Welcome Frosh!!

Welcome to mathNEWS, and to Waterloo. MathNEWS is a paper funded by the Mathematics Society which appears Fridays on the benches outside the third floor math longes and outside MC2065 and MC2066 lecture halls. We aim to keep mathies informed of events and activies which are of interest, to provide some light entertainment (!) and to provide a forum for mathies to express themselves. The success of mathNEWS depends entirely on the involment of the student population.

Thus, we need you (yes **you!**) frosh to bring in new ideas and to lend a helping hand. Come into a production meeting sometime. They are usually held on Tuesday nights at 7pm in mathSOC, MC3038. You may even have fun!!!!

Congradulations, you are now an *official* University of Waterloo **mathie.** We don't mean to scare you off, but we would feel guilty if you started classes without some kind of warning. The initial shock could be terrifying if you are expecting a normal, free, and easy lifestyle. So heed some precious words of wisdom.

One of your first obstacles you will encounter is yourself. You are a frosh and there is no lower form of life on any campus.

Your second most deadly encounter will be the engineers here.

It is questionable if these are life forms. They seem to derive all energy from egoism, beer, and sex (the order is yet unknown and further study is underway).

An encounter that is harder to escape from is WIDJET!! This is too terrible to dwell on. Don't worry about it now, you'll find out much too soon.

One more thing. Remember that profs are people too. They may not seem that way when they dish out assignments and midterms, but they are approachable.

In spite of all this, do manage to enjoy your stay at Waterloo. Take time out to relax and have fun. If you come across any difficulties, do not hesitate to drop into mathSOC on the third floor.

frosh issue 1980 mathNEWS

The Mathematics Society (mathSOC) is the official student organization representing both undergrad and grad math students. The purpose of the society is to promote the welfare and interests of the math community in athletic, cultural, social and academic activities as well as being a voice on other campus organizations. If you are registered with the math faculty and have not taken back your society fees then you are a mamber. The voice of the society is a council whose members are elected from each academic year in the co-op and regular programmes. The president, vicepresident and treasurer are elected executive by all members and there are eight appointed positions; speaker, social director, education director, administrator, internal affairs director, publications director and two mathletics directors. Society members are encouraged to come to the regular meetings of mathSOC to voice their opinions and to speak with their reps.

Mathletics: Teams are supported in the intramural athletics programme which includes basketball, baseball, hockey, broomball, *(my favourite -ed)*, touch football, and waterpolo. Recreational team sports such as co-ed broomball, baseball, volleyball, and innertube waterpolo are supported. These teams are open to all society members.

Social: MathSOC sponsors trips, pubs, clubs, weeks and weekends filled with various activities. These are a few examples and more can be done just by asking.

Publications: MathSOC publishes annually the Anti-calendar, a compilation of facts and student evaluations of lectures, textbooks, material, lectures and the significance of each course offered by the faculty. Antical is provided free to all society members and faculty (first come basis).

Our biweekly (sometimes weekly) news rag, **mathNEWS,** is a free newspaper put together by a group of interested students wishing to tell it like it is. These volunteers collect news and happenings in the world of mathematics and are offered the means to present this material *(and have fun too -ed)*.

Education: A computer science club exists with an office, MC3037, in which information can be obtained and resourse people found. Many necessary projects are done by the club members, meetings are held and trips arranged.

The mathSOC office is across the hall in MC3038, ext.2324 (or 886-0510). Many things can be found here like cards, chess sets, outdoor games, scissors, staplers, hole punch, pencil sharpener, telephones, mail boxes for mathSOC reps and groups, campus directories, T-shirts, information, consultation or just conversation and lots of other stuff. If we don't have it we will get it for you. If this is not enough we can even supply card players from one of the many mathSOC residents.

Lockers are supplied at the beginning of each term and are usually cleaned out by us the last day of exams each term. There are not enough lockers for everyone.

There is a lounge on the third floor of the Math & Computer Building. A Coffee & Doughnut Stand is operated in the non-smoking side weekdays. Besides coffee and doughnuts, subs, kaisers, soups, tea, hot chocolate, and other edibles are sold. A manager and assistant are selected through applications to run the stand. Then workers are hired to look after it each hour. All positions are paid. For entertainment, music is piped into both sides of the lounge from the mathSOC office where a selection of tapes and records can be found.

Spend a few minutes, hours or all day in the office and get to know us; we want to know you. Know what mathSOC is and what it can do for you. Participate! We can channel complaints, we can initiate action, we can provide information and entertainment, we can... but we need you and to know what you what. Visit, phone, write-- complain to us, complain about us, ask us for help, anything but don't ignore us. The more you do, the more we can do and it is all up to you.

The Dean's Message

Welcome to the Faculty of Mathematics. For a few days you may feel a bit lost, but it may be some consolation to know that you almost certainly have lots of company! Senior students, faculty and administrators will be glad to help you find your way around, so don't be afraid to ask for guidance. Operation Mathstart, operated in Room 5158 of the Mathematics and Computer Building, is a good place to find information, and to meet professors and fellow students. (The free pop and doughnuts are good too!)
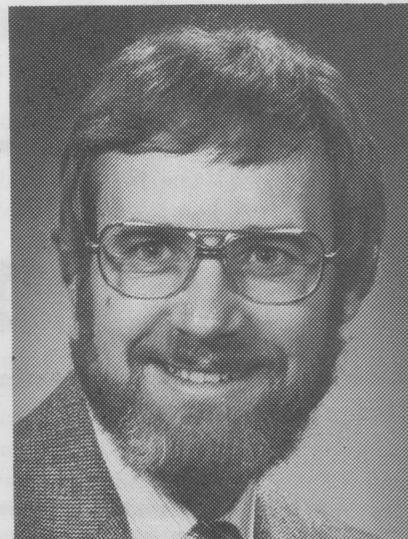
We think you will find our Faculty an exciting and challenging place. Of course, you are ultimately responsible for your success here, but we do our best to provide a pleasant and stimulating environment in which to study and learn. For example, some of you might want to get involved in the Putnam Mathematics Competition, which is written by students from several hundred colleges and universities in North America, and in which we invariably place in the top ten. The Computer Science Club is very active, and has numerous interesting guest speakers, who are experts in various areas of Computer Science.

Many of you have not yet decided which of the departmental programs you will enter, and some of you may eventually transfer into the non-departmental (general) program. I urge you to make your decision with care. As a computer scientist, I am well aware of the numerous opportunities for graduates in Computer Science. This makes it a tempting and attractive choice. However, there is also great demand for graduates from our other programs, such as Statistics, Operations Research and others.

Regardless of your choice, I urge you to use every opportunity to take courses "outside" your area of emphasis, because successful work in most areas requires a wide assortment of mathematical skills. In particular, those of you who choose Computer Science should know that a broad mathematics foundation is essential. Similarly, students in other programs are well advised to take appropriate Computer Science courses, to learn the applications and implications of computers in those disciplines. Our Faculty provides a splendid place to obtain such a multifaceted education.

Once again, welcome to Waterloo. You are a fine group of incoming students, and we expect great things of you. We are glad you are here and hope you enjoy your studies.

J. Alan George
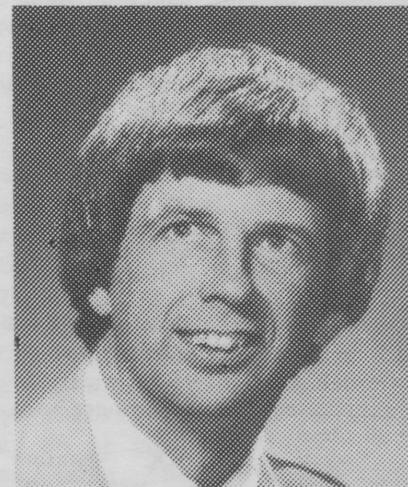Dean

From the Director of Undergraduate Affairs

As Director of Undergraduate Affairs in the Faculty of Mathematics, I would like to extend a warm welcome to all of you as you embark on your freshman year at the University of Waterloo. We are fully aware that your first few weeks on campus can be rather hectic ones as you adjust to a totally new environment. However, we also hope that you will take advantage of opportunities to make things as pleasant as possible for yourself. OPERATION MATHSTART, in particular, is intended to assist you in coping with registration and scheduling problems that often face new students. It is also a chance to meet other students and Faculty members in an informal atmosphere. In addition, your Orientation Package contains all kinds of useful information, and I would hope that you take the time to read through this material with considerable care.

