



For tomato lovers:
a harvest that begins earlier
and lasts longer.
(See story, page 5.)

DROPOUTS

Guelph looks for ways to keep its students

by Betty Bean-Kennedy

University student populations are declining and the drop is expected to continue into the 1990s. Universities depend on student numbers for government funding, and to keep those numbers up, they must face stiff competition for new students and look at ways to hold on to the students they already have.

Post-secondary institutions are reporting that their attrition rates are high — more than 45 per cent in some American universities. Separate studies done at Guelph by Andy Barnard, Office of Institutional Analysis and Planning, and Ursula McMurray of the Provost's Office indicate that between 29 per cent and 35 per cent of students do not complete their first year here. Another 15 per cent of those students who have completed their first year leave before the end of their second year, statistics show. These figures appear to be comparable with those at other Ontario universities, says Provost Paul Gilmor.

Many universities, including Guelph, are exploring ways to prevent this loss from occurring.



One in three University of Guelph students don't complete their first year here.

"The whole area of retention is one for the University to worry about," says Vice-President, Academic, Howard Clark. "And there is a great deal of analysis that needs to be done to help us all get a view of the factors affecting attrition rates."

Guelph has monitored its student retention/attrition rate since the early 1960s. It's a fairly stable and predictable pattern, says Barnard, who is attempting to forecast how many enrolled students will remain by reporting day each semester — the provincially standardized day for reporting enrolment for funding. Guelph's five-year enrolment projection is reviewed three times a year, he says, and information is fed back and forth between academic planning committees, admissions and his department.

Barnard is interested in what affects the rate

of attrition; part of his job is to try to explain trends to administrators. It's a difficult task, he says, and the entire area needs extensive research. Little has been done to date in Canada.

Despite the lack of research, Guelph does know that there are more students withdrawing for non-academic reasons in the BA program than in the B.Sc. program. The lowest number of dropouts are in the most specialized programs — DVM, BLA, B.A.Sc. and B.Comm. Nancy Clendenning, BA academic counsellor, suggests this may be because many BA students have not yet crystallized their educational and career goals. These students "have tremendous flexibility in course selection," she says, "and this creates different problems from those encountered in other programs."

Students entering the DVM, B.Comm. and

Continued on page 2.

University attrition study gets SSHRC support

Prof. Sid Gilbert, Sociology and Anthropology, will begin an exploratory study of student attrition at Guelph this fall. The project will be funded by a Social Science and Humanities Research Council grant of \$27,686 over two years.

In the first stage of the research, Gilbert will have 1,000 first-semester students fill out questionnaires on their backgrounds, expectations of university, attitudes and intentions. He will mail a second questionnaire to the same students at the beginning of Semester 2 to learn about their actual experiences, feelings and performances at university.

Students who do not respond in this second phase will be contacted by telephone to determine if they are still enrolled. Those who are not will be asked the reasons for their changed status, and will be categorized according to whether they have transferred to another institution, dropped out, are taking a semester off, and so on.

Gilbert says a major problem with attrition research done to date is that students who do not re-enroll are all lumped together as withdrawals. With his research design, he will differentiate among drop-outs, transfers and students who are planning to continue at a later date. He will also identify students changing from full-time to part-time status, and those who are ineligible to continue. He also plans to ask students who have switched programs for their reasons.

The final phase of the project will occur in the fall of 1987. Researchers will conduct telephone interviews with students from the original sample who have not re-enrolled, determining their current status and reasons for change. They will also administer a brief questionnaire to a sample of returning students.

"It's important to see if factors such as financial hardship or employment opportunities, perceived by dropouts as reasons for their withdrawal, are viewed differently by students who continue with their studies," says Gilbert.

Because the highest dropout rate occurs in the first year, he says, it makes sense to concentrate on those students to develop a model for attrition. Ideally, the model constructed by this research could be applied to universities in general, with possible variations between commuter and residential schools, he says. 0



Attrition *Continued from page 1.*

BLA programs must either undergo an interview or provide a background sheet. As a result, students admitted to these programs tend to have more realistic expectations about what they are undertaking, Clendenning says. The work history of applicants to the B.Comm. program is also examined to determine how realistically they are assessing the program they hope to enter.

A study done by Dean John Vanderkamp, College of Social Science, followed the 2,766 students who enrolled in a BA program between spring 1976 and fall 1977. By the end of 1983, about 53 per cent had graduated with either a general BA, an honors BA or another degree. Some 3.5 per cent were still taking courses on a part-time basis, and almost 12 per cent had been debarred for two semesters. This leaves more than 800 students unaccounted for, he says. Some undoubtedly transferred to other institutions and may have been balanced by other students transferring to Guelph, he adds.

Part of the BA program's five-year strategic plan, Vanderkamp says, suggests that a committee be appointed to contact students who haven't been heard from for three to five semesters. By finding out the reasons they haven't returned, Guelph may be able to institute changes to help students adapt to the university environment, he says.

Brian Pettigrew, director of the Student Environment Study Group in the Provost's Office, says universities don't know enough about why students stay or leave, how many of them leave, or where they go. Pettigrew says U.S. research indicates that a student's first six weeks at university are crucial to establishing the kinds of relationships with faculty and staff that could contribute to the student's success and satisfaction.

Some 50 per cent of the students who drop out during their first year do so during the first six weeks, says Pettigrew. If they make it through the high-risk first year and return for a second year, attrition begins to drop off by almost 50 per cent each succeeding year.

Information about why students drop out is essential so counsellors can take an active approach and ensure that students are involved in the learning experience from their first day at university, he says.

