

guelph

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Micros for math & stats

One of the most advanced undergraduate microcomputer facilities of its kind in North America has recently been established in the Department of Mathematics and Statistics. Located in Rooms 307 and 308 of the Physical Sciences building, the laboratory is used for instructional purposes in mathematics and statistics courses and comprises two separate microcomputer systems. It is a prototype for an expected College-wide laboratory of this type.

One system consists of a network of IBM PC microcomputers. One of these is a server, with a large disk drive containing the required software, and to which all machines in the network have access. This system is used by undergraduate students in mathematics and statistics classes, primarily utilizing the languages APL, FORTRAN, PASCAL and BASIC.

The second system consists of two powerful WICAT 155 "super" microcomputers, each of which can serve 12 users via remote terminals. These are being used by students in upper-level courses in statistics and in mathematics. Department faculty members are also using this system to develop instructional modules using the WICAT lesson authoring language, WISE. One of the WICAT machines is shared jointly with the Department of Physics in a co-operative project to investigate this use of the machine.

Mathematics and Statistics professor, John Holt, has been responsible for coordinating the acquisition of the hardware and software and the initial implementation of the laboratory this semester. This task has been assisted in part by a grant from the Office for Educational Practice.

Mathematics and Statistics Chairman, Professor Bill Smith, anticipates that the Department will also lead in another area using microcomputer applications — Computer Assisted Instruction (CAI) materials for university-level mathematics and statistics courses. He says that there is a great deal of software available now for use at the elementary and high school levels. For example, in a related project, Mathematics and Statistics professor, Barbara Lehman, has developed, during the past year, a system for delivering remedial high

Prof. Holt, right, at a WICAT terminal used for teaching mathematics and statistics, with laboratory supervisor Susan Moziar and Prof. Smith.



school level mathematics software in the Department's Open Mathematics Laboratory. The software is run on an Apple microcomputer which was acquired through funds from the University School of Part-Time Studies and Continuing Education.

This semester, three separate undergraduate classes totalling about 400 students used the microcomputer laboratory in statis-

Automated system controls climate

If the temperature, humidity and air circulation in the University's buildings are more conducive to work and study these days, much of the credit must go to the \$1 million computerized monitoring and control system installed during the last two years.

More than 1,000 sensors, strategically positioned throughout all the main buildings, are feeding a constant flow of information back to a central control room in Blackwood Hall where Dennis Chappell and Lloyd Cummins, Maintenance Department, are able to respond quickly to almost imperceptible changes in internal climates.

Mr. Chappell, who has been with the Department for 15 years, is supervisor of the system. He was familiar with the previous control system which, when installed, was considered the most advanced in the country. That system is now described by Bob Davis, Assistant Director, Physical Services, as "no more than a computerized time clock."

The design and installation of the new system has been carried out by Physical Resources in co-operation with Bill Bohn, Head of the Maintenance Department, which

tics and mathematics coursework. In the future, the number will be much larger, as it is planned to integrate the use of the laboratory into most of the undergraduate classes in the Department.

"We must keep up with the times, because the new generation of students in the next five years will be extremely computer literate," says Prof. Smith. □

will be responsible for its operation.

Mr. Bohn says there are three major benefits to the automated system. Improved working conditions for employees and a significant savings in labor and energy are two. "We are now able to spot problems and, in many cases, correct them before the people in the building are even aware of them," notes Mr. Bohn. "Under the old system the first we knew of something wrong was when we received a complaint. We responded by sending someone to the reported building to investigate. Now, if there is a complaint, we can check and correct it from here." The third benefit is that the sensor points, highly sophisticated in their reporting of temperature, humidity and air current changes, permit a system that maintains optimum conditions within very fine limits and with the minimum waste of energy.

The Honeywell energy control system is among the most up-to-date in North America, according to Mr. Bohn. It is also highly adaptable to future improvements in software well into the early part of the next century. □

Land Evaluation Group receives major federal contracts

The Land Evaluation Group has received two major contracts from the federal government to evaluate future land use in Canada.

