UW Mathies Get FASS Fever

Some notes on the FASS annual general meeting last Tuesday...

- attendance of over 90 people, many first year (which is nice: we like to get them young!)
- people must have been doing their drinking at home before the meeting, because they all laughed at the skit we put on.
- some hardened 'bun hacks were to be seen at the party; ksbooth claims he was just ``furthering faculty-staff and faculty-student relations´´.
- anyone who can learn, or knows, how to ride a unicycle and is willing to do it on stage in front of 500 people should get in touch with us. The show is early February, so they would have a few months to practise.
- Writers' meetings start immediately. The first one was tonight (Monday, October 1, 8pm), then next one is Tuesday, October 9, 8pm. All writers' meetings will be held in the Faculty Common Room (ML 104) in Modern Languages, if possible. Non-writers who like telling and hearing old jokes are welcome! The object of the writers' meetings is to write next year's FASS script.
- people who want to be on the FASS Honeywell mailing list should mail their userid to userid ``fass´´.

IAN! Allen
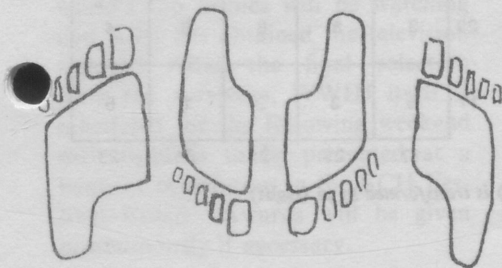
CSC Meets Again

The end of next week has arrived! The CSC will be holding a meeting to dispose of some doughnoughts and tea that will be up in 5158 at 8:00 pm on Thursday October 18, 1979. Prior to the free f00d, though, David L. Robinson (Mikey's brother) from the Honeywell Los Angeles Development Centre will speak on CP-6, son of Xerox's CP-5. As ever, everyone is invited (i.e. urged to come).

It has been rumoured that her highness the Dalek my put in an appearance.

Concordia cum doughnoughtae!

A.P.B.

Shy Froshi (*pleadingly*): Hugh Morrison, #77129740, *please* bring back the fourteen broomball brooms you borrowed back in April, or I shall *die!*

(Seriously)

MGB is Back

Preparations are under way for the Second Annual Math Grad Ball, to be held in March 1980. Last year's event was so successful that another formal evening of dining and dancing is being planned for this year's graduating students.

Posters are going up to keep you informed and fund raising events will commence in the next few weeks.

All the people interested in helping out (including first, second, third year students who would like to organize similar events in future years) are invited to contact Lisa Seiler at 886-3114 or Diane Mansfield at 886-2664.

Descartes Evening Fall Term 1979

A René Descartes Social Evening is to be held on Tuesday, October 23, 1979, commencing at 8:00 pm., in MC 5158 with a talk by Dr. K.A. Dunn entitled ``Black Holes, White Holes and Big-Bang Cosmology´´. All Descartes Scholars past and present are invited to attend.

K.D. Hunt

Attention Fassists

The first two writers' meetings shall be

8 pm., Monday, October 1, 1979
8 pm., Monday, October 9, 1979

in the Faculty Common Room, downstairs in Modern Languages (ML 104). depending on the hue and cry, we will either alternate Mondays and Tuesdays all term or else pick one and stick with it.

IAN! Allen

Mathematical Games

The second most famous transcendental number is the base of natural logarithms, *e*, which has been the subject of almost as much numerology as pi. The expansion of *e* is 2.718281828... The repetition of 1828 in this sequence means absolutely nothing. And the fact that the 16th and 17th digits of pi and *e* are the same (23) is equally meaningless. Douglas R. Hofstadter has discovered an even more amazing coincidence: if the reciprocals of the first eight counting numbers are added (taking each one in decimal form and rounding each one in decimal form and rounding up to the third decimal place when the fourth-place digit is greater than 5) the result is 2.718, or *e*, to three decimals.

Considering the fundamental nature of pi and *e*, it is not surprising that there are many simple, meaningful formulas that relate them. As someone once observed, ``You can have your pi and *e* at it too.´´ It is also not surprising, however, that if one searches long enough, it is possible to find striking but meaningless relations between the two constants. One of the best was discovered recently by R.G. Duggleby, a biochemist at the University of Ottawa. He found that the sum of pi to the fourth power (97.40909...) and pi to the fifth power (306.01968...) is *e* to the sixth power (403.42879...) correct to four decimal places!

