

by Aaron C. Drake

Would you sign on to a voyage to another solar system? How about if you knew that it would take forty years to go there and back? how about if you knew you were never coming back?

When man first began to think, he began to dream. Though his body was trapped on earth, his mind could wander space. Until thirty or so years ago, this wandering was confined to each dreamer's thoughts. But Sputnik changed that, and soon after, man actually wandered space, touching down on the moon.

Exploring the solar system with manned probes is a very real possibility. Does our curiosity have to stop there? Is it possible to travel to other stars? This question has been asked by the greatest minds, and the answer is, yes.

The stumbling block to interstellar flight is the vast distances between stars, and the physics of space and time that control us. According to the special theory of

Interstellar Traffic

relativity, it is impossible to travel faster than the speed of light. Any trip to another star would take a long time. Using today's rockets, it would take thousands of years.

To break the barrier of longevity, one of three things must happen: 1) relativity is proven wrong, in that objects can accelerate past the speed of light. This is very unlikely. Relativity has withstood every test it has faced. 2) A breakthrough within the bounds of physics allows spaceships to "tunnel" through space to the target star (this process will be the topic of another article). General relativity seems to allow this to happen. 3) New spaceships are built that are capable of long term acceleration. This is the most

feasible prospect.

Yet even if such a spaceship were designed, and there are many proposals, the final stumbling block seems to be domestic. Funding for an interstellar spaceship would have to be secured, and the price would be staggering. The spaceship would have to be assembled in orbit, to escape the chains of the Earth's gravity on the surface. The spaceship would have to be large enough to accommodate the crew and supplies for the journey and return trip. All this, all fuel, all materials would have to be lifted into orbit and then assembled. The cost would be in the high billions at the very least.

It would be easier to secure a government commitment if it were

proven that there were planets orbiting other stars. Currently, it is believed that Barnard's Star, six light years away, may have two planets orbiting it, but the evidence is weak. Proof of such planets would give us a target star where we know there are planets. Where we know there may be life. In fact, many feel that the only thing hindering a starship project right now is the absence of detectable planets on other stars.

Meanwhile, the dreamers still dream.

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432 in Trouble, Editor Says

Aaron Drake, the editor of the 432, the Science Undergraduate Newspaper, says the newspaper is facing a crisis.

"There just isn't enough room," he claims. "We're filling up with Science ads so fast, we're forced to backlog articles."

Currently, the 432 is eight pages long, but Drake wants to see the 432 come out with twelve pages. That way, students would have more variety with less advertising.

"Right now, we have eight regular contributors, and occasional input from ten or so more. We have six columns that, in addition to the Classifieds and such, amount to four pages of material. Take away at least a page for ads, and one for the front page article, and we have two pages left for student contributions!"

With only two pages, Drake regrets that certain articles and fillers just won't be printed. "We would like to reprint David Suzuki articles, but there's no space. And there are two more people who want to have regular columns. What can I tell them?"

If the 432 doesn't go to twelve pages soon, many students will no longer

continued on page

The Orion Legacy

It began in the mid-fifties. The Viper Experiment placed two steel spheres the size of basketballs a mere 10 meters from ground zero of a 10 kiloton nuclear explosion. These spheres were coated with graphite. When the nuclear bomb was detonated, the shockwave carried the two spheres with it, leaving them thousands of yards away from ground zero. The steel spheres were unharmed - only a few hundredths of a millimeter of graphite had vaporized.

Nuclear pulse propulsion was born. A spaceship could be powered this way, it was reasoned. A series of small nuclear bursts behind a large graphite plate affixed to the ship would propel the vehicle. The high thrust of such a system, combined with the relatively light fuel makes the engine ideal for interstellar travel.

From 1958 to 1965, a number of scientists (Freeman Dyson included) worked on the Orion Project. For seven years, they worked on the fine points of nuclear pulse propulsion, from detailed specific impulse data to proper ablative materials. The designers felt they had successfully come up with an interplanetary drive. As a matter of fact, the nuclear pulse propulsion system was easier to design than the shock absorbing systems.

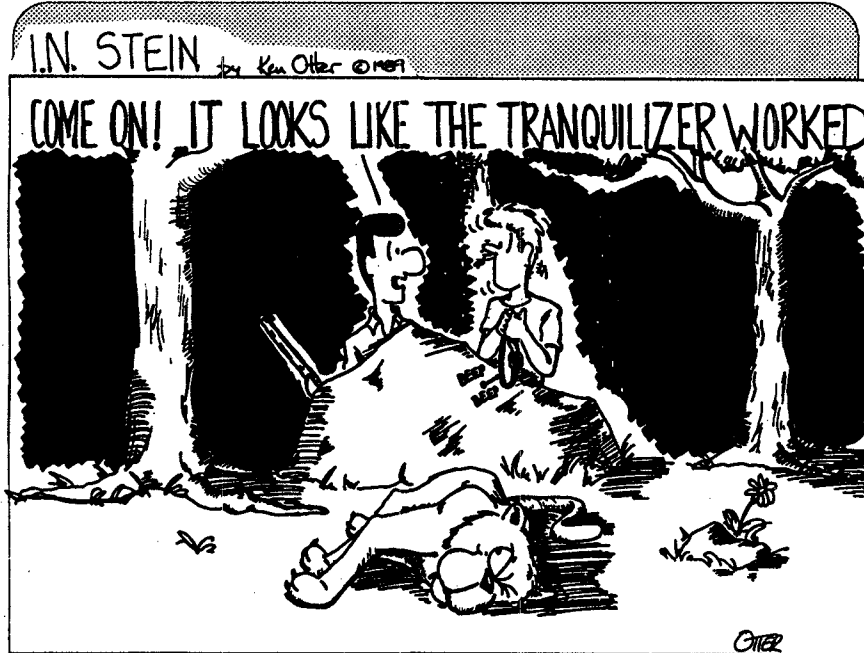
In 1965, however, the project was terminated, and nuclear pulse propul-

Many feel that the only thing hindering a starship project is the absence of detectable planets orbiting other stars.

sion was scrapped, due mainly to a nuclear test ban treaty that prohibited detonations in space, even for peaceful purposes.

With the demise of the Orion Project, interstellar space travel was dealt a serious blow. No other system offered what nuclear pulse propulsion

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EFFECTIVE PREDATORS

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EDITOR'S COMMENT

I've been asked a lot of questions regarding the copyright of any materials published here. I'll set the record straight in this article. This one's a keeper: get some scissors and paste this to your wordprocessor (or typewriter - I realize there are those of you that still live in the stone age).

The Universal Copyright Convention (1952) guarantees that the works of the author are an extension of his personality, and therefore are granted immediate copyright upon creation. This protection extends to foreign countries and the only formality required is a **notice of claim**.