Perhaps a better system of admitting students to programs might help them get more involved, says Vanderkamp. Students now merely declare their specialization. If they received counselling, they might feel more attached to a department and not get lost in the larger system, he says.

Prof. Sid Gilbert, Sociology and Anthropology, a specialist in educational sociology who has completed background research on student attrition in post-secondary institutions, has received a Social Sciences and Humanities Research Council grant to do a longitudinal study with Guelph students beginning in Semester 1, to determine the attrition rate and reasons for withdrawal. (See story, page 1.)

Attrition is costly and wasteful, says Gilbert. It costs universities because admission procedures are expensive, especially for first- and second-semester students, and it costs the students in self-esteem, he says. "Society bears the ultimate cost of the inefficiency of attrition through the possible waste of ability, potential and talent." The high level of attrition must bring students, and society at large, to ask why universities are not meeting the needs of students, he says.

Gilbert believes universities have a responsibility to provide prospective students with accurate information about their institutions. Students should be told what the university expects of them and encouraged to view a university experience in broader terms than merely the next step after high school, he says. Universities, in turn, should be more judicious in selecting students for admittance. This involves much more than high school marks — there should be an attempt to match the student's social and academic goals with the institution, he says. "It also may be necessary to change resource allocation so that seasoned faculty have more contact with first-semester students, and sessional instructors and teaching assistants take on more responsibility at the higher levels."

Early warning system

How, then, can a university, without lowering its standards, help students who are likely to drop out continue their studies?

A number of people at Guelph are looking for ways to create an early warning system to identify students who are in danger of failing, or who are not adapting. Guelph wants to reach them before they are debarred because of failure or before they decide to drop out.

Clark thinks Guelph should take a look at its regulations and develop ways to provide leeway for problem students in early semesters. This doesn't mean lowering standards, he says, but allowing a slightly longer adaptation period. One possibility might be to require faltering students to obtain counselling in time management or study skills. If they show improvement in the second semester, then the standard penalties need not be imposed, he says.

Dean Jack MacDonald, College of Physical Science, and Dean Bruce Sells, College of Biological Science, are trying to identify high-risk students and help them find ways to succeed. The B.Sc. program, for example, admits students with a 65-per-cent average, but historically, students in the 65-per-cent to 75-per-cent range have had more difficulty adapting to university courses than students with higher averages. Now, all accepted B.Sc. students in this range receive a letter from their dean suggesting they come to campus for academic counselling before September. Some of these students may also be advised to take a Year 5 equivalent course if their high school marks indicate a weakness in a particular area. Others may be asked to consider taking four courses instead of five, and still others may be directed

to take a different range of courses than those standardly recommended for Semester 1.

MacDonald says students and parents must be convinced that people learn at different paces, and that there is no stigma attached to developing an individual course of study that is geared to success. Students taking five courses at university are expected to learn about twice as much material in 13 weeks as they did in high school, and some students have more difficulty adapting to this pace than others, he says.

Zoology professor Sandy Middleton, coordinator of instructional development in the Office for Educational Practice, says faculty must be aware of the tremendous adjustment in learning style that first-semester students must make. Expectations should be clearly spelled out, he says, and although first-year students shouldn't be spoon-fed, it's unrealistic to expect them to adapt overnight to self-directed learning and studying.

No easy solution

There is no one simple solution to the problem of student attrition, says Dean Richard Barham, College of Family and Consumer Studies. A good faculty/student relationship is essential, he says, but this doesn't happen as easily as it used to because of the growing number of demands on faculty. Ultimately, the solution lies with the public, he says. "How much are they willing to pay for quality education," he asks, "and are they willing to push the government for funding?"

Pettigrew agrees that faculty interaction with students is important, especially in the critical first six weeks. So does Middleton, but he says many faculty find it difficult to make time for such contact. He believes Guelph should find ways to encourage more informal contact. "I'd like to see common rooms in every department . . . where students and faculty can meet casually."

Middleton challenges faculty who object that promotion and tenure procedures don't take into account this sort of interaction. "P&T procedures were accepted by faculty — they can be changed by faculty," he says. Barham agrees: "Academic counselling has to be seen as an integral part of the teaching function. It often isn't, and therefore may not be getting done willingly or properly."

College five-year plans, expected to go to Senate in June, recognize the need for individual attention, says Clark, and that need should be recognized as part of faculty duties. "One way of looking at it is that there is no money, so we can't do anything. The other way is to see that it is expensive to accept students and not retain them, so we must do something." It may be necessary, he says, to make programs on counselling skills available for faculty members.

Other options

Clendenning says there's a definite need for more counselling for students who want to drop out. She says there are many options that may enable them to continue their studies, including financial and budgeting assistance, training in study skills, distance education and part-time studies.

But to prevent students from reaching the

Continued on page 4.



The just meeting of the College of Social Science advisory council included discussion on the college's five-year plan, and program objectives and planning. Seated clockwise from left are: Prof. Wayne Thompson, chairman, Sociology and Anthropology; Geoff Pearson, Canadian Institute for International Peace and Security, Ottawa; Prof. Doug Auld, chairman, Economics; Dr. Peter Kirkham, Bank of Montreal, Toronto; James Maxwell, Environment Canada, Ottawa; Prof. Mike Moss, chairman, Geography; Prof. Bruce Forster, BA program chairman; Prof O.P. Dwivedi, chairman, Political Studies; Ronald Ritchie, the Canadian Depository for Securities Ltd., Toronto; and Prof Mike Matthews: chairman, Psychology. Standing: CSS Dean John Vanderkamp. Also on the council are Dr. Gail Cook, Bennecon Ltd., Toronto; Alex Jupp, Molson (Ontario) Breweries Ltd., Toronto; Dr. David Slater, Insurance Task Force, Toronto; and Dr. Sandy Watt, Homewood Sanitarium. The next meeting is planned for November. Photo by John Majorossy, Illustration Services

CFBS meets here June 16

More than 1,000 scientists are expected for the 29th annual meeting of the Canadian Federation of Biological Societies on campus June 16 to 20. The federation includes scientists working in the natural and physical sciences, medicine and biotechnology.