The first contract, for \$375,000 during the next three years, is with the Land Resource Research Institute of Agriculture Canada to develop a Canada-wide land evaluation system similar to the computerized one already developed by the Group for Ontario.

The second contract, for \$41,700, is with the Regional Development Branch of Agriculture Canada and outlines plans "to ascertain the extent to which our land system, technology and economic conditions limit agricultural production in the various regions of the province and to determine the effects of selective change in these conditions on prospective growth in Ontario's agri-food sector."

The Land Evaluation Group, established in 1976 and now officially recognized as a University research group, is made up of researchers from the Schools of Landscape Architecture, Agricultural Economics and Extension Education, Rural Planning and Development and the Departments of Computing and Information Science, Mathematics and Statistics, Geography and Land Resource Science.

The computerized program they designed provides a means of addressing land planning and policy questions in a scientific manner, according to Geography professor Barry Smit who chairs the Group.

"These contracts provide an opportunity to conduct research by providing an important scientific contribution through land evaluation methods hitherto not available," he says. "Currently, the discussions are too emotional; the scientific aspect is lacking. Without the analysis, it becomes an emotional, heated argument."

The evaluation system, known as LEM2 (Land Evaluation Model 2), analyzes and measures the productive potential of land in Ontario or parts of the province, based on data about land resources, agricultural yield and type of land, among others. Given a set of projected conditions for the future, land owners and policy-makers can examine questions about the limits land resources impose on expanding production or yield levels for certain land types in a given region.

"People are having to make planning decisions without answering these questions in a reliable way. Scientists have a responsibility to provide this information," he adds.

One of the more critical scenarios land planners are examining is estimating future food demands for Ontario, given the existing land base. Assuming that soil conservation is practised throughout the province, Ontario's land base has the capability to produce more and export more, explains Prof. Smit. For example, land in northern and eastern Ontario could be used for food production. On the other hand, for Ontario

to approach self-sufficiency in the future, the existing land base would be pushed to the limit.

There are many variables affecting this scenario and others. Among them are urban expansion, erosion, land drainage, soil conservation practices, management practices, climatic conditions and population growth rates. All these variables affect the productive capacity of Ontario but are dependent upon policies which will choose the direction for the future.

The study the Group is conducting for the Regional Development Branch will

include more economic factors than previous studies and will develop local techniques for site-specific issues, focusing on a few regions for demonstration purposes.

"For the University, these contracts stimulate inter-disciplinary research and draw upon the established expertise of this University in the area of resources management, especially as related to agriculture and land," says Prof. Smit.

To receive a copy of the Land Evaluation Group's annual report, contact Ext. 3523. □

Provost experiences residence life



Provost Gilmor with student residence staff at a training session.

Provost Paul Gilmor, the senior administrator on campus responsible for student affairs, likes to move into Residence once in a while to gain direct, first-hand impressions.

Mr. Gilmor recently spent four days in South Residence, occupying a regular student room complete with the usual amenities and food services. The opportunity to engage in formal and informal dialogue with student staff and other residents has provided him with some thought-provoking observations.

Mr. Gilmor says he became aware how reactions of elation or disappointment to the results of one mid-term examination can affect several thousands of people so strongly. Mid-terms continue to provide a primary pre-occupation and there is a great deal of ambivalence as to their value he says. "There is inevitable conflict when students must study for Friday and Saturday examinations at the same time that others are beginning to relax and party."

He is bothered by the degree to which students are tied into study mater-

ial, leaving them little time for liberally educating reading. He is also more conscious of the conflict that inevitably arises between the rights of the individual and that of the community, and the way music and alcohol are used for personal retreat.

"More than in previous visits I saw the value and supportiveness of the co-educational environment. However, I could not help but become aware of the toll still taken by loneliness." He is impressed with the commitment of time and energy on the part of student staff who are given little recognition for their dedication. "Their efforts to cope with the interpersonal and personal crises that are daily fare, underline the important debt we have to those students who are willing to undertake the training and the responsibilities."