Ideas cannot be copyrighted. Also considered **public domain** are theories (scientific, artistic, historic), facts, titles, slogans (the latter two fall under **trade-marks**), equations, and so on. Anything in the public domain may be reproduced freely.

Let's start from the beginning, where the author has come up with a good story idea. While the idea itself isn't copyrightable, the plot is, if the story is written. Certain characters are copyrightable (e.g. Dik Miller). The story itself becomes federally copyrighted upon **fixation**: that is, the work has been fixed in some tangible form - written, if it is a story.

The copyright is in the name of the author, unless it is anything that falls within the scope of his employment. Even if the employer did not inform the employee, the work is considered a **made-for-hire** piece, and the employer automatically assumes ownership. There is no way around this, although prior agreements can transfer publication rights to the employee. However, there has to be payment made to the employee in some form, although it doesn't have to be for the work itself. If the employee draws a wage, then the employer can claim any work-related article.

Any copyright lasts until fifty years after the death of the author. For a work-for-hire piece, the copyright lasts seventy-five years after publication, or 100 years after creation, whichever comes first.

Once a work is published, there must be a notice of claim affixed.

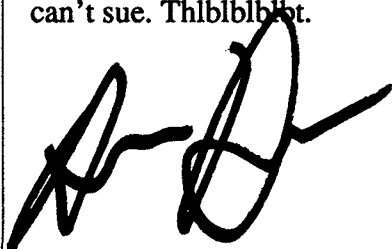
This doesn't apply in certain situations, such as limited circulation among friends, or submitting a manuscript to a publisher. However, if a **defective notice** is submitted, the piece reverts to public domain.

Notice of claim involves the placing of the copyright sign, or just Copr. on the paper, as well as the year of publication, and the name of the author. If one or more of these is omitted, the piece is not copyrighted, unless notice is filed within five years of publication.

How does all this apply to the 432? Upon acceptance of your article, copyright is transferred to the newspaper, non-exclusively. That is, we have been granted **First North American Rights**: we have the right to be the first to print your article. Thereupon, all rights revert back to you. That's it. All it takes is a verbal agreement.

All of this is meaningless, unless there is **infringement**: someone has published all or some of your work without permission. In some cases, it is legal to publish another person's work. The policy of fair use applies to quoting articles for educational purposes, but the law is vague as to how much can actually be quoted. Quotes from poems or songs require permission, unless they are in the public domain. Quotes taken from stories are generally acceptable if they constitute a small portion of the entire story.

One final note: editorial revisions are not an infringement upon copyright, and are also not considered **derivative works** - works that have recast or reworded previous works. So if I cut your submission to pieces and scar it upon restitching, you can't sue. Thblblblbt.



This article, by Aaron Drake, and all the articles in this newspaper are copyrighted under Galactic Federation Law. If you copy it without permission and make millions off of it, we will execute you. If you copy it with permission and make millions off of it, we will dismember you before we execute you.

YOUR MOTHER LIED!

Her distant advice continues all semester, but really - if you drink and drive, and wreck, and your guts are splattered on the road while your face sticks to the windshield, and witnesses vomit at the sight of you, nobody really notices your underwear.

this message courtesy of the University of Saskatchewan Students' Union

Letter to the Editor

Dear sir,

I read, with great pleasure, your september 6 edition of The 432. It was well-structured, interesting, informative, and very creative. As for this well-meaning, but sadly misguided would-be journalist named Devan Fauste, I have a number of things to say.

The obvious place for me to begin would be to shout myself silly about The many and varied spinoffs of nuclear and particle physics. Not the least of these is nuclear medicine which has provided the closest thing to a cure for cancer that this planet has seen. This is a fact that Mr Fauste is sadly oblivious to, it seems. It is fortunate that Mr. Fauste was not allocating science funding fifty years ago when this field of physics was still in its infancy, and nobody had any inkling of its varied potentials. I don't want to get into that, however; that would be missing the real point.

I could stoop to calling Mr. Fauste an ignoramus for daring to criticize physicists for spending a mere (that's right, *mere*) two billion dollars, when the U.S. Defence Department has an annual budget in excess of one trillion dollars. I could call him an anti-intellectual medieval brute for placing a higher value on MIRVs than Higgs Bosons. Or, less graphically, but more disturbingly, for valuing technology more than knowledge. However, to do this would also be to miss the point.

The REAL point, the one that Mr Fauste is amazingly and appallingly ignorant of, is that science is a branch of philosophy. Its only, and I can't stress this enough, its **ONLY** purpose is to understand how the universe works. Science is not about technological advance nor about improvement of the human condition. If Mr Fauste wants either of those, *he's in the wrong fucking faculty*. He should proceed directly the Registrar's Office and transfer into Engineering or into Medicine. Ranking on scientists for wanting to study things of no imaginable worth is like bitching at your budgies for chirping: that's what they do. That's what science is about.

In future columns (and perhaps more importantly in future studies), Mr Fauste would be well advised to remember this: that there is no such thing as "trivial knowledge. Aristotle, Galileo,

Newton and Einstein would agree that any man with such an attitude is not destined to do great things. Feeding the homeless included.

Morgan Burke
BSc, Astrophysics, 1989, UBC

Devan Fauste's rebuttal:

Contrary to what Mr Burke thinks, I do not consider myself a scientist; I think of myself as a human being, and so I have an obligation to them instead of the glorious pursuit of worthless knowledge. Two billion dollars is not a meager amount when other important programs are starving for funding.

Blind and selfish pursuit of knowledge can be dangerous, Mr Burke. It was people like *you, not myself*, that were responsible for the MIRV. If I had been allocating funding back then, yes, I would have allocated more to other worthy programs. Maybe today, then, we would have a real cure for cancer, not an excuse for overpriced radio-isotopes.

Science is the pursuit of knowledge, but wake up, Morgan! We live in a non-ideal world, where people are dying, where the world is going to hell in a handbasket as it chokes in its own shit. Put it in perspective. How important is it that we know the spin of this silly particle, after all? It can wait!

In the future, Mr Burke, perhaps you should think about what you are saying. How can you honestly justify science for science's sake when it means that those children in the ghetto will be cold tonight and hungry tomorrow morning? I'm sure Aristotle, Galileo, Newton, and Einstein would all see that the two billion dollars fed those children. They would also agree that the true mark of a person destined for greatness is genius that is tempered with human compassion and understanding, not selfish, gloryhounding, arrogance.

D.F.

The 432 encourages letters to the paper, even if they violently disagree with our policies. It makes for good reading.