Symposia topics include NMR imaging, the genetics of human susceptibility, environmentally induced diseases and the architecture of nuclei and chromosomes. Workshops will cover such topics as the applications of monoclonal antibodies, advances in electrophoresis, separation technologies for biological processing and recent advances in electron microscopy.

Plans for the conference, which was last held in Guelph 25 years ago, also include sessions on animals in research and ethics in biotechnology. Chemistry and Biochemistry professor Hamish Rattray is chairman of the local organizing committee, which includes 18 faculty members. Further information is available from Rattray at Ext. 3809. 0

Senate summary

The following faculty have been named to associated graduate faculty and graduate faculty:

Associated Graduate Faculty — Dennis Sprott, National Research Council/Microbiology; Peter Fritz, University of Waterloo/Zoology; Trevor Craddock, University of Western Ontario/Clinical Studies; George Philip Burchert, Ontario Ministry of Natural Resources, Maple/School of Agricultural Economics and Business; David Ianuzzo, York University/Pathology; Brian Cardy, Allelix Inc., Mississauga/Crop Science; Garson Westlake, Ministry of the Environment, Rexdale/Zoology; Robert McCauley, Wilfrid Laurier University/Zoology; Paul Brodie, department of fisheries and oceans, Bedford Institute of Oceanography/Zoology; Yusof Hussein, Universiti Pertanian Malaysia/Environmental Biology; and Christopher Dagg, University School of Rural Planning and Development.

Graduate faculty — Jeffrey Mitscherling, Philosophy.

In other business, Senate approved a Committee on University Planning resolution on university funding (see accompanying story). It also approved a CUP report on its assessment of the University School of Rural Planning and Development, which concludes that the school is achieving the goals endorsed by Senate and is planning responsibly for future developments. 0

Eroded base budget harming programs, says resolution to Queen's Park

Senate approved a resolution to Queen's Park on university funding last week, expressing concern about the erosion of the University's base budget. Drafted by the Committee on University Planning, the resolution is to be sent to the provincial government by President Burt Matthews.

The decision to send a message on funding to Queen's Park came after the April meeting of Senate, where CUP presented budget data for the first time ever to the academic governing body. The resolution was suggested by Matthews as an alternative to action proposed by Prof. Jay Newman, Philosophy, who wanted senators to reject the budget for information as a gesture to show the government that Guelph cannot fulfil its aim of academic excellence with the funds available.

The resolution states: Whereas it is essential to maintain and improve Ontario's economic competitiveness in a changing world economy, as well as its social and cultural vitality; and

Whereas the universities of the province play a critical role in Ontario's development; and

Whereas provincial operating grants per student to Ontario universities in 1984/85 were \$765 (16 per cent) below the average of those in the other provinces, leaving Ontario ninth in rank in this regard among the provinces of Canada; and

Whereas the University of Guelph, in com-

mon with other Ontario universities, is experiencing acute difficulties in maintaining the quality of its programs because of sustained underfunding; and

Whereas the Excellence Fund for 1986/87, though warmly welcomed by the University of Guelph as support for its declared commitment to excellence, does not solve the problem of a badly eroded base budget;

Therefore it be resolved that the Senate of the University of Guelph urge the government of Ontario to provide base funding for the province's universities at least at the average of the other Canadian provinces. 0

Horticulture Day

Horticulture Day at the Arboretum, featuring "A Galaxy of Roses," is June 21 from noon to 4:30 p.m.

The annual rose and perennial show opens at noon, convened by Elizabeth Smith. The show is sponsored by the Guelph Horticultural Society and the Ontario Horticultural Association. Entries will be accepted at the OAC Centennial Centre in the Arboretum from 8 to 10 a.m.

At 3 p.m., radio personality and garden commentator Art Drysdale of CFRB Radio will discuss "Gardening Trends." Awards will be presented at 4:30 p.m.

Admission to Horticulture Day is free and everyone is welcome. 0

Correction

In the May 22 edition of *at Guelph*, the outline under the scene from the Shoestring Players production of "Crimes of the Heart" should have said that tickets are \$4 Thursday, \$5 Friday, Saturday and Sunday, and that curtain time is 8 p.m. Tickets are available at the door, at the Bookshelf Cafe or by telephoning 837-3885. Directed by Ken Albanese, the play runs May 29 to 31 and June 5 to 8.

Professor emeritus status to Hardy Fallding

Retired OVC professor Margaret Hardy Fallding will be granted professor emeritus status at a spring convocation ceremony June 5. Senate approved the nomination last week.

Hardy Fallding, a developmental biologist known internationally as an expert in the cellular interactions that underlie the development and functioning of skin and hair, came to the Department of Biomedical Sciences in 1966. She retired in 1985, but continues to do research and supervise graduate students.

Some 1,750 undergraduate and graduate degrees and diplomas will be presented at spring convocation June 3 to 6 on the front campus. (See "Next Week at Guelph" for a schedule of the ceremonies.)