At a large university it is easy to get the impression that nobody really cares about you, and as a result, you can become very much a "loner". I would urge all of you not to fall into this trap. There are numerous people around the Faculty and the campus-at-large who are more than willing to help you get started on the right foot. However, with so many students, it is your responsibility to make new friends, contact Faculty members for assistance, and become involved in campus life.

The amount of work facing you in the next few months is probably greater than most of you have ever encountered before. Nevertheless, if you plan your time carefully, you should be able to give your academic studies their fair share of your hours and still have time left to devote to social and recreational activities. There are innumerable activities on the campus to suit everyone's tastes. The secret is to find a good mixture of enjoying yourself and doing justice to your studies. The actual blend in this mixture will depend largely upon individual interests and academic ability, and these vary considerably from one person to

another. Nevertheless, it is vital that you devote some of your time to both scholastic and social activity if you are to have a rewarding time at university. I urge you not to delay. Get involved and start working right at the beginning of the year. Don't wait until 'later'. 'Later' may just be too late!

P.C. Brillinger
Director of Undergraduate Affairs

Food Services and Other Places to Eat

I can see you in the morning when you go to SCH.
Don't forget your fork, you know you got to eat the Golden Food.
Teacher says "Stop that playing, Get on with your food".
Just like Johnny Toogood, you eat up all your food,
You're coming along.

(From the song SCH, with apologies to Supertramp)

SCH, or South Campus Hall, is the most noticeable, but is only one of the places where food, and specifically Food Services food, is sold on campus. The name Food Services has sent fear and loathing into the hearts and minds of many UW veterans. But what is Food Services really? Is it as bad as may say it is? In this update of an article written a year ago we try to explain what the organization is and what it offers and also make you aware of food alternatives on this campus. Besides the South Campus Hall cafeteria, Food Services runs the cafeterias in the Student Villages 1 and 2. In SCH and the Village cafeterias (the price of food is included in Village residence prices) the food is fairly cheap (but by no means bargain basement). However the quality is only slightly above the bland institutional fare offered by hospitals and large factories. The french fries and rice are a little above that level.

In addition to the cafeterias Food Services also operates snack bar mini-cafeterias in the Campus Centre, Modern Languages, Administrative Services, and evening service in the Village One Grill and the Village Two sub shop. The variety of the food is more restricted and this writer finds the sandwiches to be below standard and sometimes stale. However the fries, soups, shakes and coffee are more than passable and the handburgers sometimes are good. However the showpiece of Food Services is the Laurel Room, which is located in South Campus Hall near the main cafeteria there. For around four dollars a person you can eat an all-you-can-eat buffet supper. The various salads and desserts are quite tasty. Sometimes though it is advisable to call ahead and find out what the main dishes are being served as such things as lasagna and salisbury steak don't quite meet par. Generally it is a good deal and is quite surprising given the popular reputation of Food Services. However it is wise to book your reservation in advance (especially at noon-hours) and not to go there dressed in your scruffier clothes.

The place where most of the Food Services food is pre-cooked is the Central Commissary which is located in the building near the tall smokestack. Food such as sandwiches an pastries are prepared there for sale, while other food is shipped to the various cafeterias and snack bars throughout the campus for more complete cooking and final preparation.

In the past few years Food Services have tried to expand their influence. These moves were initiated by Food Services director Bob Mudie, and his boss the ever-popular Director of Administrative Services Bill Deeks. Such projects as the Laurel Room have been part of the more successful moves in cutting Food Services deficit. However Food Services has also hinted at trying to close down the Society C&D (Coffee and Donuts) stands in order to eliminate competition. More recently they have been content with trying to get the socities to sell Food Services sandwiches at their C&D stands. (EngSoc used to, but like other societies it now uses outside suppliers) and make these stands pay the university rent. Much of this political action has been reported in mathNEWS. The Chevron, and the Imprint, and has dealt with some of the political dissatisfaction with Food Services.

While a good deal of the culinary and political dissatisfaction with Food Services is probably justified, it may not be as bad as its reputation. Political hassles and low quality food exist, but Food Services has (with places like the Laurel Room) shown the capacity to rise above itself, however this could happen more often.

In addition to Food Services the other food outlets available on campus include the Canteen of Canada vending machines and the societies' C&D stands.

The C&D stands are located in MC 3001 (MathSoc), E4 1334 (EngSoc), Env 138 (E.S.S.), Humanities Bldg. 2nd Floor Lounge (ArtsSoc), Optometry Bldg. (Optometry Students Association), and Psychology Bldg. 3rd Floor Lounge (Psych. Club). In the future the Science Society may build one in the Chem-Bio link. Also the Grad Club runs a sandwiches and coffee service during the early afternoon and a hot-dogs only service during the evenings for its members through its bar.

The C&D stands are student-run. Each is operated by a manager who is appointed by his or her respective society. Employees of the C&D stands can either be part-time student workers (like MathSoc) or full-time non-students (like EngSoc). It is up to the discretion of the individual society. *(Mathsoc is considering moving away from its present way of hiring employees.) Generally these stands have, with the occasional exception, been run efficiently and offer good quality food at reasonable prices. They are usually open from early morning (8 a.m. or 8:30) until mid afternoon (3 p.m. or 4:30 p.m. for MathSoc).*

Coffee (one of the C&D stands' mainstays) varies in taste depending on how it is made and sells for between 15 and 20 cents depending on the location. Donuts are usually quite tasty and sell in the same range. They mainly are supplied by the Donut Queen, though some donutary items like muffins food and cookies are supplied through Norris Bakery. Bagels, which sell for 25 to 35

Co-op Living: An Alternative

Finding a good place to live while attending University is a real problem for many students. Most do little more than grumble about impersonal residences and inconvenient apartments. Waterloo Co-Operative Residence, the first student residence in North America to be built, owned, and operated by students, provides a viable housing alternative for students at UW and WLU.

Co-operative housing differs from rental apartments and conventional dormitories in two distinct ways: co-ops are owned and controlled collectively by the members who live in them, and the members share the work and expenses necessary for their operation. Hence each resident is not a tenant, but a part owner. Co-ops are democratic. Each member has one vote and decisions affecting the co-op are made by them.

The co-op operates three small co-ed residences within a five minute walk of the university: Dag Hammarskjold at 139 University Ave. West, and Phillip North and Phillip South at 280 Phillip St. Each residence has a dining room and laundry, and every floor has a common room with kitchen and lounge. In addition, the co-op includes a tuck shop, music room, ping-pong room, and study rooms. Lunch and supper are served in the dining halls every day except Sunday when only

supper is provided. Members can make breakfast and snacks in their common rooms which are stocked by the co-op for this purpose.

Each of the more than five hundred residents living at the Waterloo co-op is a part owner. Each has an equal voice in determining the residence's future.

Everyone contributes a certain amount of work to keep the co-op in operation. Profits go back to the co-op rather than to a landlord or private investor. Since co-op housing exists for the benefit of its members the usual profit motive that tends to inflate costs is absent. The bureaucratic overhead is much lower, since most of the management is done by students. These considerations keep fees down substantially.

Co-opers are eligible for Ontario tax rebates of about $190 for two terms, as compared with the $25 allowed for the University residences. The total savings over two terms is as much as $500 compared to living in the Villages. Substantially higher savings are available in the summer since the co-op lowers its prices because of the lower demand; the University does not.

Co-op does not offer some of the extras, such as maid service and free telephones, that boost the prices at other residences. Each resident is responsible for the cleanliness of his or her own room, shares the

responsibility for the cleanliness of his own floor, and is also required to contribute two and a half hours a week towards the operation of the residence. Work duties vary from serving food to cutting grass; from running the dishwasher to co-ordinating the social activities for the residence. A number of management positions are available to interested members. Working together helps create a sense of community which is an integral part of the co-op experience and, by stressing mutual responsibility, a satisfactory atmosphere for studying is maintained.

Assuming responsibility for the operation of the co-op provides a unique learning experience. Most of the work done by members is light, can easily be scheduled to fit your class timetable, and provides an excellent opportunity to meet one's neighbours.

