seen as a personalized hobby, however in a real state of emergency can be critical for communication and survival.

Interested in learning more? Join us at one of our weekly meetings! Carleton University Amateur Radio Club meets every Monday at 5pm! See our website for more details: cuarc.engsoc.org

CUARC

The CFES Congress

Hillary "Dirty Bird" Flesher
- CIVE II -

Hey y'all,

Welcome back to school! During the first week of January, 6 Carleton students attended CFES Congress 2010 at McMaster University in Hamilton. At Congress, elections happened for both the new executive and commissioners. During this time, our very own President, Robert Stalker, became President of the CFES and Kevin Atkins became the National Capital Liaison! You might want to talk to them about what their new position entails and their goals for the year. Check out www.cfes.ca for a list of the rest of the new exec.

The Ontario Engineering Competition is happening in two weeks and all of the registration has been completed. We have a junior, senior, consulting, innovation and parliamentary debate team representing Carleton.

In other news, ESSCO is putting together a Rube Goldberg machine. This will go through schools all across Ontario and end at the Science Center in Toronto. For Ontario, it will kick off national engineering month. There will be more information available this week and next week.

The CFES has created a charity cookbook containing recipes from engineering students all across Canada. Charity cookbooks will be on sale in Leo's this week for 10$. All of the money goes to support the Canadian Red Cross. There are only 30 of them so get them quick.

Next month I will have reports from FYIC and ESSCO exec. Get excited!

Book Club

Laura Mutu
- COMM III -

We are planning to focus the next book club on the two books donated by Carleton's Dr. Monique Frize to the WISE library.

If you read Dr. Frize's book that came out last December, The Bold and the Brave, you should consider sharing your experiences with a close-knit and comfortable environment. The second book, The Chalice and The Blade, by Riane Eisler, was also donated by Dr. Frize and can be borrowed from the WISE library. It is a book cherished by the donor and which we encourage you all to read and let us know what your impressions are! It's also a great way for polishing up your public speaking skills and your communications skills.

Women's Worlds 2011
http://www.womensworlds.ca/call-participation

"The content and conversations of WW 2011 will name and celebrate this action in all its forms while showcasing the best of innovative research, critical learning, and women's leadership."

"Proposals for presentations can come from individuals, groups, coalitions, networks, teams – everything will be considered."

If you want to join alongside WISE/IEEE WIE, let us know.

…but there are a lot of inquisitive idiots.

GALLERY

Trying is the first step toward failure. So remember, the lesson is never try.

Remember, as long as we have each other, we'll never run out of problems.

The Burj Dubai, almost finished.

Jesus, this thing is huge.

More From The CFES Congress

Kevin Atkins
- AERO I -

The beginning of this 2010 winter term did not involve arduous introductions to courses and meaningless review for five of your fellow engineering students. Instead, we represented Carleton Engineering at the Canadian Federation of Engineering Students Congress in Hamilton. At Congress we attended sessions and discussions to network with other engineering societies to bring useful information back home to further benefit the engineering students here at Carleton University.

All of this was organized by the Canadian Federation of Engineering Students, a student run organization which allows communication and networking of engineering societies across Canada. As is the case with CSES, elections come annually and new positions are to be had. After a stressful election process Rob Stalker of Carleton moved up to CFES President leaving his previous CFES position vacant. After an interview and selection process, he passed the torch onto me, Kevin Atkins, to be the new CFES National Capital Liaison.

The National Capital Liaison (NCL) is a position in the CFES that can only be held by someone who is going to be in the Ottawa area during and after the school year. Generally, this means this position can only be held by a student at Carleton University or the University of Ottawa. As the NCL I will be serving as a contact with Engineers Canada for CFES. Additionally I will be attending Engineers-In-Training (EIT) Committee meetings to represent the students of Canada to work to allow the EIT process to be a nationwide policy. These tasks, among others, are what I am expected to do as NCL, but I hope to expand the CFES network onto other organizations that will be beneficial to us, the students.

With that, I thank Rob Stalker for passing the torch onto me as he moved up in CFES and I look forward to working with him to positively represent Carleton Engineering at the national level and to represent Canadian engineering students for the rest of 2010.

IEEE Events

Dave Zou
- ELEC IV -

Cool events coming through! Make way!

For those of you who don't know, the IEEE Carleton Student Branch is a student organization dedicated to helping out all engineering students by providing free computing services, organizing awesome events, selling course notes at really, really cheap prices and selling pop and chips at really, really, really cheap prices.

Here is a list of what we had done last term and what we will do this term.

Fall

Battle Royale III

Some of you might remember this from the October issue of the Iron Times, where Lazers won the prestigious Sleeper of the Month award. And guess who "sponsored" that accomplishment by providing him with a place to sleep? It was our annual LAN party Battle Royale, where we grabbed the gaming enthusiasts from Carleton U and U Ottawa and herded them into Porter Hall to let them beat the crap out of each other. Figuratively speaking, of course. Look forward to Battle Royale IV coming next school year.

IEEEXtreme 2009 programming competition

A global 24-hour programming competition hosted by the IEEE where 700 teams of three programmers (or self-proclaimed programmers) from 40 countries attended this event. Carleton had four teams in attendance, and they all did quite well, with at least two teams having placed under 250th.

Workshop on-demand

Workshop on-demand started last term as a way for people to get a crash course in anything they are interested in. The first workshop was presented by our very own IEEE Computer Society Chair Mo Islam on the Eclipse IDE (integrated development environment). And now you can request topics that interest you on the IEEE Carleton website. Once enough people have requested the same topic, we will find a local expert to come and give a workshop on that subject.

FPGA Competition

The FPGA competition stems from the ELEC 3500 Digital Circuits class. Students take their class project Tug of War and expand it into anything they can imagine. Winners from this term were:
1st Prize: Omar Shammas and Awofodu Adedoyin
2nd Prize: Mohammad Alam
3rd Prize: (Tie) Ahmad Faour & Awais Cheema
3rd Prize: (Tie) Marc Ibrahim & Cory Ross Image

Carleton's IEEE Student Branch places 2nd in international web contest

Congratulations to Carleton's IEEE Student Branch, which won first place at the regional level in the "IEEE Student Branch Web Site Contest." Each of the 10 regional winners was forwarded to the Student Committee for judging in the international contest, in which IEEE Carleton placed second worldwide out of over 1400 student branches. Judging was based on originality, portability, load time, and overall presentation. The Students Committee awarded Carleton's IEEE Student Branch with a cash prize of $750 and a customized certificate for their hard work and achievement.

Winter

WIE Bowling:

On Sunday Jan 31, come out to the RA Centre on Riverside to enjoy an afternoon of unlimited bowling from 3:30 until 6pm for $7.00, shows included.
When: Sunday January 31, 2010 at 3:30 – 6:00 pm
What: Unlimited Bowling (shoes included) for $7.00
Where: RA Centre, 2451 Riverside Drive
Email wie@ieee.carleton.ca to confirm your attendance.

