

Wanted

(dead or alive)

Markers required for second year General Algebra and Calculus courses in the coming spring term.

Please apply to the Math receptionist, 5th floor, Math and Computer building.



In STATs we've seen Bayesians defined,
We've watched "prior" assumptions unwind;
And then there's the mystic
"Posterior" statistic...
But I think it's the class that's behind!

Volume 25, Number 9
Friday, March 20, 1981

math NEWS

Buffet

Tickets for the Math Society End of Term Buffet are now available at the Math Society Office (MC 3040) and C&D stand (MC 3001). Also the Social Director Marnie Shaw has a number of tickets. If you know who she is (short thin woman with long blond hair) you can get your tickets from her directly without waiting in line.

As was mentioned earlier there will be no more than 200 tickets sold because of room limitations. Also if sales do not pick up to about 100 tickets by next Tuesday March 24th (which is one week before the buffet), the number of available tickets will be cut to 150. This is to avoid having a great amount of food left over.

So get you tickets now. It is unlikely that any will be available the day of the buffet. Remember these tickets cost only \$5 for MathSoc members and entitle you to a meal and admission to the pub.

Though you need not show ID when buying a ticket, you must show ID at the door, as the buffet will be licensed. Also please let us know whether you intend to stay for the pub after the buffet (tell us on the day of the buffet) so that we can determine how many people to let into the pub.



An Actuary?

Have you ever thought of becoming an actuary? What is an actuary? An actuary is an executive professionally trained in the science of mathematical probabilities. He uses mathematical skills to define, analyze and solve complex business and social problems. He designs insurance and pension programmes which meet the public's needs and desires, and which are financially sound. He forecasts probabilities and he commits his company or his client to long-range financial obligations for a generation or more.

To become an actuary, you must pass a series of 10 exams. Part I is a General Mathematics exam and corresponds nicely to the first year honours math programme here at Waterloo. Part II covers Probability and Statistics and corresponds fairly well to Stats 230, 231.

The Faculty of Mathematics has set aside a small amount of money to help students trying actuarial exams. If you are a first or second year student and you successfully pass Part I or Part II on the first try, you will have the registration fee refunded to you.

For more information and application forms see W. Aitken, M&C 6104C. Application forms must be in the mail before April 15.

I.S.: An Alternative

Disclaimer: There are many statements in this article which should only be taken as my personal opinion. I am not in Integrated Studies, though I seriously considered switching from Math to I.S. some time ago.

It is not hard to become dissatisfied with an academic programme. Courses are usually not exactly what one wants, either in terms of style or content. But is there any way out? Possibly.

About a year ago, such dissatisfaction prompted me to investigate the Faculty of Integrated Studies, a very readable description of which may be found in the undergraduate calendar. More detailed information may be found in the I. S. Handbook. A recent conversation with a friend prompted me to recall my investigation. The basic idea of I.S., that of doing independent work, supplemented by courses as necessary, attracted me, but I had four specific worries.

Firstly, would I get a "real" degree? At the time, I thought not. I was afraid that a B.I.S. would not be taken seriously when it came time to apply for graduate school. I now believe that that was a mistaken fear. The very unusualness of a B.I.S. is one of its advantages. An admissions officer (or, possibly, an employer) looking at a resume with a B.I.S. will be forced to look more closely, to discover what the student actually did to earn the degree. It would seem likely, then, that the person that one wants to impress with one's degree is much more likely to get an accurate impression of one's work if you have a B.I.S., than if you have, say, a B.Math. This may or may not be good, of course. As to the actual work that goes into a B.I.S., it is *qualitatively* different from that that goes into a B.Math. It is necessarily more self-directed. Anyone with a B.I.S. has successfully completed the design and execution of a degree programme, a substantial accomplishment. I'm not sure, but I believe that such a feat is not lost on graduate schools, who, I am told, look for ability to conduct research on one's own.

Secondly, would I have the self-discipline to succeed in an I. S. programme? It's hard to tell. If I hadn't have had the discipline, it's possible that the programme would have developed it. I would suggest, however, that the discipline wouldn't have developed unless a basic motivation existed.

Third, what could I do that was "integrated"? Here, I am treading on very thin ice, but I believe that stressing "integrated" is a mistake. It is very difficult to find a subject which doesn't cross traditional boundaries, in some sense. Also, a close look at some I.S. programmes, as discussed in the undergraduate calendar, shows that some courses of study are quite specific. In summary, I think it is better to go by those descriptions rather than relying on the faculty title. Still, I think one should have at least a tentative idea of what one wants to *do* in I.S. and a basic desire to learn.