Proving which is larger, pi to the power *e* or *e* to the power pi, is an old but still intriguing problem. (Obviously the proof may not involve the calculation of the two values, which are quite close: π^e equals 22.4591577..., and e^π equals 23.1406926....) One of the shortest proofs is based on the fact from elementary calculus that $x^{1/x}$ has a maximum value when *x* equals *e*. Hence $e^{1/e}$ is greater than $\pi^{1/\pi}$. Multiplying each exponent by π^e and cancelling yields the inequality $e^\pi > \pi^e$. Incidentally, e^π has been

proved to be transcendental, but it is not known whether π^e is rational or irrational. It is not even known whether the product (πe) and the sum ($\pi + e$) of the numbers are rational or irrational.

Do the first *n* digits of pi (which form the sequence 3, 31, 314, 3141,...) ever make a perfect square? This curious question is discussed by Wolfgang Haken in his paper ``An Attempt to Understand the Four Color Problem´´ in *Journal of Graph Theory* (Vol. 1, No. 3, pages 193-206; Fall 1977). (The four colour theorem was proved in 1976 by Haken and Kenneth Appel.) Consider the conjecture that the answer is no, the first n digits of pi never yield a perfect square. Haken believes this conjecture is true but not provable in standard set theory because ``the decimal expansion of the transcendental number pi has `practically nothing´ to do with perfect squares.´´ Haken estimates the probability that the conjecture is false to be .000000001.

Another bizarre question about pi was raised by George Shombert, Jr., of Beaver, Pa. If the decimal expansion of pi is truly patternless, then somewhere in the infinite sequence there must be the fist *n* digits of *e*. Similarly, it must be possible to find the first *n* digits of pi in the expansion of *e*. This observation set me wondering. Is it possible to prove that there is no point inside pi where *e* begins and continues to infinity, or visa versa? Is it possible that each of these numbers contain

all the other, as in 3.141...2718...3141...2718...? The answer to this last question is definitely no. Do you see why?

One of the most incredible accidental patterns involving pi was discovered a few years ago by T.E. Lobeck of Minneapolis. He started with the conventional 5-by-5 magic square shown on this page and then substituted the *n*th digit of pi for each number *n* in the square. The result is in the other shown matrix. The sum of the numbers in each row is shown to the left of each row and the sum of the numbers in each column is shown at the bottom of each column. Amazingly, every column sum duplicates a row sum.

It may be hard to believe this pattern is sheer coincidence. Even mathematicians can forget that if people doodle enough with random sequences of digits, it is highly probable they will find highly improbable patterns. It is because most people fail to grasp this basic notion that they are unduly impressed when, out of the billions upon billions of possible ways coincidences can arise in daily life, one does occur. As Edgar Allan Poe wrote at the beginning of his story ``The Mystery of Marie Roget´´: ``There are few persons, even among the calmest thinkers, who have not occasionally been startled into a vague yet thrilling half-credence in the supernatural, by *coincidences* of so seemingly marvelous a character that, as *mere* coincidences, the intellect has been unable to receive them.´´

17	24	1	8	15
23	5	7	14	16
4	6	13	20	22
10	12	19	21	3
11	18	25	2	9

24	2	4	3	6	9
23	6	5	2	7	3
25	1	9	9	4	2
29	3	8	8	6	4
17	5	3	3	1	5
	17	29	25	24	23

Traditional magic square (left) *is transformed by pi* (right)

UW arts centre NEWS

Upcoming Events at UW Arts Centre

Wed., Oct. 10, 8 pm.
Documentary Double Bill: ``The Great Ecstasy of Woodcarver Steiner´´, ``Roger Corman: Hollywood's Wild Angel´´, plus ``Claymation´´. $1.50 (Stu./Sen. $1.00) plus membership.

Thurs., Oct. 11, 8 pm.
Shaw Festival's ``Blithe Spirit´´. Sold out.

Fri., Oct. 12, 9:30 pm.
André Gagnon, Canadian composer-pianist-entertainer in concert with his 9-piece ensemble. $9.50 (Stu./Sen. $8.00)

Sat., Oct. 13, 8 pm.
FM concert, sponsored by Federation of Students. Tickets available at FS office in Campus Centre. Call 885-1211 ext. 2358.

