

Vol. 33 No. 2
Friday Oct. 7, 1983

math NEWS

Mathie enters engineering bike race --- and BAKES them!

see page 4



Happy Thanksgiving

Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
7 October Drop Deadline	8	9	10 Thanksgiving Day (HOLIDAY!)	11	12 Cinema Gratis: Rebel Without a Cause and Mr. Smith Goes to Washington Career talk: Special Education "Between Reflections"	13 Math, AM/CS co-ops! Interviews start
14 October	15 Fed Flicks: The Verdict	16	17	18 mathNEWS production 7 pm in MC3038	19 Cinema Gratis: Secret Policeman's Other Ball	20
21 October Fall Convocation next mathNEWS Humanities Theatre: Bob Berky Correspondence course application deadline Fed Flicks: Blue Thunder	22 Fall Convocation	23	24 AM/EE co-ops! Interviews begin	25 Humanities Theatre: Tom Jones	26 Cinema Gratis: Alien	27 Humanities Theatre: Double Bill Math, AM/CS co-ops! Pick up ranking forms
28 October Math, AM/EE co-ops! AM/CS co-ops! Interviews end, submit ranking forms Fed Flicks: Tootsie	29	30	31	1 November	2 Preregistration begins- ends Friday Cinema Gratis: My Brilliant Career	

ElseWhen

mathNEWS 10 years ago

"There are rumors that somewhere deep in the bowels of the Math building there is a SUPER-TERMINAL. It is a CRT with a programmable character set and handles both ASCII and Correspondence Code. It can be plugged into a television and use it as a screen."

-Prof of the week: (Professor McGee) "...very concerned about the quality of instruction to undergraduates. Only the very best teachers should be permitted to handle first year courses. ... Professor McGee is a professor "for the students." ... He believes the our university has the potential for being one of the best for obtaining an undergraduate education in mathematics.

"Rumours have been floating about that pink ties are going to reappear on campus in the near future."

"Over the weekend a number of VWs were violently attacked and their windows smashed in. No arrests have been made."

Sparky's Revenge

O.K., so you're sitting in the Math C&D, you see, and you're there because it's 8:20 a.m. and you're kind of in the need of that doughnut and you're really in the need of that coffee.

Now the 3rd floor lounge is almost empty because nobody gets to the campus before their 8:30 class, and your doughnut starts talking to you.

You realize that, based on past experience, doughnuts do not talk. But this one does. It's ranting and raving about nuclear disarmament and that cruise missile stuff and about those abortion clinics they got in Toronto. Just then your coffee starts singing this aria from **La Boheme** and the table starts mumbling old poems by T. S. Eliot in this really deep voice.

Obviously this is not your typical morning.

Right then your coffee starts screaming something about coffee bean critical mass, then subsequently explodes. But this isn't your ordinary coffee explosion, this explosion leaves a gaping crater from Hagey Hall to Optometry. You walk away from the blast site, dazed but happy. No classes today.

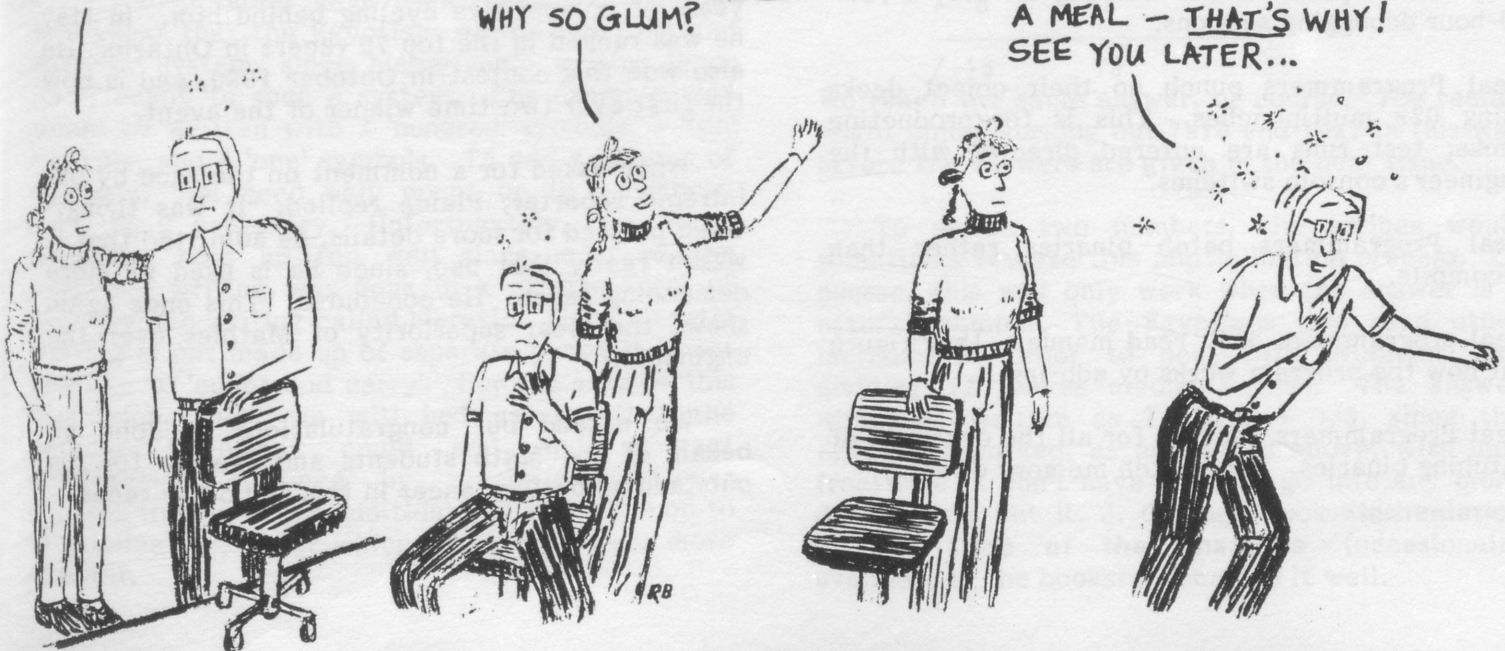
-** Sparky **-

MATT THE MATHIE

WHY SO SAD, MATT?
GRADUATING IS A
GREAT EXPERIENCE!

