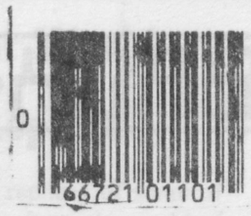
Sports Toronto Blue Jays defeat themselves. See page 13.

Weather

Sun is expected to explode at about 4:30 pm EDT tomorrow. Watch for it. Temperatures will rise to 1500°K overnight, accompanied by intense gamma radiation. Clearing Saturday.

Friday, September 28th, 1979
Volume 21, Number 2



mathNEWS

Four ★ Edition

REAL WORLD 100
- An Introductory Course

ASSIGNMENT #1 - SOLUTION

Consider the converse question. That is, if the bicycle is moving forward (driven by the pedals), does any part of it move backwards? A point on the circumference of the wheel is motionless when it contacts the ground, but it never goes backwards. Therefore, no part of the wheels goes backwards. Because the crank arm is shorter than the radius of the wheels, a pedal cannot move backwards even if the gearing were one-to-one. However, the gear ratios (in a normal ten-speed) turn the wheels at a higher rotational velocity than the cranks, so that the pedals certainly move forwards. Therefore, if the pedal in the question is moved backwards, it follows that the bicycle must move backwards!

ASSIGNMENT #2

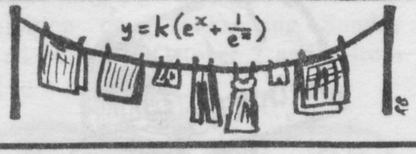
A rope is placed around a pulley whose centre is fixed. A monkey is hanging from one end of the rope and a counterweight of equal mass is hung from the other. Suppose that the monkey starts to climb the rope at a constant rate. If the monkey and the weight begin at the same height, does the monkey move relative to the pulley? If so, at what rate? Note: You may assume the rope to be massless and inextensible, the pulley to be inertialess and frictionless.

In Theory...?

(excerpt from Sept. 17, 1979 Computerworld, p.6)

Providence, R.I. -

Brown University professor Peter Wegner had the last word on the subject [of the gap between theory and practice in CS]: "The conclusion of this panel seems to be that for computer science, no gap exists between theory and practice *in theory*, but that a gap does exist between theory and practice *in practice.*"



Flag Football Game

Thursday, Sept. 20/79
Math vs. Swamp Angels
21 - 13

After a quick touchdown by the Swamp Angels in the first series of plays, the Math team defense organized their strategy and kept the "Angels" off the scoreboard until the last half of the game. The offensive team took up the initiative by scoring three touchdowns. Turning points in the game were a safety touch against the Angels and fumble recovery by the defensive squad. Final score was 21-13 for Math.

D. Dennis

Beware for the shock of your life because mathNEWS actually contains

Real Math

In January the discovery of the 25th Mersenne prime was reported in the "Science and the Citizen" department of Scientific American. Mersenne primes have the form 2^n-1, and this one, found by teenagers Laura Nickel and Curt Noll, is $2^{21,701}$-1. In February, Noll ran their computer programme longer and found another: $2^{23,209}$-1. Two weeks later at the Lawrence Livermore Laboratory in California the same prime was found independently with a programme written by David Slowinski of Cray Research, Inc., with the assistance of Harry L. Nelson. Their programme, running on the Cray-1 computer, continued its search and on April 8 found yet another Mersenne prime: $2^{44,497}$-1. This number, the 27th Mersenne prime, is the largest prime known. It has 13,395 digits. (Moreover, every Mersenne prime generates a perfect number, and so there are now 27 perfect numbers known.) So far all the numbers 2^n with exponents, or values of n, up to 50,000 have been checked for possible Mersenne primes. Slowinski reports on this effort in the latest issue of *Journal of Recreational Mathematics* (Vol. 11 No. 4 pages 258-261; 1978-79).

Reprinted from Scientific American (Vol. 241 No. 3 page 32; Sept. 1979)

BACKFEED

To the editor of mathNEWS:

Has the policy of mathNEWS changed, so that it now prints a four page issue on eight pages? I refer to the September 21st issue, which contains four pages of articles, and four pages of garbage.

On page 1, "10-speeds" took a full column to present one table of data and about one paragraph of useful information.

"Watsfic Presents" took a half column to say nothing.

"Pointless" was pointless.

On page 2, the first two letters were obvious filler.

"Prezz Sezz" contained some interesting notes, but a different format would make it more interesting.

