



Volume 35 Number 5

Friday, July 13, 1984

mathNEWS

Prof. Graham interviewed
Platter Spatter (3 of 'em!)

Imprint update

FeedBach

3-D GridWord

Comparison test:



Macintosh




Cairn

vs.

LookAhead

A glance at upcoming events

Math Events
July 13: <i>Wine and Cheese</i> July 19: <i>End of term Pub</i>
Fed Flicks
<i>Fed Fliz</i> are held on Fridays and Saturdays in PHY 145 at 8 pm. Cost: \$1 feds, \$2 others.
July 13-14: <i>Beyond the Limit</i> July 20-21: <i>Flashdance</i> (last one this term)
Cinema Gratis
Starts in the CC at 9:30 pm. Get there early and get a good seat!
July 18: <i>Body Heat</i> July 25: <i>A Funny Thing Happened on the way to the Forum</i> August 1: <i>Rebecca, Rear Window</i> (last CG this term)
mathNEWS dates
July 21: mathNEWS articles deadline July 23: mathNEWS production night, MC3038. Come one, come all and meet the mathies who bring you this publication. Enjoy free pizza, too! July 27: Last mathNEWS this term available
mathNEWS Birthday Club
 Happy Birthday!
July 13: Brenda's Birthday July 18: Barb Lundhild
DCS Courses
Free! One to three one-hour lectures; contact DCS to register.
July 16,18,20: CMS, Part I July 17,19: Introductory UNIX
Other Things
July 14-15: Watsfic presents AD+D Tournament...\$4 (\$3.50 Feds Watsfic members)...call 576.7724 or visit MC3036 for more details. Sundays: <i>Fass</i> writers meetings 1900 hours, MC5045 July 20: <i>Mug</i> Coffeeshouse...on top of Engineering Lecture hall, weather permitting. 8:30 to 11:00 pm..

And now to explore the further reaches of the MathSoc typewriter, with ümlauts yet. Undying thanks go to Jan Gray for making this issue possible. Writing credits to nyfe(mathcol, pulse), djcl (cookbook, gridword, takith), slash (platters), marcel(entertain, loyal), James Gorman(bytes), tedoner(dspu), watts(graham, mutual), Scooter! (imprint, parliament), genia(post-card), dwarf(elsewhere), not me(life, etc.), and those whom I have forgotten. Production credits to Watts(typing, editing, cover), Genia(everything),

continued on page 6

Parliament dissolved

Election September 4

Bet you never thought mathNEWS would actually bother to report something as trivial as that, did you? Our reporters (plural?) have gone to great lengths (actually heights, the fifth floor of the Arts Library) to obtain information on the Election Act and how it affects you as a voter.

We believe that for most of our readers, this will likely be the first time they have voted federally, and that many haven't even done so provincially or municipally. As a result, here are a few pointers:

- 1) According to the Canada Election Act, if you are on workterm at the time of enumeration, then you are viewed to be temporarily employed there, and as a result, you are to vote there. Otherwise, it is the site that you are calling your home. This is, for us, somewhat ambiguous, as are we at home here or from where we come? It all depends on how we ourselves view it at the time of enumeration. There are always advertised revision sessions of the preliminary voting lists, and at one of these in your preferred riding and point out that you are there most of the time/your family lives there/you consider that your home and tend to be there a lot of the time. Check with the Election office to be sure about the technicalities concerned.
- 2) The election is September 4, with advanced polls on August 25 and 27. Check the newspapers in your chosen 'home' riding to find out where they are if you don't expect to be there on the election date. They are open from 8 in the morning to 8 in the evening.
- 3) **mathNEWS** is usually apolitical, but we are actually giving our hearty, unbridled, and somewhat demented (but keeping in **mathNEWS** spirit, what would you expect?) support to the only party that can properly misgovern this country, *Le Parti Rhinoceros*.

Mutual Life Joins ICR

Mutual Life of Canada has joined the University of Waterloo's Institute for Computer Research as a corporate partner in the first research and development agreement between the university and a major financial institution. Partnership is based on the contribution of \$250,000 over five years to the ICR. Other corporate partners to date are: IBM Canada Ltd., DEC Canada Ltd., Honeywell Ltd., NCR Canada Ltd., Northern Telecom and Watcom Group Inc.

Mutual's Chairman/CEO John Panabaker believes that "our membership represents an unrivaled opportunity to stay abreast of the latest innovations in computer research and state-of-the-art equipment." Dr. Wright, President of the University, considers the partnership particularly significant because it is a financial institution and the first "non-conventional" member. Says he: "Mutual Life has made major commitments to modern information systems and communications technologies and it is in keeping with this thinking that they should take advantage of the opportunities afforded by membership on ICR."

Prof. W. Graham

An interview

Professor Wesley Graham, born in Copper Cliff, Ont., joined the faculty at Waterloo in 1959 as an assistant professor. He had obtained BA and MA degrees from the University of Toronto and subsequently worked for IBM for several years. He participated actively in the (later to be called) Computer Systems Group's activities, including the development of the WATFOR and WATBOL compilers. He became associate professor in 1963 and a full professor in 1966. He has held the posts of Director of Computing (1962-1973), Associate Chairman for Undergraduate Studies in Computer Science (1978-), Director of the Computer Systems Group (1979-) and Dean of Computing and Communications (1983-). He received the Distinguished Teacher Award in 1979, and is one of the best-known and most influential faculty members at Waterloo.

mathNEWS: Since you came to Waterloo, 25 years ago, what would you say has been the single most important change, aside from the general appearance of computers?

Graham: Microcomputers. The newest thing always seems to be the most significant... The whole 25 years has been a struggle to bring computer capacity to the students so they can learn about computing and how to use it. It's only since microcomputers came on board some four years ago that the real potential of the computer has been realized. It's become much more exciting to teach people the better systems that have been developed. A microcomputer allows you to have a very intimate relationship with the computer; you have the complete machine under your control, with the graphics and special input devices like mouses and graphics tablets. These have brought computing to the masses.

mathNEWS: The University has gained a very good reputation in Computer Science. What reasons would you attribute this to?