IT'S THE START OF A
BRAND-NEW LIFE FOR
YOU, MATT! BE HAPPY!
WHY SO GLUM?

I GOT NOSTALGIC —
WENT BACK TO THE
VILLAGE AND BOUGHT
A MEAL — THAT'S WHY!
SEE YOU LATER...



Real Programmers

This is the first in a (short?) series of articles on real programmers. The definitions are from numerous sources, thanks to all who contributed. If you have more ideas, please put them in the **mathNEWS** box.

Real Programmers on the System

Real Programmers patch rather than reassemble.

Real Programmers use VMSHARE at 19:00 Saturday night . . .

Real Programmers use VMSHARE Sundays (except during football season).

Real Programmers never update the source to reflect the ZAPs; after all, it will have changed again tomorrow.

Real Programmers do not wonder where the bits went following a shift operation. They do not care.

Real Programmers know every nuance of every instruction, and they use them all in every program.

Real Programmers do not clear registers twice before using them. In fact, if you annoy a Real Programmer, (s)he won't clear the registers at all. And that goes for memory, too.

Real Programmers' programs never work right the first time. But if you throw them on the machine, they can be patched into working in "only a few" 30-hour debugging sessions.

Real Programmers punch up their object decks using 029 multipunches. This is for production decks; test runs are entered directly with the engineer's console switches.

Real Programmers patch binaries rather than recompile.

Real programmers don't read manuals, they figure out how the program works by adb-ing it.

Real Programmers don't go for all the overhead of patching binaries. They patch memory directly.

Real programmers think in hex and can program their machines without resorting to assemblers and high-level languages.

Real Programmers do not use 3279 terminals. They use hex keypads with two-digit LED displays.

Real Programmers don't produce hex dumps for debugging. They produce binary dumps.

Real Programmers punch up their own programs.

Mathie Wins Bike Race

On Saturday, The Engineering Society held its fourth annual bicycle race around the ring road. The nearly seventy participants circled the campus ten times, with our very own "mad cyclist" John Plaice emerging as the winner.

Because the race was rather short, ten laps in 40 minutes, the race was hard-fought for nearly the entire distance. Shortly before the finish an engineer pulled away from the leading group; however, Plaice stayed close. The engineer "died" shortly afterward, allowing Plaice to take the lead and win by some 25 metres. The race was generally clean, despite some shoving between cyclists and an accident in which two competitors ran into a car parked on a downhill grade (where is Active Towing when you need them?—wj).

Plaice is in 4A Pure Math/Computer Science and a former **mathNEWS** contributor and Photon phixer. He is an experienced bike racer with six years of competitive cycling behind him. In May he was ranked in the top 70 racers in Ontario. He also won this contest in October 1980, and is now the first ever two-time winner of the event.

When asked for a comment on the race by our intrepid reporter, Plaice replied, "It was tiring." When pressed for more details, he admitted that it wasn't really that bad, since he is used to more demanding races. He concluded, "This once again shows the clear superiority of Mathies over the engineers."

We extend our congratulations to John on behalf of the Math students and faculty for his outstanding performances in this and other races.

THE MATHEMATICS COLUMN

Arithmetic that uses only addition of numbers and multiplication by two.

by Fraser Simpson

The Rhind Mathematical Papyrus is the oldest record of mathematics in existence. Copied out from an earlier work in about 1650 B.C. by the scribe Ahmose, it contains the methods that the ancient Egyptians used in order to do arithmetic.

If you think about the construction of the pyramids, you'll probably be surprised at how primitive the Egyptian mathematics looks at first glance. The ancient Egyptians did most of their arithmetic by multiplication by two and addition, even though they worked in a decimal system. All of their fractions were unit fractions (1 in the numerator) with the strange exception of $2/3$. The Egyptians were quite adept with $2/3$ and used it extensively in their mathematical work.

How did the ancient Egyptians add? We aren't sure. Nowhere does any scribe explain his addition. It seems likely that the scribes (who were essentially the only Egyptians with an education, and therefore the only ones doing any mathematical work) had addition tables to consult, but no such tables have been found. One might also guess that the Egyptians used a counting and carrying system, since hieroglyphic writing lends itself easily to such a system. For example, 243 would be written with 2 'hundred' symbols, 3 'ten' symbols, and 4 'one' symbols. To add a column of numbers, you need only count up like symbols, carrying if necessary. Unfortunately, this theory does not hold up too well since most of the everyday writing was done in a cursive form of hieroglyphic writing called hieratic. Since hieratic writing is not made up of separate parts, it is not possible to 'count and carry'. For the sake of this discussion, then, we will just assume that the ancient Egyptians could add and subtract (subtraction obtained by reversing whatever process they used for addition) and will move on to multiplication, about which the scribes were more explicit.