Sun., Oct. 14, 7:30 pm.
Dan Peek concert sponsored by the Maranatha Christian Fellowship. $4.00 (Stu./Sen. $3.50)

Ski-Jumping and Movie-Making Documentaries

An unusual film event is planned for the next screening in the UW Arts Centre International Film Series. Called a *Documentary Double Bill*, the two films to be shown on Wednesday, October 10 are ``The Great Ecstasy of Woodcarver Steiner´´, a documentary about the world's greatest ski jumper, and ``Roger Corman: Hollywood's Wild Angel´´, which includes interviews with this American film director-producer and an investigation into his success formula. Rounding out the documentary bill of fare, the short ``Claymation´´, a documentary on the making of clay animation by Oscar-winning Bob Vinton, will also be shown. Episode 3 of the continuing serial ``The Indians are Coming´´ will be screened that evening. The programme gets underway at 8 pm. in the Humanities Theatre.

``The Great Ecstasy of Woodcarver Steiner´´, directed by Werner Herzog, is a lyrical film about Walter Steiner, a Swiss woodcarver who is the world's greatest ski jumper. In fact, Steiner soars so far, he is correctly designated a ``ski flyer´´ rather than a ski jumper, usually flying beyond the landing areas of courses designed for ordinary men, smashing all existing records and confronting death every time he jumps. Some amazing slow-motion photography captures the splendid, terrifying isolation of Walter Steiner's ecstasy. Herzog's presence in the film as a low-key but passionately involved commentator is a measure of his intense identification with this unique man who is compelled to take his creative impulse to the absolute limit.

``Roger Corman: Hollywood's Wild Angel´´ is a 58-minute documentary by Christian Blackwood which manages to provide considerable insight into this innovative, low-budget producer-director-distributor. It even manages to look like a Roger Corman film: fast, casual, sometimes erratic. It is considered one of the best filmic (*sic*) portraits yet of a film-maker. It is both playful and serious, with much emphasis on what seems to be Corman's theory of the producer as Auteur. What do Martin Scorsese and Federico Fellini have in common? And Jack Nicholson, Francis Coppola and Francois Truffaut? The answer is Roger Corman, once just the king of Hollywood exploitation, and now one of the real powers behind the American film scene.

(*ed: Now comes the crunch.*) Admission to the International Film Series is by membership only. Memberships for the season at $2.00 are available at the UW Arts Centre Box Office, Modern Languages 254, or at the door that evening. You may also purchase a one-night membership at 50¢. Film fee per evening is $1.50 (Stu./Sen. $1.00).

Sports Exclusive

Flash! We have just learned that Mathsoc has obtained the rights to hold *World War III (WWIII)*! Anyone wishing to participate should sign the sheet on the Mathletics bulletin board. Initial tryouts will be held on the north campus at 1:00 pm on Saturday (scouts representing the world's top armies will be watching and ABC has obtained the television rights). After the final selection from the survivors, WWIII itself is scheduled for the following weekend with trophies to be presented at a banquet celebration in the SCH Festival Room. Awards will be given posthumously if necessary.

Some weapons can be supplied, but those who can are urged to bring their own. Uniforms are being prepared now, with a maximum of 8 teams in two divisions vying for top honours.

If you would like to join, but can't make it, we'll hold a grenade for you. It is hoped that this will become an annual event similar to the southeastern war held every few years in different countries (past contestants: Vietnam at Cambodia, United States at Vietnam, China at Vietnam, and the granddaddy of them all, United States at Korea).

Please bring your Health Services card and note indicating next of kin.

If you take it, you'll surely agree,
That there's nothing like STAT 333!...
Where recurrence won't quit,
Random walks keep us fit,
And the great Laws of Murphy reign free!