All morning ceremonies begin at 10 a.m.; afternoon ceremonies are at 2:30 p.m. Visiting dignitaries, faculty and graduands will robe up in Room 119, MacKinnon building, before the procession across the front campus. If it is raining, the ceremonies and robing up will take place in War Memorial Hall.

A reception for graduates and their guests will be held in Creelman Hall after each ceremony. 0

Ten staff members seek election to BofG seat

Ten candidates are seeking election to the first-ever Board of Governors seat for a permanent full-time non-teaching staff member. The term is for three years beginning July 1.

The candidates are: Lorne Bruce, Library; Garry Davidson, Office of the Registrar; Mark Richard Evans, Land Resource Science; Dudley Gibbs, Music; Don Hamilton, Environmental Biology; Donald Hood, Computing Services; Richard Leavens, University School of Part-Time Studies and Continuing Education; John Liddle, Brass Taps Lounge; Thomas Smith, Communications Services; and John Van Esch, Food Science.

Ballots were mailed by the University Secretariat May 23 to some 1,800 eligible voters. The winner will be the person with the majority of votes. Ballots should be returned to the chief electoral officer, University Secretariat, by June 6. 0

Contest on for new name

Entries are coming in to Public Relations and Information for the contest to find a name for this publication (see *at Guelph* May 15), including some verbal submissions that are not "official" entries — "Webster's Weekly" and "The Guelph Gospel"!

The prize is dinner for two, wine included, at the Whippletree Restaurant on campus. The contest is open to all members of the University community and friends of the University.

Send your entry to: "Name That Newsletter," Public Relations and Information, Level 4, University Centre. 0



Excellence in teaching: left to right, Prof. Bill Frisbee, FA CS Dean Richard Barham, Prof. Kathy Brophy and Prof. Keith Humphrey.

Photo by Herb Rauscher, Illustration Services

Brophy chosen FA CS' top teacher

The College of Family and Consumer Studies teaching award for 1986 goes to Prof. Kathy Brophy, Family Studies. Two faculty members received honorable mention — Profs. Bill Frisbee, Consumer Studies, and Keith Humphrey, Family Studies.

The main criterion for choosing this year's winner was excellence in teaching large classes — 75 or more students. Nomination forms were mailed to students in November and March and the selection was weighted towards

the proportion of students in each class making a nomination.

Students praised Brophy for her caring attitude, interesting and enthusiastic lectures, innovative teaching methods and fair student evaluations. Frisbee was described as a dynamic speaker who encourages student interaction, relates well to students, is enthusiastic and makes material interesting. Humphrey was described as an excellent communicator who motivates his students to learn, and a caring person with a great sense of humor. 0

Attrition *Continued from page 2.*

point where they want to drop out, it's important to make them feel like they're part of the University, she says. There are many events at Guelph designed to do just that. Before the semester even begins, students can attend March Counselling, the Start Program and June Dialogue. Clendenning also holds group sessions for prospective students and their parents.

On arrival, first-year students are invited to a luncheon with President Burt Matthews, and several colleges host special introductory sessions where students are able to mingle with faculty and their peers.

Involving students in the learning experience, which is one of the aims of the Board of Undergraduate Studies' learning objectives, may be the key to helping students continue their education, says Pettigrew. "Social and academic integration — educating the whole person — enhances the chances of retaining students," he says, "and we have to look for innovative ways of dealing with this challenge."

One possibility is to encourage more oppor-

tunities for experiential learning both in the classroom and through involvement in University committees, task forces and athletic and cultural events, as well as work experiences such as the Peer Helper Program and the co-op educational program. These provide an active involvement in the life of the University, he says, and are "of crucial importance both to the student's learning and, indirectly, to his or her decision to stay at university."

Increased academic counselling, designed to help students clarify their academic and career goals, plus increased faculty/student contact, possibly through some type of mentor program, have both been identified as ways to cut the attrition rate, he says.

Student retention must be viewed as a campus-wide responsibility, involving all departments at the University, says Pettigrew. And support for retention initiatives must be understood and supported by senior decision makers, faculty and staff. He adds, however, that "retention itself is not the goal, but rather the result of improved programs and services in the classroom and elsewhere on campus, which contribute to students' learning and success." 0

Taking the chill off tomatoes



Genetic sleuther Dr. Mark Walker with a cultivated tomato plant.

Photo by John Hearn

by Peter Hohenadel

It's amazing what a difference a week can make.

Take the case of processing tomatoes. In Ontario, the season during which the crop is harvested and processed lasts for only seven or eight weeks, about half as long as the tomato harvest season in California, where processing plants run for about 15 weeks.

Ontario's shorter harvest season contributes to higher overhead and production costs for processors, and ultimately leaves the Canadian industry at a competitive disadvantage to the United States.

Industry analysts believe, however, that a single week's increase in the duration of the Ontario tomato harvest could allow processing plants here to operate 12 per cent longer and reap the benefits of reduced overhead, net product cost and market share.

Depending on the results of a Guelph research project, this climatic barrier may not be insurmountable. Prof. Bryan McKersie, Crop Science, says the project began with a request from Heinz Co. of Canada Ltd. for help in developing tomato seedlings with increased early-season chilling tolerance.

McKersie says most tomatoes grown for processing in Ontario are started as seedlings in Georgia and planted here as early as possible in May. If improved chilling tolerance could be bred into the seedlings, their growth would not be seriously impaired during chilly weather early in the season. Tomato harvest could then begin earlier and last longer.

Of course, the kind of genetic sleuthing required to isolate chill tolerance is complex and costly. Prof. Peter Pauls and research assis-

tant Dr. Mark Walker will collaborate with McKersie in the three-year study. Funding for the project has been provided in part by a University-Industry Co-operative Research and Development grant from the Natural Sciences and Engineering Research Council.