If you can multiply any number by two, then you can multiply any two numbers. Here is how the Egyptians did it: Suppose we wish to multiply 5 by 15. We start with the second multiplicand (in this case, 15), and we place it on the same line as a 1, like this:

$$\begin{array}{r} 1 \quad 15 \end{array}$$

(Had we been multiplying 15×5 , we would have started with

$$\begin{array}{r} 1 \quad 5 \end{array}$$

The next step is to multiply both numbers by two, placing the two products underneath their respective numbers:

$$\begin{array}{r} 1 \quad 15 \\ 2 \quad 30 \end{array}$$

We assume that the Egyptians had a two-times table to consult for multiplication by two. We continue this doubling until it is possible to make the other multiplicand (in our example, 5) by adding some combination of the numbers in the left column. We don't have to continue very far:

$$\begin{array}{r} 1 \quad 15 \\ 2 \quad 30 \\ 4 \quad 60 \end{array}$$

Since $4+1$ makes 5, we mark with a slash those two rows, draw a total line, and add the values from the marked rows. In the right-hand column, we have $15 + 60 = 75$. The answer, then, is 75.

$$\begin{array}{r} / \quad 1 \quad 15 \\ \quad \quad 2 \quad 30 \\ / \quad 4 \quad 60 \\ \hline \end{array}$$

$$\begin{array}{r} / \quad 5 \quad 75 \end{array}$$

If we had started the other way around (15×5), our solution would have looked like this:

$$\begin{array}{r} / \quad 1 \quad 5 \\ / \quad 2 \quad 10 \\ / \quad 4 \quad 20 \\ / \quad 8 \quad 40 \\ \hline \end{array}$$

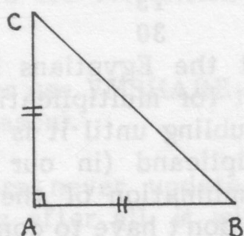
$$\begin{array}{r} / \quad 15 \quad 75 \end{array}$$

We reach the same answer, of course. The reader might enjoy working out 7×10 and 10×7 in this way before the answers are given in the next issue.

To divide two numbers, the scribes would sometimes reverse this multiplication process. Of course, this will only work when the answer is a natural number. The Egyptians also used other methods in order to deal with problems like dividing 12 loaves among 5 men. The answer would be written as $2 + 1/5 + 1/5$, since the Egyptians worked, as mentioned above, with unit fractions. I don't have room to go into any more detail here, but R. J. Gillings' book **Mathematics in the Time of the Pharaohs** (occasionally available in the bookstore) covers it well.

In the next issue, we'll look at the actual hieroglyphic writing, and you'll be asked to do auditing of some hieroglyphic accounts.

In last issue's column, the reader was asked for the construction that would 'double the square'. Here is a solution: Given the side of the original square as, say, AB, construct the perpendicular to AB at A. Draw an arc with radius AB centred at A so that it intersects this perpendicular. Call the point of intersection C. Line segment BC is the edge of the new square.



The construction is simply that of a $1-1-\sqrt{2}$ triangle. If the initial edge had length x , the new edge would have length $x\sqrt{2}$. The area of the first square is x^2 , and the area of the second square is $2x^2$, as required.

Someone with initials J.P. submitted a letter which brought to my attention that this question is mentioned in Davis Hersh's **The Mathematical Experience** (on the PMath 430a reference list). Those interested in Plato will find the passage on page 325 (Chapter 7) of that book interesting. Plato, by the way, was quite impressed with the Pythagorean Secret Society and its work. Comments on this column are always welcome — drop any letters into the **mathNEWS** box.

The reader was also asked for the proof of the Anti-Pythagorean Theorem. One proof is as follows:

Given $\triangle ABC$ with $a^2 + b^2 = c^2$ and $c = b + n$.
Substituting $(b + n)$ for c in the first equation:

$$\begin{aligned} a^2 + b^2 &= (b + n)^2 \\ a^2 + b^2 &= b^2 + 2bn + n^2 \\ a^2 &= bn + bn + n^2 \\ a^2 &= n(b + b + n) \\ a^2 &= n(b + c) \end{aligned}$$

When $b=15$ and $c=17$, we have $a^2 = 2(15 + 17) = 64$, so $a = 8$.

Bored Already?

If you're a 1A student who is bored to tears in Calculus and Algebra, never fear! You can receive advanced standing for both courses by simply submitting correct solutions to all of the following questions. Take as much time as you want. Copy your solutions in the margin of any handy thesis and give them to anyone in Needles Hall (it doesn't matter who since they'll get lost anyway.) Then go play squash instead of attending lectures — everyone else does!

Algebra

1. Find three distinct even primes.
2. Decide whether or not $100!$ is prime. Prove your result.
3. Find $\text{gcd}(975318642, 2925955926)$. Show your work.
4. Prove that integers are closed under division, but not under addition or multiplication. Use any results from class.

Calculus

1. Integrate the Quadratic Formula with respect to a .
2. Draw a detailed graph of $y = x^x$ for $x < 0$. Mark all maxima, minima and (especially) discontinuities.
3. Find the derivative of $x^2 + 4$ and interpret your result.
4. Sketch the graph of the four-dimensional relation $wxyz = 1$ and circle any points of inflection.

Errata, Elucidation, Addenda, and Apologia

Well, we've hit one for one this term in our error correcting column, an occasional to semi-regular feature in **mathNEWS**.

This week's center of attention is the Undergrad Office. It's number is not 5158 as quoted last issue. It is actually 5115, for those who are still looking for it. Sorry....

Bookworm

Yes, it is the start of autumn - the season of falling leaves, rising heating bills, and the World Series. With baseball's annual fall classic at hand, this is a good time to describe a few of the baseball books I have run into lately. (Fair warning: if you are not a baseball fan, you can stop reading this now and turn to the crossword or something.)

