Nova Vandalis_m

DRL ABORT, TRAIN NOT SAVED

The vandal is becoming both more ambitious and more diversified. Last week, he/she/it/they struck four times, twice using the method of cutting 2741 cables, but twice striking against the third-floor minicomputer lab. On Thursday it again cut several wires controlling the train, then on Friday acid was poured into the NOVA computer. The damage to the NOVA will take at least 10 days, and possibly as much as three weeks, to fix, at a cost of $10,000 (a great deal of circuitry has to be completely replaced).

The impression within the administration seems to be that the vandalism is *not* the work of one person—the belief is that poor morale among Computer Science students has led several people to commit acts of vandalism, or that, if only one vandal is involved, that his actions are known and condoned by his peers!

Support for a move to lock up the building after regular hours is definitely growing among those who have the authority to perform just such an action. "One can hardly hardly blame them for feeling they need to take some action, but *that* action would be catastrophic academically and researchwise," one faculty member pointed out.
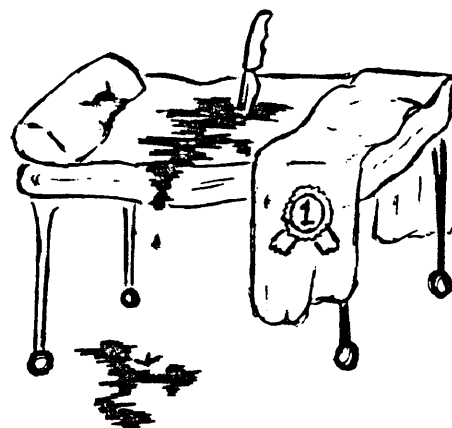
We don't want to be alarmist but this *is* a serious situation. We have been informed that the Faculty will not allow the building to be closed at night this term— but further incidents could exacerbate the problem.

Some ideas have been put forward to hire student guards or close all but one door at night with a sign-in-out system. (But what about emergency access?) At present it does not look as though these suggestions will come to anything, but *we welcome your opinions and suggestions...*

And meanwhile, **report all suspicious occurrences.**

Math 319/329 Split in Half
Faculty Curriculum Committee

On Tuesday the Faculty Curriculum Committee met in MC 6091A.

The early portion of the meeting was occupied by such routine business as approving a new C&O course and a Math service course for Kinesiology students.

In a important move, the Committee then approved the splitting of Math 319 and Math 329 into half-courses. They had much more difficulty in deciding what the sequence of Algebra courses for Math students should now be. It was felt that at least 129A, 129B, 229A, and 329A should definitely be kept. Some members preferred a 6-course Algebra sequence to a 5-course one, but there was no real unanimity. Debate also centered on whether the core program should be a departmental or faculty-wide responsibility past Year 2.

Another topic discussed was the elective courses for Math students. A move is afoot to limit the choice of electives that Math students can take, and to require an essay course for Math students. But wouldn't extra control on electives defeat the idea of having them? Most students enroll in the Math Faculty to take Mathematics courses; a high level of accomplishment is expected of them. To expect too much of them in their electives will restrict their freedom of choice and weaken their performance in Math courses.

If you have any comments please write to **mathNEWS** or a member of the Curriculum Committee.

Coffee & Donuts needs help!

CORRECTION

When the article about *C&D* needing managers and assistant managers for the next two terms was written, a serious omission was made: the applications **must** be in by 4:30 p.m. on Monday, March 15, 1976. Sorry for not letting you know sooner.

ARE YOU POWER-MAD?

Mathsoc elections are upon us, and nominations are now open for the positions of President, Vice-President, and Treasurer of Mathsoc.

Council seats are also available for regular students *now* in years 1, 2, and 3, thus *going into* years 2, 3, and 4 in the fall, and for co-op students *now* in terms 1B and 3B, thus *going into* 2A and 4A in the fall. There is also a by-election for *on-campus term 3A* co-op students.

Nominations close on Wednesday, March 10, at 4:30 p.m.; the elections will be held Tuesday, March 23, from 8:30 a.m. to 4:30 p.m.

Nomination forms are available in the Mathsoc office, MC 3038, and require five (5) signatures [if you are running for President, Vice-President, or Treasurer, ten (10) signatures] from people in your constituency.

Remember, this is your *only* chance to have a say in how $2.50 or $3.50 per term of your money is spent, so run *(or at least vote)*!

1

FED REPort

The 1976-1977 Council of the Federation met this Tuesday for the first time and actually attained quorum. President Shane Roberts appointed his executive which council approved. For the most part, he chose competent people who would work well as a politically cohesive group.

The new executive is:

President	Shane Roberts'
Vice-President	Dave McLellan
Treasurer	Manny Bryckman
Speaker	Ron Hatz
Education	Franz Klingender
External Relations	Mike Ura
Co-op Services	Don Orth
Communications	Ian McMillan
Entertainment*	Douglas Maynes
Creative Arts*	Bruce Rorrison
N.U.S. Liason Officer	Tom Haugen
O.F.S. Liason Officer*	Donna Rogers

*tentative

In other business, the Math Society constitution was finally approved by Fed Council. Another meeting is being held Thursday to finish business left by the old council.