SPAC:

The Student Professional Awareness Confer¬ence (formerly known as IEEE Connects) is a formal dinner event that aims to bridge the gap between students and their career goals. SPAC offers students and employ¬ers a unique opportunity to network with each other in a professional environment along with professionals and academics representing the field of engineering. Come out on March 4th at 6pm, right here in Fenn Lounge in Residence Commons, to have a chat with various industry representatives and take control of your future.
Registration will be required, for more information, check our website.
Where: Fenn Lounge, Carleton University
When: March 4 at 6:00 pm

Workshops on-demand:

Just like last term, students can request whatever topic they want on our website, and if enough people requests a topic, we will host a workshop on that topic. Dates and locations will be announced on our website.

FPGA competition:

Make your Tug of War project into something we have never seen before and win cash prizes.
Open only to the current ELEC 3500 students.
Date and location will be announced on our website.

4th year electrical project info session:

For all you third-years going onto fourth year! This session is for you. While attendance is not mandatory, you are strongly advised to come, because this session is where the Department of Electronics briefs you guys on fourth-year project procedures. You'd better be there if you want to graduate.
Date: End of March
Location: TBA

4th Year Papers' Competition:

Fourth-years! You couldn't have asked for a better way to test run your final project presentation! And if you win, you not only get cash prizes, but also a chance to participate in the IEEE Eastern Ontario Papers Competition, where fourth-year students from all over eastern Ontario demonstrate their work. It is a win-win situation.
Date: End of March
Location: TBA

CodeJam:

To all first-year programers: Challenge yourself with this contest against your fellow students, not just from Carleton, but all over Ottawa as well, because we all know assignments aren't nearly as challenging as you would like them to be. You can win cash prizes, fame, and glory! (We don't guarantee the second or the third, just the first).
Date and location TBA.

MicroController 101

Ever wanted to build that cool project but got stumped by the microcontroller? Or had this weird bug that won't work out and therefore bringing your project to a halt? Or are you just interested but don't know where to start? This is the session for you. Over the course of this term, the IEEE will host a series of hands-on workshops on microcontrollers, how to program them, debug them, and make them do the cha-cha. Only the most basic programming knowledge is required. If you have taken or are currently taking ECOR 1606, then you know enough.
Location and date TBA.

Keep checking www.ieee.carleton.ca for more details on our events!

Much work needs to be done before we can announce our total failure to make any progress.

ENTERTAINMENT

Rocket Competition

Nolan "Pi" Hunder
- AERO III -

November 7th was supposed to be just an innocent CMAS-run competition to take our minds off the reality of the results of our midterms, but that was not the case. Due to the unforeseen declaration of nuclear war by the self-declared Republic of Cape Breton on the peaceful nation of Canada, all participants were immediately contracted by the Department of National Defence (DND). News correspondent Jordon Briggs shortly discovered that the all-powerful nation of the United States had no interest in aiding our defence against Cape Breton due to their secret plan of stealing Alberta during the impending civil war. Chief weapons supplier Marcel Campbell quickly changed the pressurized water bottle demonstration to a cruise missile design competition.

Groups were then formed under code names and material rations were distributed. As time was of the essence due to the loss of nearly every major city east of Montreal, time allotted for design and manufacturing was limited to only 2½ hours including lunch. Missiles were then judged by Air Force General Jason Etele, and 3 Colonels, based on innovation, efficient use of materials, and stealth/appearance. Test launches were then conducted in the newly constructed Mackenzie quad missile silo.

Each missile was fitted with a grade A large egg shaped nuclear warhead payload, and test launched twice. Launch results were graded using three criteria: Effective Range, Missile Accuracy, and Warhead Serviceability. After 2 successful launches of each missile, all data was recorded and thoroughly reviewed, and then the following final report was published.

Ranking	Team Name	Special Notes	Recommended Usage
1st	Auxillary Thrusters	Longest Range	Default Rocket type, good for most general targets
2nd	AERO D	Most Accurate	High Precision targets
3rd	The Three Rocketeers	Smashed Into University Wall	Most damaging, useful when total destruction necessary.
4th	Team Rocket	Able to land on roof and then continue	Most Stealthy, useful for high security targets
5th	Sometimes We hit Londons	Able to fly backwards	Decoy Missile, not overly accurate, but nearly impossible to shoot down. Able to accomplish fly by attacks.

Editor's Note, the above document is being released now after having only recently been declassified.

Flightsuitbogganing (And why CUSERT should be there)

Caleigh Rutledge
- ENVE I -

Recently, I attended the famous "Flightsuitbogganing" event run by Flightsuit. I was late, having had to stay and write a web-CT Physics Quiz due that afternoon. I trudged all the way to the actual Experimental Farm, looking for a hill, phoned Adrian Bongers for help, and was then informed that I had, in fact, gone the wrong way. I finally did find the very steep, very icy hill, and I noticed, upon arrival, that there was someone missing. Multiple someones, in fact. Upon glancing around multiple times, I realized that specifically, that person that I had initially missed was none other than Andrew Campbell. And so I cleverly devised a plan to convince CUSERT why they should always attend this particular event from here on.

Reason number 1 why CUSERT should ALWAYS attend Flightsuitbogganing:

Andrew Campbell.

There really does not need to be any more explanation on this point than simply stating his name.

Reason number 2 why CUSERT should ALWAYS attend Flightsuitbogganing:

GT Racers.

Now, while it would seem to most people, especially those of the female gender, that this is not a particularly safe object to ride down a hill on, some people (like reason number 1) don't feel this way. And these stupid things roll on the people who are supposed to be steering them. Then, these people crush their heads on the icy snow. Which brings me to number 3.

Reason number 3 why CUSERT should ALWAYS attend Flightsuitbogganing:

Hills made of ice.

That hill is not only ridiculously steep (steep enough to snowboard down), but it also becomes very icy with continued packing down of the snow. Eventually, it becomes essentially the same as cracking your head (or any other body part) on the canal ice.

Reason number 4 why CUSERT should ALWAYS attend Flightsuitbogganing:

Jumps.

Seriously CEng? As if a steep icy hill wasn't enough, they had to go put a man-made, icy jump at the bottom of the hill. And I can tell you from experience, going off this jump REALLY hurts when you hit the bottom.

Reason number 5 why CUSERT should ALWAYS attend Flightsuitbogganing:

Tobogganing on a tarp.

Now, while it would seem that GT Racers, Snowboards, regular, old-fashioned toboggans, and other random pieces of cardboard covered in garbage bags and sealed with duct tape, would suffice as the usual types of sledding devices, CEng likes to take it that one step farther. This year, someone found a very large, bright orange tarp. And an average of 7 people sledded down the hill on it. Together. In fact, I didn't sled down the hill on anything but the tarp. It just seemed so convenient. However, this tarp managed to inflict many injuries, the majority of which are stomach, groin, leg, and bottom-related.