Many baseball books, unfortunately, are of the "as-told-to" variety; these can best be described as Instant Biography - just take one inarticulate athlete, one money-hungry ghostwriter, one long-suffering tape-recorder, add water, and stir. (Sorry; I got carried away.) These books are usually godawful and not worth bothering with, and it is a pleasant surprise when one is actually enjoyable. This nugget of gold in a mountain of dross, so to speak, is "The Umpire Strikes Back", by Ron Luciano and David Fisher. Luciano was an American League umpire (now retired) famous for calling outs on the base paths by pointing his index finger at the victimized runner and yelling "Bang, you're out!" His other specialty was leaping into the air to call balls foul; since Luciano weighed 300 pounds, this was no mean feat. This book is good for two reasons: Luciano doesn't hesitate to poke fun at himself ("I graduated with honors from college and I know a lot of different words. For some words I even know two or more meanings."), and his description of baseball from an umpire's point of view is fascinating. Manager Earl Weaver's stealing second base - literally - and Norm Cash's bringing a big balloon bat up to hit against fastballer Nolan Ryan ("I can't hit him with a real bat, so you might as well let me use this") are two examples. Although it's not what one would consider a mentally taxing book (I have to keep it under a calculus textbook to keep it from floating away), I found it a marvellous diversion.

Next on the list are the baseball diaries, the most famous of which is Jim Bouton's "Ball Four". Bouton, at one time a twenty-game winner with the New York Yankees, was a marginal relief pitcher with the Seattle Pilots when he wrote his book. It is a day-to-day description of a baseball season from one player's point of view, and it is an interesting book even if (God forbid) you are not a baseball fan, since Bouton sets down on paper

exactly what he sees and feels. It is proof that baseball players are human, too. Highly recommended.

Another ex-Yankee, Sparky Lyle, tried the same thing with "The Bronx Zoo". Unlike Bouton, who doesn't take himself too seriously, admits his shortcomings and thus wins the reader's sympathy, Lyle comes across as yet another whining spoiled athlete. To be fair, though, when he is not complaining about not getting enough work he does try to describe as best he can what he sees; and, since the year he is describing is 1978, the year in which the Yankees came from 14 games behind to force a playoff and then win, this book is not too bad.

If one gets sick of reading about the gripes of high-priced Yankees, the perfect remedy is at hand: Bob Marshall's "Diary Of A Yankee Hater". Marshall, a New Yorker and a rabid anti-Yankee (how does he survive?), describes the 1980 season from a different (yet widely held) point of view. Since Marshall is intelligent (he is an attorney in real life) and sardonic but not too malicious, this book is a lot of fun.

Next, there are the stat books, for the trivia freaks. "The Sporting News Baseball Guide" tells you everything you might conceivably wish to know about the 1982 baseball season, plus lots of things you wouldn't ever want to know (did you know that Dennis Sherow led the Eastern League in sacrifice hits?). "The Sports Encyclopedia (Baseball)" gives stats for every team from 1901 to 1980; the 1977 Blue Jays stats are good for a nostalgia trip, as well as a few laughs. And, last but not least, Bill James' "Baseball Abstract" rates teams and players based on James' own formulae. This is the only stat book which might be of interest to the non-fan, since James is an entertaining and occasionally nasty writer. (Did you know that Detroit manager Sparky Anderson knows as much about where a hitter is likely to hit the ball as he knows about the ovulation cycle of an orangutan?)

The best for last: Roger Angell is probably the best baseball writer alive. His books, "The Summer Game", "Five Seasons" and "Late Innings", reveal a true fan's knowledge and love of the game of baseball. If you've ever wondered why some of your friends waste time on such a silly game, then Angell's book is worth checking into. Also - he is a

damned good writer. (A similar, and equally good, book is Thomas Boswell's "How Life Imitates The World Series".)

So there you have it - three metric tons' worth of baseball books. If, by chance, you might be interested in any of these books, I recommend "This Ain't The Rosedale Library", on Queen Street East in Toronto; I purchased several of the above there (though they might not have them anymore - I haven't been there in a while).

Next issue (laziness permitting) I will discuss some books of possibly more general interest; until then, happy reading.

David Till

2308pm(?)...and we're rolling. There probably isn't much room for crud this time, though. This list of names seems endless. Here goes: Fraser Simpson (math, bored, crossword), Dave Till (bookworm), Stewart Melanson (hifi), Richard Tummers (watsfic), C.B. & J. P. (feedback), Sauron (ode), Sparky (revenge), Ross Brown (matt, 12), grm (6th floor), Tom Watts (elsewhen, scumsbag, aplsoup, opinion, bike race, etc.), Pablo and dwarf and anybody else I missed. Tonight's party consisted of: Dave Till, Karen Chorny, Chris Kitowski and Fraser Simpson (layout and paste-up), Helen Chan (typing), Stewart Melanson (cover), Saeed Khan (calendar), Tom & jim (printing, general sanity), Dr. J (moral support), and yours truly (losing articles). With any luck, all this will fit wherever we can find space. And with that last coherent thought, cp disconnects @ 2320 grmcfarl, world's fastest masthead writer.

There was a young mathie called Rick
Who's equations were always exotic
With not much compunction,
He'd take a smooth function
And would make it all asymptotic.

Pablo

Ode to Froshdom

Oh how we yearn for days of yore
Of classes nine 'til three or four,
And lessons taught at such a pace
That one could sleep and not lose face.
We long for tests so quickly done
That we were through ere some begun.
Of hard mental work we had no need
Have our brain muscles atrophied?
Take heart, oh math frosh, have no fear-
Failure is for the Engineer.