You may have heard that nothing got passed at the General Meeting. Some people have blamed the the people who presented the motions for delaying the meeting. To a small degree, that may have been so. However, I would place most of the blame on the Chairperson of the meeting, Mr. Shortall. His arbitrary decisions generated much confusion and dissension and prolonged the meeting. He seemed to ignore the feelings of the assembly. Also, in an item of business presented as a notice of motion for discussion, Shortall complicated matters by demanding a formal motion (when one wasn't required) and permitting a vote on the motion (where that may not have been in order). Before the meeting people were told that motions could not be amended, yet Shortall permitted amendments to motions at the meeting. There seemed to be a number of inconsistencies.

I hope President Roberts will hold a General Meeting in the near future. Hopefully, better motions will be presented, and the meeting will be chaired by a better chairperson.

J. J. Long (signature)

Math Departmental Information Sessions

Pre-registration for the Fall-Winter, 1976-77, terms will be held during the week of March 15, 1976. In an effort to provide students, particularly those in years 2 and 3, with an advanced opportunity to ask questions about the programs available in various departments, the Math Faculty has scheduled a series of information sessions for Math undergraduates during the week of March 8, 1976. Faculty members from each department will be available to answer student questions, and discuss programs, courses, career opportunities, etc. All students are most welcome to attend any or all of these sessions.

All the sessions will be in room MC 5158. The **Statistics & Actuarial Science** session will be Monday (March 8) from 1:30 to 3:30; **Pure Mathematics**, Tuesday, 1:30-3:30; **Computer Science**, Wednesday, 10:30-12:00; **Combinatorics & Optimization**, Thursday, 1:30-3:30; and **Applied Mathematics**, Friday, 1:30-3:30.

Pre-Registration Schedule

All regular and co-op Math students who plan to continue their studies in the Fall 1976 term should pre-register **during the week of March 15-19, 1976**, as indicated below.

All students pre-registering for *Year 2 regular* (except St. Jerome's), *2A Co-op* (except for those selecting the teaching option), *2B Co-op,* and *Year 3 Pass* should pre-register in room MC 5158 between 9:30 and 11:30 any of the five days, or between 1:30 and 3:30 any day except Tuesday.

All students pre-registering for *Year 2 regular (St. Jerome's)* should contact one of Professors Mowat (SJ.1) or VanStone (SJ.2) between 9 a.m. and 4 p.m.any of the five days.

Co-op teaching students should see R. G. Dunkley in MC 5103 between 1:30 and 4:00 Tuesday.

The remaining times are for students in years 3 or 4 (Regular or Co-op) in an Honours or General programme.

Chartered Accountancy and *Business Administration* students should see J. D. Kalbfleisch in MC 6092A, 9:00-12:00 or 1:00-4:00 on Wednesday, 11:00-12:30 or 1:30-2:30 Thursday, or 9:00-12:00 or 1:00-4:00 Friday.

Computer Science students should see J. D. Lawson in MC 3004A Monday and Tuesday between 2:30 and 4:30, or in MC 6091A Wednesday between 2:30 and 4:30.

Applied Mathematics students should see M. Snyder in MC 5007, 2:30-3:30 Monday, or 1:30-3:30 Tuesday, or 2:30-4:30 Wednesday, or 9:30-11:30 Friday.

Federation General Meeting

On Tuesday, March 2, in EL 101, the Federation of Students held its Annual General Meeting. Approximately 50 people turned up in person, with about another 50 represented by proxies.

At this meeting, the Federation Board Directors was appointed: President Shane Roberts, Vice-President Dave McLellan, and Treasurer Manny Bryckman were *ex officio* members, and council members Dave Daunt and J. J. Long were selected to fill out the 5-man board.

Four bylaws were presented at the meeting, but none passed. The first one, dealing with candidates for president, was ruled out of order by chairman John Shortall. Bylaws dealing with the Boards of Communications and of Entertainment were withdrawn after attempts to amend them. The bylaw dealing with the Board of Directors was tabled to the next meeting.

The meeting featured some dissension. Some people moving bylaws were accused of extending the meeting. Some people felt that the arbitrary rulings of John Shortall served to fuel the dissension and prolong the meeting. This was illustrated especially well during the discussion on privilege cards. The intent had been to give the meeting a chance to discuss notices of motions *with no voting*. Mr. Shortall insisted that, even though no notice had been given, motions from the floor were needed to discuss the terms. He permitted, contrary to the rules of order, voting on the motion. The meeting voted to table the motion on privilege cards.

Finally, the motion regarding proxies at Student Council meetings was discussed as a non-binding recommendation to Council. Before it could be acted upon, those present at the meeting voted to adjourn.

New president Shane Roberts hopes the bylaws will be revised soon. He plans to hold a general meeting to do so within six months, as it is felt that much has to be done in that area.

Combinatorics and Optimization students should see C. Haff in MC 5025, 9:00-11:00 Monday or Wednesday.

Statistics students should see C. Springer in MC 5039, 10:30-12:00 Monday, or 1:45-3:30 Tuesday, or 9:30-11:45 Thursday, or 1:45-3:00 Friday.

Actuarial Science students should see F. Reynolds in MC 6092B Wednesday 10:30-12:00 or 2:30-4:00.

Pure Mathematics students should see D. Higgs in MC 5084, 10:30-12:30 Monday, Tuesday, or Thursday, or 1:30-3:30 Tuesday or Thursday. Students unable to see Dr. Higgs at the above times should see Prof. Staal in MC 5067.

BURLOAF

FLASH

We are starting a new award this week, to be presented whenever appropriate. I have made it monthly because I figure that's about how often it will be awarded. The prize is known as the *WINNER-OF-THE-MONTH* award, and this month's award winner is Cail Vinnicombe, UW Housing Director.