Mr. Gilmor is planning further live-in experiences in other residences in the near future. "The residences are not ancillary operations," he adds, "they are an integral part of the total University commitment." □



Rev. Dorothy Barker is inducted as Anglican/United Church campus chaplain in a ceremony held in the University Centre. Left to right: Rt. Rev. Clarence Mitchell, Suffragan Bishop of Niagara; Mrs. Barker, Rev. Beverley Johnston, President, Hamilton Conference, United Church; Acting President, Dr. Howard Clark, and Rev. Ron Smeaton, Norfolk United Church, Guelph.

University, community pool resources for retirement program

Phase two of the current series of Planning for Retirement programs begins in February when 30 University of Guelph faculty members who will be retiring during the next five years will participate in seven successive weekly sessions.

Co-ordinator of the program, retiree Jim Curran, says that this, like the previous program, was designed to reflect the specific results of a questionnaire answered by 300 faculty and staff members early this year. Instructional resources for the series will feature many Guelph faculty, and former faculty members, as well as people representing government and business. "We could not have offered such a unique program without their generous voluntary contributions," notes Cal Swegles, manager of the Employment Services and Training Office, Personnel, which sponsors the series.

Dr. Anne Martin-Mathews, Director, Gerontology Centre, will introduce the first session by talking about the history and background of retirement. Retired professors A.E. Ferguson, Clinical Studies, Scotty Allan, Zoology, Frank and Mrs. Theakston, School of Engineering, will share retirement experiences.

Additional sessions will feature Elvin McNally, Personnel, and Russell Kelly, Government of Canada, who will talk about pensions and benefits. Professor Kathleen Brown, Family Studies, will discuss financial planning. Peter Anderson, a Guelph lawyer and University of Guelph alumnus, will deal with legal issues, and Professor John Auld, Consumer Studies, will consider housing options.

The subjects of health, fitness and

nutrition will bring together the knowledge and experience of Professor John Powell, Human Biology, Dr. James McLachlan, Director, Medical Services, and Professors Joan Norris and Donna Woolcott, Family Studies.

Different aspects of social relationships will be introduced by Prof. Norris and Professor Joe Tindale, Family Studies, while the seventh and final session will cover retirement activities and opportunities presented by retired professor, Louise Colley, Sociol-

Five new work-study programs

Five new work-study programs have been established at Guelph providing co-operative education opportunities for students in Engineering, Soil Science, Psychology, Family Studies and Child Studies.

Although the work-study concept of education is fairly new at Guelph, there are already more than 150 students enrolled in the 10 study options open. These young people take a normal course load and also work four or five semesters on a job related to their course of study.

Bruce McCallum, Counselling and Student Resource Centre, administers the program. "Although the job market is tight," he says, "we still have 99 per cent placement." As he points out, Guelph is still small in the co-op area, "but we're developing at a good pace and now have a good employer base on which to build."

He expects about 12 students to begin in the new Engineering program this spring, and a few more in Soil Science, Psychology and Family Studies. The Child Studies program will be ready for co-op students in another year. In most of the programs,

Order of Canada to Stewarts

Two Guelph alumni were among 71 appointments to the Order of Canada by Governor-General Ed Schreyer, chancellor and principal companion of the Order. Husband and wife, Arthur and Elsa Stewart of Pakenham were made members of the Order.

The Stewarts, who were named Fellows of the University in 1971, have carried out a model farming operation under the name Braeneath Farms since 1940, and contributed much to livestock breeding in eastern Ontario.

Both have been involved in the affairs of the University of Guelph and its Colleges, Mrs. Stewart by making available entrance bursaries for students from the area to attend Guelph, and scholarships for students in the College of Family and Consumer Studies. She has also been active in the restoration of historic buildings on Main Street in Pakenham.