Co-op is a particulary good place to meet and get to know people. Close relationships are easily nurtured in the small community atmosphere of the co-op. The emphasis on sharing and working together encourages friendships to develop and grow.

The co-op has proven itself a financially secure, solidly self-supporting organization providing satisfactory housing at a lower rate than comparable facilities. Members are responsible because they're expected and allowed to be.

Guide to Stairways on Campus

One thing that the University of Waterloo can offer you is one of the most interesting campuses in Ontario. On the whole it is a very nice campus and quite enjoyable to live on if you don't mind always walking into the wind.

One of the things that gives this campus its character is the variety of stairways you will have to negotiate in your years here. This is a short guide to aid you in some of the more challenging ones you'll 'run into'.

South Campus Hall
Main Entrance

This is the first staircase you'll see on your way in. It goes at ±45 degrees to the desired direction of travel. It has dangerously sharp points and should be avoided by the chronicly clumsy. It's beauty is provided by floral decorations which are left to die in the winter. It also contains the Ontario government's propaganda plaque claiming credit for this great institute of learning.

South Campus Hall
Stairway to Tunnel

This should be used only by those of you wishing to get to arts. Put on your sunglasses, the decorating is unique.

Hagey Hall
Front Staircases

These are not necessary for access, they are merely trail markers. They are cement with iron railings down the centre so that drunks (and arts profs) may fall off the side and tumble downhill.

Stairs Behind
Hagey Hall

These appeared to have been designed by a senile, Mayan pyramid builder (or arts prof). They are guarded by strange totems to some unknown pagan deity (or arts prof). They are best avoided just in case.

Found Behind Psychology

First, you must find the back of Psychology (also known as PAS). These are cement stairs going 20 feet down into a cement pit to a storm drain. They are not attached to any building.

Psychology Stairways

(NOTE: the author did not venture into the PAS.) These appear to have been stolen from the TTC. Some lead into Psych; some lead around and above Psych; and some are best not discussed. There is even one that leads to Psychologist's Leap. They have cement benches for the weary and confused.

Behind Arts Lecture Hall

Here is another pit and door. They must have been very popular at the time of construction.

Between Arts Library and
Arts Lecture Hall

This is about what you'd expect to find between Arts Library and Arts Lecture Hall. It is a wandering staircase of 9 steps in 3 tiers of 3 each for easy navigation by artsies. It's.....different.

Stairs Into Arts Library

Dana Porter Arts Library was a marvelously designed building. When it was being designed they took everything into account. They considered the weight of the building. They considered the weight of the bookshelves. They even considered the weight of the students using the building. They did not, however, consider something very important: the weight of the books. Hence, with ten floors filled with books, it sank. It sank so far, in fact, that they had to dig a moat around it so that you could look out the first floor windows. Thus, the stairway into the library leads over the moat. It may not be a great stairway but I like the story.

The Main Staircase
Inside Needles Hall
("The Stairs")

This is, beyond a doubt, the most obnoxious, grotesque and dangerous staircase on campus. It was undoubtedly designed to cut down the size of the co-op classes to fit the number of jobs available. The steps themselves run at 45 degrees to the direction of the actual staircase. It cannot be negotiated with dignity. It is best handled by doing the famous John Wayne amble.

Stairs Into,
Around, and Part of
Engineering Lecture Hall

It is impossible to say what is stairway, what is wall, and what is roof. What can I say, it has to be seen to be believed. In case of confusion, use the side entrances.

Stairs Between
Chemistry and Biology

These appear to be normal sets of steps at first glance. In actuality they are the second most wretched stairs on campus. They are intricately designed such that each step is $\pi^2/3e$ strides in length regardless of the distance of the stride. It is best to detour through Chem and Physics risking exposure to less dangerous things such as gamma radiation and virulent toxins.

Middle Stairway
in South Wall of
Math & Computer

This actually starts out as a ramp from the first floor to the external doors. Then, it becomes a normal stairwell up to the third floor. At the third floor, it runs 90 degrees to its original direction and takes you to a locked door on the fourth floor which gives you instructions on how to get to the EMS library.

I trust you will take this article in the seriousness it is intended. Do not underestimate some of these stairs! They can be killers! Do not let them stop you from obtaining your degree.

irwriter

NOTEPAD

Before I first met Martha, I was more than satisfied with Fred's abilities (that line oughta be good for a couple of crude jokes). I had no burning desire to own another computer of any sort. Sure a line printer or disk drive would be nice, but all in all Fred performed remarkably well and I felt that we could look forward to a long future together with his peripherals and capabilities continually expanding while my pocketbook continued to shrink. Besides, I was finally getting to know Fred inside and out...I wouldn't want to have to go through that again for any computer! Or so I thought.

The first photographs I saw of Martha were appealing but not strongly so. A friend of mine, and future employer, Carl was planning to buy Martha and invited me along on the trip. In point of fact I went along more to see what the store was like than out of direct interest in Martha.

After a typically hot summer's drive to Toronto we pulled up in front of your average mildly run-down, mildly renovated store front who's brave banner proclaimed: "House of Computers". It didn't look much like a house although I will admit they had lots of computers including a clone of Martha which sat on a table in the store window. We went inside.

Carl, true to his instincts, strode straight toward the nearest operative Martha-clone. She was running a demonstration program written by the manufacturer, but I didn't hold that against her. She spun her disk and flashed her plot codes at me and I knew I was in love.

We passed a very meaningful and intimate full colour Star Trek game together and fumblingly discovered the joys of an artillery program named Shoot. We were just getting into some heavy disk I/O when a voice intruded upon my thoughts.

It was Carl. He had Martha all bundled up in a box and wanted to get going. The sun was getting low in the west and he wanted to be home before the duty on electronic goods rose again. Hauling myself away from the cheerfully glowing CRT I turned my back firmly on her, ignoring the painful chattering of her 3-phase stepper drive I strode languidly from the store, the painful afterimages of colour echoing on my retina like a sad memory.

As if sensing my deep grief, Carl let me read Martha's manuals as we drove back toward Kitchener through the darkening twilight. That only served to compound the pain, but like a reader of Penthouse Forum I forced myself through page after painful page.

When we had returned to Carl's place he invited me in to watch the Ritual of Power-Up. I was too touched by his offer to refuse. Every time I tried to speak of my pain it would catch in my throat like a disabled interrupt.

Once inside Carl began carefully unpacking Martha, his movements punctuated by the occasional sigh of exasperation from his wife. She was set carefully down on a counter top (Martha, not Carl's wife) and plugged in. Then Carl hooked up the keyboard and flicked on the power switch.

With a clattering of drive motors akin to the wails of a newborn child, Martha came to life.

Carl played with her for a bit before letting me have a go at her while he read over the user manual. It was nice but somehow I couldn't relax when with each stroke (keystroke that is) came the burning knowledge that she belonged to another....I could never have her.

I left Carl's place that night, a shattered shell of my former self, shambling lifelessly up the stairs of the Village quad to my room at the end of the hall.

For some time I lay on my bed with my eyes clenched tight against the hard edged realities of the world around me, desparately trying to bring back the afternoon's memories, to savour them. But the harder I tried the fuzzier the images became. The bright colours blurred to a dull pastel until eventually there was only a stark blue-white blob on a dull grey background. I found myself sitting before Fred, his flashing white cursor imploring me for an explanation.

Feeling a sudden gush of shame, I began typing. I wrote an artillery program and named it Shoot. But somehow it just wasn't the same.
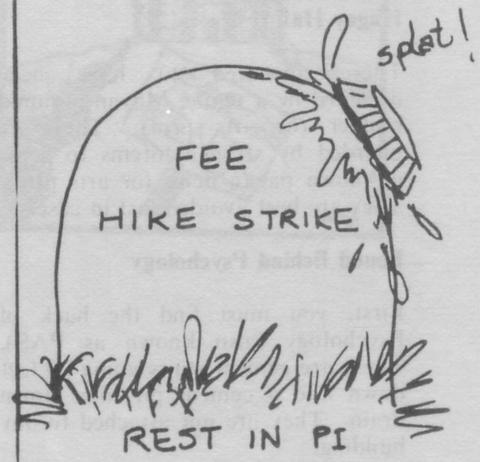
-dthedmonds

C.C. Bombshelter

The Bombshelter is the new name for the Campus Centre Pub operated by the Federation of Students. Located in a sunken portion of the Campus Centre not quite below ground-level, the pub was renovated this past summer at a cost of approximately thirty thousand dollars.