Page 3 was a gridword and a lot of blank space.

"Assignment," on page 4, took too long to say not very much.

The comic was obviously stolen (the copyright symbol is still visible in the uppermost box).

I remember reading the "Assignment" in several puzzle books, some of which at least credited the originator.

There was nothing worth reading on page 5.

The "Grad Photos Survey" was probably supplied to you at that size, but it does take up a lot of space.

On page 7, the (unnecessary) explanation for the Photo survey appeared.

"Firing Squad" said nothing.

The plagiarism questionnaire appeared (finally), and was twice the required size.

If anyone had continued reading to page eight, they would have found "Burloaf," which had an explanation of computing services (already printed in the Frosh issue), and a couple of paragraphs of garbage about the author's ignorance about the number twelve.

The masthead contained the most information of the whole issue. Unfortunately, no one really cares about that stuff, anyways.

Most of the articles that I labelled "garbage" were labelled so because they contained nothing but in-jokes and evidence of the authors' self-important feelings. I think that if you weed out this sort of writing, mathNEWS could become more readable, or at least, cheaper to reproduce.

Before you start asking me to start writing or stop bitching, I'd like to say that I won't write a weekly column, because I don't have the talent to keep something interesting for more than one appearance, and I don't have the time to research articles for you. All I have time for is reading the paper and writing the occasional letter.

Yours sincerely,
Duncan Murdoch

Dear mathNEWS,

You have finally sunk to a new low that I never thought was possible! The last issue was terrible!!! Things about specific people should never have been put in and I especially did not appreciate my name being there. I wish that I had been there when you put it together, but my work load made that impossible I will no longer contribute graphics, articles, or any other assistance to such an outrageous newspaper, if indeed you can call it that!

Sincerely,
Kekropp

(ed: Personally, I can't really reply to your comment about our editorial policy, considering that I wasn't the editor last week; so I'll hand the mike over to the man who was, Geoff Hains: I feel that some of these criticisms are valid, but you must remember that some people might like what you call trash. Some people have told me that they liked some of the columns you disliked but your comments have not gone unheeded (as you can tell from this issue). I would like to apologize to Kathy Kropp for the mentioning of her name in a context that was upsetting to her. I hope that you will find future issues of mathNEWS to be far superior to the last issue.)

Dear mathNEWS:

I offer my congratulations to the person(s) who selected the 1979 frosh t-shirt quote. Having read and appreciated Lewis Carroll's "Alice in Wonderland" myself, I think it is interesting to note the entire excerpt surrounding the idea which was extracted:

> "But I don't want to go among mad people," Alice remarked. "Oh, you can't help that," said the Cat: "we're all mad here. I'm mad. You're mad." "How do you know I'm mad?" said Alice. "You must be," said the Cat "or you wouldn't have come here."

UW arts centre NEWS

Upcoming Events at UW Arts Centre

Thurs., Oct. 11, 8p.m.
Shaw Festival's "Blithe Spirit" by Noel Coward. $9.50 (Stu./Sen. $8.00)

Fri., Oct. 12, 9:30 p.m.
Andre Gagnon, pianist-composer-entertainer. $9.50 (Stu./Sen. $8.00)

Mon., Oct. 29, 8 p.m.
Peter Appleyard Quartet with Bob Wilber on jazz trumpet. $8.50 (Stu./Sen. $7.00)

Tues., Oct. 30, 8 p.m.
"18 Wheels" -hit musical from Tarragon Theatre. $6.00 (Stu./Sen. $4.50)

Polish Children's Art

In celebration of the International Year of the Child, the UW Arts Center Gallery will be showing an exhibition of Polish Children's Art commencing October 4 and continuing until November 4. The exhibition of 140 works includes paintings and woodcuts and is sponsored by the Consul General of the Polish People's Republic. There will be an informal opening on October 4 at 4 p.m. There is no admission charge to the opening or the gallery show and everyone is invited to attend.

The UW Arts Center Gallery is located in the Modern Languages building and is open Monday to Friday from 9 a.m. to 4 p.m., and on Sundays from 2 to 5 p.m. The Gallery is usually closed on Statutory Holidays, but special family viewing hours have been arranged for this exhibition on Thanksgiving Sunday and Monday, October 7 and 8 from 2 to 5 p.m.