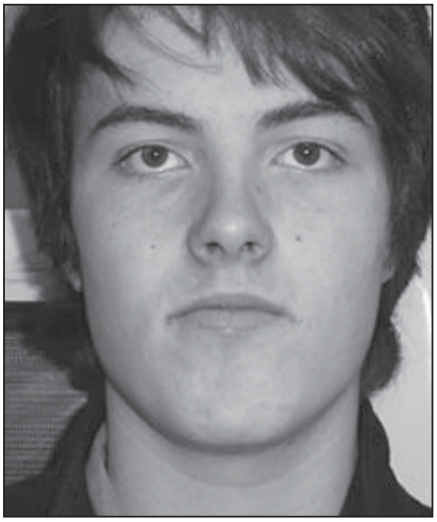
In conclusion, CUSERT should, on this day of the year, always be at the hill for Flighsuitbogganing. Even if they couldn't actually have really done anything anyway.

** Please note: Items 1 through 4 may lead to a broken collar-bone.

If you never try anything new, you'll miss out on many of life's great disappointments.

Trying to Get Into Engineering

Eric "ATM"Escaravage
- Comp Sci I -



Failure, fraud, sexy, blondie, super frosh. I have been called all these things. One thing however I have not been called is an engineering student. You're probably saying to yourself: What's this? Our "beloved" super frosh is not even an engineer?! THIS IS AN OUTRAGE!!! Now before you go guns a blazing into Leo's or curl up this Iron Times and smack me upside the head with it, one should know that it is not for a lack of trying. I shall now chronologically explain the life and times of a frosh on a quest...to change programs.

When I started Engfrosh 2009 as a naive first year computer science student, I didn't quite know what to expect. My good friend Max who I worked with at the time, had suggested it to me over the summer upon learning I would be attending Carleton.

-"So Eric, you're going to Carleton huh?"
-"Ya. Why?"
-"You're doing Engfrosh."
-"ok"

Little did I know how much of an impact that week would have on me as a student and more importantly a person. Thankfully not attending CU In The Wild (Because CUSA is so well informed and prepared to guide me through my future at Carleton. Something about cystic fibrosis and white males?). After some careful research it was concluded that becoming a software engineer would A.) Give me a better chance at finding a career, B.) I could have people working under me and I would be on top (that's what she said) and C) Andrew Campbell can no longer call me a fraud. Only one hurdle stands in my way, the dreaded SCH4U (for those of you who do not come from the province of Ontario, this stands for 12th grade chemistry. You would know this if you helped yourself to a mother fudging science book!) What was I to do? Obviously there was another way to get around a lack of a simple chemistry credit. So I racked my brain and found a solution, go around the school only to have this person refer me to this other person, who in return would give me this other person's e-mail which unlocks the door to Mordor and so on so on. After awhile I realized I would have to buckle down and get my credit which leads me to today. I am currently signed up for my high school chemistry at French (hon hon hon!)Adult high school. Once completed, I hope to make the switch complete for the start of the fall term. Until then I will be an engineer at heart, looking forward to joining your ranks, and working hard to get my very own Iron Ring. P.S Andrew, there's no reason we both can't be "civil".

Friends You Need (And Some You Don't)

Trevor "Moose" Evans
- ~~AERO~~ ~~ARTS~~ ~~CIVE~~ RET'D VI -

The adventure of life can take you into many different situations, and some of these are best shared, savoured, suffered with, or blamed on friends. These people can fill any role, from being there waiting with you for your bride to walk down the aisle, to bailing your drunken ass out of a Mexican jail. The best of friends will be there for both of these, and so much more.

In light of the value of such dear friends, here are some friends that you should make sure you find before you die. Some, in fact, just might be able to delay that final dirt nap. Others…not so much, but the ride is well worth the destination.

The first is, of course, the Best Friend. This person can take on many roles, but above all they are your best friend and will be there through thick and thin. A friend will help you move, but a Best Friend will help you move a body.

The Hell-raiser Friend can be a loose cannon, so don't attach yourself too closely to this one, since they have a knack of avoiding death and incarceration with ignorantly blissful ease. This isn't to say that this friend should be completely shunned. Just like a brilliant comet, they should be appreciated whenever they come around with a night out, for the occasion will surely be one to remember. Just be prepared to hear embarrassing stories the next day, and be sure to check in the mirror for any writing or drawing, and pray that it's just Sharpie and not a new tattoo.

The Bad-idea Friend is just that, a person who will always have an idea and a solution for every situation or problem that life will throw at them, but never one that any sane person would consider reasonable or possible. At first glance this kind of person would seem an unlikely member of this list, but they are great to know because even what looks like a bad idea can turn into something great. Just remember to think first, and that fire does not always solve the problem.

The Doctor Friend is self explanatory, but this isn't for the simple reasons that you might be thinking of, like getting your H1N1 shots ahead of everyone else. The doctor is a great person to know for their ability to prescribe anything under the sun that you might need, as well as knowing exactly how to pick out buckshot and patch you up after you listened to Bad-idea Friend on how take out an instant loan at the bank. The Doctor will also be able to tell you whether you need to drink a lot of cranberry juice or take some pills for that unpleasant burning when you pee.

The Jack-of-all-trades Friend is just that. This is the guy that can get anything done, regardless how impossible it might seem. This is the friend you turn to for nearly any of life's problems, since they seem to be able to accomplish anything from fixing your car to getting their hands on a baggy of the final ingredient in your special brownies. Often invaluable, it's just as wise as having one of these friends as to never ask how or where they learned the things they do. It might be innocent enough, or you might find yourself accessory to something you hadn't planned on.

The Chick/Guy Friend: what matters is that it's a friend of the opposite sex. This casual element of the opposite sex will keep guys from forgetting that life isn't like a porno, and girls from thinking that life is like an issue of Cosmo. I can give you a ton of different answers for why this is essential, but mainly the Opposite Sex Friend is one of the world's greatest wingmen.

The Hippy Friend, who generally should not be confused with the Stoner friend, although the two can be one and same, is best for spending the weekend with. If you cannot get out of the city to go fishing, camping or whatever else to relax, just hang out with your Hippy Friend. Just be careful that you don't come away wearing too much tie-dye, and maybe think twice before eating any cookies or brownies they offer you. But definitely learn the recipe.

The Stoner Friend is always able to make someone laugh, unless you feel bad laughing at a colour-blind person trying to make out one of those MagicEye puzzles. If that does, you might feel bad when they try do damn near anything requiring coherent though. On the plus side, though, this friend will always be able to tell you what places have great food at all hours of the day or night, and which ones deliver.

The Smart Friend falls into two categories: the person who knows the most random of trivia, and the one who actually understands 5th-dimension calculus. Both are essential to life, because you never know when you might want to know about quantum physics, or perhaps you are just idly curious about the average response time of emergency vehicles in the event of a bank alarm. It never hurts to be prepared.

The Lawyer Friend, or at least someone who stayed awake through one or more law classes, is also vital. If they speak another language, this is a bonus, and should be on your speed-dial if you ever travel with the Hell-raiser or Bad-idea Friend. If you ever get caught red-handed for anything ranging from a misdemeanour to an outright felony, having some quick legal aid might spot that technicality that will get you out, free and clear, in a matter of hours. They are also very handy if you need to carefully word a watertight alibi for a debaucherous night out.