The name "Bombshelter" comes from the orange bomshelter concept originated by former Federation presidents Doug Thompson and Dave McLellan in 1976-77. Because of its location and general layout the C.C.Pub has been referred to as the bomshelter by many of its patrons for quite some time. The Federation decided to make "official" what had been common practice for years. Though the word "orange" is not found in the pub's new name (as the Federation wanted to leave open the possibility of a change in decor) the color orange is very prominent on the buttons, posters and advertisements used to publicize the C.C. Bombshelter.

Unfortunately those who do not know that the Bombshelter is the newly-renovated C.C.Pub might have difficulty finding the pub as the posters do not list the building it is located in. Hopefully that problem will be remedied. For those who are having trouble finding it the Bombshelter is located in the northeast quadrant of the Campus Centre near the CC cafeteria.

The Bombshelter opened for business at noon on Wednesday, September 3rd, 1980. Though it is not totally completed, it definitely looks better than the old C.C.Pub and the addition of bottled beer should be a vast improvement.

j.j.long.

splat!

FEE
HIKE STRIKE

REST IN PI

Young Frank Einstein

Do you remember the feeling of the 60's? The dawning of the Age of Aquarius? Well, if you do, you should know by now that its time has passed.

It died quietly, but when you think about it, it seems as remote to our way of living today as the 40's seemed then. If you'll permit me a travesty of astrology, I'd say that the age of Aquarius has been naturally succeeded by the age of Pisces.

The Fish!

Most of you, particularly you who are frosh, were young children then. What you remember of the atmosphere of the time is probably mostly in the realm of music (viz. *Eight Miles High*), and fuzzy images of braided hair and flowers. The truth is, of course, that the times were far more complex than we remember. Particularly in North America, it was a time for assassinations, race riots and student militants.

Student militants? Are there any in the audience? Maybe some of you know what this university was like then. Waterloo was one of the hotbeds of student activism in Canada. Looking around the campus, seeing gaily decorated buildings, smiling faces and ringing cash registers, one would never have known it. Only the Chevron, which is given to an excessive use of red ink in its papers, dares to sound noises of dissent on this campus. Federation officers waffle. Burt Matthews delays and defers. The math society scrambles for organizational help.

In other words, at Waterloo, business is as usual. We children of the age of Pisces have learned from an early age how to swim in this muck. No one objects, really; any lack of leadership which we see is put down as a reflection of a larger societal or economic malaise. Most distressing, it gets worse every year.

It makes you wonder if maybe there was virtue in revolution. Although I'm sure we can do without the braided hair and flowers, I think it's about time the fish protested. No one at this university will think any the less of you if you speak out. Particularly if you stick to your guns.

Anyone with comments on this article is invited to send them along to me, care of Mathsoc, or via the big grey mathNEWS box in the main third floor corridor.

Young Frank Einstein

Changing Your Timetable

Lo and behold! You have your "Student Registration Form", or simply, your schedule or timetable (as it is more commonly called) containing all those formidable courses you wish to take (foolish frosh, you shall soon learn). And more, no conflicts!! By the way, you can consider yourself lucky.

However, if you are among the unfortunate, you may need to know how to go about changing your schedule. For those of you who struggled through it all last week, you'll know better next time.

Information pertaining to the how-and-where of this formidable process is contained in the freshman package you received in August. If you haven't buried it in all those school supplies and are not totally confused, you are doing well.

To begin the "Drop and Add" game, arm yourself with the necessary equipment: your Student Registration Form, and information from the Master Timetable plastered all over the walls in Operation Math-start (MC 5158) and, if not yet torn down, taped to the glass walls of the third floor math lounge.

Courses can be dropped or added until Friday, September 19th, though some courses fill up early. This means you can sit in on other courses and decide if they're worth it before committing yourself. This is why it is wise not to buy any textbooks until you're certain of your course load.

Changing sections (i.e., staying with a course but switching times) is possible, but the faculty doesn't really encourage it for fear of imbalancing classes, which are really rather full in first year. Nevertheless, if your schedule is really inconvenient, you can get approval for a change by talking to the prof whose section you're switching into (you can get his name from the master timetable)

and getting his initials on your schedule.

More info is in the booklet "How to Get Around in Mathematical Circles 80/81" available in the Undergraduate Office, 5th floor math building, or drop into Mathsoc, MC 3038.

Jaylon for State Hero

Before going any further I, Jaylon, would like to thank the creatures and machines in the Processed Data Party (PDP) who have helped in my campaign to this date. With your continued help we can defeat State Hero Megawatt and his Institute of Big Money and restore UNIWAT to its former greatness.

My campaign has gained support from all sectors of our society. Unlike the Megawatt government, our party recognized the day to day heroic acts of the working people. From rescuing a drowning cat, to helping a neighbour accross the street, to repairing a faulty circuit board, we recognize that our UNIWAT cannot be great unless individual heroism is recognized. Over the past term the Megawatt government has ignored such individual heroism and concentrated on the "one big rescue", often with disastrous results. With UNITOR troops already occupying Mississauga, Oakville and Burlington, will it take an invasion of Cambridge to get action out of our current government.

In the past I have shown an ability to fight attacking aliens (as the wars against the Alliance of Interstellar Aliens have shown) and me and the PDP plan a strengthened defence against alien attacks along with an increased military budget. However a military defence alone won't protect our UNIWAT. The government and in particular the State Hero must have the confidence of the people and machines in order to be strong. This is something that has been lacking with the less than super heroics of the Megawatt government.

As your State Hero I intend to be a well-rounded hero with many interests. I intend to re-establish a strong economy to complement a strong defence. I will not neglect our minorities in my attempt to re-establish a strong UNIWAT. Those people and creatures of all races will be able to receive the full fruits of society. Our machines, be they disc drives, printers, terminals, or tape units will be taken care of. That you can depend on.

I ask you to join me, Jaylon, in restoring our UNIWAT to greatness. To do that I need your help and your votes.

MMTT Answers

1. e)235
2. a)8
3. c)441.Aren't you glad you didn't have to count them?
4. Faculty Administration Staff Students.
5. One of the wonderful folks at PIZZA PIE. (free plug)
6. The Dean of Women.
7. It's between Hagey Hall and Modern Languages. (Environmental Studies)
8. Calum T. Dalek.
9. False. They're 2,3, and 4. If you can't figure out what number one is, go to sleep. Alone.
10. 94.5 on FM. If you want to be picky, it has studios in the Bauer Warehouse on the North edge of campus.
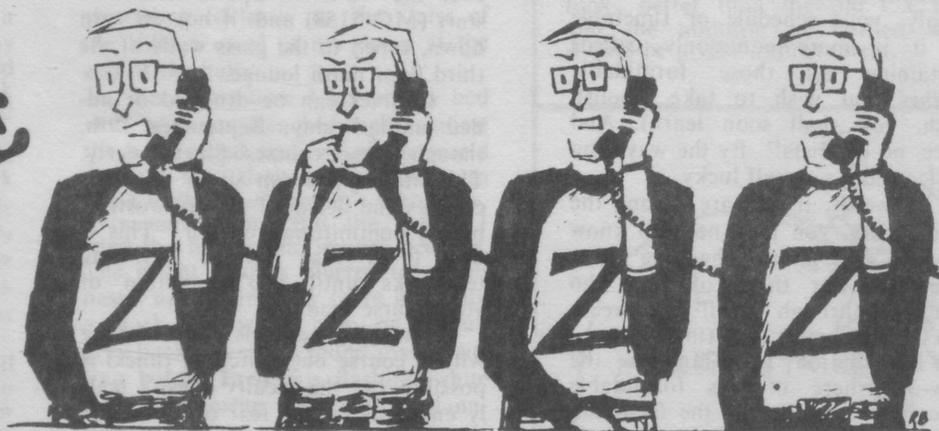
CREDITS All questions and answers are the sole responsibility of me. Inspiration courtesy of Kevin Martin, Ashok Patel, Jan Gray, and Maureen Krol and her friend Chris (who walked through the office while I was writing this). I hope Judy Kovacs found her purse. Honourable Mention to the Beatles' White Album. (Why don't we do it in the road.)