Dik Miller, Campus Cowboy

by Derek Miller

I awoke with a screaming, blaring headache. I looked at my watch and there it was, gone. I had no idea where I was, what time it was, or even exactly what position I was in. As my head cleared marginally, I realized that I was lying down and that my head was the lowermost part of my body. My feet were some half a metre further off the floor, and I determined that my headache was at least partially due to the blood pooling in my head. With that problem handily explained (to some extent), I rolled over and my legs dropped off the table on which they had been sitting. Within seconds, they were painfully tingling. Standing up was totally out of the question.

Well, *this is useful*, I thought. The last thing I remembered was guzzling down a Long Island iced tea at a club whose name I could not even remember. Damn that demon alcohol, I mused. *What a cliché. I must really be losing my mind.* The current plan had to be how to get out of whatever predicament I was in - for I was sure that I must be in a predicament. After all, I'm Dik Miller, Campus Cowboy. Predicaments are my job.

There was a distinct, loud click and a flood of golden-yellow light which splashed across the floor and up the wall on my right. In my stupor, I was fascinated by the sudden suffusion of colour in what had been a dark grey room. A shadow slinked across the swath of light - the shadow of a man's head.

"Good morning, Mr. Miller. I hope you had a pleasant...sleep. Mwahahahaha," he boomed.

Mwahahahaha? I wondered. *Nobody says that anymore. What is this? Some sort of schlocky 1940's detective flick? This is starting to bug me.*

"Cat got your tongue, Mr. Miller?"

Oh no, *this is getting worse by the minute. Next he's going to say that he's going to take me for a little ride or something.*

"Well, if you're not going to speak, you might as well come with me. We're going for a little ride."

Auuuugh!

With that, two burly, hirsute henchmen piled in, grabbed me by the underarms (ouch), tied me up with a thick, scratchy yellow rope, gagged me, and hauled me out the door into the brilliant morning sunshine. I had been inside a small brick building in the middle of a field, and a few metres away down a gravel walkway was a big black sedan (*No, no, not a black sedan. This is too much.*) with its back door open. I was lobbed in, and as I was orienting myself the henchmen sat on either

side of me. The doors were shut, the car started up, and we pulled away.

The man who had been talking to me was sitting in the front passenger seat. He spoke again, but did not turn around, so I could not quite see his face.

"You must be wondering who I am, Mr. Miller."

"Hss ng mm," I replied, through my gag.

"I'll assume that means 'yes I am,'" he said, giggling. (Actually, I had said *piss off creep*, but no matter.) "Well, I won't tell you."

"Mm," I said.

"You must wonder what I'm doing as well."

"Mm hmm."

"I won't tell you that either. Mwahahahaha."

This was not a good situation. I was still curious as to how I'd gotten from the club and the Long Island iced tea to the brick building in a farmer's field. It didn't make sense.

"By the way, that iced tea you were drinking was drugged. My guards were disguised as bouncers and carried you out of that club."

Oh.

"Let it suffice to say that your...activities on campus were a severe inconvenience to me, and I decided that I could tolerate them no longer."

My mind reeled. Who could I have annoyed enough to have them want to kill me, as this man was obviously intent on doing? And how was I going to get out of this? More importantly, how was I going to stop this maniac from following every movie cliché I could recognize? Once he killed me he would no doubt go on with some dastardly plan to take over the world, and I could hardly allow that.

The car stopped and the man got out. The thugs opened the door and took me out after him. He was walking towards a large, ornately decorated mansion that was painted in oh-so-trendy pastels. I was brought inside, through winding and twisting corridors, and into a large, well-lit room which was dominated by a massive oak dining table. The man seated himself at the far end in front of stacks of yellow papers which seemed vaguely familiar somehow.

At last I could see his face. It was intensely angular, with a straight nose and deep-set green eyes. His lips were thin and twitched when he talked.

"Do you recognize these, Mr. Miller?" he asked, indicating the papers with a gloved hand.

I looked closely. They were UBC parking tickets. Hundreds of them, stacked in neat piles. As I read them, I realized that each one bore my signature at the bottom.

"I want these invalidated, Mr. Miller. Traffic and Security has threatened to confiscate my car if I

get one more."

I was torn between loyalty to my job and loyalty to my life. I contemplated whether any torture this man could inflict on me would be worse than the wrath of my supervisor. It was a tough decision.

"Nm hmm hmmsmm," I replied.

"What?" he asked?"

"Nm hmm hmmsmm."

He seemed to realized something. "Remove the gag." His order was carried out.

"No way Jose," I repeated.

"Are you sure?" he asked.

"Yes."

"Kill him."

Well, maybe my supervisor wasn't *that* bad. As the henchmen encroached on me, I brought my chin to my chest and pulled a small nib on the front of my shirt. My Dik Miller™ Inflatable Lifevest expanded quickly, severing the ropes and allowing me to leap up in the air and kick each henchman in the chin - not an easy feat when the vest gave

me the appearance and mobility of the Michelin man. They fell to the floor. The man looked stunned, but regained his composure and pulled a gun. Needless to say, that was a relatively easy matter to deal with, so I won't bother describing it here.

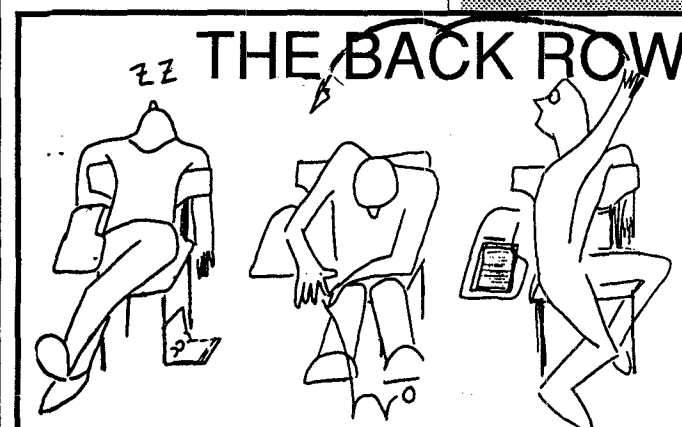
Minutes later, the police were on my way. I walked over to the man.

"So, what do you have to say for yourself?" I inquired.

"Curses, foiled again," he said. I nearly puked.

Another case closed for Dik Miller, Campus Cowboy.

Dik Miller, for all you green-horns out there, has been a cornerstone of the 432 ever since God created the Heavens and the Earth. Posters, Dik Miller™ Coffee Mugs, Designer Condoms, and Bibs are available at modest retail markups.



by A. Ron Seedregg

The editor has asked me to open this column with something inspirational for the frosh. He wants me to give them a few words of advice and such to help them cope over the next nervous days.