The Crazy Friend is the friend that pulls off what no one else in life could. Almost a hybrid of the Hell-raiser and Bad-idea Friends, the Crazy Friend stands alone for the things they have done and can help you do. If all else fails, the Crazy Friend will have a solution. The trick with this friend is that you can never be sure if they are ingeniously brilliant or ludicrously retarded with some of their ideas. Unlike the Bad-idea Friend, though, the Crazy Friend isn't content letting these remain just ideas, and will carry them out. This is a very willful individual, and where there is a will, there is a way. Stand too close when something backfires, though, and you had better have a will of your own – a final will and testament.

While you don't have to have them as friends, at least get to know a Stock Broker, who will help you manage the funds that you will wind up with when combining the Bad-idea, Jack-of-all-trades, and Crazy Friends. An Insurance Salesman is never a bad idea either. Finally, if everything goes completely to hell in a meticulously planned, prepared, and nearly perfectly-executed heist of Fort Knox with the above friends' help, and the Doctor can't make a miracle, skip the Priest Friend and get chummy with a Funeral Home Director. If they don't cut you a deal, then they will at least be able to let your family have an open casket memorial for your dumb ass and make you look somewhat respectable.

While good fortune never seems to come your way, misfortune never misses.

Atomic Follies: Worst Uses of Nuclear Energy

Gilles "Nightstalker" Messier
- AERO III -

My last two articles on Projects PLUTO and ORION shared a common theme: the grandiose and often irresponsible uses of nuclear energy proposed in the 1950's and 60's. While these two projects were the most ambitious of their kind, they were far from the only bizarre atomic proposals to emerge from the dawn of the Atomic Age. So, to build upon a running theme and finish a trilogy of articles, I present the 5 strangest, most irresponsible and most dangerous actual and proposed uses of nuclear energy.

1. Genie and BOMARC: Anti-Nuke Nukes

Early in the Cold War, the manned strategic bomber was the only long-range nuclear weapon possessed by either superpower. Similarly, with guided missile technology in its infancy, the only contemporary aerial defences were interceptor aircraft armed with WWII-style machine guns and unguided rockets. As such weapons were grossly inefficient against bomber armadas, the USAF sought a stopgap weapon that would allow a single interceptor to destroy as many enemy aircraft as possible. From this requirement emerged the Douglas AIM-2 Genie, a solid-fuel air-to-air rocket carrying a 1.5-kiloton nuclear warhead. The Genie was to be fired by interceptor aircraft into the middle of bomber formations, where the warhead's 300-metre blast radius would cause maximum damage. As it was believed these blast effects would make pinpoint aiming unnecessary, the Genie was unguided: the warhead's detonation was controlled only by a simple timer mechanism.

The Genie was only fired live once, as shot "John" of the Operation Plumbob nuclear tests in 1954. The weapon was launched over the Nevada Test Site at an altitude of 4,500 metres by a Northrop F-89, to this day the only aircraft to ever fire an air-to-air nuclear weapon. To address the weapon's most obvious flaw – the detonation of nuclear warheads over the cities they were intended to protect – five USAF officers volunteered to stand directly below the blast. Though rattled by the shockwave, they were otherwise unharmed. Fortunately, although the Genie remained in service until 1988, none were ever used in combat.

Interestingly, Genies were the first nuclear weapons to be operated by Canada, though the warheads were to be handed over by the USAF only in case of emergencies. The only nuclear weapons actually owned by Canada were mounted on the CIM-10 Bomarc, a ramjet-powered surface-to-air missile that controversially replaced the Avro Arrow. The Bomarc operated on the same blast-effects principle as the Genie, though it was actually guided to its targets by the SAGE computer system. The acquisition of the Bomarc and its nuclear payload actually lead to a minor political crisis, contributing to the downfall of both the Diefenbaker and Pearson governments.

2. The M-388 Davy Crockett: Hoist on One's Own Petard

While the use of nuclear weapons to down bombers seems foolish enough, neither the Genie nor Bomarc hold a candle to the stupidity of another 1950's weapon: the M-388 Davy Crockett. The Davy Crockett was a light recoilless gun that fired a 23-kilogram W54 sub-kiloton variable-yield nuclear warhead, the smallest nuclear device ever developed. Developed t o counter a potential Soviet invasion of Europe, the Davy Crockett was to be fired along borders to halt hostile ground forces until NATO reinforcements could deploy.

The M-388, however, suffered from a catastrophically major flaw. At maximum yield of 20 tons of TNT, the W54 warhead had a lethal radiation radius of 400 metres. The minimum detonation range setting for the warhead, however, was only 300 metres! Thus, if fired on minimum settings, the Davy Crockett would have exposed its crew to a lethal radiation dose. Furthermore, the launcher itself was notoriously inaccurate and had a maximum range of only 2 kilometres. Yet, despite the suicidal nature of this weapon, it remained in service until 1971. Its only live firing, the Little Feller I test on July 17, 1962, was also the last nuclear ever detonation at the Nevada Test Site.

The Davy Crockett was one of many small-scale nuclear weapons: in 1953, shot "Grable" of Operation Upshot-Knothole tested a 15-kiloton artillery shell and cannon nicknamed "Atomic Annie." The Davy Crockett's W54 warhead was also used in another suicidal man-portable weapon: the Special Atomic Demolition Munition (SADM), a backpack-mounted "suitcase nuke" that was to be parachuted into enemy harbours by Navy SEAL teams. The team would plant the munition and escape by boat or submarine before it detonated. Nuclear landmines, depth charges and other tactical weapons were also developed.

3. Operation Ploughshare: Nukes for Peace

Unlike nuclear reactors, which can generate electricity and medical isotopes, nuclear explosives have yet to find peaceful uses. During the Cold War, however, both superpowers established programs to develop alternative uses for their massive nuclear stockpiles. The Soviet program was known as Nuclear Explosions for the National Economy and the American program Operation Ploughshare. Of the two, the Soviet program was the most expansive, comprising 115 tests compared to Ploughshare's 27.

Both programs explored similar applications for nuclear explosions, such as excavating earthworks, finding and stimulating underground fossil fuel deposits, creating underground reservoirs for toxic waste, mining minerals and crushing ore. The most famous Russian test of the NENE series was the 140 Kt Chagan shot, which formed a 408-metre diameter crater in the dry bed of the Chagan river, Kazakhstan. This crater –which is still extant and very radioactive – was meant to dam and divert the river during its high flows. Another famous Soviet test, Taiga, involved detonating three 15 Kt warheads in a row to investigate the feasibility of nuclear canal-building. Unique to the Soviet program was the use of nuclear explosions to extinguish massive oil-well and natural gas fires: 5 of NENE's shots were of this type and were the only tests – Soviet or American – to yield a practical benefit.

The most famous Ploughshare detonation was the 104 kiloton Sedan shot at the Nevada Test Site, which displaced 11 million tons of earth. Sedan was conducted as a proof-of-concept test following the cancellation of Project Chariot, a plan to create an artificial harbour in Cape Thompson, Alaska with a string of thermonuclear devices. The plan was abandoned due to the potential disruption of local Inuit populations and because no use could be found for the new harbour.