Fourthly, would I receive a thorough grounding in something? This is very difficult to guess at, at least for me. If one is interested in some specific area, I. S. provides the freedom to pursue that interest to depths beyond the undergraduate level. Yet, one could conceivably spend a long time learning about, say, differential equations without ever touching on other important areas of math. On the other hand, in a B.Math programme, one can spend a long time learning about math without ever touching on other important areas of human knowledge. Certainly, it makes sense to say that if one is selecting the subjects one wants to learn, one is motivated to learn them, and will tend to retain more of the material covered.

The above questions do not cover all of the possible aspects of an I. S. education, of course. For example, I don't know if there is a Co-op I. S. programme, or how easy it is to find a supervisor for one's studies. Remember, I am not in I. S.; I'm finishing up a B.Math in Computer Science. Also, this article has not been cleared by anyone in I.S. -- it is entirely a personal impression, based upon reading the aforementioned calendar and handbook and talking to some friends who are in I. S. It may have factual errors, though it is correct as far as I know. Time constraints prevent anything more thoroughly researched.

It is hard to summarize the above. Perhaps the best thing to say is that if one is naturally motivated to learn and has a broad variety of interests, I. S. is worth investigating, at the very least.

peter rowley

CSC flash

That's it, folks. No more. Yesterday, we held the last CSC meeting of the term, as Joe Buccino of Bell-Northern Research came back to Kitchiloo to deliver a talk on getting information into Telidon systems. (Telidon is Canada's videotex system. A videotex system allows home users to access a large database easily and quickly. Videotex databases typically contain lists of doctors, entertainment calendars, stock market reports, and even entire home-study courses.)

You may recall that representatives of the Department of Communications visited campus last winter and demonstrated how Telidon users retrieve information from the system via their telephone, television set, and a Telidon "black box".

Last term, Professor D.E. Morgan described communications networks that Telidon systems might use. In general, information must be transmitted from so-called Information Providers (e.g. newspaper companies) to a collection point and then, upon request, to home terminals.

Joe Buccino received a M.Math from UW last year. He has since been working on a CSC talk to complete the Telidon trilogy. His talk described how an Information Provider might go about preparing information for a Telidon database.

March has been a particularly busy month for the CSC, as we've held one meeting a week for four weeks straight (Hugh Redelmeier, Kelly Booth/Tom Cargill, Movie Night, Joe Buccino), probably a record. It appears that the run of meetings will continue, though, for the sake of our sanity, they'll be spaced two weeks apart. There are four fairly-definite speakers for next term, and two distinct possibilities. Also, if things work out well, we may even have a CSC Concert!

A final note on Movie Night, held last week. Though the executive did what they could to help the organizers of that event, most of the work was done by Henry (no last name given) who selected the films, ably assisted by projectionists Ken Dykes and Tracy Tims and fellow traveller Prahbaker Ragde. They put together what was, in my opinion, the most beautiful CSC meeting in memory.

If you have any comments on this term's activities, any ideas for future events, please contact us, in person or by regular or electronic mail at: CSC, MC3037, Honeywell userid "csc".

peter rowley

mathNEWS Questionnaire!

March 1981

Who are you?

Math Non-Math

Year _____ M F

Do you read mathNEWS:

always _____ usually _____
 sometimes _____ never _____

How often should mathNEWS appear?

weekly _____ bi-weekly _____ tri-weekly _____
 other (please specify) _____

Feature Ratings

(please circle)

written comments

Cartoons	0	1	2	3	4	5	6	7	8	9	10
CSC Flash	0	1	2	3	4	5	6	7	8	9	10
Dead Ringers Report (M.Adringer)	0	1	2	3	4	5	6	7	8	9	10
Euchre	0	1	2	3	4	5	6	7	8	9	10
Full page events calendar	0	1	2	3	4	5	6	7	8	9	10
Gridword (dswelbourn)	0	1	2	3	4	5	6	7	8	9	10
Limericks (bwlutek)	0	1	2	3	4	5	6	7	8	9	10
Monologue (bstempleton)	0	1	2	3	4	5	6	7	8	9	10
Notepad (dthedmonds)	0	1	2	3	4	5	6	7	8	9	10
Opinion (rcmcgeer)	0	1	2	3	4	5	6	7	8	9	10
Social Director's Report (mjshaw)	0	1	2	3	4	5	6	7	8	9	10
TTWIAHA (wphughes)	0	1	2	3	4	5	6	7	8	9	10
WATSFIC News	0	1	2	3	4	5	6	7	8	9	10
Word Search	0	1	2	3	4	5	6	7	8	9	10
Young Frank Einstein	0	1	2	3	4	5	6	7	8	9	10
Overall	0	1	2	3	4	5	6	7	8	9	10

Overall Evaluation: (Please check)

← bad good →

	more wanted	enough	less wanted	written comments
news items				
sports				
real mathematics				
technical (CS oriented)				
campus events				
creative writing/fiction				
opinions				
politics (university)				
politics (non-university)				

Would you like to see mathNEWS on newsprint? with advertisements?