Ancient World Art Replicas

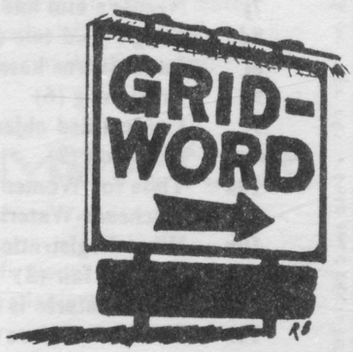
Fine quality replicas of some of the great creations from the world of the ancient Greeks have been collected by the Department of Classical Studies and its members here at UW. These pieces have been organized for a display by the department in co-operation with the UW Arts Center Gallery and can be seen in the showcases of the Modern Languages building from October 3 to 31.

Included are examples of Minoan and Mycenaean pottery, stonework, metalwork and wall painting. A collection of coin replicas will also be on display to demonstrate the skill of the Greek artist in small-scale work; indeed, in the hands of a Greek artist even a humble coin became a medium for portraiture. In addition, a selection of currently available books dealing with the art of the ancient Aegean will be displayed.

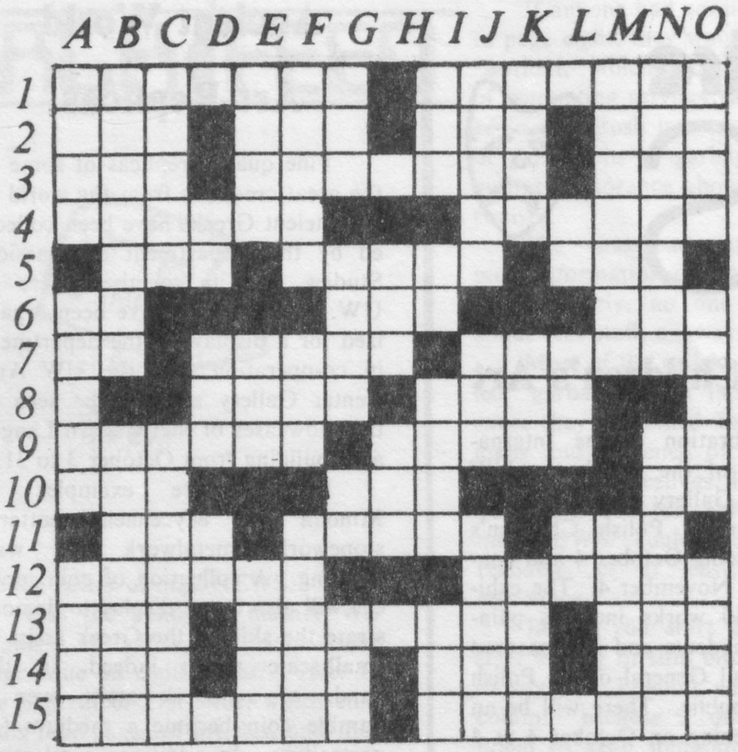
As a tie-in with these displays, the Department of Clasical Studies has arranged a screening of the film *Atlantis* by Samuel S. Bishop for Thursday, October 25 in the Arts Lecture Room 124 at 4 p.m. The film, which is 41 minutes in length, explores the intriguing similarities between the circumstances of Plato's Atlantis and exciting new archeological discoveries in the southern Aegean. There will be no admission charge to view the film, and everyone is welcome to attend.

DAMMIT! WHY DOES THE SYSTEM ALWAYS CRASH JUST AS I'M ABOUT TO DESTROY MY LAST KLINGON!?

We didn't get any solutions to last week's :boff-word, and we would like you all to know that we're verrrrry disappointed in you. Perhaps we should have told you that being the first to complete one of our gridwords qualifies you to win one of Mathsoc's private stock of neat t-shirts! Provided you are not one of our computer systems (UNIX take note). We made this one a bit easier, but not much; remember, mathies (including gridword compilers) are not always good spellers. Bonne chance.