The University wanted to raise residence fees for the Villages by 14% this year. This is larger than the government's 8% ceiling on rent increases, so UW had to submit applications to the Ontario Rent Review Board. Originally they submitted one application for each type of dwelling, which they got in before the deadline (last week). However, the Board discovered a form is needed for each rental unit. Since UW rents to individual students and there are over 5600 students living in residence, this means the housing office must submit over 5600 applications. Because each application has several copies, about 71,600 pieces of paper will be produced, enough to fill 18 boxes the size of beer cases. Housing has until the end of this week to get those applications in, so the housing office has been closed this week while the staffers there get all those forms filled out.

I think it would be neat if some of the increases were granted whereas others weren't. This would mean identical accommodation going at two different rates, depending on which room it happened to be. (Theoretically, the two halves of a double room could be rented at different prices if only one of the applications for the halves of the room was granted.)

I have been told that a group of people in the Village have formed a betting syndicate. They are accepting real-money wagers for simulated horse races, run on the Honeywell with the "games/hrace" program.

It has been rumored that after some hacks, in need of money for food, found out about this and got in with their bets, the random number generator for the program started producing highly predictable random numbers.

A person by the name of W. B. Grandjean, who is secretary of the American Checker Federation, has come up with some estimates for computer checker programs that play by exhaustive search. Someone made the comment that a computer checkers program could play by merely playing out all possible games playable from a given move until the end of the game and choosing the move that produces the best outcomes. Well, 'tain't so, says W. B. G.: compared to 10^{120} possible move sequences for a chess game, there are only 10^{50} for a checker game. It

was estimated that the computer could examine about 10^{22} moves per second, thereby implying it will only take a machine 10^{20} years to make a move. He also states that the fastest theoretically possible computer would only take 10 billion years to examine all possible moves.

If you think about it, something seems a little wrong here. The first computer mentioned can make 10^{22} moves per second. That's 10^{16} moves examined in the time it takes an average machine around here to execute one instruction. He must obviously not be thinking of an *exhaustive* exhaustive search, but rather one that can use techniques for move trimming.

The above item was based on some mail we received that was addressed to *"S. Melen, Newsletter Editor, M & C Bldg."*... referring of course to the *Computing Centre* Newsletter! This illustrates the perils of incomplete addresses... yes, we did send it on...


Our INTEGER_OF_THE_WEEK this week is

-8

-8 is not really very interesting, but then we need a supply of uninteresting integers to make the interesting ones interesting. (Maybe not, perhaps you can have a set [other than the empty set—the trivial case] whose members are all interesting. Perhaps only finite sets can consist entirely of interesting elements. Maybe infinite sets can too, but I tend to doubt it. Finite sets whose elements are all interesting can be generated by taking the subset formed by the interesting elements of another set [assuming that an infinite set which contains only a finite positive number of interesting elements or a finite set with at least one interesting element exists]. Of course, if the former is true and the latter is false, then it can be shown that only a finite number of elements of an infinte set can be interesting. But then again, whether an element is interesting or not could be a function of what set it's in, which implies that the above conclusions cannot necessarily be drawn. Anyhow, the set of integers is not an infinite set all of whose members are interesting.)

-8 is the -6th term in the Fibonacci sequence. It is also the -2nd perfect cube.
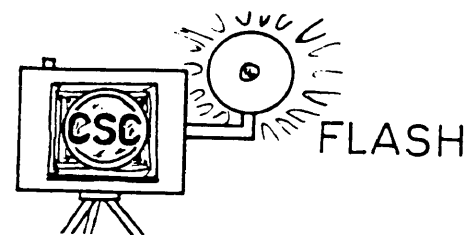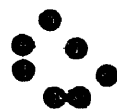
The Computer Science Club held a meeting on Thursday, February 26, which was attended by all of about 10 people. At the meeting, details of the upcoming trip to U of T were finalized. The CSC project of trying to plot pictures, produced at Networks with their TV camera and digitizer, on the Varian plotter, was offered to anyone interested in taking it. David Buckingham finally chose to take it on. A few other minor items were also discussed.

This week on Wednesday, the CSC held a field trip to the University of Toronto. It will be history when you read this, but it's still in the future while I write this, so accuracy cannot be guaranteed in this report. The 15 participants left in the afternoon to see what was happening at U of T in the line of computer graphics. A former student of UW, who is now completing his Master's degree, showed us the nifty computer-controlled graphic displays. Computer graphics is a fairly big thing at U of T.

Another CSC meeting has been planned for a few days from now. We are attempting to get someone to speak at the meeting, but as details are not yet available, all I can say at this time is *keep checking those bulletin boards.*

Antical

This term's Anticalendar class surveys will be beginning shortly. Be in your classes if you want to register your opinions of them!

It has been suggested by some people that not enough copies of the Antical were printed this year. If you feel this way, Math Society would like to know. If demand justifies it, Mathsoc may produce more copies of Antical. Only if you respond to this survey, will this occur.

Should Math Society produce more copies of the Antical?

☐ YES

☐ NO

3

'LETIX

All-STAR JJBT

Volleyball—the final frontier. This is **JJBT**—its two-month mission to seek out new games and new opponents—to boldly play as no team has played before.