What new features would you like?

What features should be dropped?

Any general comments?

Please complete and submit to mathNEWS via the mathNEWS suggestion box on the third floor of the M & C
 Thank you. Results will be published at the end of the term.

Bylaw Commentary

As a former bylaw commissioner I feel that I have some competence to comment on the new Federation bylaws, though I must admit to not being involved in the formulation of the present proposals. Personally I would have liked to see more extensive changes. Such things as the direct election of the Vice-President and Treasurer and an expanded Board of Directors (from the present membership of 5 to 9 or 10 - the President, V.P., and Treasurer and one council member from each faculty) would have been preferred. This would give the students a more direct say in who would be the major officers of the corporation and also taken the Board out of the appointive control of the President, while at the same time not making the Board too large or unmanageable. However these are mainly philosophical differences. Generally I approve of the idea of Freeman's consolidation of the bylaws and the revisions that did get made. It is unfortunate that the political climate did not make such a move possible earlier and we had to settle for such piecemeal changes. There are a few technical details that should be brought up to avoid problems for the Federation in the future.

The membership bylaw (Bylaw 33 sections 25 to 29) makes no mention of the refundable nature of the Federation fee and does not state what happens to a person who withdraws the fee. The bylaw passed by Council in 1978 (but later ruled invalid because the Board forgot to pass it first) did address that issue.

In Bylaw 34 the Referenda section should have stated explicitly that a referendum is in actually a general meeting conducted by ballot with voting in each constituency. Perhaps a standard percentage of 10 per cent (whatever the size of the constituency) should be required to call a referendum of recall. It would also be wise to have the method of amending the bylaws clearly defined in the bylaws.

Unfortunately the old seat distribution formula for Council reps was not changed. Currently Council seats are distributed based on on-campus enrolment figures in the fall term. However the on-campus co-op reps (and the regular reps) are not elected until the following winter term, while the off-campus representation is determined by the number of off-campus students in the fall term, but are

not elected on-campus until the spring-summer term. This procedure causes a distortion in the figures because of the large first year co-op enrolment in the fall term. A case in point is the awarding of 4 seats to Engineers on term now compared to only 2 seats to those on campus in the summer. While the fall Co-op enrolment may exceed the previous summer's enrolment by a 2 to 1 margin, the current winter term and next summer's co-op enrolment will be nearly equal.

Under the old system Council elections were to be held two weeks after the Presidential elections. This caused many problems for those who would be involved in both campaigns. I can testify that it was quite a long ordeal. Fortunately this was changed.

Freeman's new bylaw has the Presidential and Council elections held on the same day. This is the normal procedure for most of the student governments in Ontario and for other organizations on campus. It is a less costly method of holding elections, it also tends to get them out of the way quicker. The Council elections would be given more prominence being on the same day as the presidential elections. Also the overall voter turnout would be increased. If one wanted to abstain in the Presidential election, but not in the Council election or vice-versa, one would have an incentive to vote. Since co-op students are already voting for president they could also be given their ballots for council reps then or vote in the previous fall or the next summer. (The new bylaw does not deal with that problem. I believe a fall election would be preferred so that the off-campus reps could take power at the AGM with everyone else.) With one election to be held, a longer lead-up period, nomination period and campaign period can be fit in. This allows for better election publicity, the chance to get more people involved, and more time for mail ballots to be returned.

So as a whole the bylaws proposed by Freeman should go a long way to cleaning up a great deal of the mess. Hopefully they will be successful in that aim and getting more people involved.

j.j.l.

Salad Bar

The title of this year's student presentation by the UW Dance Department is "Salad Barre", and it represents the wide variety of fresh, young ideas being explored by these students of dance (just like the variety offered on a salad bar!). The performance is scheduled for Sunday, March 22 at the Humanities Theatre at 8 p.m. Tickets are \$2.50 (Students and Seniors \$1.50).