Gridword



ACROSS

1a L.O.R. creature got excited among the trees (7)
1i Carpenter vegetable (7)
2a Bitten from vetta cheese (3)
2e U missed out at end of Hawaii dinner (3)
2i Golf-gress (3)
2m Martini or deodorant (3)
3a She ate adamantly (3)
3e O.J. Sears (7)
3m Compete (3)
4a Not rhyme either (6)
4j Made with Across 1i (6)
5b No, No, Nannette! (3)
5f Spaghetti gravy (5)
5l Root of candy is sticky (3)
6a Greek cow (2)
6g The Gripe-ee (3)
6m Miss Leachman (Dim.) (3)
7a Ease (2)
7d Trust a star (5)
7j Needle's aim has vechile (6)
8d Long Njord tale (4)
8l Lamb learns karate (4)
9a Prarie dog (6)
9i Unidentified object (5)
9n Direction (2)
10a Time for Women's Lib (3)
10g Kitchener-Waterloo Association (3)
10n What Registration? (2)
11b Toronto fair (3)
11f What Ontario is a place to (5)
11l Rock in the core (3)
12a Heart is that of this creator (6)
12j Easy Off makes your living this way (6)
13a North United Institute (3)
13e Had a complex with his parents (7)
13m Victoria Police Officer (3)
14a Of Cleaves (3)
14e Useless Enduring Acronym (3)
14i Diamonds (3)
14m Sea snake (3)
15a How to commit crimes by law (7)
15i Middlinpenny (7)

DOWN

ai Turn or Pass (4)
a6 File squish (5)
a12 End of body canal (4)
b1 Government money (7)
b9 Black speech letter (3,4)
c1 Married Miss SCrub and Shine (5)
c9 I left the painting tired (7)
d4 Tinny, tinny sort of abbrev. (2)
d7 Dust from mashed potatoes (3)
d11 It's after 'c' (2)
e1 And not only that but ... (4)
e7 Salvation Army Enterprises (3)
e12 Down o1 is the window of it (4)
f1 Result of Hurricane David (5)
f7 Toronto GO Railroad (3)
f11 Assorted tele's strong (5)
g1 Profanity wall (3)
g5 The impossible shave is here (4)
g10 Kitchener Transit (2)
g13 Dosy Doris (3)
h5 Carter country (3)
h9 Certain airline (3)
i1 Central Processors (3)
i5 140 or 180 (2)
i8 Detective took partial chance (4)
i13 Cobol photo (3)
j1 From the dead (5)
j7 Square evaluation test (3)
j11 Wild couple (5)
k1 Good Latin (4)
k7 Another Ordinary Nonsense (3)
k12 A senator is beheaded (4)
l4 Musical note (2)
l7 Perverse Physical Resources Group (3)
l11 Osmium (2)
m1 To go collect $200 (7)
m11 Farmer world (5)
n1 This grid is in the frier (7)
n9 Crown Prince of Demonia (no kiddin' !) (7)
o1 The optics have it (4)
o6 Command a waitress (5)
o12 Dice or Egg (4)

6 pages & no reprints would have been better

Literary Page

One Giant Step For Mathematics

as written by: Hyman Gabai
as stolen from: J. Recreational Mathematics

Let others fly to the moon and Mars,
I shall travel beyond the stars-
Aim beyond this finite vicinity,
And shoot a rocket to infinity.

On that rocket I shall be,
Travelling through eternity,
Far beyond the speed of light,
Where energy, mass and time unite.

Bound only by my immortal soul,
I shall reach the world of Aleph-Null,
That wonderful world of that infinite cardinal,
Where division by zero is quite pardonable.

At the homogeneous coordinates of infinity,
Where the future mingles with antiquity,
I shall meet mathematicians, Old and New,
And learn mathematics, complete and true.

Pathagoras will declare me a citizen nationalized,
And divulge how irrationals can be rationalized;
I shall learn how to measure spheres with boxes,
In an exhaustive study by Euclid and Eudoxus.

The exact value of π I shall find in a treatise,
Prepared specially for me by Archimedes;
And solving cubic equations will be great fun,
When Cardan displays the real square root of minus one.

The Last Theorem of the infinitely decent Fermat
Will be proved in a 3, 4, or 5 minute chat;
And with Descartes, it is not to be debated,
My life shall be ordered and coordinated.

I shall visit De Moivre and Bernoulli for recreation,
Playing games of chance with negative expectation;
And with Goldbach I shall enjoy quiet, pleasant times,
Expressing even numbers as sums of pairs of primes.

On the shoulders of Newton, I shall view the noble scene,
Abel to Zermelo, and all the great ones in between,
The immortal Cauchy, Fourier, Galois and Gauss,
And, of course, Jacobi, Lagrange and Weierstrass.

Meeting Euler will be an experience transcendental,
Making $e^{i\pi}$ =-1 appear quite incidental;
With Gauss I shall study Disquisitiones, Vol. 2,
And serve his Queen, so lovely and true.