PRONE

1. What FASS, kgdykes et al. want you to be (10)
10. Persiflage (8)
11. Like (2)
13. Mr. Scrooge, spelt rather Englishly (8)
14. This detergent is a lemon (3)
16. Half of a sugary candy (3)
17. Paul & Jerome are the only ones on campus (3)
18. Flower part (5)
20. A good place to get gas (Hint: *not* a Village dining hall) (4)
22. A group of 12 Erects, ⩾ 2 (6)
23. French reflexive pronoun (2)
24. I wonder if Dick Cavett has this disease (2)
26. Assisted academically (7)
27. Learned (7)
29. A fad from a few years back, still popular with Geology students (3,4)
32. It means ``yes´´ either way around (2)
33. Paul *or* Jerome (2)
35. These potato chips never made the priesthood (6)
37. Russian emperor (4)
39. You'd probably see this rich guy on the ski slopes (5)
40. Brother of sin (3)
42. Girl's name (3)
43. To be Spanish (3)
44. Pitiful (8)
46. Again, for starters (2)
47. Reckon (8)
48. What you frosh will be next year (?) (10)
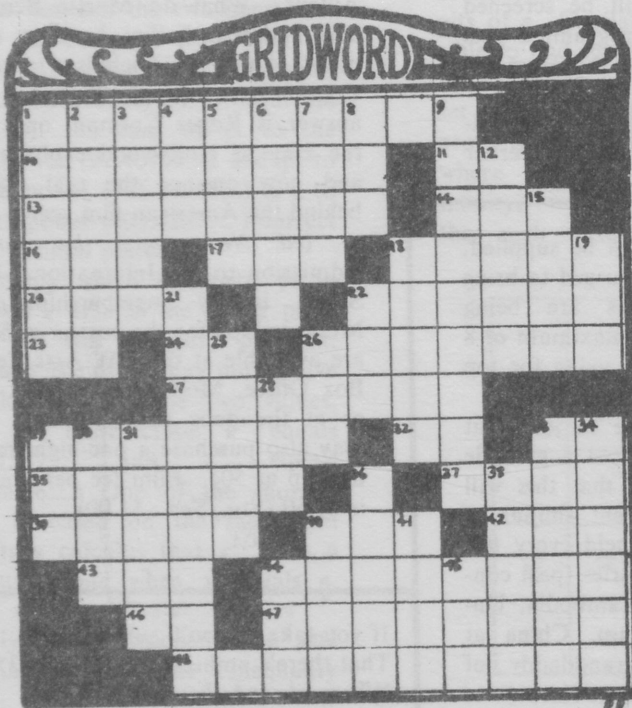
We Have a Winner

Success with last week's grid-word was phenomenal in comparison to the week before. While the :boff-word retired unsolved, this week's yielded to four solving groups. Using a time-tested binary randomizing technique (we find Canadian nickels to work best), the winner was declared to be "Me and My Friends!!!". That's how it was signed, and we haven't a clue as to who it was. This way (*how convenient!*) we don't have to award a t-shirt. Other solvers were Jim Klachan and Richard Adrian Jackson, Pam Galloway, and Lynn Marshall and Michael Albert. H.J. Kommel and Richard McCourt bombed.

ERECT

1. Pie-billed birds (*wow!*) (6)
2. A sugar you might find in vitamins and enzymes (6)
3. Sir Anthony & Barbara like to garden (5)
4. This drink goes with cotton! (3)
5. Get four of these and you'll be singing (4)
6. Le Grand Orange de Montréal (5)
7. French islands (4)
8. Above (forget the apostrophe) (3)
9. Edible *and* non-toxic (said of UW food) (4,2,3)
12. Deity of the woods (5)
15. Uncovered (4)
18. She looks like a hamburger (5)
19. Lysergic acid diethylamide, by any other name (3)
21. Passionate advances of an apparently musical nature (9)
22. → generis: unique (3)
25. What dogs do when bells ring (5)
26. Company which makes cassettes (3)
28. United Cigar Stores (blame this one on kpmartin) (3)
29. The fluoride in Etagloc (3)
30. Passion is simply pain in reverse (4)
31. A kitty of an entirely different stripe (5)
33. Glittering silk fabric (6)
34. Slight amounts (6)
36. —voce: softly (5)
38. Indian ``guitar´´ (5)
40. The cold, hard stuff (4)
41. Thin wedge for fitting parts (4)
44. This chockie bar is an 18 Erect (3)
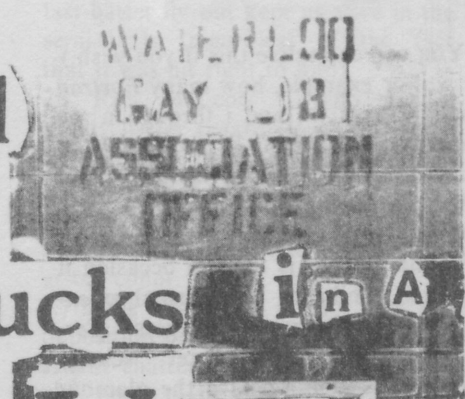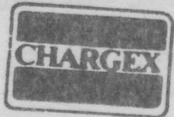45. The guys behind the air raid sirens (3)

GRIDWORD

official
:boff word
solution

OFFICIAL
gridword
SOLUTION

This is phototypesetter drivel.