Graham: The main reason is the great depth of students that have come to Waterloo over the years, and these students have worked very hard producing software that has been accepted worldwide, like WATFOR was, and sometimes just getting good marks in school and going out to work and making a good impression.

A university is there first and foremost to work with the students, and if you have good students, they will go out and help make the reputation for the university. If we didn't have good students, we wouldn't have any kind of a good reputation at all.

mathNEWS: How much of a role do you feel the co-op program has played in all this?

Graham: The co-op program has certainly played an important role in this. It helped attract good students. I think they came here partly because of the attraction of computers and because they could have an attractive job in a new technology, and partly for purely pragmatic reasons. These students have then applied their talents to help the university become what it is. Of course, the University has to provide the right kinds

of facilities, but the whole thing would fail were it not for the quality of the students.

mathNEWS: How did the establishment of the Computer Systems Group come about?

Graham: The Computer Systems Group came about because we developed WATFOR...

mathNEWS: Which was not yet done by the CSG?

Graham: No, but the CSG just got a name later, in about 1970. Informally, it existed right from the beginning. What happened was that in 1963 or 1964 we were unable to process the number of FORTRAN programs that we had to process, mainly for the engineers, and so the undergrad students, four of them in their third year, got together and wrote this special processor, WATFOR. It turned out that the same problem that they solved existed in universities all around the world, and so we distributed that compiler for a fee. This brought money into the university, and this was initially used to maintain the program.

It turned out that more income was coming into the university than was required for maintenance, and so we were able to develop a COBOL processor, WATBOL, and many others as the years went by. At some stage, about six years after this had started, the thing was formalized and called the Computer Systems Group. Prior to this, it existed just as it does now, but without a formal framework.

mathNEWS: What were the main reasons for replacing WIDJET with the microNET? The latter obviously is much more pleasant to use, but was this the main reason?

Graham: It's an evolutionary thing. The reason WIDJET was put in was because the students could not bear, and neither could we, the use of punched cards. WIDJET was much more pleasant than punched cards, but it was only a job entry system. It did not interact with the user at runtime, as the program was sent to a mainframe to be run.

When microcomputers became available, we were able not only to prepare the job, but run it right on the microcomputer, so why not do it that way, if it is no more costly. WIDJET was just a phenomenon of its time; it was important, but it never did do the job as well as we would have liked. We really didn't see the real potential of computers in education until the microcomputer arrived. All the rest was just a struggle, always trying to do half the job. Now, there is a possibility we can do *the* job.

mathNEWS: Is microNET here to stay, or will it be replaced by something faster in the future? Some of the PC's on the second floor appear to be running JANET now...

Graham: The microNET is also a highly temporary thing. It is one network that is possible to put in place today, because the technology is there. But we know that the networks should work in a different manner (faster speed, for example). microNET is just a temporary backstop, so to speak, and we are working furiously to replace it.

mathNEWS: Do you feel it is good or bad to expose the students to a large number of different user interfaces? For example, microNET, Student CMS, Honeywell and Unix are very different.

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Graham: Well, it's both good and bad, depending on the student. I think that for people who will become professionals in the computer field, it is good, but for the majority of our students, who will use the computer mainly as a tool, I feel it is a great shame having to interface with so many different kinds of machines. It's just a hassle, like giving everyone a different desk calculator for every course they take, having to learn the different keys, and idiosyncracies.

I think there should be both a common interface for all the students on campus, and for people who want to have the varied interface, they can do that too. They can just walk up to it and use it as if it were a Honeywell or whatever.

mathNEWS: The latter group being the CS majors?

Graham: Certainly.

mathNEWS: The Computer Systems Group has lately done much of its development work on PCs and other IBM equipment. Will this be changing somewhat as a result of the agreement with DEC?

Graham: Probably. What it really amounts to is that CSG appears to be working on IBM PCs, but all the software is really portable. It's all written in 'C' or WSL, and all the work that is being done can be moved to any other (reasonable) machine. So, I would say that a good deal of work will be done on DEC equipment, or for that matter on any equipment that is available on campus in quantity.

mathNEWS: Will students be receiving any direct benefits from this agreement?

Graham: The DEC agreement?

mathNEWS: Right. Will there be things like more micro labs (with Pros/Rainbows) or more course access to the Unix machines?

Graham: Well, the purpose of the agreement is not to get equipment for undergraduate use, but for research purposes. So, in theory, students will not get any benefit from it at all. However, this is not true in practise. In practise, what happens is that the efforts of the professors will now be directed in research sense to the DEC equipment, and all the rest of the equipment becomes available for student use. You will suddenly notice a lot more IBM equipment available that had previously been set aside for research use. There will be a lot of such equipment freed. For example, it's beginning to look like there is an entire large-scale IBM CPU downstairs in the Big Red Room that was dedicated to research, which will now be moved over to Unix on VAX, so the whole machine will become available for undergraduate use.

There will also be all kinds of interesting jobs for undergraduates, co-op and otherwise, because we will have a lot of work to do on these research machines. The third benefit is that many of the research projects involve creating new systems for teaching the undergraduate. You will see, in a year or two, popping up here and there, new labs, that involve, say, a new Engineering teaching technique using microprocessors. The students then become part of a pilot project, reporting back to the professor, to help debug and improve the system. So, students will be involved with these research systems in two ways: as guinea pigs, and programming and creating these systems. They will experience more computing capacity due to the shift. IBM will become an undergraduate student

machine, while DEC equipment will be used by faculty and grad students for research.

mathNEWS: Would you like to make any final comments?

Graham: I feel that if we don't create truly user-friendly systems, where the user doesn't have to know anything about what's "under the hood", we will never realize the full potential of the computer, and the computers will remain objects of affection for computer scientists, which would be a great shame.

We've seen one great application, being the games. People love playing games, video games. *VisiCalc* is another, and there are countless applications that need user-friendly interfaces, and the computer scientists' challenge is to give them these interface and so to realize the potential of computers.

mathNEWS: Thank you very much for the interview.