In the end, both projects concluded that nuclear weapons were too impractical or dangerous for industrial use. The Sedan shot contaminated more U.S. Citizens than any other detonation and in Russia, a river displaced by the 1971 Globus 1 shot threatened to flood the shot crater and contaminate the entire Volga region. Only the use of nuclear explosions to put out massive oil well fires is still being considered – albeit as a last resort.

4. The Ford Nucleon: Radioactive Junk in the Trunk

In the 1950's the two most eagerly prophesized benefits of nuclear technology were 'electricity too cheap to meter' and 'cars that never need refuelling.' In 1958, the Ford Motor Company capitalized upon the latter idea and began developing the Nucleon, a concept car powered by a nuclear reactor. The sleek, futuristic Nucleon would have featured a compact nuclear fuel core suspended between its twin tail booms, a small steam turbine generator, and variable-speed electric motors for propulsion. The removable core was designed to be replaced at hypothetical "recharging stations" once the fuel had been spent. It was estimated that the Nucleon would be able to travel nearly 8000 kilometres between recharging stops, depending on the core size.

The Nucleon was never actually built, largely because a sufficiently compact, practical reactor had yet to be developed. Before the technology could catch up, however, new fears concerning the dangers of nuclear energy doomed the Nucleon concept (goodness knows what a nuclear traffic accident would have looked like!).

5. Nuclear Aircraft and Rockets: on Atomic Wings

Projects ORION and PLUTO were only two of many proposed nuclear aircraft and spacecraft propulsion schemes conceived during the Cold War. In parallel with PLUTO, the USAF ran project NEPA (Nuclear Energy for the Propulsion of Aircraft), an effort to develop a flight-capable reactor and a bomber aircraft (the Convair X-6) in which to install it. The NEPA nuclear reactor would be used instead of combustible fuel to heat the air in a turbojet engine, granting the X-6 near-unlimited range. A prototype water-cooled reactor was built and test-flown aboard a modified Convair B-36 to gauge the effects of radiation upon the airframe. The 12 tons of lead shielding needed to protect the crew and other problems (such as the advent of ICBMs, which rendered nuclear bombers obsolete), however, lead to the cancellation of NEPA. The contemporary Soviet equivalent of the X-6 was the Tupolev Tu-119.

On the space frontier, both the Soviets and Americans actively pursued nuclear-thermal rocket (NTR) technology, in which a small reactor is used to energize liquid propellant. The great energy density of nuclear reactors would have (theoretically) granted such engines far superior thrust and heavy-lifting capability compared to conventional engines. The main American NTR project, NERVA, sought to produce a nuclear-powered Saturn V upper stage, allowing the rocket to reach Mars or other planets. NASA's cancellation of all planned Mars missions after Project Apollo – as well as technical difficulties within NERVA itself – lead to this project being cancelled as well.

It was recently announced that the Russian Federal Space Agency RKA has begun development of an interplanetary NTR vehicle, the design of which should be completed by 2012. The craft itself, to be built in orbit, should be ready by 2020.

There: don't you feel safer already?

Barstool Reviews - Montreal

Rob "Merlin" Stalker
- AERO III -

Barstool Reviews is a new initiative I'd like to start in the Times, with the intent of pointing out and reviewing some of the establishments foreign to Ottawa's fair coasts. In this issue I've inspected four different Montreal locales with the aim of improving both your French and drinking skills. I marked each on a logarithmic scale of 0 to 10 with all these reviews being 100% biased and subject to change without notice. They are also conducted from the top of a barstool.

O'Hara's Pub

Generally you wouldn't journey into Quebec looking for an Irish pub, but this one may be worth the trip. Located at 1197 University Road, this medium-sized establishment boasts the standard fare for most pubs, with burgers, fries and salads at a reasonable price, though they do come with a few extra é's sometimes. Though I only had a chance to sample their Keith's draught, I'm told their Harp and Guinness is as tasty as they come. The two waitresses we had were laid back and very nice, and they weren't dismayed by our poor attempts at French/English. All in all, a solid pub.

Location – 7.8
Selection – 6.2
Price – 6.6
Food – 7.0
Experience – 7.4

[Editor's note: Due to a more recent adventure during which some alumni revisited this establishment, it is recommended that any individuals planning to include O'Hara's on their crawl refrain from wearing Carleton Engineering jackets, flightsuits, or other paraphernalia during this phase. On the other hand…maybe they didn't notice.]

Les Foufounes Électriques

A larger-sized indie bar with two separated floors resting at 87 Sainte-Catherine East. While not really a place to come to in the day, we arrived around 8 or 10 pm to find the bottom floor half dead. We then ventured upstairs (costing us $3, which we later didn't mind) to find it packed with a very young crowd (even for Montreal) and blasting music that, while not really my style or understandable to me, wasn't that bad. Also, $5.50 pitchers. [Ed: YEAH.] I didn't stay too long, as Foufounes isn't my scene, but if you like French indie music, this could be your new favourite bar.

Location – 7.4
Selection – 5.0
Price – 8.4
Food – N/A
Experience – 6.8

Brutopia

Nestled at 1219 Crescent Street is Brutopia, one of Montreal's (and my) favourite microbreweries. While they do serve the standard taps for a pub, you'd be a schmuck not to try one of their five classics or pick from their multitude of seasonal brews. Personally, I mixed and matched to great results. The staff was friendly and quick (momentum is key), and though I didn't sample the food, one can assume it to be at least edible. This is a great place to visit if you like supporting microbreweries, as well as trying a few new and tasty beverages that Ottawa hasn't yet decided to sport.

Location – 7.6
Selection – 8.1
Price – 6.8
Food – ??
Experience – 8.2

100 Génies

Sitting on the first floor on one of the main buildings of École de technologie supérieure, 100 Génies is their campus bar. The place itself is like the rest of ÉTS, new and fashionably decorated while not being too classy or stuffy for your average ingénieur. The food was just as good as any other pub, and the selection inviting as they had several Quebec brews not found on our side of the river. The crew I visited with were supplied with drink tickets, which we used to maximum efficiency with virtually no complaint from the staff, which was in itself impressive from my perspective. Overall this is a very nice campus bar with a great atmosphere that invites me to become a regular.

Location – 6.8
Selection – 7.2
Price – 6.8
Food – 7.0
Experience – 7.5

Stay tuned for the next issue, when we investigate the watering holes of Hamilton.

Top 10 Reasons to Wear Shorts

Nolan "Pi" Hunder
- AERO III -

Shorts are an amazing article of clothing that more people should wear more often. For those of you who don't know me, I'm that idiot who's seen walking to and from class wearing shorts outside creating new paths through the snow. To emphasize the overwhelming awesomeness of shorts I have assembled this list of reasons you and everyone should wear them.