MATT THE MATHIE

BEEP? BEEEER... BEEP.. BEEP!

BEEEP.. BEEEP.. BEEEEEP?

BEEP BEP BEEEP, BEEEP BEEEEP!

Translated by local Hack→ (English Subtitles)

Hello, Datapac? Gimme the 'bun!

Whatya mean "It's Down"?

I've got a Mathnews to put out!

cents (with or without butter) are usually available in six or more varieties. They are quite tasty and nutritious and are supplied by the Bagel Binn, a year-old company considered by many to have the best bagels outside of Toronto.

Also a common staple of the C&D stands are their sandwiches. They are available in such varieties as ham, corned beef, roast beef, turkey, mixed meats, tuna, vegetable, and egg salad. They are available in long bun submarine size and in a less expensive round bunwich or kaiser variety. (Note: not all meat varieties or sizes are available in every location.) The sandwiches range in price from just under a dollar to $1.50. The two major suppliers of these sandwiches are Mr. Sandwich (MathSoc, EngSoc usually, E.S.S., Optometry) and Kitchener Catering (ArtsSoc, Psychology, Grad Club). While Mr. Sandwich sandwiches are slightly more expensive, this author feels that the extra nickel or dime is more than compensated for by the increased quality of the sandwiches. However the other supplier's subs are definitely passable and both brands exceed the sandwich fare offered by Food Services or the vending machines.

In addition to the above items, generally sold at most stands, individual stands sell some specialty items. These range from pop (MathSoc), milk and yogurt (EngSoc), to fruit juices and on occasion fresh fruit.

The Canteen of Canada vending machines are located in most major buildings on campus, especially the Campus Centre, E4, and M&C. From these machines such things as chips, chocolate bars, candies, and other confections are dispensed at fairly high prices. For more reasonable prices such things as milk, pop, juices, and sandwiches (including hot dogs and hamburgs) are also sold. The quality of the sandwiches is not the best and it is often wise to heat them in a microwave oven, if one is provided. Often you do not get what you paid for. If a machine takes your money you ask for a refund from the "turnkeys" (desk attendants) in the Campus Centre.

So as you see there is quite a variety of food outlets available on this campus besides Food Services. The choice is yours. I suppose there are other places as well to eat on campus. However most of the others are residence-oriented, or out of the reach of the average student (like the Faculty Club) and not worth mentioning here.

FASS *the people your parents warned you about!*

helping to write the script. You might even get to be a stagehand and carry your own roll of masking tape.

Look, I can see that you're still not convinced. You'd like to meet new people, right? Well, when we put out the call for cast and crew in the first week of January, we round up over 100 people just like you. We rehearse our play (more on that later) through January, and stage it for four amazing evenings in the first week of February to hundreds of people right here on campus.

To keep ourselves amused, we have parties. Many of our parties are paid for with the money we made from last year's FASS show. Since we are an all-volunteer troupe, we think of the parties and the people we meet as our payment for putting on such a great show. We get to know each other very well during this month, and during FASS parties throughout the year, and we, being gregarious (I told you to look that up!) would like you to join us.

Wait a minute! You're telling me that you're going on a co-op work term to Helsinki and can't afford to commute nightly to rehearsals? Be of good cheer! Have you ever told a joke? Before January rolls around, we have to write the fun and funny play that will inspire our actors, expire our audiences, and retire our producer. FASS writes that play in the fall

FASS is really an acronym (no, Acronym is NOT a city in Ohio) which stands for Faculty, Administration, Staff, and Students. If you are reading this (and I hope you are!), there is an awfully good chance (98%) that you fall into one of these four categories. Having so fallen, pick yourself up out of the clouds of duck feathers, dust yourself off, and let us open the big curtain to see what you've won.

Amazing! You've won a chance to be a part of the university's longest running and most gregarious (look the word up) annual theatre company! You can't act, you say? There's a lot more to FASS than just acting. If you saw our last extravaganza, you'll know that stage fright is no excuse for staying home alone in a cold and empty room. The whole is much greater than the sum of its parts, and FASS puts together so many good parts that we don't each have to be great to have a great show.

We want actors and we want non-actors. What no one seems to realize is that there is a whole mess of other folk who are part of FASS and who are never seen on stage. You and your friends, both old and new, might find a place in our large support crew by scrounging props at a local Zellers store, by getting costume bargains at the Salvation Army, by building FASS sets, or by

term preceding the show, and you're sure to want to be part of the insanity. If you can't find a few evenings to inspire us with your wit and humour, then don't come crying to us in February telling us that the show wasn't funny enough. We hold script and gag writing meetings from September to December. If that doesn't produce the funniest script we have ever seen, we then resort to sitting monkeys down in front of typewriters and letting them bash away. (I have it in strict confidence from the FASS 1980 script supervisor that part of that year's script was written in just this way.)

I still haven't told you how to become part of this madness, have I? It's simple: any time you see the word FASS up on a poster, *read what it's saying to you!* FASS means people like you, remember? all right then, do what the posters tell you. Do not roll the dice, do not pass go, do not collect UIC, but go straight to your local FASS meeting.

The first meeting of the year is coming your way on Thursday, September 25th; look for our posters to find out where. This is not just another dull old organizational meeting; for one thing, there'll be a PARTY afterwards which will no doubt stretch into the Whee! hours of the morning. So don't be shy: grab all your friends and come out for FASS. You have absolutely nothing to lose but your brains.

UNIWAT 2050

(As you may or may not remember form last time, Lord Morbid, leader of the dreaded Eng-Men, had agreed to accept the help of the CAIA in overthrowing the Mastoc regime in return for certain favours (no, not those kind!). Morbid's part of the bargain was to prevent Mastoc from launching a successful interstellar expedition.)

Like Moses at the Red Sea, the thronging crowds of UNIWAT 2050 parted before the long flowing strides of Mike Megawatt as he plummetted toward Com Central. Behind him the crowd closed once again, whispering in awe and admiration as well as a few folk who made irreverent bestures with their right forefingers.

The vast duralloy doors of Com Central swished open before him, blowing a stray lock of hair back into place, but Mike was on important business and, rather than reach for his comb, satisfied himself with pulling the lock back down onto his forehead by hand.

Official State Hero, Mike Megawatt, checked his stride only long enough to snap a sharp salute to the Command console before proceeding on into the innermost sanctum of Com Central -- the Red Room.

As the doors of the Red Room snapped shut behind him, Mike dropped to one knee and bowed his head. A moment later his ears picked up the sweet contralto of an electronic vocalizer.

"Get up you bimbo!"

Mike rose, beaming inwardly at the Central Computer's affectionate nickname for him.

"How may I serve you Cen-Com?"

"Do you know what next week is?" the machine growled.

"Yes sir! It's the annual Official State Hero elections!"

"Correct, and as usual you will run, but this time you may not get elected."

Mike looked aghast.

"But why not? Haven't I been a good State Hero?"

"Don't whine!" CenCom snapped. "This time there is another who opposes you -- that idiot Jaylon! You may be no prize yourself but at least you know when to keep your mouth shut."

"Oh CenCom, if I've done anything to offend you..."

"Like right now. Sit down, be quiet, and listen to me."

Mike did as ordered, settling himself down on one corner of a printer console.

"It seems to me," CenCom continued. "That we might be able to kill two bugs with one compile here. The Javelin is almost ready to be launched toward Alpha Centauri but a problem seems to have crept up. The captive Eng-Men who first designed the secondary drive units for us had planned on the use of 100 proof bourbon as fuel. Unfortunately Mastoc control of UNIWAT 2050 is not yet total and consequently I've had great difficulty getting hold of the necessary quantities of the fuel.

"Without this fuel Javelin will be incapable of performing normal-space maneuvers."

"Why not get a new drive design?" Mike asked.

"Perhaps there is hope for humanity after all. That was exactly my intention except that our last captive Eng-Man died of cirrhosis of the liver last week."

"Well, what about hiring a Mastie to do the job?"

CenCom gave an electronic snort.