Imprint Staff Backs George

On July 3, *Imprint* staff confronted the issue of the petition requesting the resignation of Mr. George Elliot Clarke and voted 9 to 3 in against the demands made by the petition, with one spoiled ballot. Although opinions differ as to the bylaws of *Imprint*, legal counsel advised the organizers of the petition that only ten percent of the on-campus students was sufficient to require action on the petition. At press time, no word was available as to whether the petition would be pushed on to the Board of Directors of *Imprint* in an attempt to force a campus-wide referendum.

The petition arose earlier in the term when a group of *Imprint* staff members felt that the current editor George Elliot Clarke was undertaking policies viewed detrimental to the paper.

When the results of the vote were known, *Imprint* advertising manager and a lead organizer of the petition Kathleen Kelly tendered her resignation from the staff. It is anticipated that other members of the *Imprint* staff will be following suit in the near future.

Also concerning *Imprint*, the Guelph Central Student Association passed a motion opposing actions undertaken by Federation of Students President Thom Allison to pressure Mr. Clarke to step down, taking the opinion that Mr. Allison was interfering with the principle of freedom of the press. As well, two local papers to this campus have taken stands concerning the *Imprint* situation. The *Chevron* gave strong support to Mr. Clarke and his plans to open the newspaper up to the students, and the Engineering Society's *Iron Warrior* gave its support to the plans to open the paper up and experiment in journalism.

In the last issue of *Imprint*, reports on the meetings of the Ontario Federation of Students referred frequently to the earlier divisions between *Imprint* and the Feds, which apparently was a major issue at the event. The concern that arose in the reporting was that *Imprint* held a conviction that Mr. Allison of the Federation was directing the opposition to Mr. Clarke, an impression received by the other universities of the province. An observation about campus shows that this opposition to Mr. Clarke is not simply based in the Federation, but is in fact a grassroots disapproval on the part of a noticeable quantity of students at this institution. When was the last time that EngSoc members, MathSoc members, and the Federation stood on the same side of an issue?

Data Structure Processing Unit

In keeping with the mathNEWS policy of presenting leading edge technology as it happens, we present the following short paper prepared by the COS group (Courses on Silicon).

The Data Structure Processing Unit

A preview

The current trend in microprocessor design had been to put major subsystems on separate integrated circuits (IC). For example, the 32000 family of ICs have several subsystems in different packages: The 32016 Central Processing Unit (CPU), the 32081 Floating-Point Unit (FPU), the 32082 Memory Management Unit (MMU), and new to that family, we add the CS340 Data Structures Processing Unit (DSPU).

The purpose of the CS340 DSPU is to off load both the programmer and the CPU of data structure maintenance tasks, thus increasing the speed and efficiency of both in a manner similar to that of the other processors.

The rudimentary functions of the CS340 DSPU are given here using pseudo Pascal declarations, although, in actual use these functions are the actual op codes of the CS340 DSPU which can be handled by a special assembler.

```
DEFINE (ADT, SIZE, deviation, functions) : DEFINITION;
  where ADT is the abstract data type to be implemented and is one
    of LIST, TREE, TABLE, QUEUE, DEQUEUE, STACK, SET, or MAP.
  SIZE is a mean estimate of the number of elements to be stored
    in the ADT
  deviation is an estimate of the standard deviation of size
    (NOTE: STAT231 SPU (statistical processing unit) can calculate
    the maximum likelihood estimator of both size and deviation for
    you if you leave those parameters as zero.)
  functions is a code representing the functions required for
    your ADT. e.g. INSERT, DELETE, EMPTY, etc.
  DEFINITION is a descriptor of the implementation of the ADT
    which the CS340 DSPU calculated as being most efficient.
```

```
DECLARE (DEFINITION) : CONTROL_BLOCK;
  where DEFINITION is as above
  CONTROL_BLOCK is a descriptor of the ADT implemented. Its
    current state (e.g. the location of the head of a QUEUE, etc.)
```

```
ERASE (Object) : Ok;
  where Object is either a DEFINITION or a CONTROL_BLOCK. ERASE
    deletes the object from memory to the free pool.
  Ok is a return code.
```

In the event that the CS340 DSPU cannot efficiently implement the ADT requested within its current hardware configuration, it will call the CS369 DNPDU (Digital Networks Processing and Design Unit) to design a new circuit to accomplish the task using only gates not currently being used on the CS340 DSPU. (Note: the CS369 DNPDU currently has a restriction of not allowing complemented inputs). In an initial version of the CS340 DSPU the EL E 434 VMU (VLSI Manufacturing Unit) was considered for use but dynamic reconfiguration at the CS340 DSPU was selected because of its superior performance in alcoholic environments.

The CS340 DSPU will have a dramatic impact on the future of computing hardware and software. The CS340 DSPU is now being released to designers in test quantities. When the

CS340 DSPU achieves full production we will begin design of the next series of co-processors; Math 130, Math 230 CaPUs (Calculus processing units). After that we will build our Degree on Silicon project, but this is beyond the scope of this paper.

TEDoner

FeedBack

Dear mathNEWS:

Your cover of Vol. 35, No. 4 puzzled me. What department is C. A.? Whose empire is it? Whatever department it is, the "Pure Mathletics" challenge them (and other departments) to a game of slowpitch (or any other manly contest).

Yours in confusion,
John A. Baker
Department of Pure Math

Dear mathNEWS:

Although I doubt that I'll be the only one griping about this, isn't the moving of the Student CMS printer into the terminal room a fairly stupid move? It's almost impossible to concentrate when somebody's got a printout going and it's not very quiet even when it's not printing. How about formalizing the impromptu petition on the SCMS room blackboard and putting the printer back where it belongs.

cjsgro

(See the TAKITH Prize of the Week elsewhere in this issue...you're not alone!)

Dear mathNEWS:

I don't think you were very fair to the Imprint sports editor, Ms Sandy Townsend. In the first place, there really isn't very much campus sports news to report in the summer. Second, I don't believe she is as ignorant about professional sport as you seem to imply. (I suspect you were operating under some chauvinistic assumptions that female gender and naivete about sports are equivalent.) Third, Sandy has enough problems to cope with already — every day the poor woman faces cruel remarks about her personal appearance, which even the most tactful person could only describe as "masculine". **Society is not kind to women with mustaches!** So please, give Sandy a break.