The project has also attracted the support of tomato growers and processors. Heinz is donating the part-time services of its plant breeder as well as private seed sources and cash. The Ontario Vegetable Growers' Marketing Board will pay part of the cost of renovating a laboratory for use in the chilling tolerance experiments.

The project should shed some light on the connection between chill tolerance at the plant and cellular level. Although chill tolerance in plants has been widely studied, McKersie and his associates hope to find a way to recognize this elusive characteristic in a single cell. "If we can," says McKersie, "then we should also be able to select for chill tolerance at the single-cell level." Using genetic engineering techniques, plant breeders could transfer this trait to tomato lines with other desirable processing qualities.

In the first phase of the study, commercial tomato seedlings will be screened for chilling tolerance. These lab tests will be replicated many times with various other tomato lines to find individual plants with exceptional chill tolerance.

Following the whole-plant screening trials, the Guelph team will chill individual cells from these plants. In this way, they hope to prove that single cells possess the same chill tolerance as the whole plants from which they are taken.

This basic research will undoubtedly help private plant breeders develop new techniques for breeding chill tolerance. The cold-hardy tomato lines they produce may someday improve the competitive position of Ontario's processing industry. 0

Skate study may lead to understanding heart, kidney diseases

by Pam Healey

A primitive form of marine life is helping Guelph zoologist James Ballantyne gain a deeper understanding of the basic biochemical processes that govern all animals. The subject of his research is the skate, a close relative of the shark that resembles a kite with a long tail. Skates inhabit the dark residues at the bottom of the ocean, where their flat shape is well-suited to horizontal movement along the sea floor.

Unlike more advanced animals, says Ballantyne, the skate is not good at regulating its internal salinity or osmolarity (the number of free particles in a given cell). As a result, the animal has to adapt to changing salinities in its seawater environment. In high salt concentrations, the skate's cells tend to shrink; in lower salinities, they swell.

Ballantyne suggests that the mitochondria, the power plants of the cytoplasm, help restore the cell to its normal size by controlling cellular concentrations of amino acids. In high salinities, the amino acids accumulate and are burned at a low rate. In low salinities, however, the mitochondria go into overdrive, burning amino

acids quickly while simultaneously providing energy for other cell processes during this stressful time.

Although previous studies have shown that the cells release amino acids, Ballantyne's is the first to suggest that osmotic effects on mitochondria change the rates at which amino acids are burned and that this can be a mechanism for cell volume regulation. These relatively inefficient, and therefore magnified mechanisms, and the high concentrations of amino acids in the skate's cells make the species ideal for studying processes of cell volume regulation. The mechanisms that occur in humans, although probably critical to the survival of the cell, are harder to study, he says, because they are less pronounced and are confused by other processes.

Ballantyne says that because amino acids account for some of the cell volume in all animals, one of the mechanisms that restores the cells to normal size in humans may be similar to that in the primitive skate. In humans, the kidneys regulate salt concentration efficiently. With certain diseases, the cells are unable to maintain proper size, swelling as the supply of oxygen is reduced. During a heart

attack, for example, the oxygen supply to some of the cells in the heart is cut off, causing a cell volume change.

The mechanisms that restore cell volume in humans are ion pumps, such as sodium pumps, but these require energy to function. Ballantyne thinks the burning of amino acids by mitochondria not only rids the cell of these compounds but also provides the energy for other processes involved in the regulation of cell size. The mechanism is probably connected with amino acid transport into the mitochondria, he says.

Amino acid transport is also important for the manufacture of enzymes and other proteins within the cell, and the maintenance of the proper oxidation state of the cytoplasm.

There is little basic information available on the energetics of mitochondrial amino acid transport in any animal, says Ballantyne. In addition to his work in this area, he is also interested in the evolution of biochemical processes. "There is often no explanation of why our biochemistry is the way it is," he says, "but if we can understand the history of its development we can at least gain some insight into why it is the way it is now." 0

THE SURPLUS SALES DEPARTMENT has the following items available for public sale: one Corona PC, 512K, two disk drives, s/n BDA 1631 (SD#051); an assortment of bicycles (SDI4595); and a wide selection of manual typewriters (SD#082). For information and viewing, contact the office at Ext. 8139.

THE HERITAGE Action Committee is holding a membership drive. The committee's next meeting is May 29 at 5:30 p.m. in the Media Room, Zavitz Hall.

IF YOUR SUMMER travel plans include London, England, remember that Guelph London House, a student residence owned and operated by the University, offers accommodation at reasonable rates. Located near Regent's Park, the house has single and double rooms and two self-contained apartments suitable for four persons. Limited space is still available for mid- and late summer until Sept. 9. For information on rates and weeks available, contact John Wills, Property Manager, Ext. 2734.

THE IMPERIAL BANK of Commerce sub-branch in the University Centre will be closed until Aug. 22. All banking can be carried out at the 23 College Ave. branch. The Instant Teller machines in the centre will be available all summer.

THE SOCIETY for International Development, Guelph chapter, presents a free lecture on Guelph International Development Consultants June 3 at 7:30 p.m. at The Loft, 1 Carden St. Speaker is Dr. Dennis Howell, chairman and chief executive officer of GI DC.

IF YOU'VE BEEN unable to reach the J.C. Taylor Nature Centre by telephone lately, it's because there has been some problem connecting the centre to the new ROLM system. Until the situation is corrected, calls are being forwarded to the Arboretum. Anyone wishing to contact biologist Alan Watson at the nature centre should leave their name and number with the Arboretum — Watson says he "ROLMS" up there regularly to pick up messages and use the phone.