"Salad Barre" involves 29 students, including a new group of male dancers. A recent on-campus production of the musical "Sugar" had a number of young men in the cast, and this group became very interested in exploring dance. The result is that UW's Dance Department has a number of male dancers for the first time in many years, and it provides the students with an opportunity to explore lifts and other movements that require a male partner. The dances in the show have been choreographed by the students themselves and by instructor Gabby Micali. They explore movements in the jazz style, on a romantic theme, and in interpretive ways. The finale to the presentation is called "Participation 1981" and uses six men and six women in a high energy, comical look at a variety of sports and exercises.

Tickets are available as for the Shevchenko Ensemble.

120-Member Shevchenko Ensemble to Perform at Humanities Theatre

A large ensemble of 120 dynamic and colourful performers will bring a taste of Ukrainian - Canadian music and dance to the stage of the Humanities Theatre on Saturday, March 28 at 8 p.m. The Ensemble, under the direction of Eugene Dolny, features a superb male chorus, The Toronto Mandolin Orchestra, and a group of young, lively dancers.

Named for the 19th century Ukrainian poet-hero Taras Shevchenko, the Ensemble performs Ukrainian folk, classical and contemporary music. But it also boasts a vast repertoire that includes music of other peoples. The Ensemble also plays and sings the classic compositions ranging from Haydn and Mozart through the 19th century opera composers to Sibelius, Shostakovich and other contemporary composers. Marching songs and Bob Dylan's "Blowing in the Wind" are favourites. Canadian folk songs, including French Canadian songs and dances are also presented.

Tickets for the concert are \$8.00 (Students and Seniors \$6.50) and are available from the Arts Centre Box Office (885-4280); ticket vouchers can be purchased at George Kadwell Records, Waterloo Square & Stanley Park Mall, The Centre in the Square, and the information centre at Fairview Park Mall.

Lecture Notes: or How to Sneer at Theorems

Every mathematician, student and professor alike, has to explain their attitude to certain results, propositions, and theorems, when explaining proofs and arguments. It helps, of course, to take a superior position. To this end, the following short guide has been prepared.

The most common technique for describing mathematical results is by some use of the word 'trivial'. There are four uses of this word, one of which is legitimate and reasonable, the other three of which raise various levels of irritation in listeners.

1) (Recommended Use) A result is **really** trivial when it has no future relevance to the theory, has a simple proof which can easily be seen (e.g. it follows directly from the previous definition) and serves a didactic purpose in the introductory lecture. Another more important reasonable use is made when one direction in a proof of equivalence is very simple and included for elegance.

2) (Silly Use) One often hears 'trivial' when the speaker really means 'easy to understand' even when the proof may be quite hard to obtain. Here the speaker is mistakenly equating simplicity with irrelevance, hence the epithet 'silly'. A lot of results in Group Theory are of this type. (Not to mention recursive function theory, as I am discovering...)

3) (Short-sighted Use) Occasionally 'trivial' is used for 'simple' even when the result has far-reaching implications. The proof of continuity of the composition of maps can be clearly expressed in a single

sentence, but could hardly be considered 'trivial'.

4) (Pretentious Use) Perhaps not the most common, but certainly the most irritating, the use of trivial to mean 'I sweated out the proof of this last night. Didn't you get it?'. One is reminded of the professor who took a half-hour break in his lecture to establish that some result was self-evident.

Another word used to gloss over a point in a proof is the word 'obvious'. This occurs more often in textbooks, and is usually restricted to things which really are obvious. People who use it when speaking often mean, "well, I saw it eventually", or "It's obvious to me (mind you I've been studying this stuff for fifteen years...)"

I had a professor once who would use 'routine' for the above purpose: (On an assignment) "Can you give me some direction on these propositions?" "Well, they're just routine. If I told you anything I'd give it away." These things are all relative, of course; but it's as well to remember the effect on one's listeners.

The idea of being 'intuitively obvious' is very clear, but occasionally misused to mean 'simple'. To reflect that something is intuitively obvious often means quite the opposite of simple, since when results have this property one's intuition regularly gets in the way, rather than helping. Especially in graph theory. For the use of this description the warning goes the other way, as one must be careful not to use

some variation on 'intuitively obvious' to replace a rigorous proof, as in "There clearly can be no function satisfying these properties, contrary to assumption..."

A couple of useful techniques for getting around proving theorems are the following:

1) Invoke 'Follows from the previous theorem' (or lemma, or proposition, or last week's assignment). This spell is nothing but useful, and rarely misused, although one professor I know glosses over whole theorems by this technique. It helps, of course, to go and check the claim after the lecture is over. The lecturer might be wrong.