A. Yoshioka

Mr. Watts replies: If Sandy really isn't ignorant about pro sports, I don't think it's a good excuse to act ignorant just because she is on the Imprint staff.

Entertainment

by Marcel Kahnt

This issue, as a small change of format, I am leaving the movie reviews a bit later while I muse on something strange that is happening at another paper on campus.

I have heard of people that are picky about the movies they see, and who never seem to be quite satisfied with every last point, but these folks at *Imprint* seem to me to be going quite far overboard. They didn't like **Top Secret!**, which is understandable as it took me some time to take a stand on it. They didn't seem to crazy about **Indiana Jones**, which is something I find quite strange. They didn't like **Star Trek III**, although it seems to have split a good number of reviewers. But I then looked at other articles on their Arts page. They didn't like anything!

What gives? It is no problem to like a few points of a few things! I know that most famous Hollywood reviewers always seem to be able to find something weak about any film; but even the best reviewer has his favourites in any year and will say so. *Imprint* doesn't seem to believe in having favourites; it hates everything. This attitude is what gives reviewers bad names, and usually is an indication of unprofessionalism, and even contempt for the film industry's efforts to entertain us. Why doesn't *Imprint* take its job seriously when it comes to the arts, and give things a fair hearing?

Off to the movies...

Now that that is off my chest, I would like to pass on to you some observations as to the movie **Bachelor Party**, glance at Fed Flicks, and peek in upon Cinema Gratis.

The Boys from ...

Top Secret wasn't as good as **Airplane!**, as I said in the last issue. **Bachelor Party** was. I hadn't thought much of it until a former roommate of mine talked me into going to see it with him. Tom Hanks (from **Splash!**) showed some major developments in his comic skills from his previous work, reminding me very strongly of Bill Murray (it's unbelievable! It is

almost an identical style and Hanks seems even marginally better at pulling the jokes off). The movie has some vulgar scenes develop, which never come off due to some strange twists of events. It gets 8 for each of acting, story, and technical, which gives a good all around score of eight. It is at the *Waterloo*, and is well worth the four dollars to see it.

Flicks by Feds

This week's feature is **Beyond the Limit** with Michael Caine and Richard Gere, a film which seems to ring a bit of a bell, but I can't remember any of the plot. Next week is **Flashdance** with Jennifer Beals, which has a great deal of current (?!?!? -ed.) music, some rather skimpy dance outfits, a predictable story, and not much in socially redeeming values. It doesn't get a very high rating as a movie (say 6), but at the same time, I like it and will be going to see it again.

Free Theatre

This Wednesday, they are playing **Body Heat**. I am embarrassed to admit that I don't really know the story to the movie. The following week, however, is **A Funny Thing Happened on the Way to the Forum**, with many of the best comedians of the mid-sixties. It is well worth the time, and it is a classic among modern movies.

MathSoc presents:

MathSoc has two major events in the next week. The first is tonight's **Tattoo-You Wine and Cheese** at South Campus Hall. Of course, it is the thing of the term that nobody misses (except midterms and most finals). Next Thursday, they are considering, based on response at the Wine and Cheese, to run a road trip/pub crawl to some mystery site or sites that even I cannot pry from them, although they are saying that it is a really good list in an area where they don't really know us so we can get away with a lot more. Should be really good fun, maybe even more outrageous than usual!

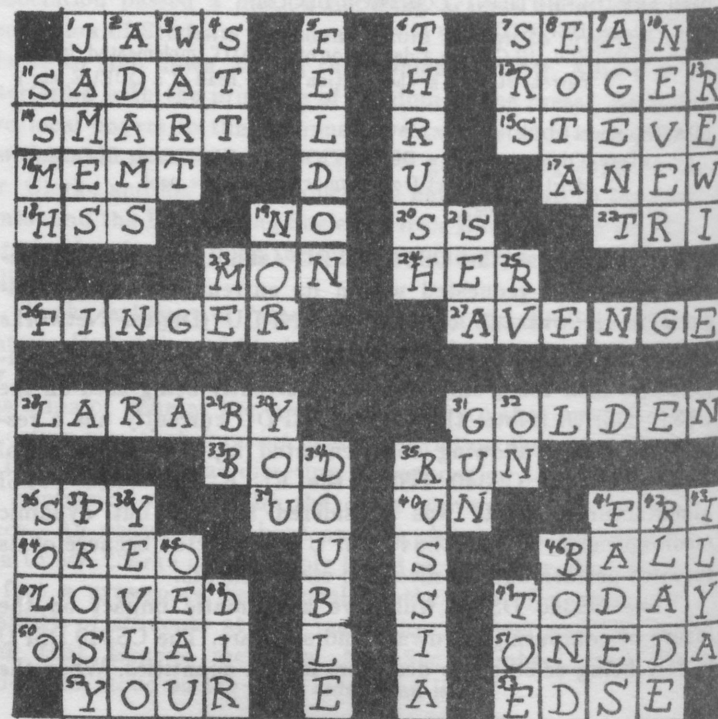
Never say GridComments Again

There were a few minor problems with last issue's Grid-Word. First of all, we forgot to black out a square on the lower right corner of the Grid. The correct solution appears around here somewhere with the extra blacked-out square. We did receive solutions from David Rozee, Ben Hui, Cornell Carter, Brad Maher, Sandra Bard, Sue Johnston, Charles Fernandes, Karen Bischofing and from our winner this week: Paul Berrevoets. Will the winner please come to MathSoc and claim some interesting prize.

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Athos(proofs), djcl(gridwork, stuff),
Scooter!(research), wjj(crazy hat,
helpful), carol goulette(mfcf prints),
Marcel(eating pizza), Ron Pfeifle
(ditto), blscearce(looking serious),
Not DCS(Not Imagen), bstempleton
(dropping in), me(cover, ad),
and Georg Mandrive(not showing up).
Hurray! One issue left, after this
one ...