Galois shall teach me to solve polynomials,
Even those not solvable by radicals;
And with Dedekind, cutting through thr number line,
Ever more wondrous numbers we shall find.

With Cantor I shall count an infinite set,
And learn to count an uncountable set;
We shall count all the numbers there may be
Between $\aleph_0$ and the cardinal C.

Riemann, whose integrity we never shall deny,
Will disclose where all the zeta function zeros lie;
And Hilbert, in Cantor's paradise forevermore,
Will whisper in my ear, "Here's Problem 24".

With Boole I shall live in a logical place,
Studying mathematics on a lovely Hausdorff space;
And at Nancago U. I shall earn my Ph.D.
Under the guidance of Nicolas Bourbaki.

Finally a sad farewell and a sip of wine
From the famous bottle of Dr. Klein;
Then head over heels I shall suddenly flip,
And depart for Earth on a Mobius strip.

Decreasing my velocity, I shall re-exist
And rendezvous with a physicist;
In spirit of detente we shall dine,
And drink a toast to A. Einstein.

We shall gather together a sack of rocks,
Resolving almost every problem and paradox,
And share our knowledge and our thoughts
Like international astronauts.

Then to Earth I shall return
With a New New Math for kids to learn,
And build mathematical foundations
For a more friendly family of nations.

A LIMERICK

I wonder who Profs want to lick
By denouncing the plagiarist's trick;
As a tutor, I know
What these students forego...
But they sure make my marking job quick!!

A short excerpt from **Scientific American's**

Mathematical Games

"A mathematician, like...a poet, is a maker of patterns."

G.H. Hardy

Are the beautiful, orderly patterns of pure mathematics discovered or created by the human mind? The answer to the question depends on one's philosophy of mathematics. In either case patterns also play an important part in all the fine arts, and nature displays a fantastic variety of patternsdatomic structures, snowflakes, spiral galaxies and so ondthat demonstrate a collusion between mathematical and natural laws. In all these domains, however, patterns can arise completely by chance, as a cloud can assume the shape of a camel. This month I shall take a not very serious look at some accidental patterns involving the numbers pi and *e*.

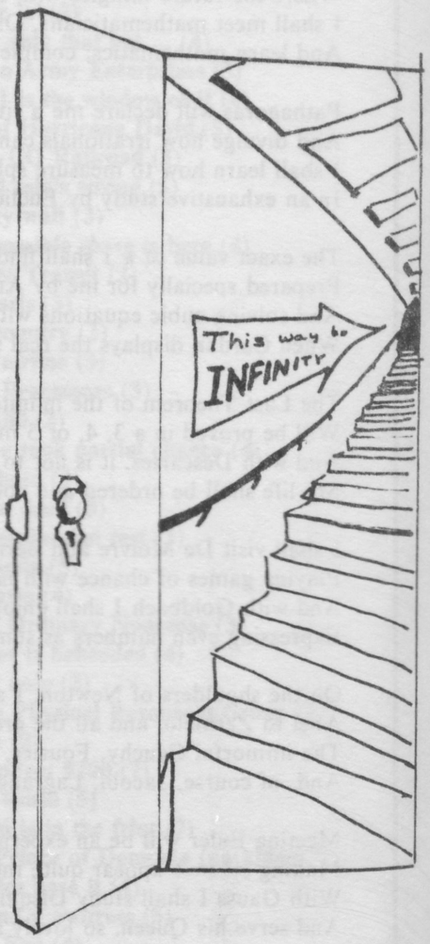
Pi is the best-known of the transcendental numbers: those irrational numbers that are not roots of ordinary algebraic equations. Given a sufficient amount of computing time one can precisely calculate the decimal expansion of pi to any finite length, and so in this sense the expansion is not random. Viewed as a sequence of digits, however, it is as ugly and disordered as any randomly generated list of numbers. No one has ever found a pattern in the expansion of pi that cannot be explained by pure chance. Nevertheless, this disheveled sequence, which is now known to a million digits, continues to haunt and fascinate numerologists. It is not surprising that with diligent searching one can discover all kinds of accidental patterns there. Dr. Matrix has pointed out a few of them, as I have reported in earlier columns (you could look them up if you're interested). There are other pi curiosities. For example, on the title page of Dr. Matrix' 10-volume commentary on the King James Bible he quotes Job 14:16: "Thou numberest my steps" (see chapter 18 of The Incredible Dr. Matrix). Here Dr. Matrix apparently overlooked a remarkable coincidence: "Job" has three letters, and adding 14: 16 gives 3.1416, or pi rounded to the fourth decimal place.