AN EXHIBITION of art by students of Wellington County is on display at the Macdonald Stewart Art Centre until June 22. The exhibition includes paintings, drawings, prints and sculpture by students from kindergarten to Grade 13. Co-ordinators of the exhibition are Lynn Barbeau, art centre curator; Stephen Lewis, art consultant for the Wellington County Board of Education; and Dan McGinnis, of the Wellington County Separate School Board. The centre is open from noon to 5 p.m., Tuesday through Sunday; admission is free.

TRAINING IN ART THERAPY for teachers, artists, psychologists, physicians, social workers and other mental health professionals is available through the Toronto Art Therapy Institute. For more information, contact the institute's executive director, Dr. Martin Fischer, 216 St. Clair Ave. W., Toronto M4V 1R2.

A GARDEN SHOW and plant sale will be held June 7 from 10 a.m. to 5 p.m. at 16 Young St. Tickets are \$5, with all proceeds going to Tools for Peace. Advance tickets are available at the Bookshelf Cafe, the Baker Street Bistro and Timer's Restaurant. Rain date is June 8. For more information, telephone Ext. 6034, 824-2091 or 822-3110.

ABOUT 1,300 PEOPLE visited the University Observatory from January to April to catch a glimpse of Halley's Comet. A total of 12 tours were conducted, with the last two tours in April drawing about 500 people to see the comet. Some 25 tours had originally been scheduled, but a number had to be cancelled because of poor weather conditions.

THE OFFICE For Educational Practice is sponsoring a number of instructional development workshops and seminars throughout June. Topics include "Video Projectors" June 12, "Multidisciplinary Courses" June 17, "Faculty Development: Everyone's Responsibility" June 23, and "Cognition, Motivation and University Teaching" June 24. For more information, contact Mei-Fei Elrick, instructional development associate, Ext. 3522.

Teaching quality heads conference agenda

For the first time in its six-year history, the Society for Teaching and Learning in Higher Education has invited three distinguished guests from outside Canada to make special presentations at its annual conference "Teaching and Learning in Higher Education," which will be held on campus June 22 to 25.

Bill McKeachie of the University of Michigan and Ken Eble of the University of Utah, co-authors of *Improving Undergraduate Education Through Faculty Development*, are the featured speakers June 23 and 24.

McKeachie, considered one of the "fathers" of instructional development in North America, will open the conference with an address on "Cognition, Motivation and University Teaching." Eble, an English professor and outspoken advocate of the importance of teaching quality in higher education, will discuss "Faculty Development: Everyone's Responsibility."

A June 25 workshop with Prof. George Brown of the University of Nottingham, England, promises to be a highlight of the conference. His topic, "Refreshing Lecturing," is appropriate to his talents as a mimic of different lecturing styles and a speaker able to combine practical advice with humor.

In keeping with the theme of the conference, all presentations will be informal and open to discussion. The range of topics will include: "Peer Evaluation of Teaching," "Alternatives to Lectures," "Distance Education" and "Stagnation in Higher Education."

Registration for the conference is \$65 until May 31, and \$100 after that date. Faculty can also register for a single day at a cost of \$30. For more information, contact the Office for Educational Practice, Ext. 3522. 0



Don't mess with Ninja devotees! That's the message as Francesca Bahr of the University Ninja Club practises rape protection techniques on fellow microbiology student Pat Ruest, left. At right, club members demonstrate Kendo techniques.

Photos by John Hearn

MEDIATION

The better way to solve divorce, separation disputes

The joke about spending \$20 to get married and \$20,000 for a divorce isn't funny if you've just been through the courts to end a marriage. But there is another way. Mediation is increasingly being recommended by lawyers, social workers and marriage counsellors.

The latest **FACS Sheet**, "Mediation — a Better Way of Settling Divorce Disputes," produced by Public Relations and Information for the College of Family and Consumer Studies, examines the advantages of a mediated separation or divorce.

"We're dealing here with a crisis intervention technique over the two most explosive issues you can imagine — money and children," says Family Studies professor Sam Luker, who has served as a mediator for seven years. He says that in mediation the outstanding issues of the dispute are sorted out in the first session. Initially, "we are miles apart and it seems impossible to come to an agreement," he says. "It is my role to keep the balance of power so that nobody gets walked over or coerced into anything."

Positive Parenting

Claude Guldner, director of the Child and Family Services and Research Unit in the Department of Family Studies, says that when a couple separate, "they stop what we call the husband and wife functions, but their parenting continues, so there needs to be a clear boundary between these two functions. This boundary has to be clarified many times during the mediation process because the tendency is for a couple to continue the old husband-wife battles in sorting out parenting roles."

The mediator works with the couple until a mutually agreeable document is drafted. When all the parties are satisfied, the mediator and the two clients sign it, and at that point, a lawyer can appear in court to ask the judge to make the document a court order. If the clients are satisfied, the process is complete because



Prof. **Ross Irwin**, School of Engineering, was recently elected a fellow of the Canadian Society for Civil Engineering. He received a certificate of honor at the society's annual banquet in Toronto in May.

* * *

Anne Hostetter, a glassblower in the Department of Chemistry and Biochemistry, is to receive the Kermit-Fischer Award of the American Scientific Glassblowers Society for her paper "Quartz EPR Flat Cell." She will receive the award at the annual symposium of the ASGS June 26 in Cincinnati, Ohio. Recently, a 25-minute educational videotape was produced on the topic of Hostetter's paper and is available for viewing through the ASGS.

both the provincial and federal courts recognize the document as a legal contract just as binding as a court order.