Naaaaaaaahhhhhh,

I mean, I had to flounder on my own, didn't I? Nobody pointed me in the right direction. Heck, they even pointed me in the wrong direction. (There's a guy out there who's gonna get it, boy. The Computer Science Building is *not* on Wreck Beach, buddy.) What makes this year's herd of frosh snottoses different? Help them? Bah!

But then again, there are a few things that would really have come in handy. Like how to sleep comfortably in those silly lecture chairs. It's impossible. If you kick your feet up, you can't rest your head anywhere; if you rest your head, you can't stretch out and you feel like a pretzel. If someone had told me from the start what to do, I wouldn't have been so tired when it came time to study.

You know what to do, don't you? *Skip class.* It's easier on the back. But it took me two months to figure it out.

Here's a few more tips to getting by in the classroom:

1. *Don't sit up front.* The prof will look at you when he lectures. It's an eerie feeling. Worst of all, you can't make paper airplanes or read a book with him right there keeping an eye on you. Sit in the back.

2. *Wear appropriate clothing.* You want big pockets for the walkman. Try to make your clothes the same colour as your surroundings, so the prof can't pick you out.

3. *Keep your notebook on the floor.* This way, you won't drool on your notes when you doze off.

4. *Make the class a challenge.* The more the challenge, the more interesting the class will be. Set up a points system: give yourself one point for hitting the overhead with a paper airplane, two for hitting the prof's body, and a bonus point if you can make him scream in rage. Subtract a point if he throws you out.

5. *Regularly sit in the same place.* That's right beside the smartest person in the class. It makes it look normal when you sit beside him in exams - no one will suspect you of copying.

Follow these guidelines and you should survive. Just remember this: Your house could burn down and your notes would go up in flames. Why take the chance?

Don't take notes!

Ron wants a column, so here it is, and as long as Ari misses the deadline for *his* column, Ron will get space. Gee, we need a larger paper. Gosh darn it, I wish we had a sales manager who would earn a salary and have a cool title for the resume.

Why You Should Vote YES

Part one: If you have ever been involved in any AMS club that required space on a regular basis, then you realize that space is almost impossible to get in the SUB. If you live off campus then you know that every neighbourhood in Vancouver has its own community center. If you have ever played any Intramural team sports, then you know that because of space limitations the games often have to be played at unusual hours. (Well, I call 11:00pm unusual).

The fact is that UBC's student population is growing. When SUB was built, its size was sufficient to accommodate the student population. The increasing emphasis on physical fitness has increased demand on sports programs (Intramurals). And, as the AMS has aged, it has accumulated more and more clubs and other student groups.

Expensive? Yes, it is expensive; it's quite the facility. But in a few years the price will double and the demand will be so great as to require the building without question. It is true that some of us (such as myself) will not see the complex built during our stay here as students but I believe that we do owe something to students of the future. Just as the students of the past pressured to have most of this university built and paid to build SUB and part of the Aquatic Center, so must we do our part, not for the benefit of the Administration but, for the benefit of the University.

Last year 60% of the students said Yes to the Recreation Center in, what had to be, one of the largest voter turn-outs in AMS history. Yes tuition did go up 10% but we expected at least 7%. It was obvious that students wanted the Building so let us not be cowered by that extra 3%. This is our best opportunity.

REC FAC

Vote Sept 25-29

In the SUB
Bring Your Student
Card

Part two:

Currently, and for the past few years, there has been a serious shortage of space for clubs and sports teams. Intramurals has no place to put the ballooning programs, except at late hours of the night, when we should be asleep. Clubs are doubled up, tripled up, or just can't get the proper space.

Each year it will get worse. Intramurals is pushing for 50% student involvement: that means a serious demand on our existing sports facilities. The problem won't go away - it can only get worse as the students become more involved.

There have been objections that the proposed RecFac doesn't go far enough to ease the shortages. There is

Why You Should Vote NO

During last year's campaign, the AMS spent an incredible \$25,000 on flashy posters, buttons, bus ads, models, videos, cups, and newspapers to promote the idea of a recreation facility. The AMS has now finalized the plans and components of the recreation centre. This year, students are voting on the finalized proposal. This proposal deserves a NO vote.

What facilities are in this proposed building? Well, there is a gym and locker rooms...but if you voted yes in 1988 because you wanted a recreation that included: a concert hall-it isn't there;

The Science Undergraduate Society will not officially support either side of the RecFac issue. However, the SUS council does recognize that there is a need for a student recreational facility on campus. We encourage all students to vote in the upcoming referendum.

no daycare nor is there enough parking. But if we vote against the RecFac, the problem of no daycare or parking or lack of club space will still be there and the only answer will be another RecFac later on. Voting no will only delay a much needed facility and increase the cost. RecFac must go through. Vote YES on Sept 25 - 29.

Ari Gillison
SUS President

Aaron Drake
Editor, 432
Publications Coordinator

a weight room-it isn't there; daycare-it isn't there; squash courts-they aren't there; racquetball courts-they aren't there either.

The AMS didn't even include bleachers where sports fans or club members could sit and cheer for their teams. The AMS proposal doesn't include an auditorium, or a cinema facility, or a conversation pit. Club office space was one of last year's big selling points. Yet the proposal offers only fifteen

new offices, when there are over 200 UBC clubs. Currently clubs are doubled in SUB offices, and every club suffers from overcrowding.

The recreation centre was supposed to be an open facility for general student use, but the AMS gave first priority to Intramural Sports. Many students would like to play a quick game of volleyball or basketball with their friends-they don't want to play in formal leagues or be forced to buy uniforms. For them, the AMS offers only 25 hours per week for general student's use. That's just 3.6 hours each day for a campus with over 25 000 students. that's not enough time.

The AMS is asking the student to pay \$30 each year (without a promised end to this fee) for a recreation centre that does not meet the needs and interests of UBC students. Some argue that this building is needed; we also need quality research labs, affordable housing, and more parking. The AMS has convinced UBC Administration to spend part of its budget on this sports centre. What we need is a recreation centre that is a facility for all students. What we wanted and needed in this facility, what we voted yes for in 1988, is not included in the finalized proposal. Our response to the AMS proposed recreation centre must be "NO." Vote NO on Sept 25 to 29.

Joanna Harrington
Arts AMS Representative

Get Ready for This

by Derek K. Miller, AMS Rep

So, what exactly did the AMS do this summer? (What? They did something this summer? What an idiotic bunch of...) Well, anyway, we *did* do stuff. Quite a bit, in fact. We (the AMS Council, that is) met every two weeks, and some of the things we decided on are listed below.