TAIvey



Our Bicentennial

The Loyalists

NB: Those Loyalists who have adhered to the Unity of the Empire, and joined the Royal Standard before the Treaty of Separation in the year 1783, and all their Children, and their Descendants, by either sex, are to be distinguished by the following Capitals affixed to their names

U.E.

*Alluding to their great principle
The Unity of the Empire.*

We are the Loyalists who you celebrate this year in Ontario. A mere two hundred years ago, we stayed with His Majesty King George III's forces as they pulled back from the rising anarchy we felt would result from the revolution that created the United States of America. We found ourselves forced from our homes, our friends, our relatives, our businesses, our society, to be relocated under the protection of our monarch in the unsettled wilds of the western reaches of Quebec, those lands west of the Ottawa river.

Thanking a concern on the part of his majesty's government at Westminster that we be kept safe and reasonably prosperous, the groundwork of not only this province, but this country itself and much of the world as it now exists would have never arisen. Witness our political institutions, merging freeholding voting rights and democracy with crown direction and guidance created an environment upon which a self-governing federal parliamentary democracy could be developed, which has become the most common system of government in the democratic nations of the world. Our businessmen laid the foundation of the current Canadian business establishment, which has taken us from what could have proven a basket-case nation on the northern boundary of the United States to becoming one of the top industrialized nations in the world. Aided by the peoples of other nations around the world searching for freedom and prosperity, we have collectively made ourselves one h--l of a good home here.

But this is all because we were not the normal refugees of a war zone. The Loyalists were the professionals, the entrepreneurs, the educated, who realized that they would prove more prosperous in a stable environment under the crown rather than in the anarchy feared would arise under the popular democracy these rebels to the south so lauded. Were we not right? In only a few years we became a full competitor to these Americans in the business environment, as we had the better education and skills. This success made Canada popular to people of all descents to come and join in the benefits of this country.

Yet now, we, like most others in the country, find ourselves a minority. We are not a noticeable minority, as we descend from many races. Dutch, Scottish, Irish, German, Spanish, French, Swiss, Negro, Mohawk, and even a few English, we all chose the crown and its protection over the anarchy of the south. We became, and remain, a close knit, a culture all our own, but while we held such importance at the start of this province, we are now left a broken clan as society passes us by, failing to view what has become an oppressed cultural body. Still fiercely loyal and proud of our decision

two centuries ago, we have stooped to regularly requesting handouts of Queen's Park, last answered by dumping the only minister from our area. We would prefer that, rather than spending millions of dollars in what is obviously an attempt to win yet another term of office, the Boys from Brampton started giving us the economic aid we desperately need to survive. You may even notice this bicentennial seems to celebrate everything but our arrival!

Marcel Kahnt U. E.

Sauble Beach, Ontario.

Dear Mathsoc, July 6th, 1984.



Thanks for organizing the great trip to Sauble Beach. The 16 of us had a great time! The weather was perfect - we left the rain in Waterloo. Those McDonald's 'fun pails' came in really handy for our sandcastle building contest. Say thanks to Campus Rec for lending us a volley ball, and the bombshelter for the frisbees. On the way home, we stopped at the Paisley Inn, and now I need a nap

BYE!

TO: MATHSOC
U of W
Waterloo, Ont.
N2L 3G8

Errata, Addenda and Apologia

In last issue's *Watts Line*, Sandy Townsend, the Sports Editor of *Imprint* was referred to as "Ms. Townsend". In actuality, that should read "Mr. Townsend". **mathNEWS** apologizes for any inconvenience that this error may have caused.

Also, in *Not the Mathematics Column* last issue, a spurious digit was found in the ISSN number. ISSN numbers consist of two groups of four digits, so the \$a sub 8\$ coefficient should have been removed, and the calculations corrected accordingly.

Not the Mathematics Column

By Not Young Frank Einstein

Since I was on assignment the past little while, I don't have a complete column this week. However, the answer to last issue's question is listed below.

From last issue, I posed a problem involving a hexagon and seven points inside that hexagon. To show that there is at least one pair of points which lie within distance 1 of each other, divide the hexagon into six triangles of unit 1 by drawing lines between opposite vertices. Since there are seven points to fit in six triangles, one of these triangles must have two or more points by the Pigeonhole Principle. And two points within a triangle having sides of length 1 will lie within 1 unit of each other.

Thank you again for your time. Tune in again next issue.

Man, Bytes, Dog

From the New Yorker, July 2, 1984

Many people have asked me about the Cairn Terrier. How about memory, they want to know. Is it IBM-compatible? Why didn't I get the IBM itself, or a Kaypro, Compaq, or Macintosh? I think the best way to answer these questions is to look at the Macintosh and the Cairn head on. I almost did buy the Macintosh. It has terrific graphics, good word-processing capabilities, and the mouse. But in the end I decided on the Cairn, and I think I made the right decision.

Let's start out with the basics:

Macintosh:

Weight (without printer): 20 lbs.

Memory (RAM): 128K

Price (with printer): \$3,090

Cairn Terrier:

Weight (without printer): 14 lbs.

Memory (RAM): Some

Price (without printer): \$250

Just on the basis of price and weight, the choice is obvious. Another plus is that the Cairn Terrier comes in one unit. No printer is necessary, or useful. And—this was a big attraction to me—there is no user's manual.

Here are some of the other qualities I found put the Cairn out ahead of the Macintosh:

Portability: To give you a better idea of size, Toto in "The Wizard of Oz" was a Cairn Terrier. So you can see that if the young Judy Garland was able to carry Toto around in that little picnic basket, you will have no trouble at all moving your Cairn from place to place. For short trips it will move under its own power. The Macintosh will not.

Reliability: In five to ten years, I am sure, the Macintosh will be superseded by a new model, like the Delicious or the Granny Smith. The Cairn Terrier, on the other hand, has held its share of the market with only minor modifications for hundreds of years. In the short term, Cairns seldom require servicing, apart from shots and the odd worming, and most function without interruption during electric storms.