10. You get to show off long elegant legs.

9. You are always dressed for unexpected situations involving running such as soccer, football, basketball, and cops.

8. They have become the recommended attire for certain lab periods.

7. Shorts are perfect for any situation assuming you're not going somewhere formal (date, job interview, wedding, funeral, court appearance, or any combination of).

6. They're easy to change into and out of.

5. You're easy to identify at a distance.

4. There's no trade off between fashion and comfort (Ian can elaborate on this in future articles).

3. The look on other people's faces in winter is priceless.

2. You become conditioned to the point of never getting cold.

1. The only real reason to not wear them is you get some stalker person obsessing over your legs.

Game Review: Batman: Arkham Asylum

Eric "ATM"Escaravage
- Comp Sci I -

BATMAN duh duh duh duh duh duh duh duh BATMAN! BATMAN! The theme song and thoughts of Adam west in tights filled my head this holiday when I picked up Batman Arkham Asylum for the PS3.The first thing I noticed was the PS3 exclusive (HA suck it Xbox fan boys) option of playing as the joker in certain challenge modes. As I eagerly popped this Bad boy into my ps3, I couldn't help but wonder whether I should be studying or doing something procuctive but I quickly banished these thoughts and started the game.

WARNING: SPOILER ALERT. The story starts off with the capture of the infamous Joker and his re-incarceration at the Arkham asylum facility. Enter the Dark Knight (Not Adam west, DARNIT!) suspicious of how easy it was to capture the Joker; Batman decides to oversee the aforementioned incarceration of Gotham's favourite clown. Faster than you can say "why so serious?" all hell breaks loose and Batman finds himself trapped in the asylum with Joker's minions as well as a slew of famous Batman villains including Scarecrow, Poison Ivy and the Riddler among many more. Batman encounters these villains leading up to his final duel with the Joker, who's powers are increased by TITAN, a powerful agent which turns the infected into a large brainless mutant with superhuman strength(kind of sounds like Joker henchman normally huh?) which Joker plans to release into Gotham.

Game play: The Controls are very well laid out and the game has a bunch of tips to help reduce the learning curve as you make your way through the vast property of the asylum. Batman has a whole bunch of gadgets which at story intervals, he may take from the conveniently placed Bat cave on Arkham itself, as well as through upgrades the player gets when reaching maximum experience points gained during story missions and combat. The island is also home to numerous Riddler challenges and mini trophies that the player may find, giving it that vast open map GTA feel. The combat system, named FreeFlow ™, is exactly that as it preaches and teaches the player to link attacks in form of a combat multiplier, which gives a better score and allows the player to make some skull smashing combos. The aptly named detective mode allows batman to scan his surroundings for evidence, hidden passageways and even the heart rate of hostiles and whether they are calm, panicked or terrified. Other than the occasional "How the heck do I get from here to over there" the game play is essentially perfect.

Graphics: The graphics for Arkham asylum are great as one would expect from a next gen title, but the mix of serious and wacky sceneries as well as the great 3rd person camera angle really adds to the modern but still comic book like feel of the game in general.

Verdict: Batman Arkham Asylum is an intuitive game which allows the user to mix and match different combo moves, and discover fun and exhilarating ways to achieve the game's objectives. The graphics are gorgeous and the game play is at the exciting and fun all along the way. Super frosh Gives it 5 super capes out of 5 making this title a must have for any gamer.

Next Month: Super frosh reviews the exciting, head banging Brütal Legend.

Food Engineering: The Ultimate Slow Cooking Guide for Dummies

Ehren Katzur & Rob Klett
- GRAD -

The key to every slow cooker meal is meat. Ideally, about 80% volume of the meal should be meat. If you're a non-meatatarian, tough. You'll just have to get used to it. Slow cookers can't sustain themselves without a diet high in meats.
We're not talking hotdogs or bacon or Maple Leaf bologna here people. We mean big people meat. The kind your parents buy, and still may have to cut up for you. This meat is different because it's hasn't been processed into standard geometric forms - it still may resemble the animal it came from. Pork shoulders, Whole Chickens, Racks of Lamb, Cow Heads.

Your goal is to go your butcher or supermarket or teeny-tiny-market or backalley meat monger and find some roast or stewing meat that is on sale. There are two key concepts in that last sentence: roast or stewing meat, and sale. You don't want to pick up high grade steaks or the like as they will be cooked too long and become tough and stringy. Roasts and stewing meats are good because the extra cooking time makes them extra juicy and it helps tenderize them in a way that only slow cooking or taking them to an S&M party can. The sale should be pretty obvious; we're all cheap students, right?

While you're at the store, I guess it's time for you to pick up the other 20% of the meal: the veggies. Look for stuff that's in season or keeps well like potatoes, onions or beans. This is beneficial for two reasons. First, this kind of produce tends to be cheaper. Second, in season produce also tastes better. Try to get some sort of overall theme with your veggies. Or, take this as an opportunity to experiment with some of those more inaccessible root vegetables. Turnips, parsnips, rutabagas. They're not just there for decoration; with a little effort you can eat them. This is where you choose whether you're making stew or chili or casserole or some other meat dish. Following a recipe might require you to purchase other reagents such as spices, soup stock, or silly head gear. If you're winging it, try and adopt more of an alchemy mind set and just buy whatever you think would be tasty together. For the really lazy or unimaginative, go to the spice isle of the grocery store and find the section with the Club House seasoning packets. Club House makes about a half dozen slow cook specific packets depending on what kind of dish you want to prepare. Chicken, Pulled pork (snicker), Pot Roast (snicker), just to name a few. Or, if finding those Club House packets sounds like too much work, than read on for our recipe suggestions. If reading a few more paragraphs is too much work, you're already dead to us.

Pot Roast

The most basic thing you can cook is a pot-roast; just a big hunk of meat. First step, break down your produce. This includes washing, peeling, and chopping any of those large root vegetables you purchased. Make sure you take off the stickers or bar codes that they may be wearing. There is very little nutritional value in bar codes. The goal is to cut your produce into chunks of equal size. If you put a turkey and a game hen in the oven and cook them for the same amount of time, by the time the turkey is done, the game hen will be burnt to a crisp. In much the same way, large chunks of potato will still be raw in the middle by the time your small carrot pieces will be mushy. Try to maintain a nominal size for vegetable pieces. Line the bottom of your slow cooker with the dense vegetables. Turnips and rutabagas have a specific gravity that is close to that of pure lead, so make sure they go in the bottom. Potatoes can go there too. Save your carrots and parsnips for the next step.

The next thing to do is prep your meat. Take the plastic off and any meat twine holding it together. The next step is optional but I find it very valuable. Find a frying pan and put it on the stove over medium high heat. The goal is to brown your meat on all sides. This is going to bring out all that real flavour of the meat. Don't worry about doing any real cooking in the frying pan - 2 or 3 minutes per surface is plenty. Once your meat has a nice Jersey Shore tan on all sides, womp it down on top of your vegetable bed. If you want a nice, thick sauce to come out at the end, roll your meat in some flour so that it's covered on all sides before womping it on top of your vegetable bed. You may have to mash it down a little bit because you don't want it to be higher than the lid of your slow cooker. Pack your left over vegetables around the sides of the meat.