I met with Death along the way.　*He wore a mask like* ....

BURLOAF
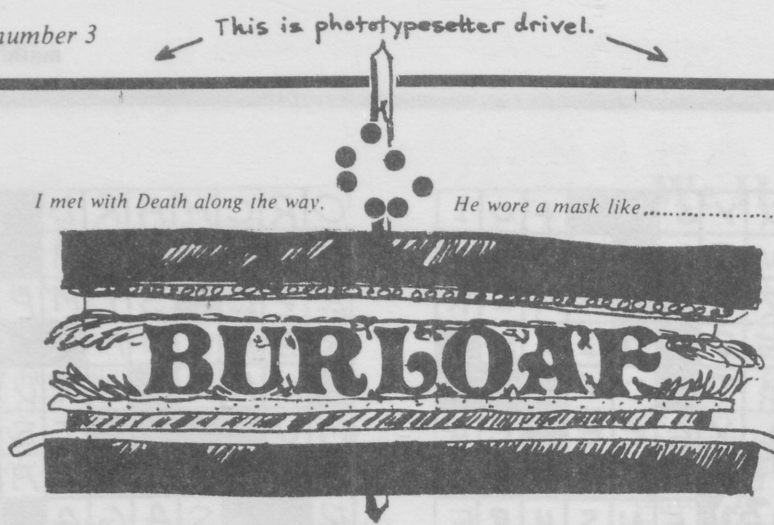
A fascinating dinner spot in Waterloo remains almost totally unknown to all but the roving action burloaf and a few others. L'auberge Hack Haven (the H's are aspirate) features an excellent atmosphere with a superb dessert chef, Chef White, who has studied for years and expects to get his second degree within the term (in CS).

Entertainment is often supplied by local renowned talent that often drops by for dinner. The great Johann once captivated some of the guests with a little of his impromptu modern classical piano and M0rk, now appearing for a long term engagement in Mississauga, often complemented Johann's talent with some of the more familiar masters. (Chef White does perform if requested with tunes like ``The Dog Who Smoked Cigars.´´)

The conversation among the guests is usually interesting, ranging from what's wrong with having anything to do with computer science to romantic poetry. Popular books, including a fine set of Enid Blyton children's books, fill the house library for guests to browse before dinner. For those who merely wish to relax from the day, an interesting collection of records played on their ad hoc stereo system will probably do nothing to help.

One outstanding charm of L'auberge is that the chef and his staff are often so busy with dessert that you will have to prepare the main course yourself for everyone else (usually the house specialty). L'auberge is particularly well known for its *swill*, a dish of surprising unpredictability and spiciness, which is sometimes worth eating.

But the multi-part desserts are what Hack Haven is all about. From a simple Raspberry Strawberry Bavarian to the delightful carbohydrate-poisoning nature of a Black Velvet, you will marvel at the culinary masterpieces that follow every meal. Each time there is a different variety of cheese cake (Chef White's favorite) and each one alone is more than enough reason to visit L'auberge. (Many of the patrons have gone back time and time again after failing to sample all of the dessert items.)

Although the rating of L'auberge Hack Haven has fallen to three and one-half stars in the Guide Michelin, after complaints of there being no cable for the television, it will still remain one of the best dinner spots in Waterloo.

❧　◆　❧

Being that a great number of people in the Math faculty are in CS, this week's Integer—of—the—Week is

k

(You can capitalize this if you wish.)

For example, how many *Fortran* books say, ``... and i through n are integers ...´´? Well k is certainly in that range and would the writers of *Fortran* manuals lie to us (J.W. Graham, for example)? Another point for this integer is that on occasion it is *real*, exhibiting the unusual *extended range* feature of integers. Certainly, within computer science anyway, k doesn't have the glamour reputation of i & j, but science regards it much more highly. Science uses k generally as real, most com-

monly as the representation for equilibrium constants (K, K_{eq}, K_{sp}, etc.), which are prevalent in chemistry and $0°K$ is the minimum absolute temperature (we all know that zero times a constant is zero).