Rod French was appointed Assistant Director of Finance and helped Karl Kottmeier, D of F, prepare the 1989-90 AMS Budget, which Council passed. If you want to see a copy, come to the SUS office (Chem 160) or the AMS business office in SUB. But be warned: it's two centimetres thick. The AMS will remain neutral and will

provide "just the facts" on the new Recreation Facility (Rec Fac) referendum to be held September 25th to 29th. Please vote. President Strangway and the Board of Governors have been asked to roll back tuition in light of \$9.6 million in new government funding, but it looks like a 7-8% tuition increase is in the works for next year anyway. Contrary to the intentions of the Student Administrative Commission (SAC), the SUB Council chambers will be able to be booked by constituencies such as Science for meetings. We will, however, be held accountable for our own mess(es).

The Environmental Interest Group is now an AMS service organization, like the *Ubysses*, *Speakeasy*, and the like. It can be found somewhere in SUB. (I've lost the exact office number. Call Mike Lee at 228-3972 if you want to know more.) Council looked over President Strangway's Mission Statement. Ask Mike Lee (see above) if you want to see it.

One thousand dollars is being put to build a memorial to the Chinese student protesters killed in Beijing on June 4th.

Bus passes for students living outside of the City of Vancouver will be considerably cheaper when used in conjunction with a \$2 sticker available at SubCetera. Only a single zone FareCard is necessary to get to UBC from Burnaby, North and West Van, Surrey (!), White Rock, and other nether regions. Duke's Cookies is not a dead issue yet. AMS by-laws demand that the petition received by Council in the spring lead to a new referendum on Duke's, even though AMS-run Blue Chip Cookies is already operating and the Duke's partnership may have dissolved. This sure is a campus for hefty issues, isn't it? Robert F. Osborne, after whom Osborne Gym is named, will be this year's recipient of the Great Trekker Award.

A donation of \$3500 was given to the UBC Daycare society to help purchase a small bus. The

children at the facility are almost exclusively those of UBC students or staff. On the other hand, Council did not provide funds to help send Hai V. Le to Ghana (see his articles in the *Ubysses*) or Wayne Nelles to Pyongyang, North Korea for the World Festival of Youth and Students, on the grounds that such funding would be a precedent for too many other individual projects. Campus newspapers are now required to list the legal names of their editors in each issue. The editors will be held responsible for the contents. Personal computer access is becoming a priority for students at UBC, and the new AMS Committee on Personal Computing, spearheaded by Dennis Bibby of Education, is investigating the possibility of easy access for all students to such facilities. SFU students currently have more than 100 Macintosh machines accessible totally free seven

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Derek Miller, AMS

continued from previous page

days a week.

A taskforce on tuition and student aid has been formed. Its priorities are well described by its name. **Students' Courts** will be reconvened this year to deal with many student concerns, some of which will include the Duke's cookies and Rec Fac issues. \$3000 was earmarked for restoration of the totem pole which was donated to UBC in 1948 by the Haida nation and which permitted the University's use of the "Thunderbird" team name and insignia. The totem will be relocated to the new plaza being constructed to the north of SUB after being painted and strengthened. Rec Fac's management agreement, negotiated between the AMS and the University administration, has been finalized and was approved by AMS Council.

If you'd like to know more, please contact me (that's Derek Miller, if you didn't read the byline) in the SUS office, Chem 160 (228-4235) or at AMS box 148.

The 432 is an SUS-funded publication, dedicated to the purpose of informing the science students and subliminally turning them into robots. The 432 spent its fetal days inside The Beast, a 60MB hard drive, and the paper was genetically engineered on Lucifer, the jammin' Macintosh SE. Wheeee.

That's the way it was, Volume 3, Issue 2, Wednesday, September 6, 1989.

Editor: Aaron C. Drake

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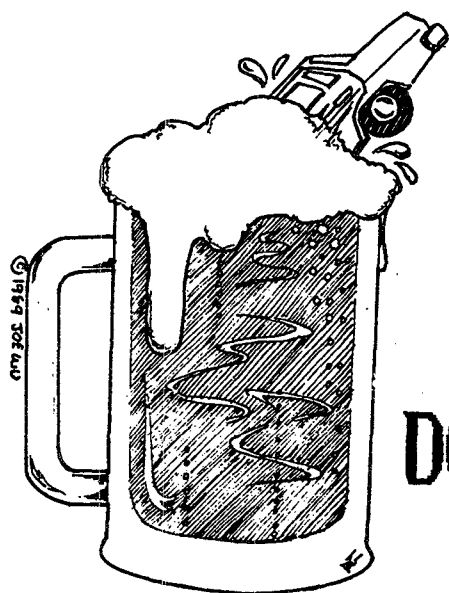
Layout: David W. New, Aaron Drake, Derek Miller

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The 432 is a student publication published twice monthly. All material in this issue is copyrighted in the name of the author, 1989. Circulation 4000. Sooner or later, I am going to catch up with all you writers out there who want to submit but never get around to it. Then I will trim your nails too short, and the next few days will be very painful. You better submit something. Chem 160. Phone 228-4235

Have a nice day.

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DRINKING AND DRIVING DON'T MIX!

A MESSAGE FROM THE
STAFF OF THE 432

Don't be a schlep. Be a rep.

Nominations are opening wide for year reps. The Science Undergraduate is looking for a few good people that want to get involved, get famous, and make a difference. You, yes you, can be that person. Just come on down to Chem 160 and we'll fill you in on the details. What do we offer?

GRATUITOUS SEX.

This ad has been gleefully devised with the full cooperation of Catherine Rankel, our Honcho in Charge of Elections and Horoscopes.

This ad was written without the knowledge of Catherine Rankel, who will most likely douse me in gasoline and light me on fire unless some of you come in and be reps, which is a great thing for that sacred resume, (pre-meds, take note).

THAT'S TRIVIAL!

by Tanya Rose

Hi again! Because everyone seemed to like the last THAT'S TRIVIAL, I'll give you another one. Good Luck!

Theme: Doctors.

1-10: Easy

1. This UBC professor is famous for his outspoken newspaper articles and TV series, as well as his advances in genetics.
2. Who is the sex therapist that calls for *Good Sex*?
3. What famous character could transform himself into an evil psychopath by quaffing a potion?
4. This Doctor created a human monster with the help of his faithful assistant, Igor.
5. Who was the TV surgeon that worked at Blair General Hospital, played by Richard Chamberlain?
6. This doctor, in the movie that was named after him, was the opponent of James Bond.
7. Theodor Geisel write children's books under this medical pseudonym.
8. Who was Sherlock Holme's assistant?
9. This band jumped to a brief moment of stardom with a cover of *Spirit in the Sky*.
10. Name the five roommates of Hawkeye Pierce.