"Masties make good government but miserable starship designers. Normally I would be able to produce the designs myself but much of my knowledge was lost during the Dark Years and it will be another year or so before my reprogramming is complete. Until that time I'm afraid we'll need the idiot-savant skills of the Eng-Men.

"Your mission Mike Megawatt, should you decide to accept it, is to brave the caverns below UNIWAT 2050 and bring back a captive Eng-Man capable of designing us a new drive unit.

"If you or any of your lackies should refuse this mission or screw it up, I'll disown you and throw all my support behind Jaylon in the upcoming elections. I can always have him muzzled if necessary."

Mike rose to his feet unflinchingly.

"Where the welfare of the people is concerned no task is too great for Mike Megawatt. I accept your mission."

"Bravely said." CenCom commended. "But there is one other problem. Of late some of the Eng-Men's actions have shown unnatural organization and sense. I fear that they may have made a pact with the CAIA and this can only bode ill for UNIWAT."

Mike gulped.

"On second thought, maybe I should sleep on it."

# # #

Annant shut off the spy device and rested back on his hind legs, clicking his mandibles in slow thought.

"So CenCom needs an Eng-Man does he?"

The arachnid took a long sip of his aphid juice.

"Perhaps then we can arrange for Official State Hero Mike Megawatt to find just the thing he searches for. Yes, just the thing."

With that the arachnid tittered shrilly and began laying his plans.

END OF PART II

NEXT: Into the Bowels of the Eng-Men

-dthedmonds

Fantastic Pi Contest

How many digits of Pi do *you* know? More than ten? More than one hundred? A thousand? Well, that trivia could win you a **real, honest-to-goodness,** *MATH FROSH T-SHIRT!* Your name could go down in the annals of mathematical history!!! All you have to do is sit down with your official MathSoc Pi button, available at MathSoc, MC3038, and memorize...

The math frosh who can recall the greatest number of digits (in order) of the (decimal) expansion of Pi, before a MathSoc representative, on or before Monday, September 15, at 2 p.m. will receive a forementioned fashion item - Yes, your very own real, honest-to-goodness, wonderful, great, terrific-looking, etc., etc., etc... Math Frosh T-Shirt.

Now lets see: is that 3.141592653 or 3.141592654?

Coffee & Donuts

If you happen to find yourself lost on the third floor one day, just head towards the noise. You'll find yourself in the lounge. If it's near lunch-time, you'll want to be on the non-smoking side, because that's where you'll find the coffee and doughnut stand (C&D as it's affectionately called. I won't mention what it's called by those feeling less affectionate).

C&D is a fully student-run organization, operated by but (usually) independent of mathSOC. (Every once in awhile a loan goes one way or the other. But then, students know all about loans, don't we?) C&D's financial independence has at times been jeopardized by people attempting to keep the non-profit organization non-profit and going overboard. But with the support it gets from our own faculty of mathematics, C&D always seems to pull itself up by its own bootstraps.

In order to help give students the cheapest lunch possible, C&D charges prices which are barely above cost. Of course, this is offset by operating costs, so the prices are a little higher than we'd like to see. However, we keep them as low as possible. The C&D is the largest stand on campus which uses student workers. Considering this, it's not really surprising that our prices *are* slightly higher than those at that *other* stand over in the south-eastern corner of the campus. But then our food is better anyway, right?

Since it's induction in 1971, C&D has grown from selling nothing but coffee and doughnuts to selling coffee, tea, four kinds of soup, hot chocolate, pop, bagels, doughnuts, cookies, tarts, muffins, kaisers, and subs.

Here is the price list for last term. (This term's prices haven't been finalized, but they should be close):

Coffee	
Tea	
Soup	} 20¢
Hot Chocolate	
Pop	30¢
Doughnuts	
Muffins	
Cookies	} 20¢
Tarts	
Kaisers	1.00
Long Subs	1.50
Short Subs	1.40
Bagels (2 pats of butter incl)	.35

extra butter & cream cost extra

The kaisers and subs are sold refrigerated. Thanks to Sherri Taylor of Mr. Sandwich and with her loan of a microwave oven, you can also get tham heated. But please don't ask us to heat anything else. The sandwiches keep the oven going all day, and we've been asked not to put anything else in it. Your cooperation will be greatly appreciated -- we hate saying "no" to anyone.

In the past, we've made enough money to buy moveable counters, a cooler to keep your pop cold and much, much more. *And* maybe soon we can buy a microwave of our own. Then you can get anything you want heated. But until that time, please be patient and keep your requests confined to our subs and kaisers.

As mentioned above, C&D hires students as workers. They receive $3.00 per hour, usually restricted to three hours per week in order to hire as many students as possible.

If you have any suggestions and/or complaints, see the manager or leave a message in the C&D office MC 3039 (across from mathSOC) or send mail to c.and.d on TSS.

Frosh T-Shirts

Many of you, as frosh, do not realize that upon entering the Faculty of Mathematics at the University of Waterloo. You are walking into one of the most prestigious societies in Canada, for not just anyone can become an official U of W Mathie.

Thus, to keep long standing tradition (which seems to have been broken alot lately) it is required of math frosh to wear MATH FROSH T-SHIRTS. Don't be seen in public (or at least in the eyes of other mathies) without one!

These wonderful t-shirts may be purchased in the Mathematics Society office, room 3038, in the Math Building.

Don't be excluded from the set, get your shirt now!

Free Beer!

Well, not quite, but almost. There's a liquor giveaway scheduled for Thursday, September 11 at 8:00 p.m. in the Faculty Lounge, MC 5156. Beer will be 25 cents a bottle, liquor 50 cents a shot. We're going to lose your shirts on this one to make it a success. Admission is 50 cents for Mathies and $2.00 for others. Frosh with official math frosh t-shirts (available in MC 3038) get in free. There will be a D.J. Anyone wishing to help at the door contact Bradd Hart at 885-3577. Anyone wishing to plan or aid in future events can also contact him.

Watsfic

The University of Waterloo Science Fiction Club is in operation once again this term. The first meeting will be Wednesday, September 10 in MC 3009. Memberships will be sold then as well as at varying times throughout the week in MC 3036, the Watsfic office. Plans for this term include a movie night and possibly a D&D Tournament. Meetings usually consist of a brief gaming session followed by a gaming session sometimes extending long into the night (or next morning). Meetings are weekly but usually on different nights alternate weeks to facilitate access. Hope to see you all at the first meeting.

mha

Buses and Trains

This is to tell all those of you who are eagerly awaiting the news about just how many many ways there are to get to the big city. I mean, of course, TORONTO. Isn't that exciting?

Toronto, besides all its other attractions, is the place where you change buses or trains or whatever (planes?) to get to parts beyond. Chances are that sometime or another this term, you will need to get to Toronto. Therefore, read on!

First and foremost I will give a free plug to the Feds. As far as I know they are still running the fed bus to Toronto. In past terms, this bus ran from campus to Islington subway station twice on Friday, and back again on Sunday. In case of a holiday the schedules were rearranged appropriately. This cost a whole three dollars each way. The best bargain you will find around here for a while, but you don't get much of a choice as to when you would like to go.

Next we have Gray Coach. Thay boast of having 16 runs to Toronto every day (14 on Saturday) and they do. They have plenty of express runs, and even their "milk runs" are fairly quick and only go through Guelph. It takes about an hour and a half to two hours depending on whether it is express or not, the traffic, and the nerves of your driver. Once you get to Toronto the Driver will let you off anywhere en route, i.e. at the subway, if you just ask. Overall I am pretty satisfied with their service. The trip normally costs $5.70 each way, but there is a

"student discount" (for which being a student is neither a necessary nor sufficient condition) so that you only pay $4.85 each way. To get this discount, you purchase your ticket at Eaton's Travel in South Campus Hall. If you forget and buy it at the bus station, you will have to pay full fare. The bus station is in downtown Kitchener, on Gaukel St. You can take the Kitchener Transit buses there, but Gray Coach comes on campus (sometimes) and you can catch it there.

And now we come to Via Rail. It costs more (six dollars usually, eight dollars return unless you leave on Friday in which case it is twelve dollars return) and it takes a little longer. However there is more room (especially if you get an old coach), it is less noisy, and without being class conscious, you get a slightly richer group of people, better behaved kids, and the like. The schedule leaves a bit to be desired, but if it fits yours, be happy.