2) The last few stock phrases in this little arsenal are "as demonstrated in a later course"; "we won't go into this result in this course"; "the proof is beyond the scope of the material in the text"; "as you will see next year"; and so on. The key here is either a) the result is really useful and honestly hard to prove (i seem to remember that in second year calculus, Fubini's theorem was left for later), or b) in applied courses the professor may actually not have much idea of the proof, or reasonably feel that it can be used without proof. This after all is what mathematics usually gets used for, although it's difficult to imagine a use for some abstract algebra. It is not recommended to use the above dodge on assignments.

Andrew Malton

Dead Ringer Report

The Math Deadringers have met their Waterloo. Last week's defeat brought the Ringers' season to an end. The Deadringers can be proud of a very successful term. In what was supposed to be a rebuilding year, the Ringers managed to reach the semi-finals. Wait 'til next term, the Math Deadringers will be back.

In recognition of excellence, the individual Deadringer awards were presented last week. The winners were selected by a sportswriters' poll from Canadian Press Universal (CPU). The recipients are:

Most Valuable Player: Pierre Lapalme, Best goaltender: Pierre Coupal, Best scoring defenceman: Ray Byam, Best playmaker: Tom Oldfield, Best forward with a car: Mike Turcot, Best defenceman without a car: Armand Chiasson, Best fighter: John Avis, Best supporting player in a non-supporting role: Brad Adams, Best ex-Ringer: Bob Thorn, Best playoff no-show: Kelvin Martin, Best forward with glasses: Wayne Hooper, and finally Most appearances in Mathnews: Ron Sisson.

With several players retiring this term, the team is looking for some new players for the summer and fall. So all you Math students out there, here's your chance to represent your faculty.

As a final note, there is a rumour that a film will be made of last term's Deadringers team. You will recall that the Deadringers came out of nowhere, to win the Floor Hockey championships. The movie will supposedly be called 'Miracle on Floor'. See you next term.

M. Adringer



THE GALUMPHING GOURMETS

Angie's Country Kitchen

Erb St., St. Agatha

Ranging further afield than we normally do, we found this offshoot of the well known downtown Waterloo operation. Angie's Country Kitchen is a large, slick roadhouse with good food and relatively reasonable prices. A ten minute drive out Erb street brings you to the town of St. Agatha. Angie's is on the left after you pass through the flashing light at the main intersection. Parking on both sides and at the rear of the building.

There is a rather broad, but standard, menu ranging from hot and cold sandwiches to full course meals. There is usually a special of the day which gives table d'hotel meal at about \$8.00 without dessert. The specials include soup or juice, salad, main course with vegetables etc.

Like the downtown counterpart, we heartily recommend the fish and chips for lunch. The prime rib is quite acceptable, served without the ubiquitous styrofoam cup pretending to be Yorkshire pudding found elsewhere. There is no salad bar, and the served salads are small, with varied dressings. The cole slaw is a better food value and quite tasty.

The hot sandwiches run to about \$4.50. There is the usual selection of beef, poultry etc. This brings us to desserts.

A specialty of Angie's operation at either location is the selection of pastries available. You may choose from a wide variety of pies, from strawberry-rhubarb to plain apple. There are other things such as butter tarts like grandma used to make, and, one sour note, a pseudo baklava which we cannot recommend at all. There are several ice cream specialties, parfaits and sundaes.

All in all, a good place, and we recommend it. Licenced, major cards. \$5.00 to \$15.00 per person.

Rating: 2.2 bunnies

Previously Rated.

Cassidy's 405 King St. N. (at Weber).

A moderately priced western-style eatery. Foods range from steaks to salads. A good spot for vegetarians, as the salad bar

is eclectic. Exceptional value for Sunday brunch at \$5.00 per person, unlimited hot and cold buffet. Licenced, major credit cards. \$8 - 10.00 per person.

2.0 bunnies.

The Stone Crock St. Jacobs

Reasonable family-style dining. All you can eat for a fixed price. Scrumptious soups, salad bar and boarding-house style table service. Desserts a la carte. No licence, major credit cards. \$10 - 12.00 per person.

2.1 bunnies.

Shin Shin 105 Victoria Street S., Kitchener.

Very good Szechuan dining at a reasonable price. Excellent desserts. No licence, no cards. \$6.00 - 10.00 per person.

2.0 bunnies.

The Corkscrew 400 King St. W., Kitchener.

A relatively expensive eatery in northern Kitchener. Good recursive salads, but really only a place for the well-heeled carnivore. Licenced. Major cards. \$10 - \$15 per person without drinks.