Sauron

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OKTOBERFEST TICKETS

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at the **K-W ANNEX**



FRIDAY, OCT. 7th

Now available

\$4.50

from in limited numbers

Math Soc (MC3038)
and the Feds (CC235)

Door Prizes!

6th Floor Cabinets Shuffle

You may or may not remember that during the first week of classes the profs gave you their office number (if they could remember it) and told you that in a few weeks they will be moving. Now that it's been a few weeks, **mathNEWS** decided to try and do a newsworthy story on what was happening up there. (We should have known better: the actual move will start to take place in another 5 or 6 weeks, so this is still a little premature. Oh well...)

There are basically two events that led to the big move upstairs. First, HKLS (Human Kinetics and Leisure Studies) has been co-existing with us on the 6th floor for the past few years. They have finally moved on to some of their own turf, namely B.C. Matthews Hall. Second, and more obvious to the reader, is the lack of space in the EMS library. Well, believe it or not, the library does not take up the entire 4th floor — yet. There are some labs back there somewhere that our mysterious computer science profs use. Thus the solution is obvious: move the labs up to the extra space on the 6th floor and expand the EMS library.

So where do the profs come in? Well, if the labs are going to be on the 6th floor, it would be convenient to place the CS profs in the general area of the labs. As it turns out, that leaves exactly enough space on the 6th floor for the Stats department to dwell up there as well. This works out nicely, because some of the Stats profs also use one of the labs. That puts C&O, Pure Math, and Applied Math down on the 5th floor. Before, most departments were split between the two. This new setup also benefits the students, since they can get help easily from another prof if their own prof isn't around.

The profs' reaction to the move is generally one of indifference. While they were all pretty well happy where they were with respect to neighbours, location, and such, they don't seem to mind the move. In fact, some of them will be getting better offices.

Their only gripe is that they wish this wouldn't be happening during the term. Unfortunately, because of the size of the project (including things such as tearing down walls and moving telephones and terminals) the process will be spread over several weeks. To avoid inconvenience, the moving will take place in small groups to get a few profs settled in (see last set of parenthesis) at a time. Sufficient notice will also be given to them before it's their turn. With any luck, it should all be over by the end of this term.

SCuMSbag

Here we are, back in the SCuMSbag. Last time I promised to drop a few hints about StuporPets and other beasts (meaning PCs, NABUs, NEMs, and microWATs.) Well, most of you end up using the microEditor for entering your programs. Did you know that you can do all kinds of addressing with the editor commands (for the hacks among you, it's like QED.) For example, instead of doing `c/gabage/garbage/` three times to change the occurrences, you can change all the occurrences up to the end of file by specifying `.-c/gabage/garbage/`. This will change all the occurrences from the dot (`.` = current line) to the dollar sign (`$` = end-of-file). You can also use expressions such as `.-5..+5` which will change all occurrences within 5 lines of the current line. `*c` will naturally change all occurrences. This applies mainly to the change, delete and put commands.

On the NABU/NEMs, you may notice that the screen update is agonizingly slow as it does its high-quality scroll, and then rewrites the legend at the bottom of the screen. Probably the fastest way of entering a program is to start with an empty file, and hold down the insert line-key for a while. Then just switch to screen mode and type in on the empty lines. Also, you may have noticed that the key labeled "screen mode" does not get you into screen mode, but gives you a help screen instead. Use the "command mode"-key to toggle in and out of screen mode.

As for the people using PCs for sadistics and other purposes (i.e. APL), if you don't like the file functions in `*STATS/PL0T`, try using the system file functions directly. These quad-functions include `OPEN`, `CLOSE`, `READ`, `REPLACE`, `APPEND` and `NUMS`. See the microAPL manual for the syntax of these commands. If you have not yet figured out how to merge workspaces, here is what you do: `)LOAD <WSID1>` to make the first one your active workspace. Now, `)COPY <WSID2>` to copy the contents of the second workspace into the active one. Note that this will wipe from your current workspace any items with the same names as those in the one you are copying. To prevent that, use `)COPY` instead. Naturally, name the workspace to whatever it should now be and do not forget to `)SAVE`.

mathNEWS next issue on

October 21

* > special collector's edition < *

High Fidelity Review

Well, here it is. **mathNEWS'** first and hopefully not last stereo review. As the term is still near the beginning, many of you are considering the purchase of some kind of personal entertainment centre. I thought I might start by giving some pointers on how to approach a salesperson in a typical stereo store.

The first thing you need is some idea of what you want. The salesman may attempt to push poor equipment on you. Don't let him try to talk you into buying equipment you don't need. Never tell a salesman exactly how much you are really willing to spend. The dealer will often show you something just a bit more expensive than the maximum price you give.

Try giving him a price range 10-15% lower than your actual maximum. At this point try to guess the salesperson's attitude. If he acts as if he knows everything about stereo equipment and assumes that you know nothing, go along with it, but don't let the front deceive you. If he acts as if you were the most special person to ever walk in and you are going to get the best deal, show dissatisfaction with the price. A good thing to say is "I got a better offer at such and such a place," where such and such a place is his nearest or best competition. Remember, shop around and visit the competition before you state offers you supposedly got from them. If the salesperson is particularly obnoxious to you and you were reasonable to him, leave.