The beauty of mediation is that it can go on as the family evolves. For example, as children become adolescents, their peers become increasingly important. A weekend with a parent may have little appeal at this stage. "In mediation, those things are talked about," Guldner says. Parents begin to realize that children have choices and may not necessarily want what mom and dad want. As problems arise, either parent may call on the mediator to help resolve another stage of negotiation.

From the point of view of Family Court Judge Grant Campbell, who teaches family law in the Department of Family Studies, settlement of disputes is less traumatic than when children are interviewed by a judge as part of court proceedings. Campbell and Luker both find that people who have been through mediation carry out their commitments with much more consistency than those who have been through the courts.

"It encourages the person to look ahead instead of looking back at the awful things that happened," Guldner says. "Even if mediation does nothing more than help a couple affirm that they are positive parents, then it's well worth the energy, because it pays off over the years."

Copies of the **FACS Sheet** are available from the College of Family and Consumer Studies, Ext. 6757. 0

Wrestling coach leaving

Orlando "Londo" Iacovelli, wrestling coach at Guelph for the past 21 years and co-ordinator of men's intercollegiate athletics, is leaving his position Aug. 31 to pursue other interests.

During his years at Guelph, Iacovelli has built a wrestling dynasty unmatched at other Canadian universities. He has coached 81 Ontario champions and 39 Canadian titleists, and his Gryphon teams have won 11 provincial championships, including five consecutive victories between 1980 and 1985. Guelph also won three straight national championships in 1981, 1982 and 1983.

Iacovelli, who was named national Coach of the Year in 1975 and 1982, was elected to the Canadian Wrestling Hall of Fame in 1983. He has also won international acclaim coaching Olympic and national wrestling teams.

David Copp, director of Athletics, says his department "will miss the strong personal contribution that Londo brought to his work. His reputation in wrestling circles is unparalleled and the Guelph program has been one of the best in Canada because of his expertise and dedication to both excellence and young people." 0

Faculty, students elected to seats on Senate

Twenty-six faculty members have been elected to Senate for a three-year term beginning Sept. 1.

The College of Biological Science has elected Profs. Roger Horton, Botany; and Tom Nudds, Keith Ronald and Steve Scadding, Zoology, as new members to Senate, and Prof. Susan Pfeiffer, Human Biology, as a returning member.

Elected as new members in the College of Arts are Profs. Gerry Manning, English Language and Literature, and Helier Robinson, Philosophy, and as a returning member, Prof. Lou Abbott, History.

OAC has acclaimed four new Senate members — Profs. Murray Brown, Land Resource Science; Chris Hall, Environmental Biology; Glen Lumis, Horticultural Science; and Brian McBride, Animal and Poultry Science — and one returning member, Prof. Sandy Warley, Agricultural Economics and Business. OAC still has one vacant seat on Senate.

The College of Family and Consumer Studies has acclaimed Profs. Marg McKim and Donna Lero, Family Studies, and still has one vacant seat. OVC has acclaimed Profs. Donald Homey and Wendy Parker, Clinical Studies.

Elected by acclamation as new Senate members in the College of Social Science are Profs. Bill Christian, Political Studies; Gary Frank ie, Psychology; and Sid Gilbert and Sam Sidlofsky, Sociology and Anthropology. Prof. Jim Mottin, Psychology, returns for another term.

The College of Physical Science has acclaimed Profs. Bob Keates, Chemistry and Microbiology, and Ross Hallett, Physics, as new members of Senate, and Profs. Joe Mokanski, Mathematics and Statistics, and Jim Rattray, Chemistry and Biochemistry, as returning members. The college has two seats still vacant.

The undergraduate student senators for a one-year term in 1986/87 are: BA program Grant Edwards, David Handy, Keith McLean, Barry Munro and Craig Sanderson; B.Sc. — Stephen Basiren, Zuhul But uner, Patrick Duggan, Karen Houle and Tammy Smith; B.Sc. (H.K.) — David Blunt; B.Sc.(Eng.) — Gerrit Bos; B.A.Sc. — Jenni Brown and Holly Minor; B.Comm. — Val Gyorgy; Associate Diploma — James Haaf; BLA — Karen Landman; DVM — Betsy McGregor; and B.Sc.(Agr.) — Tony VanTol and Dagmar Woll. There is one vacant seat in the B.Sc.(Agr.) program, and two in the General Studies program.

The graduate student members for 1986/87 are: OAC — Alex Drysdale; OVC — Nonie Smart; FACS — Janis Randall; College of Physical Science — Steffen Preusser; College of Biological Science — Mary Pettey; and University School of Rural Planning and Development — Gord Cunningham. There is one vacant seat in each of the colleges of Arts and Social Science. 0

Next week at Guelph

THURSDAY, May 29, 1986

Macdonald Stewart Art Centre - YOUTH ART: Art by Students of Wellington County, noon to 5 p.m., continues to June 22.

Heritage Action Committee - MEETING, 5:30 p.m., Media Room, Zavitz Hall.

SATURDAY, May 31, 1986

Guelph Environment Week - BUS TOUR TO "LOVE CANAL," \$10, call to reserve a seat, Evan, 836-8068.

SUNDAY, June 1, 1986

Worship - CATHOLIC MASS, 10:10 a.m., Alumni Lounge; ECU-MENICAL CAMPUS MINISTRY, Sunday services are available at St. Matthias (Anglican), Kortright and Edin, Kortright Presbyterian, Scottsdale, and Harcourt United Church, 87 Dean Ave.

Cycling Club - BRESLAU, 55 miles, 10 a.m., UC south doors.