Schedules are available at the turnkey desk in the campus centre, and from the train and/or bus station itself. As of yet the only tickets you can buy on campus are Gray Coach tickets at Eaton's Travel. This may change, especially if somebody asks for it to. (i.e. suggest it to the guy behind the counter, write a letter to the Toronto office, etc.)

Assignment #1

Suppose a doughnut was cut (not a C&D doughnut, clearly) by a horizontal plane through its centre. The cross section would be two concentric circles. If the cut was vertically through its centre, the cross section would be two equal circles separated by the width of the hole. How is the plane aligned if the cross section is two equal INTERSECTING circles?

Faster than a speeding convergence...
More powerful than the Fundamental Theorem of Algebra...
Able to permute in a single key-stroke...

Look! Up in the Hilbert Space, it's a derivative, it's a power series, no it's arithMAN!

Yes it's arithMAN, a strange subset with powers beyond those of ordinary students, who as a sub-term was sent to our vector space when his polar co-ordinates were integrated. Now disguised as mild-mannered Clark Cosecant, assistant professor of basket-weaving and MTHEL 100, he is ready to fight for Trig, Calculus and the Algebraic way.

Like all superheroes, arithMAN has his own set of arc-enemies. One element of this is Lex Logarithm, the evil math-ermind, also known as the anti-exponent proponent. Good old Lex has a new method to make arithMAN's functions diverge. This plot involves arithMAN's one weakness, an inelegant proof. We know that arithMAN will be able to nip this plot on the graph, but that will have to wait until the next instalment of this series.
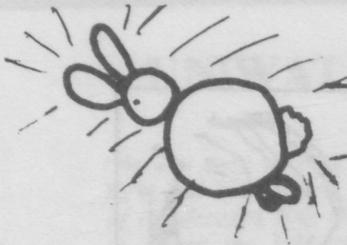
So stay tuned to this magazine for further details when we answer the unaskable and ask the unanswerable, such as:

Will arithMAN emerge triumphant once again?

Is there life after Algebra?

And is the moon really made of green Cauchy's?

FRIDAY	SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY
5 Movie Night 7pm Dr. Strangelove O Lucky Man AL 116 "FREE"	**6**	**7**	**8** Lectures Begin; M000 Begins; special Exam (Math 130A); Manrake (HUM)	**9** Special Exam (Math 139A); Math NEWS Organizational Meeting 4:30 MC 3038	**10** Special Exam (Math 139B); Advanced/Honours special Meeting; WATSFIC meeting MC 3009	**11** Special Exam (Math 130B)
12 Organizational Meetings; Men's Flag Football; Women's Flag Football; Soccer; PAC Rm 2010	**13**	**14** Work term reports for spring/30 due tomorrow →	**15** Organizational Meetings; Co-rec Volleyball and Innertube Water Polo; Men's Basketball and Ball Hockey; Mixed 2-Ball Golf	**16**	**17** Men's Soccer; Women's Flag Football	**18** Men's Flag Football
19 Deadline for adding Fall and Year courses; Deadline for Honours/Inner Transfers	**20**	**21** Men's Basketball; Co-Rec Inner tube Water Polo	**22** Organizational Meetings; Co-ed Slow Pitch; Men and women's Tennis Singles	**23** Men's Ball Hockey	**24**	**25** Movies Dial "M" For Murder + Short Subjects (Humanities Theatre)
26 Co-Ed Slow Pitch	**27** Tennis Singles	**28**	**29** Men and women's Ultimate Frisbee Tournament	**30** Women's Volleyball	**1**	**2** Co-Rec Volleyball

CSC

Not that they'll tell you about the Computer Science Club right away. Oh no. That they'll leave you to discover too late. Much too late. Long after the free passes to Maxim's have expired. Long after the harpsichord is in tune. And after the races. But you'll still be able to sign out the yacht for long weekends. Not that you'll care by then.

The CSC is something different to every person that wears it out. Nominally, it coordinates and organizes all sorts of wonderful activities for the many people at the University interested in Computer Science. Though more informally, but perhaps equally importantly, they also serve as an ad-hoc debating society, attempting to solve all those world issues and fundamental problems of science and technology that seem so pressing at three o'clock in the morning, after staring into a terminal for hours. Oft times, these discussion centre about computer science!

From every walk of life, from the far corners of the campus, (sometimes even from the great beyond) people are drawn to become members of the CSC. The magnetic tractor beam stemming from the sixth floor of the Math building works well. Members include professors, graduate students, staff members, and even some normal people. Most, however, are undergrads, and most of them are Math students. Computer science seems to attract wild eyed youngsters (such as, perhaps, yourself) and this enthusiasm usually means that first year students are quite active in the club. This could also be because all the senior club members are often asleep.

Historically, the CSC has organized field trips, films, debates, lectures, baseball games, grand prix motor racing, bobsledding, sky-diving, alligator wrestling, jungle safaris, the quest for the Holy Grail, and the War of Jenkin's Ear. Well, I might have been exaggerating about the baseball games.

This year I didn't even mention manned spaceflight to the Lesser Magellenic Cloud. The CSC doesn't rest on past laurels.

The most visible activity of the club in the past few years has been the programme of guest speakers at meetings. Many quite famous people in computer science have spoken at CSC meetings, some *so* famous, you've probably never heard of them! There is much interesting work being done at the University itself in computer science, of course, and representatives from various research groups are often dragged in to CSC meetings to justify their folly. CSC talks are usually aimed at the level of "keen" undergrads, but they are interesting to the full spectrum of the membership.

Another important activity is the "CSC Friendly Consulting Service". As the CSC attracts a number of people well versed in the local computer systems, they decided to increase the formality of a policy long informally extant: If people having problems with any local computer system drop by the CSC office, they will get all the help the people in the office can provide. Informal and friendly help is the goal, but of course they can't guarantee anything, and won't help you with your homework unless you are very clever in phrasing your questions. Anyway, if you have difficulties in doing battle with the local automata, drop by the office.

The CSC has a number of resources at its disposal, not even including the resource disposal unit. The CSC office (MC 3037, across from MathSoc) is a hub of activity: the office serves as the "business centre" of the CSC; the location of the CSC library; the "friendly consulting" office; and as a more-or-less lounge for members (rather a tiny one, though).

The library has a large number of computer manuals, a large selection of computer science books (esp. course texts), and a number of computer magazines, journals, and newspapers. All on **one** wall! CSC members may borrow from the library for short periods of time, and anyone may use it for reference. Also for general reference, but especially for the

consultancy role, the CSC has large amounts of specific documentation for both the Honeywell TSS and MathUnix computer systems.

There are, of course, the odd office supplies around the office which anyone is welcome to use as long as they don't walk away with them: the stapler, the scissors, the kettle, the teapot, the clock, the radio, the dalek. Oh yes, the dalek. Hmmm. I must get to that later.

At the beginning of the term, there should be CSC buttons and CSC tea-shirts purchasable from the office, too. Ask about the yacht while you're there.

And now about the Dalek. If you don't know what a dalek is, you should be ashamed of yourself. The Dalek came to the CSC from the planet Skaro, and acts as official representative and as serjeant-at-arms. More importantly, almost all the junk mail the CSC gets (rather a lot of it, mostly concerning microcomputer software and hardware) it addressed to Calum T. Dalek. If you want to peruse the Dalek's mail, you are quite welcome its beginning to bore him, and a bored dalek the CSC *does not* want!

Notice I didn't say anything about the yacht.

The Computer Science Club wears a few hats: the CSC is club of the Federation of Students; a club of the Mathematics Society; and (most impressively) the University of Waterloo Student Chapter of the Association for Computing Machinery. (The ACM is an international CS association with all sorts of idealistic goals which I can't remember. Becoming a student member entitles you to lots of nifty junk mail resonably inexpensively. The ACM does not have a yacht.) The CSC is also helped a great deal by the Department of Computer Science, who have lots more money than the CSC, and a bit more sense. They do not have a yacht, either.

And now the pitch. Calum T. Dalek wants YOU. The Computer Science Club hold meetings every fortnight or so, usually featuring a guest speaker. The first meeting of the term also features the termly democratic elections for club executive, plus hints about the new term's exciting events. Attend.