JJBT was in absolutely superb form as it closed out its regular season last week. As the match with Virtual Machine C, their second meeting of the season, wore on, it became obvious that the team from the Computing Centre was totally outclassed. The scores were 15-10, 15-0 (yes, a bona fide shutout) and 15-3. The third game was in many ways the most interesting, as it saw the first innovation in many years in volleyball—the 18-player formation, a coaching gem which had impressive results.

. Other highlights of the games were plentiful. During the second game, a flock of badminton birds flew onto the court of play, but the **JJBT** humanitarians stopped the game until they had all flown safely away. Near-hurricane conditions in the gym caused many serves to go astray until the players became accustomed to the wind. There were no individual stars on this night—it was a genuine team effort.

Since this was the last night of the season, the entire University of Waterloo Co-ed Recreational Volleyball Press Association got together to select an all-star team. It was realized beforehand that **JJBT** had dominated the league from start to finish, but just how great was their domination was made clear by the all-star voting—every player who received a vote was a **JJBT** member. Curiously, there was a 23-way tie for the 9 positions. The all-star team consists of the following players (the order of names has been randomized using a "Musical Chairs" unsort algorithm):

Gerry Oue, Mike Finch, Peter Church, Bill Bunker, Doug Bond, Debbie Shelsen, Robert Biddle, Mike Rose, Tom Weber, Marlene Sagan, Brad St. Pierre, Roscoe Statchuk, Graham Ashby, Paul Simpson, Fay Kobayashi, Tom Aitkens, Peter Chynoweth, Peter Wettlaufer, Sylvia Vandervies, Pam Aitken, Ron Steiner, Gord King, and Catfish (Owen Leibman).

Gord "Mad Dog" Hughes of Virtual Machine A received an honourable mention on one ballot.

All that remains now is for **JJBT** to sit tight until the Olympic trials. At this stage, they are, without a bet, Canada's surest doubt for an Olympic Gold Medal.

JJBT Road Hockey Division had its first match ever last weekend. Due to a lack of sufficient warning, they were forced to play under-manned, and consequently bowed 15-10 to a team led by Bobby "Johnson-shoes" White (alias R. J. White). It was actually remarkable that **JJBT** lasted the game against their vicious opposition, which was guilty of such heinous offences as splashing too many times to recall. The opponents were also guilty of extremely unsportsmanlike conduct in taking advantage of our poor defenceless goalie by forcing him to try to stop four-on-zero breakaways on at least a dozen occasions. The game was not a complete washout, however, as Catfish, displaying one of the meanest backhands in the game, put in five goals and added three assists, falling just short of Darryl Sittler's record. There will be a rematch next Sunday, and this time **JJBT** will have its entire team out. Order your tickets now—they are bound to go quickly!

It is now time for an official **JJBT** prediction about the outside world. In past weeks, our team of analysts has privately picked Heward Grafftey to win the Conservative leadership, Poland to win the Olympic ice hockey gold medal, and Manuel Orantes to defeat Jimmy Connors. With such an impressive record, we have decided to go public with our predictions. Consequently, here is our Stanley Cup prediction—Toronto Maple Leafs will defeat the Chicago Black Hawks four games to two in the Cup final. Remember, you read it here *first*.

Lonely Hearts Trob

Today's "Trob" article will probably be very short. In the constant anti-inflationary struggle to get his money's worth, the Trob tonight took a bus from the terminal to the university; *via Fairway!* This is one way to fight grossly inflated bus fares.

In a less serious vein, there is a pseudo-bug in VM Spacewar, which allows you to run your energy right down to zero and continue to operate. In fact, if you move at less than warp 1, your energy increases!

---

leconnell advises that his unbeatable (?) tic-tac-toe program is now available in games/tic-tac. Chronic game players take note.

Have you ever looked for a terminal at 3:00 a.m. (=12.5 chrons)?? It really isn't as difficult as it might sound. Terminals, you see, are largely dormant at night, so that the terminal you left at 10:00 p.m. (=91.66... chrons) is not likely to have moved significantly. Of course, terminals are known to wander away in the night to some "Terminals Graveyard" to die, on an all too frequent basis.

This week's *COMPUTER_OF_THE_WEEK* is the unidentified machine which last week's Chevron reported had been taught to do needlepoint. Purists may argue about the value of the work done by Professor Ken Adams and graduate research assistants Don Thorne and Fred Miskew, but it should be remembered that that bane of the true computer bum, the punched card, was invented by Jacquard to run his loom.

Come to think of it, the Jacquard loom may have been the closest anyone has yet come to building a Turing machine.

There was at least one method of proof omitted from last week's "Generalized Logic" article. I refer, of course, to manipulation of null labels. Virtually everyone is familiar with proofs for 2=1, based on a concealed division by 0. It takes a very perceptive person, however, to see the parallel between this method and such proofs as:

Nothing is better than good health.
A penny is better than nothing.
Therefore, a penny is better than good health.

These are almost trivial cases compared to what can be done by manipulating null labels as if they were not.

Several people have or have seen a book which is called "Computer Lib" on the obverse and "Dream Machines" on the reverse, or vice versa. This is an excellent but apparently scarce book: i.e. a friend of mine got a copy at the Bookstore, but now they never heard of it!