Compatibility: Cairn Terriers get along with everyone. And for communications with any other dog, of any breed, within a radius of three miles, no additional software is necessary. All dogs share a common operating system.

Software: The Cairn will run three standard programs, *sit*, *come*, and *no*, and whatever else you create. It is true that, being a microcanine, the Cairn is limited here, but it does load the programs simultaneously. No disk drives. No tapes.

Admittedly, these are peripheral advantages. The real comparison has to be on the basis of capabilities. What can the Macintosh and the Cairn do? Let's start on the Macintosh's turf—income-tax preparation, recipe storage, graphics, and astrophysics problems:

	Taxes	Recipes	Graphics	Astrophysics
Macintosh	yes	yes	yes	yes
Cairn	no	no	no	no

At first glance it looks bad for the Cairn. But it's important to look beneath the surface with this kind of chart. If you yourself are leaning toward the Macintosh, ask yourself these questions: Do you want to do your own income taxes? Do you want to type all your recipes into a computer? In your graph, what would you put on the x axis? The y axis? Do you have any astrophysics problems you want solved?

Then consider the Cairn's specialties: playing fetch and tug-of-war, licking your face, and chasing foxes out of rock cairns (eponymously). Note that no software is necessary. All these functions are part of the operating system.

	Fetch	Tug-of-War	Face	Foxes
Cairn	yes	yes	yes	yes
Macintosh	no	no	no	no

Another point to keep in mind is that computers, even the Macintosh, only do what you tell them to do. Cairns perform their functions all on their own. Here are some of the additional capabilities that I discovered once I got the Cairn home and house-broken:

Word Processing: Remarkably, the Cairn seems to understand every word I say. He has a nice way of pricking up his ears at words like "out" and "ball" He also has highly tuned voice-recognition.

Education: The Cairn provides children with hands-on experience at an early age, contribution to social interaction, crawling ability, and language skills. At age one, my daughter could say "Sit," "Come," and "No."

Cleaning: This function was a pleasant surprise. But of course cleaning up around the cave is one of the reasons dogs were developed in the first place. Users with young (below age two) children will still find this function useful. The Cairn Terrier cleans the floor, spoons, bib, and baby, and has the unerring ability to distinguish strained peas from ears, nose, and fingers.

Psychotherapy: Hear the Cairn really shines. And remember, therapy is something that computers have tried. There is a program that makes the computer ask you questions when you tell it your problems. You say "I'm afraid of foxes." The computer says, "You're afraid of foxes?"

The Cairn won't give you that kind of echo. Like Freudian analysts, Cairns are mercifully silent; unlike Freudians, they are infinitely sympathetic. I've found that the Cairn will share, in a nonjudgmental fashion, disappointments, joys, and frustrations. And you don't have to know BASIC.

This last capability is related to the Cairn's strongest point, which was the final deciding factor in my decision against the Macintosh—user-friendliness. On this criterion, there is simply no comparison. The Cairn Terrier is the essence of user-friendliness. It has fur, it doesn't flicker when you look at it, and it wags its tail.

James Gorman



From:
uw-beaver!Kevin.Dowling

Pulse

Campus Connections

Here is a brief description of how to send mail to other computers on campus. Please use your system's help commands for more information, or contact us at **mathNEWS**. Please note that some aspects of inter-system mail can change without notice.

Honeywell (Bun): To mail from any Bun account to mathnews at watdcsu, say, just enter the command
mail to watrose/watdcsu/mathnews

The '!' simply delineates the system name from the userid. Note that you can go directly to watmath or watrose from the Bun, but that you need to send mail through watrose before getting to watdcs (CMS) or watdcsu (DCS Unix). To get a mail message to any CMS account, use the TSS command of the form:

**mail to watrose/watdcs/scumsid*

One drawback of inter-system mail is that you cannot 'examine' or 'kill' mail that you have sent to other systems. But it's still a far cry from punch cards or ibmsend. If there are people on other systems trying to get you on the Bun, tell them you're on 'watbun'.

CMS (SCuMS): To send mail from a CMS account to another computer, enter the CMS command
mail userid (at watmath

and you can then enter a mail message to a user on another system (such as 'userid' on watmath). If you want more information on available remote sites, you can enter the CMS command 'HELP REMOTE', 'HELP MAIL', or 'HELP SEND'.

Note that Student CMS might restrict mailing to other computers. Contact **mathNEWS** or a DCS consultant if you have any problems. SCuMS also limits the userid to 8 characters.

UNIX: To mail from one UNIX system to another (say to mathNEWS on 'watdcsu'), just enter the command
mail mathnews@watdcsu

Then, enter the message and it will be sent to the right machine. For more information, try the UNIX command 'man mail', and other similar manual commands.

Computer Names: The following are the network names for some of the more popular computers on campus:

watbun	Honeywell DPS8/49 (the 'Bun')
watdcs	CMS/SCMS
watdcsu	DCS Unix (where mathNEWS lives)
watrose	Waterloo 'Rose' Unix
watmath	Waterloo 'Math' Unix
watdaisy	Waterloo 'Daisy' Unix
watagl	Computer Graphics Lab Unix
watarts	Arts Computing Centre Unix
watcsg	Computer Systems Group

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Editor-in-Chief: Tom A. Ivey

ElseWhen

mathNEWS 10 years ago

SUNSHINE IN ABUNDANCE, MATHIES NOT- "The idea was to get burned, but to get burned with more people." With those words MathSoc president Paul Armstrong summarized last weekend's "math weekend." These comments might pertain equally well to the acute cases of sunburn resulting from Saturday's picnic at Columbia Field or the burning taken at the door for the three pubs where approximately \$350 was lost... Turnouts for the outdoor activities fared no better... The bicycle rally attracted only two entrants and two winners...

SLOW-PITCH BATTLE- The big contest of the weekend (the only one anybody can remember, anyway) was the St. Paul's College-MathSoc Slow-pitch Battle. Math streaked to a 17-0 lead after the first inning, then disaster set in. Reinforcements arrived with 2 cases of beer and 3 bottles of wine. Math's play slowly deteriorated until St. Paul's was only four runs behind. Miraculously Math held on and went on to glorious victory—score unknown.