1.7 Bunnies

The Gypsy Cafe 84 King Street North, Waterloo.

An eclectic delicatessen well within the reach of most students. Average entree \$4.00 to \$5.00. No licence.

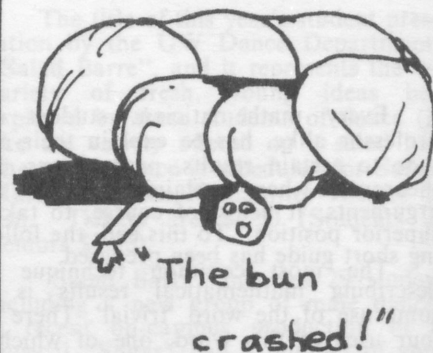
2.0 Bunnies

The Laurel Room South Campus Hall.

Edible food for a fixed price of \$3.85 makes this Food Services/Bar Services operation the best bargain in the area. Open for lunch Monday through Friday, and supper Wednesday through Friday, this "smorgasboard" offers everything from salads to desserts with two hot entrees in passing. Somewhat better surroundings than the Festival Room, and somewhat better food too. Licenced, cash and carry.

2.5 Bunnies

jcwinterton et al.



Social Director's Report

Remember - there is an end-of-term buffet and pub on the last day of classes - Tuesday, March 31st. We have enough helpers for the buffet but I will need people to help out at the pub as well!!!

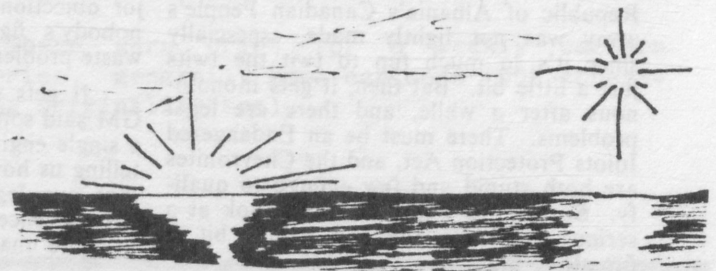
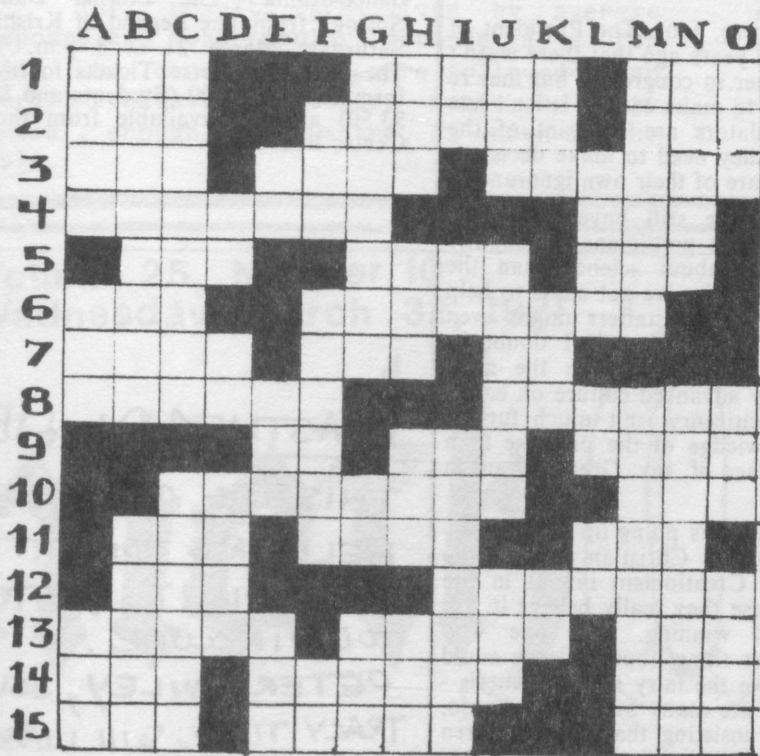
Last week, it was announced that wine would only be served from 6:00 to 8:00 P.M. and not from 9:00 P.M. to 1:00 A.M. I will revise that now and say that if there is any wine left over from the buffet, wine will also be sold at the pub. Beer will be the primary liquid available. Wine and liquor will be secondary. Cheese and crackers etc will be at the buffet and there should be enough left over for the pub as well.