Letters to the Trob

There was only one "Letter to the Trob" this week:

Dear Trob:
Has anyone ever found a use for stable "Life" patterns? Some of the ring-shaped patterns seem so trivial that I have to wonder.
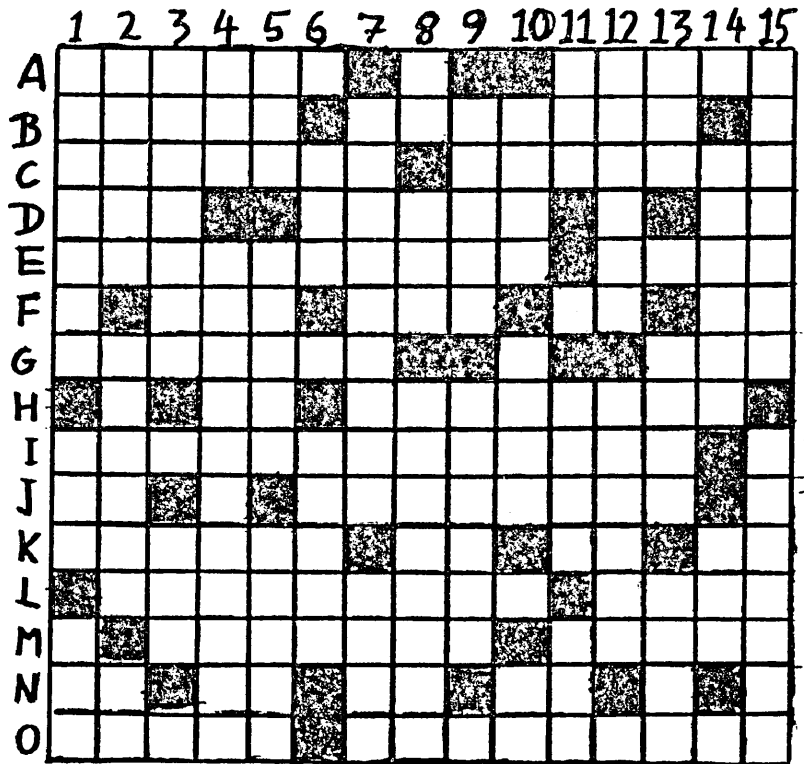
Mantis Bacon

Dear M. B.:
I have wondered about that myself. The best answer anyone has given me is that it is fun and interesting to see what happens when you feed a stable structure to an "eater". (I am told that some, such as the ubiquitous "burloaf", are extremely interesting to watch as they are destroyed.)

Exil Q. Trob
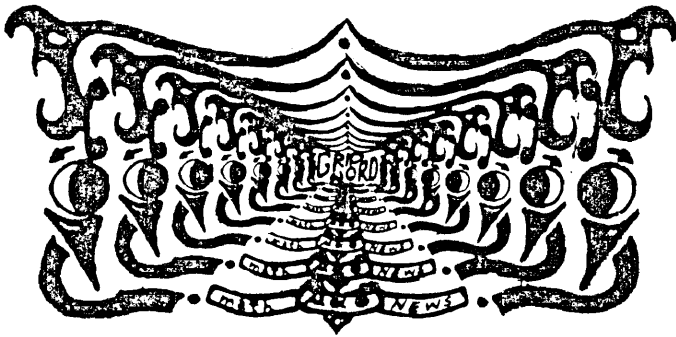
4

A1 Furthest from earth.
A11 Ma Bell's are going up.
B1 Snake-in-the-grass.
B7 What's aweigh?
C1 Self-defense for moose.
C9 You should be, of warnings.
D1 To you (Lat.).
D7 Street joins K-W?
D14 Greek letter makes frequent appearances.
E1 Elevation to godhood.
E12 If you place it, it helps. (2 words)
F3 A new prefix.
F7 They say it's hell.
F11 Exists.
F14 $(2.718281..)^2$.
G1 Some n-jineers analyze them.
G13 Growing this is an ancient fear.
H4 Iron horse's rear end.
H7 Saint's attribute.
I1 Something one must do, if one can't to everyone. (2 words)
J1 Italian article.
J6 Avoided by sailors in storms. (2 words)
K1 Unwanted line? ____ it!
K8 Musical French article.
K11 Most usual response when trying to borrow money.
K14 Preposition is right ____.
L2 The art of teaching.
L12 National Potbellied Research Group??
M3 Ancient plea.
M11 There was one of Nantes.
N1 Add this to a type of nail, and it's the best defense.

N4 Vowel-first article.
N7 Silver, to a chemist.
N10 =14K ↓.
O1 Did refining metal stink?
O7 Comes from a mid-west state.

1A Gods incarnate.
1I Your home on writing paper?
1M No shortage with some profs.
2A Intention for Playboy's central figure.
2G You might have, if it hurt.
2N Is the science of creative intelligence copyright?
3A In QED, they're T, V, I, O, etc.
3K A type of service.
4A Semi-solid.
4E 4, 35, 84 are such numbers.
5A Before, in poetry.
5E Department-store Santas in off-season?.
5K Bit of badness.
6C Bitter feeling.
6I The Yanks will do it to a president this year.

7B What you need when something chewed up a Bear Paw.
7L Helps in comparing.
8A Preposition not used in describing exits.
8D International Studfarm Agency?
8H The knights only recognized this. (2 words)
9B Mormon Tabernacle, for one.
9H French article, high card. (2 unrelated words)
10B R. I. Reds for example.
10G You are one, if you think my uncle's a brain sturgeon.
10N Logical operator.
11A Cheap caviar?
11I The signs say it's noble.
11M Feminine of eno?
12A Feminine accusative plural of Latin adjective "steep, towering".
12H Master of Rivendell.
13A The Secret Fury?
13G Old Susy Fell Elegantly.
13L When choosing guitars, do it carefully.
14C If 7-UP's christmas symbol was a long fish...
14K Sauron's minion.
15A Private greeted major.
15I 2,240 lbs.