Sunday Afternoon Walk - THE SWAMPLAND SWAGGER, 2 p.m., Nature Centre.

Guelph Field Naturalists - A POND STUDY, meet 1:30 p.m., OVC parking lot, information, Joe Gerrath, 822-1964.

Guelph Environment Week - DINNER WITH ENVIRONMENT MINISTER JAMES BRADLEY, \$20, Guelph Country Club, tickets, 824-2091.

MONDAY, June 2, 1986

Guelph Environment Week - OCCUPATIONAL HEALTH AND SAFETY, display and films, Eaton Centre and St. George's Square.

TUESDAY, June 3, 1986

Spring Convocation - ASSOCIATE DIPLOMA IN AGRICULTURE, Ontario Diploma in Horticulture and Ontario Diploma in Agriculture, 2:30 p.m., WMH.

Society for International Development - WHAT IS GUELPH INTERNATIONAL DEVELOPMENT CONSULTANTS? Dennis Howell, 7:30 p.m., The Loft, 1 Carden St.

Guelph Environment Week - FOOD AND THE ENVIRONMENT, displays and films, Eaton Centre and St. George's Square.

WEDNESDAY, June 4, 1986

Spring Convocation - BA GENERAL PROGRAM, 10 a.m.; HONORS BA, B.Sc.(Eng.), BLA and B.Sc.(H.K.), 2:30 p.m., WMH.

Guelph Environment Week - WASTE MANAGEMENT, tours of the Guelph landfill site and the water pollution control plant, 824-2091 for more information.

Biochemistry/Biophysics Seminar - BREAD FROM STONES, Ward Chesworth, noon, PS 222.

Cycling Club - GUELPH LAKE, 17 miles, novice ride, 5 p.m., UC south doors.

THURSDAY, June 5, 1986

Spring Convocation - B.Sc. HONORS AND GENERAL, 10 a.m.; PHD, D.V.Sc., MA, M.Sc., MLA, Graduate Diploma and DVM, 2:30 p.m., WMH.

Guelph Environment Week - LAND USE, displays downtown and a hiking tour of Guelph, 824-2091 for more information.

Personals

Wanted: Boy's bicycle (8-year-old), Ext. 2436. Occasional word processing, using WordPerfect, Ext. 3519. To rent for July and August, 1,800- to 2,200-square-foot house with four bedrooms, den or library on main level, swimming pool is optional, Mary Eleanor, 824-1123.

For Rent: Two-bedroom apartment in historical stone mansion, \$650 a month including utilities, 824-1773, evenings.

For Sale: Dictaphone; dictionaries — medical, French, Spanish, German, Italian, Latin, Portuguese, 821-5751. Evans Bros. cabinet grand piano, 821-2546, after 6 p.m. 1984 Mercury Cougar, Gwen, Ext. 4550 or 822-2915, after 5 p.m. Massey-Harris tractor with cultivator, plow, disk, blade, spare rear tire; Canon FTb 33mm camera; Raleigh 10-speed bicycle; new Brooks cleats, men's 6 1/2; GE electric lawn mower, Ext. 4961 or 823-8800. Copia 405 photocopier, 822-4362 or 822-5690, after 5:30 p.m. Sailboard, 190 litres, Ext. 2323 or 836-0217. Boy's suit, tall 14-year-old, Ext. 3605 or 824-5857. 1979 Grand Marquis; Honda Passport motorcycle, 821-0246. Fibreglass fenders, one pair for 1974 AMC Hornet front, Mike, Ext. 6249 or 884-3002. Motionless king-size waterbed with bookshelf, caps, sheets, Ext. 2049. Bunk bed, single beds, change table, wooden cradle, Jolly Jumper, toddler car seat, infant car seat, alpine skis, many household items, 836-8258, after 6 p.m.

Job opportunities

As of *at Guelph* deadline May 23, the following opportunities were available:

Assistant Internal Auditor. Salary range: \$24,082 minimum; \$30,103 mid-point; \$36,124 maximum; normal hiring range: \$24,082 to \$28,296.

Liaison Clerk, Office of the Registrar; maternity leave June 23 to Oct. 31, 1986. Hiring range: \$236.66 to \$256.64 per week.

Secretary, Residence Management. Salary range: \$270.64 minimum; \$308.87 job rate (level 5); \$380.47 maximum.

The following positions were available to on-campus employees only:
Custodian 3, Housekeeping Department; consequential vacancy; night shift; Area 4. Job rate: \$9.75 per hour; probation rate \$20 per hour lower than job rate.

Driver, Maintenance Department; original vacancy; day shift; various work locations. Job rate: \$9.78 per hour; probation rate \$.20 per hour lower than job rate.

Stenographer, Department of Nutritional Sciences; maternity leave from June 16 to Nov. 1, 1986. Hiring range: \$244.42 to \$265.59.

It is the University's policy to give prior consideration to on-campus applicants. To determine the availability of University employment opportunities, contact employment services and training, Level 5, University Centre, or telephone 836-4900.

The following abbreviations are used in "Next Week at Guelph": APS=Animal and Poultry Science; UC=LIniversity Centre; L/A=Lennox/Addington; CM=Chemistry-Microbiology; PS=Physical Sciences; PCH=Peter Clark Hall; WMH=War Memorial Hall; MacK=MacKinnon building; ANNU=Animal Science Nutrition; FS=Food Science; CSRC=Counselling and Student Resource Centre; JH=Johnston Hall; HB=Human Biology; AC=Athletics Centre; Lih=McLaughlin Library; B&Z=Botany-Genetics-Zoology.



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