In theory k crops up again, as in CS we have LRk grammars and in high school we were all introduced to vector k. (The symbol k is also used in phonetics to represent the ``k´´ sound. Probably borrowed from some other discipline.)

Assuming that this mathNEWS contains a Burloaf, to prove that mathNEWS will always contain a Burloaf, simply show that for any mathNEWS k, a Burloaf is contained. Then prove that the (k+1)th mathNEWS contains (or will contain) a Burloaf.

Apology

We would like to apologize to eamacneil (teD, as he is usually called) for not giving him credit for that scraggly little cartoon about Klingons in last week's mathNEWS. Well, we really haven't got much sympathy for him, or anyone whose signature is *that* illegible. We just found it in the drawer marked **ERSTWHILE JUNK** and stuck it in.

Un Autre Limerique....

To mathNEWS I forward this note,
That your readers may read what I wrote;
So quick and concise
Is this wealth of advice,
That there's nothing to argue or quote!

MATHLETICS

Flag Football Game

September 27, 1979
Math vs. Amalgamated C 0 - 32

Despite the determined effort put up by our defensive squad, Math went down in defeat to Amalgamated C, whose defense scored more points than their offense. This was a direct result of interceptions on our quarterback, who was under extreme pressure all game. We are now 1 and 1 for the season.

D. Dennis

Co-rec Slow Pitch Tournament

Saturday, September 29, 1979
Math vs. Mad Asses & Physics

In the first game, the Math team was defeated 27-12 by the ``Mad Asses``. The second game was defaulted by the ``Physics`` players who deserted the tournament when the Math team showed up ready to play. Obviously they realized the futility of trying to compete with us. All in all, the Math players had a good afternoon of competition.

Thanks to all the players of the Math team for their efforts with special thanks to the girls who outnumbered the guys on the team and saved the team from default. On short notice they filled all the spots left by ``no-shows``.

Strong displeasure is hereby expressed against those people who sign up for sports and then do not honour these commitments. Reasons/excuses range from ignorance of game times & dates (posted on the Mathletics board on the 3rd floor) to the standard, ``I've changed my mind``.

D. Dennis

Math Team Wins V2 Baseball Tourney

I would personally like to thank all the players who participated in our victory in the Village II baseball tournament (this includes the other teams who made more errors than we did). Special thanks go to

1.) Jane Koski ... one of our specialty team members and utility players. She was always saying ``Where do I play now, coach?``.
2.) Tina Ruhl ... our only female switch hitter. A plus to any team whose main objective is to line all hits directly at the opposition's third base person.
3.) Barb Cotton ... excellent defensive and offensive strength. An obvious asset to any team (especially her football team).
4.) Rose-Anne Sutton ... half of the Sutton connection, she played a solid defensive game at second base and had a lively bat.
5.) Joanne (Slugger) Jamieson ... whose strategy was to hit the ball over the outfielder's head (which she often did).
6.) Brian (Home Run) Woods ... his last-batter fly out kept us alive in the semi-finals (regardless of the fact that it was hit right to him).
7.) Rob McLeod ... who was a steady batter regardless of his steady obsession to play stategies contrary to the coaches.
8.) Dave Brunton ... played excellent catcher and fielder and made every at-bat count.
9.) Doug Wyman ... always kept the opposition on their toes with his consistent chattering. (*ed: I know what you mean.*) He also made a game winning throw from short centre field to get a force out at first base in the final game.
10.) Judy Sutton ... she never played. She would rather go sailing with her uncle but has to be mentioned because she was on the team roster and her brother is the coach.
11.) Dave Wernica ... one of our two engineer players came through with some key hits and defensive plays.
12.) Ken Pugsley ... the other engineer who helped out Saturday morning on a pivotal game.
13.) Dennis (Notso) Fast ... our unanimously popular shortstop was voted MVP of the team for his excellent defensive and offensive plays. He had an unassisted double play in the semi-finals and a three run homer to win the game by one run. Altogether Dennis had about 5 home runs including a home run in the final inning of the final game to put the championship away.
14.) Stu (the coach) Sutton ... what can i say ... look out Tony Perez!!

Congratulations to the team for an excellent showing. Oh yes, the score of the final game was 18 to 16 for us.