If you think trying to buy something from him is difficult, wait until you try to get your equipment serviced. Remember that a warranty only says that it will be fixed, not how long it will take or how conveniently or courteously it will be done. Make sure the equipment has a warranty, and read it **before** you buy. A good warranty is one year for tape decks and turntables, and three years for receivers, amplifiers and tuners. Try to be on friendly terms with the dealer unless you know you will never buy anything there. I have experienced this often at Radio Shack and Sears (People who buy stereos there deserve whatever they get—QCO). Listen to what you intend to buy. Make sure the equipment making the sound is the equipment you are interested in, unless you are looking for a particular component. Even then, make sure the other components are of quality equal to that of the components you plan to buy. Look at the setting of the dials, including the speakers if they have any. The dealer may say it has great highs, but the treble control may be set to +10, and the highs may sound so good you may not notice that

WATSFIC

(Office: MC3036, meetings every Wednesday at 7:30 pm)

The WATSFIC club is holding a writing contest for short Science Fiction or Fantasy stories. First prize is a \$50 gift certificate from a local book store. Two runner-up stories will both be awarded \$15 gift certificates.

The first place story will gain the author fame as well as fortune. It will be published on a page spread in the Imprint.

Only a short story of up to 300 words on a Science Fiction or Fantasy topic will be accepted. NO submissions over 3000 words will be accepted. All submissions must be handed into the WATSFIC office within the next few weeks. Exact submission deadlines will be advertised around campus, and in the next issue of **mathNEWS**.

Of course, all the usual legal rigmarole applies, such as judges, property, etc., but will probably never need to be used.

The club elections are over, and the office hours have been decided. The office is now open 9:30-4:30 MF, 8:30-4:30 TR, 9:30-3:30 W and 7-10 MW. For more information, drop by the WATSFIC office. For example, one girl is interested in going down to an Australian convention and will be flying down herself. WATSFIC is more than Science Fiction. Good Writing!

Richard Tummers

the bass may be lousy until it's too late. A dealer may not only deceive but (gasp!) lie. This occurred to me on one occasion. (However, if you deal with reputable hi-fi dealers, it is rather unlikely. -watts)

Well, if you can't always trust the dealer then whom can you trust? The manual—it shouldn't lie (though there's no guarantee that it doesn't).

I can't cover everything here, so the adventure is still yours.

Next issue: Details on tape decks.

Stewart Melanson

Wherefore twelve?

It's well known that our language and our logic are often at odds. I don't intend to philosophize on that point. This article intends to underline the sorry state of our most basic link between the schemes of words and arithmetic, the natural numbers.

We (in math) like to use 1, 2, 3, 4, and so on, but we can't say "1"; we can only say "one". It seems logical to base the most logical of sciences on a logical assortment of number-names, but - alas - we are betrayed. After the defining (and arbitrary) names "one", "two", "three", and so on up to "ten", we run into "eleven" and "twelve" before seeing the more regular sequence "thirteen", "fourteen", etc. which draws on the names of the previous numbers 3, 4, etc. The uniqueness of the names of 11 and 12 is underscored by the observation that they (and any compounds containing them, like 12,000 or 112) are the only natural numbers less than 1,000,000 whose names include the letter "l".

One explanation for this incongruity in naming is that our forebears (or however many bears there really were) liked 12 as a basis for computation, because it has many factors and relates nicely to things like 24-hour days and 60-minute hours. Or perhaps these bears were afflicted with mutant polydactylism, and the number 12 arose naturally from counting too many fingers.

At any rate, it clashes dreadfully with the decimal system. To remedy this, we should align the numbers 11 and 12 with their successors in the way that 21 and 22 are with theirs, that is, we should call them "oneteen", "twoteen" instead. But we still have the problem that "oneteen" is not related to "ten" as "twenty-one" is related to "twenty". Ergo, we trash the "-teen" suffix and go for "ten-one", "ten-two", "ten-three", etc. Since the name for 10 is as arbitrary as that for 9, we really should name 100 along the lines that we name 90, that is, "tenty". But once we get past "tenty-nine" (109) we have nothing to call 110 but "ten-onety", and after a few increases in the order of magnitude this gets ridiculous. So we have to keep something like "hundred" around, making "tenty" obsolete, and working back, we see no reason to keep "ten" around either. So we rename that "onety" (sounds nice), and 11 and 12 become "onety-one" and "onety-two".

In this way, the suffix "-ty" gains status similar to "hundred" and "thousand", which makes sense. But it took a lot of rethinks to get us there. How could the ancients have screwed it up so badly? We should be grateful, however, for small

APL soup

The item you are now reading (or at least I hope you are reading!) is the resurrection of a regular mathNEWS feature from the mid-1970s. Back then, APL was used by a (relatively) large number of students, often for solving statistical problems. Part of this usage may be attributed to the fact that at that time there were very few interactive systems besides the old APL\360 in use. Another contributing factor was the scarcity of powerful calculators (A Texas Instruments SR-25, with seven (!) functions was selling for \$91, which today's dollars is over \$200.) Right now, APL is experiencing another large increase in usage, as many stats (and other) courses are encouraging students to use APL to help solve their assignment problems. Of course, the 360/44 is no longer around, but APL is available on IBM PCs, Super-Pets, CMS and the Bun. With the SuperPets and the PCs you don't even need a userid to use APL!