11-15: Medium

11. This legendary doctor stood beside Wyatt Earpp at the O.K. Corral.
12. Who was The Man of Bronze?
13. What did Doctor Doolittle ride across the Indian Ocean?
14. What is the name of Doctor Who's time machine?
15. What black and white spoof on nuclear war starred Peter Sellers, George C. Scott, and Slim Pickens?

16-20: Hard

16. What Radio Quiz show, sponsored by Mars Bar, starred Lew Valentine?
17. Who was Buck Roger's companion?
18. Who was Dr. Ben Casey's senior?
19. Who killed Denny Colt, in the comic, *The Spirit*?
20. Who did Beaker assist?

Bonus Question:

This Asian villian was created by Sax Rohmer in 14 novels. He was played in the movies by greats such as Boris Karloff.

answers on page 8

Physsoc Message #4: Famous people have been members of Physsoc. Like who? Like...like...lotsa people. They became members because they liked the donuts that were free, and the pop that was only a quarter. We got new furniture, with a pool table in our library; every new member gets a free trip to the Bahamas. Morgan Fairchild and Tom Selleck are our honorary chairpersons. I'm lying about everything. Come to Physsoc in room 307 Hennings building. Free tutoring. Noon hour lectures. Oh joy.

The Art Of Science

by Devan Fauste

THE NUCLEAR STATE: Part I

A while back, I was violently attacked. It wasn't the everyday brutal assault; it was psychologically violent.

"Hey!" the pretty activist shouted at me. I stopped, not because she was an activist, but because she was pretty. "Will you wear a 'no nuclear power' button to support the movement?"

I said, "No, I believe in nuclear power."

The entire room went silent. Every person turned to stare at me, gaping in absolute disbelief.

"What, are you some kind of sicko?" She demanded, "do you know what a nuclear power plant could do to you?"

"Why, yes, as a matter of fact," I said, looking for the door out.

"No you don't!" "Then she proceeded to give me an hour-long lecture on the dangers of nuclear power. I soon discovered that she was right: someone in this room obviously knew nothing about nuclear power. But it wasn't me.

For instance, an activist once told me about a study that they had recently completed regarding a nuclear power plant in California. If there was a major breach of the containment dome, I was told, then over fifty thousand people would die within the next ten years. I was impressed by that fact, until I did a little snooping.

You see, they hadn't lied to me about those figures. Fifty thousand would die. But they didn't tell me that fifty thousand would die if the containment dome of the plant wasn't breached. As a matter of fact, fifty thousand people dying in the next ten years is the expected number of deaths from regular causes.

They didn't lie to me, then. But they didn't exactly tell the truth. The truth is that, in the worst possible case (total meltdown and disintegration of the

containment dome), the deaths won't be as high as the activists scream. The entire reactor of Chernobyl melted down, blowing the entire building to dust. Just over thirty people died. That's a far cry from thousands upon thousands.

But this article isn't about nuclear power. It's about the propaganda that surrounds not only nuclear power, but nuclear weapons, nuclear terrorism, and any gosh-darn thing that has the word nuclear attached to it. I can even extend this label to the propaganda surrounding animal experiments, logging, and so on: activism is a noble pursuit, but it's easily perverted. Most

The majority of activists rely on the media to inform them, but the media tends to rely on activist groups for their information. With the same information flying back and forth in a one-sided presentation, how can the average person help not falling into the trap of accepting these words as law?

A classic example of how the media can distort the nuclear issue can be found in a 1988 documentary on the Chernobyl disaster. While the narrator was telling about the radionuclides released in the explosion, the cameras were panning the landscape around Chernobyl. Everything was dead. There were no shrubs, no trees, no

around Chernobyl.

While the documentary didn't lie to us, they didn't exactly tell us the truth. They presented the facts, yes, but in a such a light that the viewer would draw an obvious conclusion that is obviously wrong. Legally, there is nothing wrong here; ethically, this propaganda is libellous.

But somehow the scientist, promoting nuclear technology, is seen as the villain.

Devan Fauste is a regular contributor to the 432. His column, The Art of Science, appears every issue. The editors welcome any responses negative or positive to Devan's article and opinions.

Most activists have a blatant disregard for truth; they don't want to inform the people, they want to panic the people.

activist groups have a blatant disregard for truth; they don't want to inform the people, they want to panic the people. So they stretch truths, warp them, shape them, and omit other truths. When they are finished, they often paint a picture that is far from what it actually is.

When it comes right down to it, most activists have given very little effort to inform themselves about the issue that they are against. How many nuclear protesters could hold an intelligent discussion on the safety systems of reactors, save from what they have read in pamphlets that have been distributed by their own group? Their arguments are one-sided because they don't usually take the time to research the topic; they rely on what other activists have to say or on what they read in popular magazines and newspapers.

It becomes a vicious circle.

plants, nothing. It was a grim warning of a world killed by nuclear mismanagement. The message was powerful.

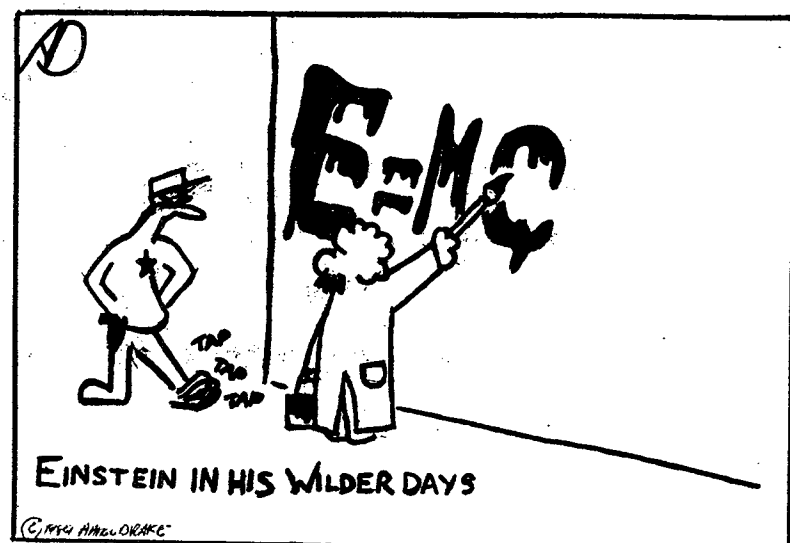
The truth, though, was that it wasn't the radiation that killed everything. The top six inches of topsoil had been scraped off by earth moving equipment as a safety measure. All the vegetation had been removed with it. Yet the documentary didn't mention this; instead they let the viewer assume that the radiation had destroyed everything

"Editors need writers and have been known to end up liking a few." - Arthur Plotnik

Devan Fauste's *The Art of Science* fired more than a few at the Physics Society. What does this guy know, they demanded. His opinion means nothing!