GRID COMMENT

5

...continued from page 5
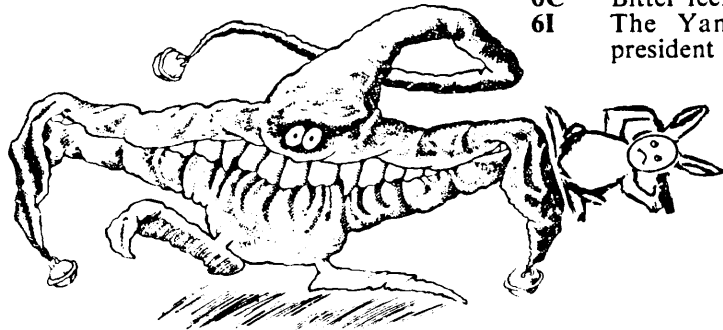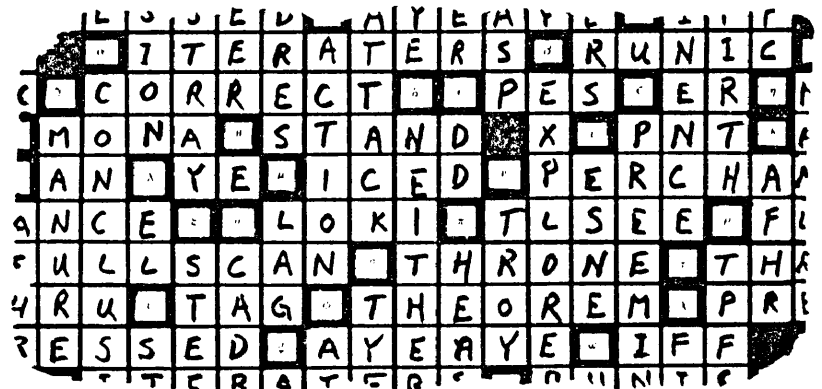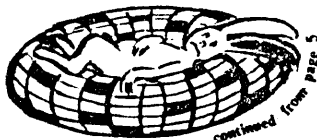
Last week's twisted toroidal managed to draw 20 submissions from 19 different people. Of these, 11, from 10 people, were correct. We might not have noticed the double submission if J. R. Miller (who won a T-shirt two weeks ago) hadn't claimed his certificate and had the same name as the "doubler". Word $\psi \rightarrow$ contained the most common error.

This time it might be noted that all the errors came from the submitters! That's right, we didn't make any mistakes last week. (Yes, Owen, you can believe it.) How's *that* for tradition-breaking? The winner was

Giacomo Tonon

...who can pick up his T-shirt voucher at any **mathNEWS** meeting.

We must also mention

Philip Kelly

...who submitted his solution on a C&D donut.

The Rules

Since more and more *Gridword* creators and solvers appear not to have seen the rules we have printed, we decided to reprint them. We then discovered that the rules for creators had been printed so long ago that nobody here knew what they were. So here are the *new, new* rules...

Gridword **solvers** may place their solution in the **mathNEWS** *mailbox* across from the third-floor lounge, or in our mail slot in the Mathsoc office MC 3038, or deliver it at the beginning of a **mathNEWS** production meeting, normally 7 p.m. in MC 3011 the Tuesday after the issue appears. The deadline for mailboxed submissions is 7 p.m. on production nights.

Subscribers may use postes-CANADApost, and if their submissions are *postmarked before the deadline* but arrive after it, then they will be held until the end of the term and drawn from. There haven't been any such, so far this term!

The winner is decided by a random selection from the correct solutions, if any. (We didn't say *uniform* random: people who have won, or submitted duplicate solutions, in the past 4 months or several times, have less chance of winning.) The winning solution is awarded a T-shirt. The solver is awarded custody of the T-shirt until the solution reaches age 18.

Gridword **creators** may use any of the above means, or may put the clues and solutions in files on TSS and mail us the filenames (or just type the clues and solutions in as a mail message). We prefer the TSS method—mistakes are less likely.

The grid should contain a minimum of 120 squares; we prefer 15×15 with no more than 20% blacked in, but will use smaller or blacker ones if we have nothing else.

unclassifiable A D S

mathNEWS will print your **ads free of charge.** Just jot them down on a piece of paper and put it in our *mailbox* on the third floor across from the C&D lounge, or take it to Mathsoc and have them put it in our mail slot, or put it in the mail addressed to **mathNEWS**, MC 3038, or send them in the mail subsystem on TSS to userid **mathNEWS**.

For Sale: 7" reel recording tape. 25 reels, ¼" × 1200' acetate unused. $25. Contact **JKThompson** on Honeywell mail or in MC 3035.

To Sublet: May 1 to August 31. 1-bedroom apartment. Clean, quiet building. Close to university (Erb St.). Contact **Bill** or **Brad** at **885-3522** (mornings or evenings).

To Sublet: May to September 1976. 1-bedroom apartment, $150/month, close to university, bus route, and shopping. Call **Heather, 885-4348,** after 7:00 p.m.

To Sublet: 2-bedroom apartment, for Spring term (May to August) 1976. Only a 5-minute walk from either university. Close to bus stop, shopping center. For only $235/month you get appliances, underground parking, and much more. Call **885-2522** after 6:00, Monday to Thursday.