Stu Sutton
coach math 3b

Wanted

Lineman for the Math flag football team, offense and defense.
Qualifications:
- over 6'2" and 185 lbs.
- must see red when going for opposition quaterbacks
Apply to Mathsoc office and leave name & number, addressed to D. Dennis. Next practice on Wednesday at 5:00 between Math and PAC buildings.

REAL WORLD 100
An Introductory Course

ASSIGNMENT #2 - SOLUTION

Let us make the usual assumptions from Grade XI Physics: the rope is massless and inextensible, the pulley is inertialess and frictionless, the monkey and counterweight are point masses. By pulling itself up, the monkey increases the tension on the rope. Because of the properties of the rope, this increased tension is equal at both ends, and the monkey and counterweight are acted upon by equal forces. Therefore, they rise at the same rate - half the rate at which the monkey climbs the rope.

ASSIGNMENT #3

Modify the situation of AS-SIGNMENT #2 so that the pulley is marked ``1´´ and is attached to a rope passed over a pulley marked ``2´´, which is fixed. The other end of this second rope carries a counter-weight equal to the combined mass of the monkey and the first counter-weight. (Assume the pulley ``1´´ is massless!) If the monkey again climbs the rope at a constant rate, how quickly does the monkey move? If this situation is extended to 3 pulleys, how quickly does the monkey move? To n pulleys? Finally, consider the case with infinitely (?) many pulleys. If the monkey releases the rope, how quickly does it move (relative to the monkey)?

THE CAPTIONS

Figure 1(a)
A monkey with one pulley.

Figure 1(b)
A monkey with two pulleys.
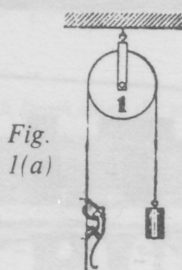
Figure 1(c)
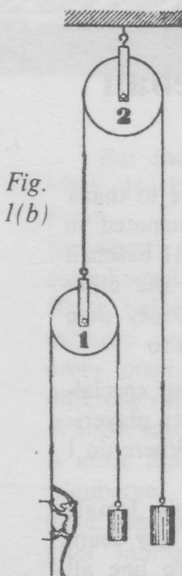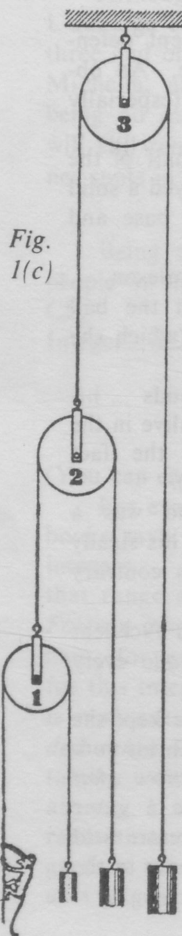This caption is left as an exercise.

Fig. 1(a)

Fig. 1(b)

Fig. 1(c)

First, some apologies (that's right, start off positive...) : first, to those obscure people who were not mentioned last week... kpmartin, the Photoneer; Jan Gray, the Pre-Frosh, who SAYS he typed in some articles; Walter T. Frosh, for forgetting what he did. Now, on the brighter side, let's try some venomous ACCUSATI-   ONS! (Didn't think I could hyphenate   that one, did you??) Charles   Forsyth, who wrote half of a   book review and stopped;   David Welbourn, whose   drippy mas-cara resulted   in many a black smudge   in this issue; the union   quotation marx which went   on strike, forc-ing the   grave accents in-to action   as scab labour; (Ross is sear   ching for inspiration but his feeble mind can think of nothing) OK, I'm back.   As,you can see, Hains is spiffed. Thanks   Geoff. NO, GEOFF, HEEL! Heop! Help! I think its time for some-one new to step in. This is your Burloaf speaking. I will have more orders when after the war Saturday z9fjdldliiifk---sorry, Walter its my turn as should be my right as the new editor of mathNEWS... hahaha//// All right the reactionary forces have been dispelled, and your REAL editor is back for good. Quick mention to the following; Scully for being obnoxious, this time in the Photon room; bwlutek for the limeriques; Gordon Lightfoot for providing soporific moments during the even-ing. And NO DIS-CO!!!!!!!!!!!!!!! C'est tout. Let's go to bed and get some sheep. Or, to be more engin-eer-like, get some sheep and go to bed. Finally, thanks to Ilil Arbel for help with the illust-rations. Such a shame he works for the Scientific American.......

INFINITY HALL
PLEASE USE OTHER DOOR