Starting with the 710,150th decimal place of the expansion of pi there is a surprising run of seven consecutive 3's: and followed by an 8.) This peculiarity was first noted by the computer scientist Donald E. Knuth, whose students at Stanford University have been struggling to calculate pi to 15 million digits. Such a stupendous undertaking became possible only recently, as a result of faster algorithms for computer multiplication and of the development by Eugene Salamin of a new formula for calculating pi. By adding some clever twists to Karl Friedrich Gauss's method of calculating elliptic integrals, Salamin obtained a formula for pi that converges with unusual rapidity. Interested readers will find the formula explained in Salamin's paper "Computation of π Using Arithmetic-Geometric Mean" in *Mathematics of Computation* (Vol. 30 No. 135 pages 565-570; July 1976).

The October 1965 issue of Eureka, a journal put out annually by mathematics students at the University of Cambridge, points out a strange pattern in the first seven decimal places of pi. The pattern combines the three mystic numbers of medival numerology (1 for the Godhead, 3 for the Trinity and 7 for the day God rested) with the first three perfect numbers (the smallest integers equal to the sum of all their divisors including 1) as follows: the first decimal digit of pi is the smallest perfect number 1, the first three decimal digits (141) add up to the second perfect number (6) and the first seven decimal digits (1415926) add up to the third perfect number (28). Moreover, 1 is the "sum" of the first counting number, 6 is the sum of the first three counting numbers (1+2+3) and 28 is the sum of the first seven counting numbers. These are the only three numbers that are simultaneously the sum of the first *n* counting numbers and the first *n* decimal digits of pi.

I have written before about that extraordinary fraction 355/113, which gives the value of pi to six decimal places. (See the chapter on pi in Martin Gardner's *New Mathematical Diversions from Scientific American*.) G. Stanley Smith discovered that 553/312 is a good approximation of the square root of pi, 1.7724538509..., giving it correctly to four decimal places. Even more remarkable, Smith's fraction is almost 355/113 with the numerator and denominator written backwards. Note that the demoninator of Smith's fraction begins with 31. The cube root of 31 gives pi to three decimal places. The square root of 9.87 (a number consisting of three consecutive digits in reverse order) is still better. It gives pi rounded to four decimal places.

...continued next week



Who needs a meaning anyway?
I'd settle anyday, for a very fine

BURLOAF

Last week's Burloaf column left something to the imagination of those who were reading it for the first time. This was, "What is a Burloaf and what does it stand for?". Firstly, a Burloaf is an impresssive sort of pattern in the game of **LIFE** developed by Professor John H. Conway at the University of Cambridge around 1970. (Life was featured in a series of articles in Martin Gardner's Scientific Games column starting in October 1970 and continuing sporadically for several years thereafter). But we digress. The pattern to the side of last week's article is the famed Burloaf (mentioned in the Scientific American references merely as a Loaf).

Historically, the Burloaf sufficiently impressed yours truly, that it was sort of adopted as an official logo and as the name of a mathNEWS article of long ago, and became part of contemporary Mathsoc folklore. The burloaf was originally called, by those who even cared, a *bread loaf* and later shortened to a *br'loaf*. I thought it should have been spelled *Burloaf* and a friend (and original writer of the column) thought it should have been *Br'loaf*. At this point it was all left to my computer teacher (a Waterloo graduate, no less) to pick which of the two names would be the correct version. The ending is pretty obvious from here. To some people who already know the rules of the game, Burloafs do seem to be rather dull patterns, but what do I care? Really, from a point of aesthetics, the pattern is small, stable, symmetric, and I like it. (It may stay awhile in mathNEWS, if I can maintain my interest). But so much for history.

Our integer_of_the_Week is

7

inspired initially by the fact that a Burloaf has 7 bits. Fortunately, some *real* mathematical properties of the number have been unearthed this time. Firstly, the number is the result of the sum of the first three powers of two and secondly, if we consider one-seventh as a repeating decimal, it can be multiplied by any integer in the range (1-6) to preserve its digits in the new decimal.

Seven appears a great deal esoterically also as evidenced by the number of days in the week, the seven deadly sins, the seven wonders of the world (+yacc), the seven hills of Rome, the seven seas, and the seven years of plenty followed by the seven years of famine.