Therefore, it was deemed appropriate to let all you whiz kids and APL hacks to test out your skills with this week's problem. Here it goes: Write an APL function to find all the primes from 2 to n , where n is a parameter to the function. The function should be able to accept up to about 3000, depending on the machine you are writing it on. The writer of the function with the least number of lines will be declared the winner, unless two submissions have the same number of lines (one, hopefully! (The header line is not counted.)) In this case we will determine the number of characters used in the function lines, and the smallest number wins again. Solutions should be placed in the mathNEWS third floor mailbox by midnight, October 14. Submit a listing, as well as telling us the machine you ran it on (this is your choice.) The winner will receive a prize (which is yet to be determined) as well as a disproportionate amount of fame by having his name printed in mathNEWS.

mêrcies. The French must contend with the legacy of 16-fingered forebears, and even at that they can't all agree on whether 70 is "soixante-dix" or "septante", and they chicken out entirely on 80, making it 4 times 20 (20 for each bear, I guess!).

I give up. This world is not for mathematicians!

Ross Brown

Opinion

It is that time of year again; the time to deflect some of the chevron's mudslinging back to the Anti-Imperialist Alliance and their cronies. Therefore, if you (a) don't know what the chevron is or (b) don't care what it is, skip to the next article.

After reading through the last two weeks' chevrons, I decided to analyze their vocabulary in order to determine whether the chevron staff's vocabulary had increased to the grade three level yet. The results do not appear to support this hypothesis. As you may have guessed, their favorite term was "Imperialist." (Can you say "Imperialist", boys and girls? ... I knew you could say that. I like the way you say that...) This term was used in its various forms 29 times in the Sept. 20 issue, and 49 (count 'em!) times in the Sept. 27 issue. This is a total of 78 for eight pages of chevron ... almost 10 times on each page. In addition, "racism" appeared 18 times and "fascist" or "Nazi" 11 times. We all know that the chevron practices irresponsible trash generation (you can't call it journalism), but this also indicates that the authors of the articles have a rather poor vocabulary, possibly because it was picked up from reading in the Marx-Engels-Lenin-Stalin-Hitler Institute library. This type of writing is not only misinformative, it is also bloody boring. I can not see even a full-blooded Marxist reading the chevron and enjoying it, since the writing is so lacking in quality.

Now, let's see what our press, our leaders and our own eyes have lied to us about in the past weeks. Even if we ignore all this drivel about imperialist world wars and such, there is still a lot left. For example, on Sept. 20 the main headline was "DND and NATO behind conference at U of G: Sham peace conference ...". I supposed they can legally call anything they want a sham, but even their own article does not support the claim of the headline that NATO is behind the conference. In fact, according to our always-accurate (!) chevron reporters (who naturally do not dare publish their names), the conference is organized by the departments of National Defence and External Affairs, CP Air, Atlantic Council of Canada, City of Guelph and various community groups. This is just plain sensationalism a la National Enquirer.

In the same issue, the staff managed to fill a page (they have to put out four pages, don't they? (No, but that doesn't stop them—dwarf)) with a chart listing all the DND grants to various

universities in Ontario. There were some really interesting articles, though. The one on the collectivization of agriculture in Albania was simply amazing. Who would have believed that Albania now has its own fertilizer industry? Freak me out! Gag me with a spoon! The article also mentions that 10% of Albania's exports are agricultural products, which certainly raises some questions in my head. **Who** trades with Albania? South Yemen? Not even Communist China does any longer. It is true that Albania exports postage stamps to several countries (for collectors), so I must assume that they make up the remaining 90% of the exports. It is also possible that AIA and CPC(M-L) (Communist Party of Canada (Madly Lunatic)) buy these food supplies so that visiting Albanian dignitaries may eat food grown with ideologically pure fertilizers.

More comments on this issue: In the story about how the Chilean government has destroyed the country and the people, chevron reporter (wonder of wonders—the article is signed) Andy Derrell complains that half a million out of a work force of four million are out of work. Ladies and gentlemen, this is an unemployment rate of only 12.5%, not bad at all by modern standards, especially for a third-world nation like Chile. Maybe the chevron should invest in a few abacuses so they could figure out these percentages.

In the Sept. 27 issue there is an interesting article entitled "U.S. increase military aggression in Lebanon." The article makes claims such as "U.S. imperialists ... have stepped up its military intervention and is continuing ... to commit aggression against the Palestinian and patriotic Lebanese people." Yes, indeed! The chevron has even redefined the word "aggression." I must now assume that when the chevron refers to another "imperialist aggression," that the imperialists are just trying to keep the other two opposing sides from cutting their throats open. In any case, were the Palestinian troops not supposed to leave Lebanon last year? Could they be sued for breach of contract? Oh well, I think I'll stick to my stats assignment ... right now it's worrying me more than the drivel the chevron keeps feeding us.

Tom Watts

Would you like to contribute to
mathNEWS?

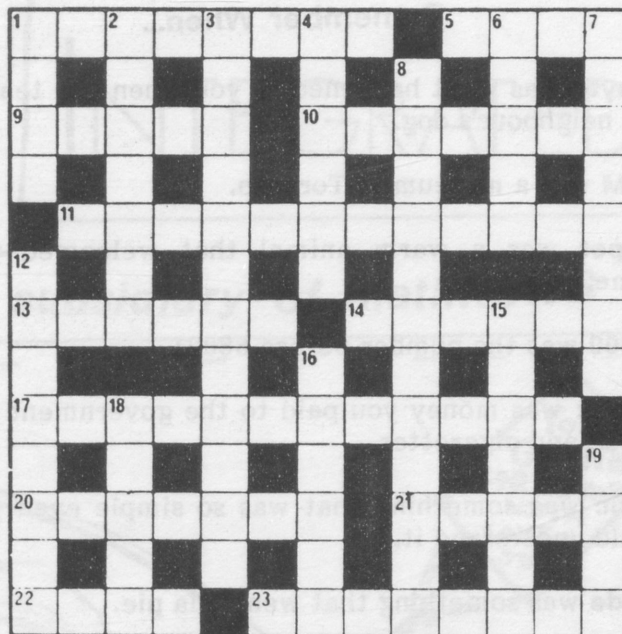
See us in MC3035 or drop a note
in our box.