Hackdom

...is natural

On a clear night you can see deep into space, but you can't see forever. It's probably just as well, because forever is one of those words implying infinity, and thinking very hard about infinity can bring on headaches.

The first recorded effort along those lines was that of Zeno, a Greek philosopher, during the fourth century B.C. After pondering the meaning of the infinitely small, he devised a logical proof that flying arrows can't fly. Starting with the premise that at any single point in time an arrow doesn't move at all, he reasoned that no matter how many such points in time you add up, you still get zero. The arrow must therefore remain fixed in space forever.

Zeno made archery philosophically impossible for 2000 years, until Newton and Leibniz discovered some tricks called calculus. The problem becomes workable if an infinitesimal is used, rather than plain, old zero.

But some hard questions remained to tax modern thinkers. For instance, if infinitesimal is not zero, how much larger is it?

There is a class of light atomic particles called leptons, which includes the ubiquitous electron. A very successful modern physics theory (quantum electrodynamics) states that leptons are dimensionless, with neither diameter or volume. The latest experiments confirm this to a very high order of accuracy, and leptons are therefore called "point particles".
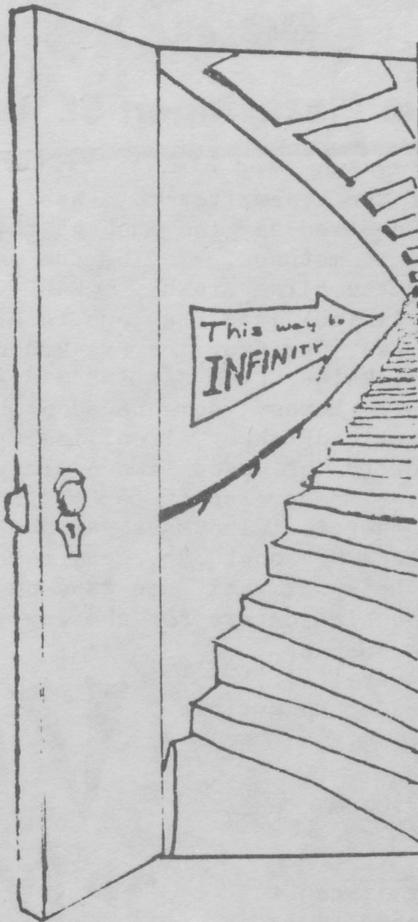
That leads to a rather indigestible idea: Leptons demonstrably exist, and yet how is it possible for something that effectively occupies no space to have an objective reality?

Such questions require reflection about the subtle difference between zero and infinitesimal - a difference that calculus does not measure.

Counting Infinities

The trouble is, you can't count infinities or infinitesimals (which result by dividing anything by infinity) using conventional numbers. However high you count, you are always infinitely far away from your destination.

But around the turn of this century, a German mathematician named Georg Cantor found a way to compare different kinds of infinity qualitatively, by matching them side by side in paired sets.

His surprising but logical conclusion was that there are many different infinities. The infinity of real counting numbers is exceeded by the infinity of points on a line, which in turn is exceeded by a "stronger" infinity - the number of all possible geometric curves. Beyond that, Dr. Cantor couldn't think of "stronger" infinities to test, but he concluded that they exist.

In recent years mathematicians like the late Abraham Robinson of Yale University carried the analysis of infinity a step further. He proposed that ordinary mathematics could be adapted for counting infinitesimal and infinite things by using some new kinds of numbers.

It was a bit like using lenses to change scales of magnification. An infinitesimal point on a scale (called a monad) could be magnified to represent a kind of microcosm of the parent scale, using new infinitesimal numbers analogous to real numbers, Dr. Robinson suggested. At the other end of the scale, real numbers could be used as models for a scale of infinite numbers.

Is there any point in all this beyond mathematical doodling?

Advances in science, particularly the sciences of astronomy and atomic particles, are forced to deal increasingly with the inconceivably large and the inconceivably small. The perceived universe may be merely our particular magnification of reality, and infinitesimal part of a "stronger" entity. At the other end of the spectrum, physicist sometimes despair that no matter how many layers they peel away from a tiny particle there always seem to be more.

The infinite is beyond perception, but science must constantly grope beyond the limits of vision. The mathematics of infinity is a tool that may help.

Beware the resurrected...

Merely Mediocre
Trivia Test

Dedicated to Jo West for trying so hard.

1. How many bicycles can be PROPERLY parked in the racks around the Math building?
    a) 37   b) 312   c) 186   d) 213   e) 235
2. How many rubber stamps does Mathsoc have?
    a) 8   b) 10   c) 12   d) 6   e) 1
3. To how many digits is PI calculated on the PI buttons?
    a) 317   b) 368   c) 441   d) 512   e) 649
4. What does the acronym FASS stand for?
5. If you dial 886-0440, who will answer?
6. Who is the last person listed in the On Campus Directory?
7. Where would you find the Isaiah Bowman building?
8. Who is the Computer Science Club mascot?
9. TRUE or FALSE. Bridge, Dungeons and Dragons, and Pinball are Mathsoc's favorite games.
10. Where is CKMS found?

Lockers

If you are one of the unfortunate (or fortunate, as the case may be) people who do not live in residence or close to campus; you may wish to consider obtaining one of the third floor lockers provided through MathSoc to Mathies.

These lockers are available on a first come, first served basis in Math-Soc, room MC3038, sometime during the second week of classes. Watch the bulletin boards and walls for posters giving further details.

MASTHEAD.

8;37 a.m. wed. morning (ugh) and i'm late already. This thing is going to be zzz where's the ass ed when you need him.?????well Walter just (fine!   All i needed was for the typewriter to crash. The stupid system crashed 4 (FOUR)help Joanne is incoherent. She's endured far too much of this, so I hereby offer her up for adoption. Interested parties: mail to mathsoc. Oh, by the way, this is the AssEd tocking. I ain't been here all night - I quit after the first crash! COWARD I AM! I hear there are SIX-TEEN delicious pages in this issue, whihc (which) is a frabjous total. Thx go out to our contributors - Jo the Ed, me (Ross Brown) the Ass, Jan Gray the Fre-Prosh, Ashok Patel the Something, Walt Steinemann, KEVIN -- this needs asterisks! - KEVIN JARDINE *** a'frosh contributor!!! Well done Kev! Where's the ed? She's quitting?? Heresy; someone adopt her quick. Other goodguise: JJLong, Dean Edmonds (UNIWAT's Mike Megawatt), JRBakker, ircollins (real name: Rob Writer); Teddy & Karen MacNeil, Raymond D. Butterwort(h) of Co-op fame & glory, the New York Times (??) the Bun in its infinite wisdom, the P$_{HOO}$T$_{ON}$, Greggy Bezoff for stair negotiation, and special mention to Jaylon and M.M. for being SOOOO heroic. The Matt cartoon is RECYCLED, dammit. New captions, but they didn't even let me write a NEW one! Oh, yes, thanks to John W. Bast of IMPRINT for offering to kill the P$_{HOO}$T$_{ON}$ for us. He's got real cute tape punchers. FAHSL!!!!! Last year's TEA-SHIRTS are on special at Mathsoc Liquidators for the low low price of two bucks!!!!! If you don't have one, get ome!!! Here's Joanner the psycho killer ed!! -- let me outta here!!!!!! give recycled thanx to bobbie bittle for a dug up article whoopsz0

Welcome to the University of Waterloo!

thanx also go to the people(tools) who say it can't be done.Now they tell me there's not supposed to be a title on this thing. Mathsoc is now taking applications for the position of editor.Required:ability to endure 48 hrs and early senelity(?).g.s. is going to kill me when i tell them this is for friday, so if it's not out till monday you all know why.The dakek's yacht is not for sail. Or available for the next few weeks. It's on a recovery mission.Walter is still wandering around and i wish this paper would hurry up and run out i want to go to sleep. ahhh i see the end comming.(one way or another Thank God for ISSN numbers that take up more space. head crash....walter stop laughing.what? Ashok is trying to say something"aha" good riddence.....editor out (Ø)

VOTE →Mike← Megawatt ☒ for STATE HERO

(the following has been a paid political announcement funded by but independent of COMCENTRAL)