However wrong or right his opinion was, Devan Fauste made a lot of people think. He reached 4000 students with his opinion; he angered many, but he also informed many. That's the power of the pen.

If you have something to say, it's important. Come down to Chem 160 and say it to 4000 students by writing for the 432. The Science Undergraduate Newspaper needs writers and artists by the score, for it won't be long before we jump up to twelve pages per issue. For more information, come to Chem 160, or contact Aaron at 228-4235.



The Orion Legacy

continued from page 1

could. All that was left was vague ideas on chalkboards.

Of the vague ideas, the most promising turned out to be the fusion engine. A plasma would be kept contained in a magnetic bottle while some of the energy was slowly allowed to leak out, thrusting the ship forward. Such an engine could find its fuel from the thin scattering of hydrogen throughout all of space. A giant scoop in front of the spaceship would funnel the hydrogen into the engine where they would fuse into helium nuclei. Ideally, this system would be better even than the nuclear pulse system.

Unfortunately, no controlled fusion reaction has ever been created, and one isn't expected for a while yet. So the two best ideas for interstellar travel fall: one is forbidden, and the other is theoretical.

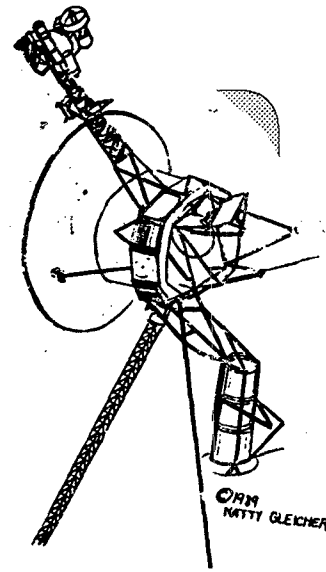
JOIN THE CUBE

Become a member of the Computer Science Student Society, CSSS (CS3), and avoid bleary-eyed all-nighters in front of your computer. We offer lots of friendly advice, old exams, cheap pop and chocolate bars, a microwave, and locker rentals (for non-members, too). So don't delay, see me today, open evening, and Sundays in Computer Science 203A. Or call 228-3033.

Our Galactic Starfleet

	Pioneer 10	Pioneer 11	Voyager 1	Voyager 2
Launched	March 3, 1972	April 5, 1972	August 20, 1977	Sept. 5, 1977
Departure Velocity	2.4 Au/Yr	2.2 Au/Yr	3.5 Au/Yr	3.4 Au/Yr
Closest Stellar Approach	3.27 ly	1.65 ly	1.64 ly	0.80 ly
Star	Ross 248	AC +793888	AC +793888	Sirius
Years to Reach	32,600	42,400	40,300	497,000

In a sense, mankind has already dispatched galactic cruisers. The Pioneer and Voyager probes hold claim to being our first starships. But they are that only technically. Within twenty years, we will lose contact with all four probes, and they will be wandering, sophisticated space garbage.



The 432

continued from page 1

contribute. Interest in the paper, which is very high now, will drop. The quality will fall.

"In the end, it's the student that suffers."

While Derek Cardy, SUS Director of Finance, agrees, he admits that budgetary constraints have tied his hands. Even though the 432 has run under budget every year, the 50% increase in volume would mean a 50% increase in cost. "It's too expensive," says Cardy.

The only alternative, it seems, is to procure paid advertising from businesses. "But," warns Drake, "we need a sales manager, and none have stepped forward." If they could get one, Drake claims, then they would go immediately to twelve pages. "It would be a good job for someone. It would pay very well, as well as look great on the resume. I sure hope someone drops by Chem 160. Heck, they just have to call me at 228-4235. We're talking serious bucks here."

Science Week Stuff

Science Week 1990. January 22nd to 26th. Monday to Friday, the fourth week back from Christmas break. It's aiming to be a success. But we need your help — you in departmental clubs which aren't yet pitching in to the Science Week Committee, or for that matter anybody else who's interested.

Okay, so that's exactly the standard We-Don't-Have-Enough-People blurb. Well, we do. We can pull this off fine without your help. We can pull anything off. For We Are The Science Week Committ.... Oh. Sorry. Didn't mean to shout.

Anyway, we can do everything better with you than without you. And we want this event to be as big as it can get. So contact the Science Week Committee (through Dave New or Antonia Rozario) at the SUS office, CHEM 160.

(What are we planning? Well, besides Big Name lectures, contests and events galore, a dance, a sale on Science stuff, a blood drive, and just oodles else, I can't tell you. At least, not until you volunteer. Boo-ha.)

Abrupt News Flash

Susan Saatchi is the new Science Sales Coordinator. She took over from Annette Rohr and Kande Williston on September 14th.

That Funky AMS

"I do [pause] support [pause] the concept of [pause] helping [pause] students." —Andrew Hicks

New Shoots

by David W. New

If English is your mother tongue, odds are you studied it in school for long enough. In high school, Shakespeare — probably quite roughly done — and too much poetry by far; at university, perhaps, "The Star," or *Gatsby*, *Dubliners* ... you know the stuff. You've all been through it. You all know how tough it is to write analyses at par with Coleridge, Shaw, or Dryden, most especially when you aren't taught how to create them.

Or perhaps the notion's that your fresh young mind has managed to assimilate the rules (what rules?) of English grammar, meshing utter nonsense into something

great.

Yeah, right. Please. Let's get real. The English language has no constant structure, no regard for any standard sentence order. Marred by inconsistencies throughout, harangued by inescapable exceptions, dangling (yet accepted) modifiers, hard-to-follow syntax, English is retarding everyone from whom the language sprang.

Well, that's all as it may. One still must learn to speak it well, to write it with facility, in order to shift one's concern to matters more diverse. To have ability is only to have practised. Turn, for starters, to this informative drill...

A roster, then. First, "firstly." Not a word. Although successive ordinalities do take

the ending, "first" does not. Next, please Ah. Secondly (see?), "irregardless." Heard with irritating frequency, this murdered epithet is faulty litotes. And thirdly, "orientate." Such a

The English language has no constant structure, no regard for standard sentence order.

measly effort to add syllables sends curdles through my spine. The word is "orient!" Would you say, "flirtate," from, "flirtation?" Yet this so detestable practice went unobserved — indeed, went abetted — when the First Year Student Program sent a letter out this summer trying to get some "Frosh Orientators."