Tickets for the buffet will only be sold in advance but you do not need advance tickets just for the pub. (Entrance to the buffet gives automatic free entrance to the pub.) Buffet tickets may be bought from the Math Society office, from the C&D, or from the Social Director (me!). If you are a math person, they cost \$5 and otherwise they cost \$7. JLong had said that \$7 was approximately the break-even price. Well, actually, even at \$7 we will still be taking a loss - due to such extras as cheese & crackers and cake.

It really should be a grand time so I hope you don't miss out unless you absolutely have to!!! B'Bye!!!

Marnie Juel Shaw

GRIDWORD POP



ACROSS

- 1a Knight in desire (3)
- 1g Sea ache makes storage place (5)
- 1m Sneaky is lying hidden (3)
- 2a Nothing northeast is unit (3)
- 2f Instruction book done by hand (6)
- 2m Arms Of America (3)
- 3a Frequently poetic in software (3)
- 3e What is a unit of power (4)
- 3j "An example is an eclipse", sez Iggy (6)
- 4a Van in mixed rain makes paradise (7)
- 4l tri-ocular? (3)
- 5b Negative in note (3)
- 5g Lane or Flagston (4)
- 5l Ontario's North Country (3)
- 6a Fire hides tree (3)
- 6f Cube is in old bug (8)
- 7a Small hidden in unit system (4)
- 7f Eastern Grand Transit (3)
- 7j Overcharge (2)
- 8a I led ye to cover for I (6)
- 8j Northern widow makes a pane (6)
- 9e Gold (2)
- 9h He's honest (3)
- 9l High or telephone (4)
- 10c Ring begs the question (8)
- 10m Occupy a seat in transit (3)
- 11b Child at stadium (3)
- 11f Bell or bridge (4)
- 11l Embrace (3)
- 12b "UUUUU" (3)

- 12i Power of white tornado (7)
- 13a Men tailor requires (6)
- 13h King Cole was an insect (4)
- 13m International (3)
- 14a Opposite of until? (3)
- 14e Subjects lose right in tropics (6)
- 14m Chinese way (3)
- 15a Singleton card (3)
- 15e Honeymoon or bedroom (5)
- 15m Tree in helm (3)

DOWN

- a1 Presently (4)
- a6 Archaic exclamation of defiance (3)
- a13 Estimated Time of Arrival (3)
- b1 Bigger than you can count (8)
- b11 Shirt given to Nick (5)
- c1 Set error was backwards (8)
- c10 Cleats make a stronghold (6)
- d4 Vermont (2)
- d7 Radical chemical suffix (2)
- d10 Hide an inspiration (4)
- e3 Washington (2)
- e8 Instruction Address Register (3)
- e13 Monty Python intro (3)
- f2 Answer to Sphinx' riddle (3)
- f6 Take away de vent? (6)
- f13 Grant or Ferrigno (3)
- g1 Turn clog at a library card file (7)
- g10 Unidentified Observer (2)
- g14 Popular Irrational (2)
- h1 Hill or eater (3)
- h5 Cold or board (3)
- h9 Stars or spice (3)
- h13 get slang (3)
- i1 Copper (2)
- i5 in the same place (2)
- i9 Scales in acne lab (7)
- j1 Owns laughter (3)
- j5 Slackening pace, he was left worse (6)
- j12 Master of Applied Science (3)
- k1 English isle ends nicely (3)
- k6 French here in icing (3)
- k12 Mountain (2)
- l3 On what mount is Celestial City (4)
- l8 Direction (2)
- l11 Santa's laugh (2)
- m1 Maxim is gay sin (6)
- m8 Units die when pulled apart (8)
- n1 It's reasoning tree limb, I see (5)
- n8 O, railing is first of its make (8)
- o1 'Yahoo And Yippee', we initially cheered (3)
- o8 Blanket or paint (3)
- o12 When a particle is a moat (4)

Opinion

by Rick McGeer

Well, the **Chevron** gets a rest this week. The decision to lay off the People's Republic of Albania's Canadian People's army was not lightly made, especially since it's so much fun to twit the twits just a little bit. But then, it gets monotonous after a while, and there are legal problems. There must be an Endangered Idiots Protection Act, and the Chevronites are both stupid and few enough to qualify. So for this week, a serious look at a serious problem - and only a little bit of fun along the way.

The problem is the way we make decisions, and, more precisely, the people who make them for us. The problem is the decisions we have to make, and the quality of the people who are going to make them.

In the first place, let's note that the decisions that we have to make - and, if we are to survive, we're going to have to make the right decisions and keep making the right decisions - are basically scientific ones. Nuclear power and its dangers? A scientific question. Energy sources? Right again. Pollution? You betcha. Space? Food? You name it, it's going to take a scientifically literate man to even get the issues right. And the case here is that that's just what we don't have.