Chili con carne

This stuff is also stupid easy. Start with a big can (or two) of canned tomatoes. I like stewing tomatoes but diced tomatoes will work well too. Throw in a small can of tomato paste and mix it together to help thicken up the sauce. Add chili/hot peppers like jalapeños, habañeros, green chilies and whatever spices you want to use. Dried chili seeds or chili powder work well along with cumin and any ground pepper or peppercorns you may have on hand. Now you can throw in the optional stuff like onions, canned beans and sweet peppers. Mix it all together to help the flavours meld or something like that. Next up is the meat. Now, I realize that con carne means "with beef" but that's not really important. Just grab whichever meat you want to use. A kilo of ground beef is usually a good starting point but any ground meat will work and chunks of stewing beef will change up the texture nicely. It's usually a good idea to brown the meat first especially with ground meat. Toss that meat in and mix it up and the start the slow cooker.

Soup Stock

You know all that inedible stuff leftover after eating a turkey or the like? The stuff that even Uncle Albert won't eat and he's a human garburator? The bones and tendons and stuff? Yeah, throw that all in the slow cooker along with some onions, garlic, celery and carrots and add enough water to completely cover everything and then some. Add copious amounts of salt and some ground black pepper. If you have some on hand, you can add a couple bay leaves and a few sprigs of parsely. Let that stuff soak and cook for as long as a day or two and then remove all the chunky bits. What you have left in the slow cooker is --insert-name-of-meat-- stock. Use this wherever stock is called for in another recipe or you can throw in some cooked vegetables and grains (rice, barley or pasta) and you have soup.

Pulled Pork

It's pork. And then you pull it, put it on a bun, and stuff it in your face. Basic ingredients are Pork (make sure you get a bone-in or boneless, shoulder or butt) and then some combination of things to create a sauce. If you were to put a pork shoulder, a bottle of BBQ sauce and two chopped onions into the slow cooker for 8 hours, that would probably be just fine. Make sure to put the onions under the meat to prevent the meat from burning to the slow cooker. Some recipes break it down further by bringing it back to the basics, making you add tomato sauce and all of the spices separately. Allrecipes.com has a recipe that calls for a pork butt, 14oz of beef broth and 1/4 cup of brewed coffee. 483 positive reviews can't be wrong. But like Levar Burton says "But don't take our word for it." There are also a tonne of recipes here: http://lmgtfy.com/?q=Pulled+Pork+Slow+Cooker

Savory Garlic Chicken Stew (from All you can Eat)

5 cups of chicken broth (use oxo or the method above), 2 cups water (combine two hydr.. nevermind) 1/4 cup flour, 8 garlic cloves, some oil, 2 carrots, 6 golden potatoes, 1 yellow onion, 1 cup of celery, 2 lbs of fresh boneless chicken, salt and pepper to taste. It's a lot of stuff to haul back, but so worth it. Chop up the garlic and sautee it in the oil. While that is happening, breakdown the rest of your vegetables as mentioned above. Cube your chicken as well. Wash up when you're done - chicken will give you the swine flu. Whisk the water, broth and flour together. Now dump everything in the slow cooker and go to class for 8 hours.

Casserole

The casserole is similar to a stew but you usually add some sort of dairy to the sauce and add some sort of crust on top that is usually bread crumbs, cheese or bread crumbs and cheese. A fairly simple recipe starts with chunks of potatoes, chopped onions and garlic and chunks of ham or other cured meat. It works best if the meat is left over from a roast or breakfast (eg. bacon). Mix that all together with a handful (or two) of shredded sharp cheddar and then pour a can of condensed cream of something soup over it. Cover the top with bread crumbs mixed butter. The butter helps the bread crumbs get crispy (good) instead of dry (bad). Throw on another handful (or two) of grated cheese. You can be a little more adventurous with the cheese on top by using parmesan, asiago or mozzarella.

So now that we've given you enough creative tips to be dangerous, go out there and try something. The goal is not to be scared by your slow cooker. It's damn near impossible to burn the house down with it, so even if the grown ups won't let you near the stove, you can still get some great tasting meals out of it. Besides, the slow cooker is the closest thing we have right now to Star Trek replicator technology; it just takes a considerably longer time than it does on the show. Share and enjoy.

Recommended books with slow cooker recipes:

All You Can Eat! One-Pot Cooking (Hardcover) Lisa Rogak and B.J. Hanson
There are no pretty pictures in this one, but it is an amazing book for the lazy bastard in all of us. One pot cooking for everything. The first half of the book is standard one pot stuff, so if you're not into slow cooking, or don't have a slow cooker, you can still use it. The second half - nothing but slow cooker heaven.

Slow Cooker Recipes for All Occasions (Hardcover) ~ ISBN-13: 978-1412727679 by Mr. Crock Pot
About 50 recipes but nice, full-page, full cover pictures that make your mouth drool and your stomach grumble

…wait 'til you see our solutions.