But although I'm

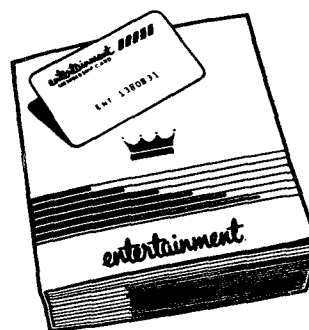
steamed about "alright," "advisement," and improper use of "it's," I'll leave my canned condemnatory speech alone, and go instead to a solution: read! You know the stuff: I listed it above. It's grand thought structure — don't dismiss it out of hand. It's needed in this world. It's vital.

So I challenge students, yes, of any sort, Fine Artist, Scientist, or Engineer, to master English syntax, to comport themselves with word-built dignity, to hear semantics ... and to write a good report.

To be a voice, if not a sonneteer.

Episode Two: Sonneteer

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Only \$40.00

For more information call:

SCIENCE SALES
CHEM 160

LAST CHANCE FOR VARSITY JACKETS

Order your Science U.B.C. leather melton jacket now. Blue melton body, white leather sleeves + collar. **SCIENCE UBC** on the back, and a crest on the front. Also available: grad year numbers, departmental badges, name bars, nicknames, program names can all be ordered. On sale until Sept 29.

CHEM 160

How many Campus police does it take to change a lightbulb?
Three: one to do it, and two to write up tickets.

How many Physical Plant workers does it take to change a lightbulb?
No one has ever found out...

How many Arts students does it take to change a lightbulb?
One, but it's worth three credits.

How many first-year Arts students does it take to change a lightbulb?
None - it's a fourth-year course.

How many engineers does it take to change a lightbulb?
Five hundred. One to remove the old bulb, ninety-nine to dig

the hole, one to throw it in, ninety-nine to fill the hole in with concrete, two hundred and ninety-nine to erect a cairn over it, and one to replace the old bulb with one painted red.

How many engineers does it take to change a lightbulb?
Twenty-one: one to change the lightbulb, and twenty to chant, "WE ARE...WE ARE...WE ARE THE ENGINEERS!"

How many Forestry students does it take to change a lightbulb?
Two: one to cut it out with a chainsaw, and one to pound it in with a backhoe.

How many AMS council members does it take to change a lightbulb?

One to motion the change, one to second, one to amend the motion to "change the aforesaid lightbulb and replace with another," one to found the Committee to Investigate the Effectiveness of Different Bulbs, one to go on a fact-finding mission to the Bahamas, one to charge the students a thirty dollar fee, and one to have the lightbulb taken out altogether and replaced with a AMS-run fluorescent lamp.

How many Pre-med students does it take to change a lightbulb?

NOTICE NOTICE NOTICE
Friday, November 17, is the Science Undergraduate Society's stub big bang and band bash!!
Tickets are \$5 and include one free beer or pop. Look out for further details on posters and advertisements later!
Get your tickets early from Chem 160 or SUB Box Office.

One, but it goes on his resume.

How many law students does it take to change a lightbulb?
One, and you'd better let him do it: he's got a court order.

*We have always been space
travellers.
-Carl Sagan*

Answers to THAT'S TRIVIAL, from page 5

1. Dr. Suzuki.
2. Dr. Ruth.
3. Dr. Jeckyll.
4. Dr. Frankenstein.
5. Dr. Kildare.
6. Dr. No.
7. Dr. Seuss.
8. Dr. Watson.
9. Doc And The Medics.
10. (Doctors) B.J. Honeycut, Winchester, Frank Burns, Spearchucker, Trapper John.
11. Doc Holliday.
12. Doc Savage.
13. A Butterfly Moth.
14. The Tardis.
15. Dr. Strangelove.

16. Doctor I.Q.
17. Dr. Zarkoff
18. Dr. Zorba.
19. Doctor Cobra.
20. Dr. Bunsen Honeydew.

BQ: Dr. Fu Manchu

Scoring:

- 1-10: 1 point.
11-15: 2 points.
16-20: 3 points.
BQ: 5 points.
- >32 pts - Expert
24-31 pts - Know-it-all.
14-23 pts - Joe Average.
<13 pts - Special.

Need to sell something? Sell it in the classifieds. It's cheap: only two dollars for science students. Here's a good cheap way to reach four thousand students. We're at Chem 160, or phone 228-4235

Classifieds

Wanted

Carpool wanted from British Properties. Will alternate driving, split gas. Call 925-3714. Natty.

Appliances needed. Refrigerators, coffee makers, anything you want to get rid of. We need sofas, chairs, tables, anything! Call Ari at 222-8313.

Floor Hockey players needed for competitive Science team. Registration ends soon. Come to Chem 160, and sign up.

Wanted: Reptiles. Reply to Box 101, Chem 160.

FOR SALE

'73 MGB, fair condition. New motor, two new tires. New battery. Asking \$2500. 872-2259.

Donuts in the Physics Society, Hennings 307. Fifty cents. Chocolate, jelly, albatross.

Help Wanted

Delivery person needed for The 432. \$10/hr. Little to no hours. Apply in person at Chem 160.

Messages

Hey Narly Stud-Dude! Do you remember what the weather was like? Excuse me, I gotta go to the bathroom. Cough hack wheeze! A.C.D. made me do this. Ummm tee hee. Luv, Deb.

Physoc Message: Thought you saw the end of us? No way. Physics is light. Physics is truth. Physics is the mantra of the higher being. Gain the existential euphemisms that behold an inner quintessential cosmic oneness with the psycho-quantum neuro-astrological channels. Or just hang out in a bitchin lounge that has cheap pop and donuts and microwave. Henning 307. Membership gets you a neat carrel.

Vote. Yes or no, it doesn't matter. Get out and vote in the RecFac referendum.

Diana: Thank you for that night. It was incredible. Next time, I'll bring the lug wrench. Hah. That'll make 'em wonder. Chuck.

Oh Pat, Kissy Kissy Smoochy Smoochy. Judy, your one and only.

Oh Pat, Kissy Kissy Smoochy Smoochy. Doris, your one and only.

Oh Pat, Kissy Kissy Smoochy Smoochy. Philip, your one and only.

Oh Pat, just take it easy and don't sit on hard surfaces for a week. Bill, your one and only proctologist.

Vote Natty Gleicher, first year rep. If I don't do it, who will?

The following people have until Oct. 13 to pick up their sports rebates from Chem 160. Contact Derek Cardy, Dir. of Finance.

Bell, Bob
Bergman, Carey
Campbell, Jim
Folkes, Michael
Lee, Matthew
Lee, Ming
Li, Joseph
Martens, Sheri
Ng, Susan
Oldenburg, Steve
Philp, Nicola
Pierre, Denise
Proffett, John
Roberts, Greg
Watterson, John
Yeung, Ben