MORE COMPUTER CHESS- With all the interest in chess generated by the First Canadian Computer Chess Championship, many people decided to make writing a chess program their aspiration. One notable program was Desperado, a creation of Tom Duff... Written in only five days, Desperado clobbered Hiccup, a program of many months' work. Desperado also held off defeat from Ribbit for longer than Dart 4.0 did. The program is not without bugs, however; the most serious being its insatiable hunger for CPU time... Upon some investigation, he found some other bugs that caused to him to wonder why the program worked at all...

{Taken from mathNEWS, Vol. 5, No. 5, July 11, 1974}

The TAKITH Prize of the Week

The big winner of the TAKITH Prize this issue (and this is the winner by a light year) belongs to those who moved the CMS debug printer from its previous location (where it happily printed without much inconvenience to students) to a location within the north side CMS terminal room (MC 2036). In its new location, the debug printer whines merrily along as students attempt to complete their CS assignments in the noise. In fact, a petition was even started on the terminal room blackboard. Please, someone find a new home for this printer!!

TACKY Grop

MathSoc presents the:

Tattoo You

Wine & Cheese

Friday, July 13th, A.D.1984

9:00 pm to 1:00 am at SCH

2 Free glasses with a **Pink Tie or Pin**

Math Slags ... \$ 3.50

Generic Slags ... \$ 4.50

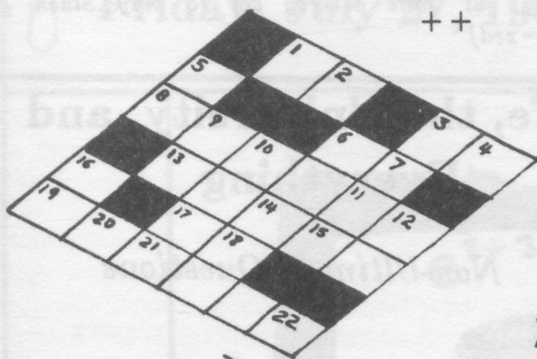
D. J.

\$ 0.50 discount

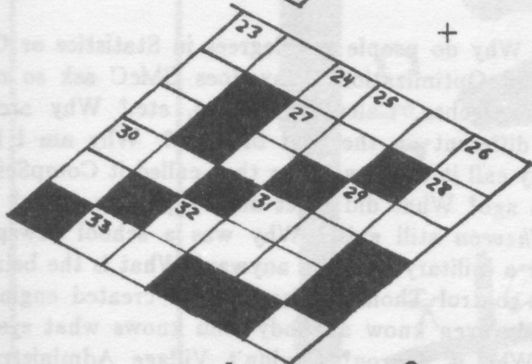
with a tattoo

GridWord the Thirteenth, Part 3-D

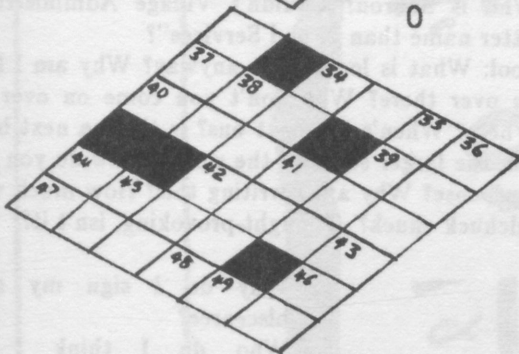
Just when you thought it was safe to read **mathNEWS** again, it's time for another three-dimensional GridWord. To make it even more challenging than the last 3-D GridWord, we've omitted x-direction clues (except those that are absolutely necessary for a solution). Send your answers to **mathNEWS** via the black box across from the smoking lounge (3rd floor MC).



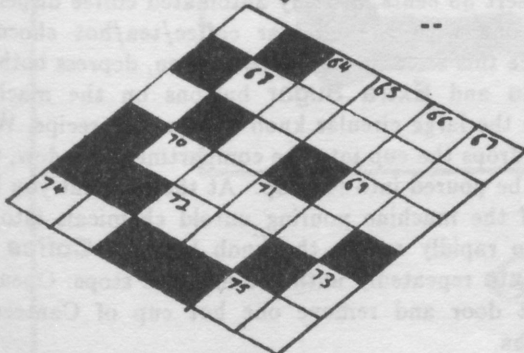
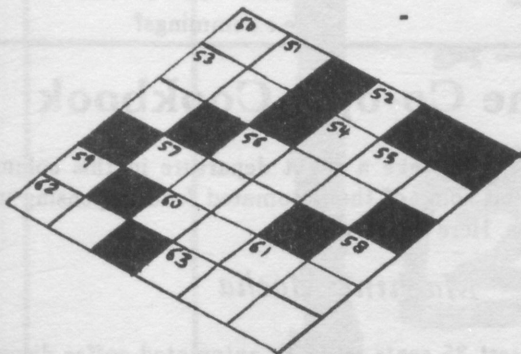
++



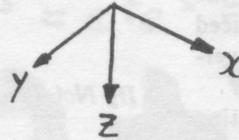
+



0



--



x-direction

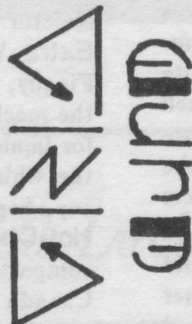
- 19. remained at certain co-ordinates
- 29. Inert gas
- 47. Part of a printout

y-direction

- 3. Basic instruction
- 5. Almost want to die
- 6. The ---- Gang
- 9. western state abbr.
- 10. Animal House party
- 12. Leader of a federal party
- 16. UW faculty
- 23. ---- exams
- 24. Nitrogen plus oxygen plus trace gases
- 25. multifrequency
- 26. pronoun
- 29. USE---
- 31. receive only
- 32. Half the barn burnt down
- 34. Often used to defray food costs
- 35. rational plus irrational
- 36. Height comparison
- 38. From the French
- 41. Direction
- 44. Sideband
- 45. His nap was interrupted
- 50. Brew
- 51. $\ln(-1) / i$
- 52. How some hear foreign language movies
- 55. party with perhaps the right stuff
- 56. complex function
- 58. Push to talk
- 59. Branch of computer science
- 61. Not quite James Bond's doctor
- 64. Elements of comedy
- 65. Bend in the middle
- 66. Leaves this until fall
- 67. The end of the backward folk
- 71. Leader no longer has the lead
- 73. Reversed laughter