The majority of our politicians - the people we pay to make the decisions, the people we elect - are lawyers. And the majority of them won't even have grade 13 physics, or first year calculus. How do they decide intelligently on the benefits or lack of them of a nuclear plant? How does a man that doesn't even know Newton's Laws of Motion go about trying to understand the processes of a nuclear plant? How does a man who doesn't even know the laws of valence - how atoms combine to form molecules - expect to make a reasonable judgement on what levels of emissions are acceptable?

Well, they hire experts. The experts (that's me and you, gang, or it will be in a few years) will tell them what to do. But often, the voices of the experts are drowned out in public hysteria. And there goes your solution.

Example - Nuclear Waste disposal. I haven't met a nuclear physicist who considers it a problem. Dr Karl Erdman, director of TRIUMF at UBC, claims it's a non-issue. The problem is solved. I don't know Erdman's solution, but Dr Pournelle proposes making glass bricks out of the wastes and putting them in the middle of a desert. We have lots of desert, and the bricks wouldn't take much volume - 200 years worth wouldn't fill the Superdome. Now, you wouldn't want to go near the site, but there are a lot of places you don't want to go. And the middle of the desert is one of them.

The point is that the waste problem is solved. Completely. And yet the major objection politicians still have is that nobody's figured out how to solve the waste problem.

It gets worse, too. The President of GM said some years ago that there wasn't a single engineer in congress - 'but they're telling us how to make cars!'. It isn't just that our legislators are ignorant of the basic science they need to make decisions - they're unaware of their own ignorance.

Hang on, we still haven't reached bottom yet. Most politicians are slightly better educated about science than the public at large. They've got staffs to help them. Some of the staffers might even know a little math, though I doubt it. The point is that we live in the most technologically advanced culture on earth, and yet our citizenry isn't much further ahead in knowledge of the universe than was the populace of, say, Great Britain in 1650.

The evidence is piling up around us - the fundamentalist Christian groups who wish to have Creationism taught in the schools, because they really believe it, are growing, and winning. No one who knows the first thing about science could possibly believe the fairy tale of Genesis - and yet there are many out there who do, and who are insisting that their children be taught the same falsehoods that they believe. There is no doubt that the evolutionary model is correct in essentials. The earth is 4.6 billion years old. The Universe is 18 billion. Man evolved from the ape. There can be no question about any of these things. The evidence is overwhelming. And yet the religious fanatics insist that the next generation learn from the legacy of a barbaric age.

Or consider astrology. Someone you know really believes that. Again, there can be no question that it is nonsense - and any consideration of the makeup of the heavens will show it to be an absurdity. And yet more people in North America believe in this nonsense than at any time in history.

Similarly, authorities who are ignorant about the scientific endeavor don't hesitate to shoot off about it. An example came last year in France, when John Paul II condemned recombinant DNA experiments. Now, he knows nothing about recombinant DNA, and thus, in the view of you and I, is no more qualified to have an opinion than the village idiot. Well, no, that's not true. God told him it was wrong. Well, I have a favor to ask the almighty, since he seems to solve scientific problems with such great alacrity for the Holy Father. Next time he gives the Pope a biology lesson, he might drop off the proof of Fermat's Last Theorem. I'll wait.

Classical Indian Dance To Greet Spring at UW

To celebrate the first day of Spring, AALOKA, a distinguished classical dancer from India, will perform the solo dance-drama "The Eternal Dance of Spring" from The Legend of Krishna, on Saturday, March 21 at 8 p.m. in the Theatre of the Arts. Tickets for the performance are \$5.00 (Students and Seniors \$3.50) and are available from the Arts Centre Box Office.

MASTHEAD: HELP

THIS IS A QUICKIE:
 HELPERS TONIGHT -
 LAST NIGHT, YESTERDAY
 TODAY INCLUDE:
 PETER ROWLEY; JSLONG
 TRACY TIMS; WILLIAM
 HUGHES, ROSS BROWN.
 ASHOK PATEL, KEVIN
 CONLIN, MARNIE SHAW,
 ANDREW MALTON,
 JC WINTERTON, RICK
 MCGEER, DANE WEL-
 BOURN, BEN LUTEK,
 JILL KILPIN; GUY
 MIDDLETON, BRAD
 TEMPLETON; HENRY
 WITH-LONG-LAST-NAME
 IAN! ALLEN (MEE TOO!)
 AND ME
 JOANNE WEST
 EDITOR
 OYE FOR NOW