Cryptic Crossword

by Fraser Simpson

Solve this crossword as you would any other cryptic crossword. Solutions should be submitted to **mathNEWS** no later than October 15, 1983. Prize: your choice of a green T-shirt or a set of mathie buttons (, e and MathSoc.)

Last week's winner, K.W. Sulston, was drawn from 11 correct solutions using pseudo-random sampling methods. Three runners-up will each receive a MathSoc 6-inch ruler. They are: Robyn Landers, Janice Meuezes and Dan Heigott. You can pick up your prizes in the MathSoc office.



dy/dx = 0

1. Presents writhing snakes. (8)
5. A woman for the first man. (4)
9. A company gets excited mob in the valley. (5)
10. Indians mask how it will be arranged. (7)
11. This type of sculpture will not provide total relief. (12)
13. Lose in an arrangement fixed up at the cobbler's? (6)
14. Isolated territory is a country. (6)
17. Anyone using this for recreation is all wet. (8-4)
20. Hence an arrangement to enlarge. (7)
21. Offspring is a girl.(5)
22. Uncommon way to cook steak. (4)
23. Tattered communist with a number in the shed. (8)

dx/dy = 0

1. Loot bag. (4)
2. Peers on, troubled, but goes into business again. (7)
3. Extra profit from the company? (12)
4. Merits new oven buzzers. (6)
6. Divine duck. (5)
7. Bone structures most said would change. (8)
8. Discuss morality, but quietly hope his silo collapses. (12)
12. Resists me, perhaps, and goes off course. (9)
15. Stimulated employment in a bar. (7)
16. She and men will be confused with trap. (6)
18. Discharge from the choir, perhaps. (5)
19. Dear confused: Use a book. (4)

How to enter a mathNEWS contest

To enter one of our contests (which are all too numerous -ed.) work out the solution, either on a blank piece of paper, or on the mathNEWS page in the case of a crossword solution, and write on this piece of paper (1) your name, (2) student ID number and (3) your phone number. The deadline for solutions is midnight on the second Saturday following the date of publication. Put your solutions either in the (currently) black **mathNEWS** box on the 3rd floor, under the **mathNEWS** office door, or leave them at the MathSoc office. The winner(s) will be announced no later than the next issue of **mathNEWS**. If you are lucky (and we have time from our assignments) we may call you before then. The prizes will be available for pickup at the MathSoc office after the next issue is out. Good luck!

This Week's Theorem

$$\begin{aligned}
 (a + b)/2 &= m \\
 a + b &= 2m \\
 (a + b)(a - b) &= 2m(a - b) \\
 a^2 - 2ma &= b^2 - 2mb \\
 a^2 - 2ma + m^2 &= b^2 - 2mb + m^2 \\
 (a-m)^2 &= (b-m)^2 \\
 a - m &= b - m \\
 a &= b
 \end{aligned}$$

Therefore any two numbers are equal.
Corollary: The answer to any problem is 2π .

Remember When...

A **byte** was what happened to you when you teased the neighbour's dog.

ROM was a museum in Toronto.

A **pet** was a warm animal that welcomed you home.

68000 was the number before 68001.

syntax was money you paid to the government for booze and cigarettes.

basic was something that was so simple even you could understand it.

mode was something that went a la pie.

dim was what you did with lights on a hot date.

... and **graphics** was how you told your friends about it.

output was what you used to do to the garbage.

An **error** was something the Detroit Tigers made a lot of.

memory was something you lost before a test.

A **chip** was a greasy snack.

A **ram** was what chased the ewes around the mountain

... and a **computer** was something you would never, ever learn how to use.

John Caspic McManus and/or lbebt

(from a 1982 computer training course)

Letters Policy

mathNEWS welcomes all letters and comments. All letters that are intended for publication in **mathNEWS** must be signed and include either the address or telephone number of the writer. Names will be withheld or a pseudonym used on request. **mathNEWS** reserves the right to edit or not publish any letter received for publication. All letters, in order to be considered for printing in the next issue, must be received by 8:00 PM on the Saturday before publication. Letters may be deposited in the box across from the 3rd floor lounge, or mailed to us at CMS and Honeywell userid **mathnews**. We look forward to hearing from you.

<h1>WHAT IS MATHEMATICS?</h1>
<i>...a popular talk by one of the world's leading mathematicians</i>
Prof. W.T. TUTTE ! (Department of Combinatorics & Optimization) University of Waterloo
THEATRE of the ARTS Thursday, Oct. 27, 8 p.m.
<i>This is a rare opportunity for students of mathematics to hear our own Distinguished Professor William Tutte. Bring your friends. In this, the 5th in the UNIVERSITY LECTURE series, Prof. Tutte will give us a look at MATHEMATICS from his own perspective.</i>

FeedBack

Gentlemen:

Yes, apathy is a problem in the Math Faculty. Yes, people should get involved in activities and clubs. Yes, mathNEWS needs workers. So why alienate potential volunteers unnecessarily with gratuitous remarks like "And if you're a members of the fairer sex, a photograph, please?" "Dogs need not apply" - is that what you meant to say? I'm sure the comment was made in a lighthearted vein, but such 'humour' is sexist and insulting. 'We remind you that this mathNEWS, not Enginews.'

Sincerely,
"Castrating Bitch"

Dear mathNEWS:

The major improvement in appearance and content of **mathNEWS** was very much appreciated.