COMICS & ART

Three Panel Soul

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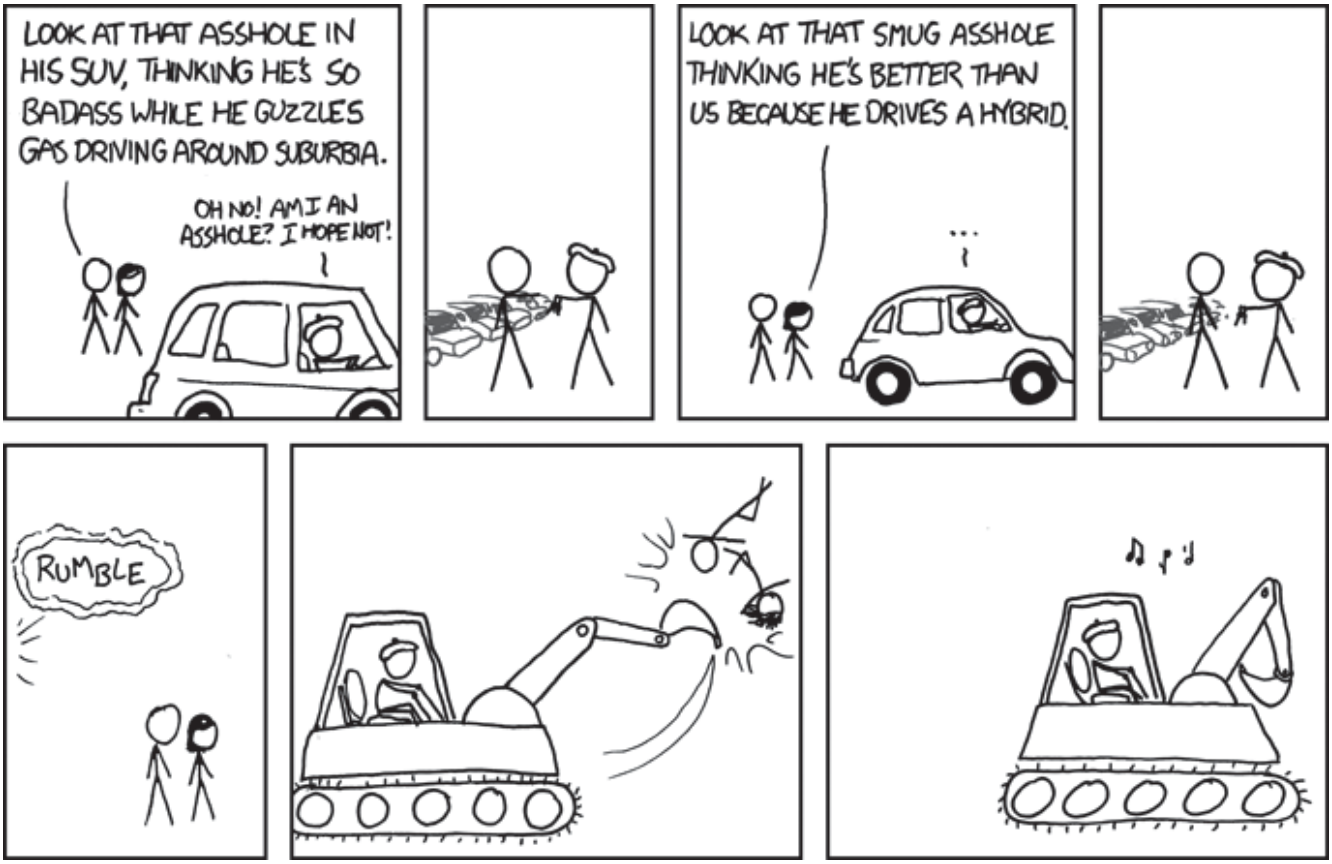
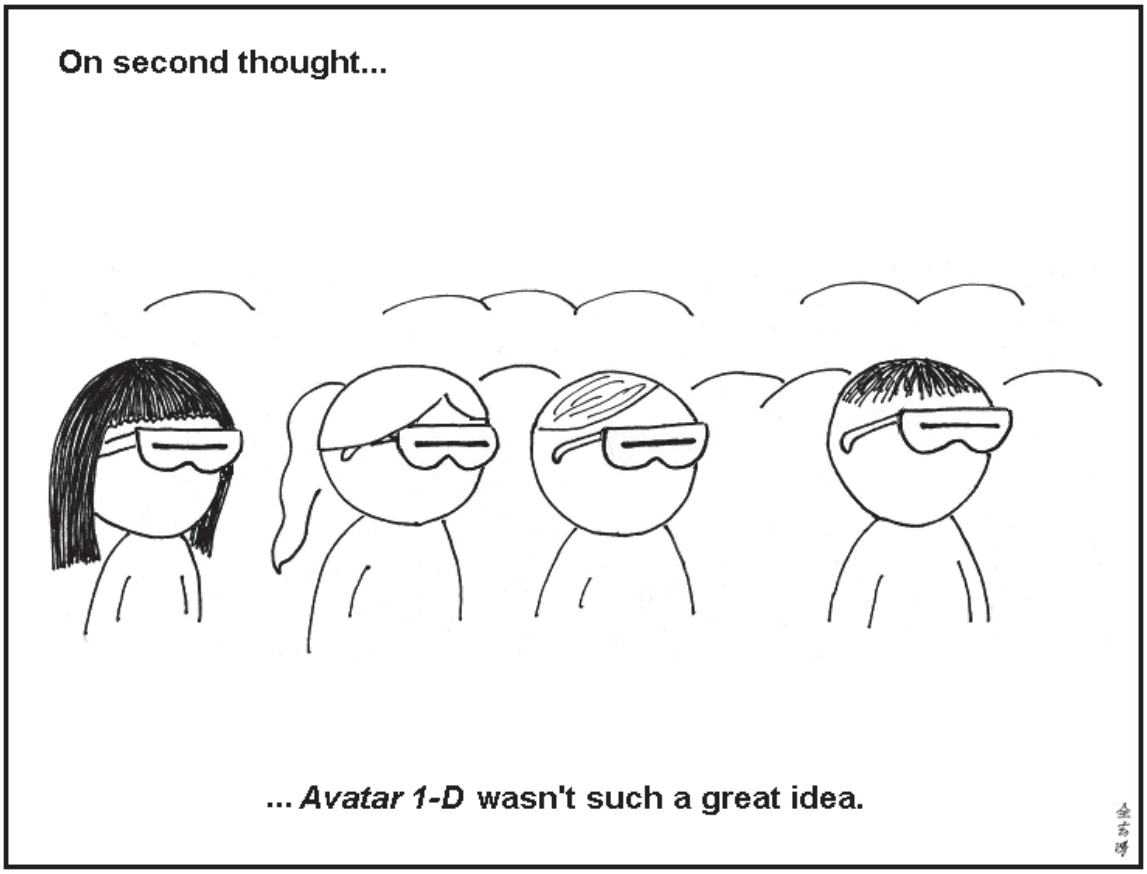


Engineering can be your worst four years…

Abstruse Goose www.abstrusegoose.com



…or your best five, six, seven, or eight.

LAST WORDS

Uses For The Charlatan

- Make party hats to be ready for the invasion.
- Make party hats to be ready for the invasion.
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- Make party hats to be ready for the invasion.
- Make party hOH MY GOD THEY'RE HERE
- ~~You can read it.~~

Sleeper of the Month

Sleepers of the Month goes out to no one. Congratulations, you all lose.

Normally, the Iron Times team would scramble to find an image suitable for this column. However, we have not received a single suitable submission.

Here's hoping this is a good incentive and motivation to get related submissions. Until then, enjoy your nothing.

* Sleeper of the month is entirely consensual and submission based. All people appearing in this section have given prior consent and have been informed in advance that their picture will appear here.

FEEDBACK LOOP

```
for statement = 1 to n
```

Ted Nugent

```
next statement
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CSES should totally hire Conan. But only if he comes with the Masturbating Bear.

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next statement
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Congrats on having 3 people show up to Lust. Including the two girls.

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next statement
```

If anyone doesn't believe we came out, we got Nolan's blood on the field.

```
next statement
```

UAV ONLINE!!!

```
next statement
```

When I blow out my boogers, it looks like a ninja rope.

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next statement
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The roof is no place for unruly swine..

```
next statement
```

Topics covered in my first Rocks lecture: dykes and cleavage.

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next statement
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I literally failed 80% of my courses last term. FML.

```
next statement
```

7SypCV *[Ed.: I love spam bots!]*

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end
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Want to say something? Post to the loop at:
irontimes.engsoc.org

Upcoming Events - February

	1	2	3	4	5 Res-Cafe Invasion	6
7	8	9	10	11 Valentine's Day Pub	12	13 C-Eng Bonspiel
14 Valentine's Day/Lunar New Year	15 President's Day/45th Anniversay of the Canadian Flag	16	17	18	19	20
21	22	23	24 CSES Elections Start	25 Yuk Yuks II	26 CSES Elections End	27 Movie Mania
28						

Research is what I'm doing when I don't know what I'm doing.