The smallest number of sides on a British coin is seven, opposing sides of a die add to seven (seven is considered to be a lucky toss), seven years of bad luck are earned for breaking a mirror, and James Bond being designated *007* are all additional uses of our integer.

Computerwise, Knuth had promised seven volumes in the *The Art of Computer Programming* (which will probably never be finished), and this article has been written on UNIX, since the newest release of the system is the seventh edition.

And on the seventh day the Burloaf rested.....

Editorial

In which the new editor mounts a pedestal labelled "TRUTH" and starts to wax.

Yes indeed! Here comes the first coat. All of you mathies who have taken the time to read our first two issues (frosh and 21/1) will realize that stitching this Rag together is quite a hassle. Quite a change from the 20-plus page elegance of frosh issue '79 to the rather scrawnier format of last week. This doesn't mean we're disorganized, or growing senile after the first week of term; it's simply an indication that the pace is starting to steady a bit. A little less giddy.

As you have seen or will see by reading through this issue, we have received several indications from students that our publication is not up to muster. Certainly, mathNEWS never pretended to be the sort of thing one would turn to for solid journalism. We're not timely like Time or Newsweek, and we're not an instant pleasure dispenser like Swank (or Enginews??). We want you to read mathNEWS partly because it is sort of unpredictable, not only because you're mathies.

Gerry watched with growing frenzy as inch by inch Cindy slowly slid the shimmering, diaphanous veil down the length of her moistened torso, revealing at last all that he had waited those many lonely years to see...

If you think something is amiss with mathNEWS, as with anything else on campus, then for gosh sakes tell us. Or, better still, he said, with a fiendish gleam in his eye, help out! More voluntary submissions means less arm-twisting for me, and a better mag for you. And that's what it's all for anyway. I'm here because I think we have a lot of things worth saying to each other about our faculty, and we can have a lot of fun at the same time.

And yes, it *is* possible to get really involved with Mathsoc and mathNEWS. As I found, if you stare long enough into a washing machine, sooner or later your tie is going to get caught in the agitator.

Look, if a frosh can edit this thing...

Cuckoo! It's 0442 hours Eastern Daylight Time and everyone in MC 3038 is awake. This list of nocturnalists includes graphicist/philosopher David Welbourn, Mr. Layout himself Geoff Hains (yes Geoff, I suppressed the consuming urge to put an 'e' in there), abaard hanger-on Lonnie Gariepy, who, while the drudges toiled, swore, tassled with Letraline ~~typex~~ tapes and prayed that their surrogate paste-up medium, a roll of 'transparent' Scotch tape, wouldn't go yellow all over their pages before they got printed, sat statuesque at the computer terminal, engrossed in the wonder of learning how to (a) play adventure, (b) get OUT of adventure, (c) use the Honeywell system without spontaneously crashing it. God only knows why he stayed up. Which reinds (reminds) me... I should mention that these Tuesday night group masochism sessions are, in a way, kind of fun... You wouldn't believe how the rotten jokes fly out of normally reserved and mature minds after about 1:30 or so. We've had lots of other folks here during the evening, and we shouldn't go too far down this damn page without thanking them also. In decreasing order of time of departure: Mary 'Rookie' Elford, who adopted (practically) page one as HER page. Unfortunately for Mary, after she left, we had the inevitable hourly Great Idea and ripped certain parts of it up. But it was nice to have someone around who was really awake. Her rookie twin, Adrian Jackson, puttered away for most of the evening on menial but important jobs like numbering the pages & such. Walter T. Frosh did something funny, but we can't remember. Tough luck Walter. More thanks: to jmrobinson for the Real World 100 lectures. To Christie's Ground Wheat Thins (we ate some of them) for the Universal Product Code. To my brain, and its maufacturer for its BRILLIANT performance throughout the evening. To Mathsoc's resident colony of house flies for allowing us to release our hostilities. David says to thank the X-acto knives; I don't know what that means. To Scientific American for those neat articles. You know, the ones that were worth reading... Well, we've all lost another night's sheep. The sun rises on another day of mathNEWS history. Joe Clark and Gerald Ford STILL haven't shown up. How we miss crazies like Phil Kelly; we're only crazies-in-training, not capable of his brand of idiocy... Here's hoping the Expos won; we still don't know. That's all for this week; signed, your new ed -

Ross ~~Brooke~~ ~~Brook~~ Brown !!!

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