For Sale: Stereo amplifier. 22 W RMS per channel. Asking $100, but no reasonable offer will be refused. Phone **885-3072,** ask for **Brian.**

Toronto living, summer 1976. 2-bedroom apartment in Thorncliffe Park to share. 1 bedroom is available for two people in a large clean apartment (one person is staying for the summer). One parking space, air conditioning, utilities included. Fifth of six floors. Close to Don Mills & Eglinton area and good TTC to downtown Yonge & St. Clair. Buses stop outside door, and travel to subway. City park (with tennis courts) and a shopping plaza a few steps away. For more information, call Gregg at: **416-443-7147** (7:30 a.m. to 3:00 p.m.); **416-425-9367** (otherwise) If not in, leave a message and your call will be returned.

Ottawa: Furnished large 2-bedroom apartment to sublet May 1 to August 31. Bronson and the Queen's Way. Close to all services. Girls preferred. Rent: $230 per month. Write: **Janet Selman. 1203-311 Bell Street South, Ottawa, Ontario K1S 4K1** or phone: **1-613-235-5381** evenings after March 1.

Meeting: Steve Self Fan Club, Monday, March 8, 12:00 midnight at Campus Centre Pub.

Wanted: persons for position of president, vice-president, treasurer, and various and sundry other positions on a UW society spending $12,000+ of *your* money annually. The name? **Mathsoc** —concerned math student

Personal: pet rock stud service. Proven champ available. Guaranteed litter of rockettes with pedigree. By appointment only. Call **Rocky, 886-0854.**

For Sale: one autographed volleyball. Due to a machine failure, a large sporting goods factory has a great number of "seconds" to sell. The **JJBT,** having heard about this success, true to the **JJBT** spirit, has agreed to hand-autograph each and every ball, and that's not all, we can make this tremendous offer all for the price of a CN Tower Special. For more information consult future copies of **the Times** of London.

Wanted: one metric wristwatch to fit a typical wrist. Also one metric bicycle radio to fit a non-typical bicycle. Please send a metric musical note to **pcchynoweth.**

Wanted: Antique dealer wishes to obtain well-tempered clavier. Will trade one set of dis-tempered snare drums and a .41675Q clarinet (unused). Contact **R. S. Steiner.**

Wanted: one veterinarian willing to give distemper shots to a guitar. Send mail to **pcchynoweth.**

J. W. B. MacAulay ...created this week's *Gridword*, for which he also gets a T-shirt. As for the other submissions, those from Ian ("You asked for it!!") Taylor and Noel Zeldin are definitely too small. They can reclaim them by coming to the next production meeting (and maybe build decent-sized entries about them as cores). **The fourth one is okay, except for being too black—we'll save it for when we're desperate.**

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Twice a Day

Dear mathNEWS:

I have a riddle for you. "Which would you rather have, a clock that runs fast by an unknown, constant, amount, or one that is stopped completely?"

Answer: The one that is stopped completely. It will be right twice a day, while the slow [sic] one will never be right.

My answer: One that is running. *When is the clock in the lounge going to be fixed?*

R. A. Nash
(The Mad Clockman)

Resources Reasonable

Dear mathNEWS:

Last week Dora pointed out that I had not written you a letter. So here is one for this week. I would like to comment on an article by W. M. Gentleman concerning resources on the Honeywell. I think that they are more than reasonable. There are many projects available, and they are willing to accept any reasonable idea. Some are quite easy, perfect for a beginner. Since the Honeywell is the best system available on the campus, they are very generous with resources.

D. R. Mowbray

No Answer Burloaf this week

Dear Mr. Burloaf,

In last week's **mathNEWS**, you noted that the Fibonacci sequence did not have much practical value (although you observed that it was useful for encoding things). In the October 1973 issue of the CACM, (Volume 16, number 10, pp. 615-618), there is a description of a set of storage allocation algorithms which are similar in spirit to the "buddy" allocation scheme, but which use the Fibonacci numbers as the sizes of the blocks allocated (instead of using the powers of two). The author claims that this gives better peformance than the powers-of-two buddy system under many common situations.

Yours Faithfully,
Charles H. Forsyth
(Fourth Year Mathematics)

Metric Error

Dear mathNEWS:

I feel that an error was made in your article on metric radio. Since 1 Hz = 0.864 av, a frequency in Hz has a correspondingly lower value in av. Therefore, the Medium Wave band runs from 467 to 1387 kav, and the FM band runs from 76 to 93 mav. The danger is that someone looking for WGR at 640 kav (when he should try 475 kav) will accidently find CBL (at 639 kav). All that culture and intelligent programming coupled with the lack of commercials might kill him.

I note that you have rounded off your values of frequency so that they all end in zero. This is not really neccessary and is a result of being accustomed to the fact that in North America stations are spaced 10 KHz apart. In other parts of the world frequencies like 1215 and 733 are not uncommon.

Here is a correct list for local listeners with metric radios:

Medium Waves

WGR 475	CKEY 510
CFTR 588	CBL 639
CHML 777	CFRB 873
CHUM 907	CKKW 942
CKFH 1236	CHYM 1287

VHF

CJRT 78.7	CKPC 79.6
WBUF 80.4	CBL-FM 81.3
RW* 81.3	CHFI 84.8
CKFM 86.3	WBEN 88.1
CFCA 91.0	CKLA 91.7

*Radio Waterloo (cable).