z-direction

- 1. infrared
- 2. Intosh, Donald's
- 3. for every
- 4. readability, strength, tone
- 5. don't touch that
- 6. High frequency
- 8. Imply
- 10. Dump, fire, Mack
- 11. Get this
- 12. Slimy and sometimes shocking creature
- 13. This publication
- 14. To examine
- 15. Peel off the first
- 16. ---- Lanchester
- 17. 12^{**2}
- 18. Electrical quantity
- 20. ---- of the town
- 21. First half of the annual report
- 22. He was on the dark side
- 23. To wear out at an end
- 25. Created
- 27. Part of a computer's function
- 28. Precipitation
- 38. self-edit??
- 39. Environmental agency
- 41. unit of audio measurement
- 42. Alligator, Apple
- 43. Help comes at the last
- 46. Time to arrival
- 47. You get lots in a byte
- 48. another state abbreviation
- 49. a real long time
- 54. Not (pref.)
- 57. small state abbreviation



- Now that you have solved the 3-D GridWord, can you find -
- a society that engineers join?
 - a TV network?
 - a press agency (or two)?
 - a type of vehicle?
 - a recent Steve Martin film?
 - New Hampshire?
 - A type of precipitation?
 - what you put before the horse?

Platter Spatter

by Slash Sinatra

Mirror Moves—The Psychedelic Furs

I am rather of two minds on this release. On the one hand the Furs are a very cool band, and many music critics of the old school might view their most recent LP as a bit of a sell-out, being done mostly in the U.S. and with quite a bit of camp and flash on the production end. The gritty edge of the music that has always been a trademark has been produced out, into a smoother, more polished sound. This kind of over-production has ruined many fine bands.

However the music is VERY good. On the songwriting end I'd venture to say that the fellows have never sounded better. The harmonies are lush, and the playing is first-rate.

I leave it up to you to decide which school you're from and whether this album is for you. I figure this will probably be the album to break this band on a large scale, being as the sound is more accessible now, but that scares me. The Furs were never meant to be superstars. They were meant to lurk in dark corners and say nasty things. You decide.

No Sense of Sin—The Lotus Eaters

I haven't the slightest hesitation in extolling the virtues of an album as marvellous as this one. With all the trouble there is in the world nowadays, it's sometimes heartening to listen to some music that doesn't just remind you how bad things are. **The Lotus Eaters** sing of love, and how wonderful it is. The music fairly shimmers, it's so bright and full of life. Where bands like **The Smiths** have tried, **The Lotus Eaters** have succeeded. They leave you with a better, not a worse feeling than before you put the record on.

For most people the name is new. For my own part, I've been waiting for these guys to put out an LP for a long time, and I would say it was worth the wait. There isn't a bad song on the record. It's a real summertime album, as bright as a sunny day and as fresh as an evening breeze. No holding back on this one: buy it! You won't regret it for an instant.

No Borders Here—Jane Siberry

I hesitate to recommend this album. I fear it may be a bit too offbeat for mainstream ears. But then, who cares about mainstream ears? This is a good album.

The lady in question has been around the Toronto music scene for a number of years; she is not a newcomer, and this is not her first album. Her first release was rather underground, however, and pretty sparse for the most part, so it is not surprising that she is getting her first *real* airplay and commercial success with this LP. Her voice is crystal clear, quite strong, and her style falls somewhere between Joni Mitchell and Kate Bush. In other words, it's offbeat. The tunes are good, however, and many are quite catchy. 'Mimi on the Beach' is the best one, at least to my ears, but many others are close.

If the above description appeals to you, maybe you should check the record out. You probably were able to catch her live at the free concert last week. God knows why they paired her with the **Pukka Orchestra**, a scummy little outfit who

don't deserve the notoriety they've received, but I guess beggars can't be choosers.

(mathNEWS note—*Pukka Orchestra* was rained out last Thursday, but Jane Siberry got to play...Slash gets his revenge.—zed)

Life, the University, and Everything

Non-Ultimate Questions

By Not Tom Ivey

School: Why do people get degrees in Statistics or Combinatorics and Optimization? Why does CMcC ask so many questions in Algebra, Calculus, Physics, etc.? Why are the three lions different on the coat of arms? Why am I here? Why do they call it CS now, when they called it CompSci just a few years ago? What did I get on my physics exam? Why does the *Chevron* still exist? Why was a school newspaper named after a military insignia, anyway? What is the being or beings that control Thom Hallison? Who created engineers? Does anybody even know anybody who knows what systems design is? Who is Sauron? Couldn't Village Administration think of a better name than "Food Services"?

Non-school: What is loooooove, anyway? Why am I here? Why are you over there? Why don't you come on over and park it right here? When's the next bus? Is there a next bus (I mean "bus" in the larger sense of the word)? How do you keep a moron in suspense? Why am I writing this? How much wood would a woodchuck chuck? Thought-provoking, isn't it?

Why do I sign my name
blscearce?

Who do I think I am,
e.e.cummings?

The Co-op's Cookbook

This week, we take a slight departure in this column in order to exploit some of the automated food-dispensing marvels on campus. Here we go with...

Machine Mocha

First, insert 35 cents into any automated coffee dispenser. It must be one with the circular coffee/tea/hot chocolate selector. Place this selector on **Coffee**. Then, depress both the **Extra White** and **Extra Sugar** buttons on the machine. Finally, push the large circular knob to start the recipe. When the machine drops the cup into the compartment window, wait for liquid to be poured into the cup. At the moment you hear the whine of the machine pouring untold chemicals into the cup, begin to rapidly switch the knob between **Coffee** and **Hot Chocolate** repeatedly until the machine stops. Open the compartment door and remove one hot cup of Canteen of Canada Mocha.