J. A. Coles

You are absolutely correct. I used a slight variant on the Proof by Esthetics—Statement by Esthetics. Using my (incorrect) calculations, I saw that the FM band would start at 100 Mav. This result had such obvious metric significance that it had to be right. Consequently, I performed the rest of my calculations using the same formula. I am glad to see that someone was paying enough attention to pick up the error.

Metric Editor

(We think this letter is a plant)

Likes Licks

Mathews [sic]:

I don't know if you realize what is going on, right under your noses, in This Building on Thursday nights. People are actually having a good time! The Karl Friedrich Gauss Foundation "Licks" was showing Vonnegut's *Between Time & Timbuktu* and Bergman's *Seventh Seal*. They are showing others, see their posters.

The movies themselves were excellent, but more than that the mood of the hall was really pleasant—I found it hard to believe that the room was actually that most ugly of lecture halls, MC 2066. The people running the show did what they could to make the evening nice—they had music playing, a free cookie for all who came (homemade, not some Dare product); they were always ready with a smile or a friendly little chat, but best of all was the food. No pop, nor chips, nor licorice, nor any other kind of crap food found its way into the hall that evening. Instead we had hot chocolate, strawberry tea, apple-spice cake, and 2 varieties of pound cake (all homemade) to nibble on. The Gauss people told me that next week would be even better and that they would welcome and appreciate any ideas—particularly the "unusual or bizarre".

I'd just like to close by giving these groups a big thank-you, and I hope that some other people will discover what they are missing and give the Gauss Foundation their vote of confidence as well.

Paul Taylor

Metric Music

For the past two hundred years or so, Western music has used the well-tempered scale. Ever since Bach wrote his pieces for the well-tempered clavier, the rest of the world has blindly followed suit. This scale has *do* defined as a certain frequency (in Hz), with the *do* above (one octave) having a frequency twice as great. The octave is then divided into 12 equal intervals (semi-tones). The ratio between the frequencies of two consecutive semi-tones is consequently the 12th root of 2. This is, of course, a very clumsy way to handle music in that sound is continous but the scale is discrete.

Metrication to the rescue!

Introducing the answer to the well-tempered scale—the metric, or dis-tempered scale. Instead of *do*, the first note in the scale is now **is**. At twice the frequency of this **is** is the **is** above. The span between **is** and **is** will be renamed the dekave (it is the same range as an octave). The dekave will be subdivided into 10 equal intervals, aves. The ratio between successive aves is the 10th root of 2. The full dekave will be: **is, ja, ke, li, mo, nu, oy, pa, qua, ru, is** ...which is, of course, much more mnemonic than *do, re, mi, fa, sol, la, ti, do* (with apologies to Oscar Hammerstein II).

What about specific pitches? In the old style, A through G were used to represent the notes, with middle A having a frequency of 440 Hz. The dis-tempered scale uses I through R, with middle I being 400 av. Thus, the I above middle I has frequency 800 av, and the J above middle I has frequency 428.71 av. Naturally, we need a new musical staff, with 6 lines instead of 5 so that all of I through R can be shown on the staff. Instead of a clef (treble, bass, etc.), we use an arrow to point to I on the staff. The actual notes (.25 notes, .5 notes, whole notes, etc.) are the same as before.

Those of you who are alert will immediately notice one point. The dis-tempered scale was designed to be continuous, but it seems discrete. The solution is related to the accidentals (sharps and flats). Whereas, until now, one was limited to sharps, flats, and the occasional double sharps and double flats, the dis-tempered scale allows any fraction between notes. Just by preceding a note with a (real) number, one can raise or lower the pitch by any amount. Thus, if an I is preceded by .1, this means that the required frequency is $I + .1 \times$ tenth root of 2. A negative number lowers the pitch in a similar manner. This allows access to any pitch. To cancel a previous accidental, just precede the note by a 0. To create imaginary sounds, use a complex number in front of the note.

This does lead to one slight drawback, however. Almost all instruments in existence today would be useless. Only the trombone, most percussion instruments, the stringed instruments (with slight modifications), and the double-reed inverted slide music stand (thanks to P. D. Q. Bach) would be of value. However, some concessions must always be made in the name of progress.

A word about your homework assignments—there were 1200 copies of **mathNEWS** distributed last week. and only one person (Alan Deacon, who received a mark of 90%) did his homework assignment. This means that 1199 of you did not do so. I must impress upon you the importance of these assignments—if you do not familiarize yourselves with the new metric units by the time they are officially implemented, you will appear to others to be as clueless as those radio announcers who still insist on giving temperatures in Fahrenheit.

As an extra incentive this week, a 380 mav recording of Beethoven's Ninth Symphony will be awarded to the first person who correctly answers both homework questions and the bonus question.

Homework

(1) Is a 380 mav record an LP?
(2) Translate all of Bach's pieces for the Well-tempered Clavier to pieces for Dis-tempered Clavier (assume such an instrument exists).

BONUS..Translate Beethoven's Ninth Symphony (remember—the vocal parts must also be dis-tempered).

HINT: To change from old to new notes, multiply the old frequency in Hz by .864 to get the frequency in avis, e.g., A (440 Hz) = 380.16 av. Then, translate this new frequency to the corresponding note, e.g., A = .259335 R below middle I.

Please send answers to either *rssteiner* or *ocleibman* via Honeywell mail.

Barry Tone's
Shots
for the Dis-Tempered Clavier

(JJBT theme)