Mr. Stewart served as president of the OAC Alumni Association, vice-chairman and director of the OAC Alumni Foundation and as a member of Senate. He was Reeve of Pakenham, in addition to having many civic and agricultural involvements. □

ogy and Anthropology; Stewart Hamilton, Canadian Executive Service Overseas; Ron Dolynchuck, Director, Industrial Services; George Hindley, retired superintendent, Wellington County Board of Education, and Sean Pennylegion, co-ordinator, Guelph Information Services.

The program provides ample opportunity for the exchange of ideas and concerns. Participation will be by special invitation

students enter after third or fourth semester, then alternate work and study periods until graduation.

The obvious advantages to students are on-the-site experience, personal development and the salary. However, both employers and students report other benefits. For example, undergraduates sometimes discover strengths and weaknesses they did not know they possessed and placements often lead to permanent jobs. Employers like the chance to assess a student over a period of time. They then have a good idea whether the undergraduate would make a good permanent employee. This process also eliminates the need for costly on-the-job training of a new employee at a rate of pay higher than a student would earn. Industries and research facilities also welcome a contact with the University which keeps them abreast of scientific developments.

Prospective employers or students interested in the new programs, or in the existing work-study scheme, may contact Mr. McCallum or field co-ordinators Lloyd Ross or John Joyner at Ext. 3143 or 3419. □

Strong inter-disciplinary emphasis in ergonomics

When the horse and buggy were replaced by the automobile, most people said it would never last. When the first railway was being built, farmers opposed the iron horse for fear that its sparks would ruin the wool of their flocks grazing nearby.

This tug-of-war between people and machines has been a symptom of the Industrial Age but it was always assumed that people, being flexible, should adapt to the machines. During World War I, military research groups started questioning this assumption and the results led to a new discipline called ergonomics.

Ergonomics is the science of reducing the tension between people, machines and the working environment. Since 1978, Professor Bob Webb has been working in the Ergonomics Unit in the School of Human Biology, studying the relationship between human characteristics, performance and well-being.

"Human effectiveness depends on the characteristics of the components being used," he says. For example, the performance of a secretary or a student taking notes is affected by the quality of the pen and paper he is using, the chair he is sitting on and the lighting, heat and noise in the room.

Performance and well-being are equally important in any system, he notes. "Uncomfortable seats detract from an individual's concentration because part of him is conscious of the fact that he's uncomfortable and this is distracting."

Prof. Webb warns that this discomfort can escalate over time and the employee may move from wanting a 10-second break to relax his muscles to taking an entire day off. There is also a danger that chronic health problems may develop, influencing the individual's home life and leisure time.

"For five minutes, this type of discomfort may seem trivial," says Prof. Webb, "but multiply that by five years and you've got a problem that affects not only the individual's well-being, but the effectiveness of the system too."

Ergonomics can be applied to many situations. Bank tellers, warehouse workers or aircraft pilots are all affected by their individual working situations and management's concern for productivity.

Ergonomics seeks to apply knowledge about human characteristics to a specified situation, considering a number of components: nutrition, psychology, physiology, knowledge of muscular and cardio-vascular systems, and individual differences such as age, sex, shape, size and endurance.

The aim of ergonomics is to know humans and their demands. "It's sort of a combination of life sciences, including psy-

chology, a knowledge of engineering and occupational experience," he says.

In Canada, this University is in the forefront of ergonomics, primarily because of its life sciences orientation. The Universities of Waterloo and Toronto also offer specializations in ergonomics but they concentrate more on the engineering aspect.

There is a strong inter-disciplinary emphasis in ergonomics and Prof. Webb is currently developing joint courses with the Department of Psychology.

Some of the projects under way in the Ergonomics Unit are studies into back injuries and intra-abdominal pressure, hand/arm vibration and health effects, and diagnosis of musculo-skeletal problems in industry. Prof. Webb has also just finished a study of the use of skidders in the Canadian forestry industry and has completed a study on the physiological effects for firefighters wearing heavy protective clothing.

Conference Planned

Prof. Webb is also chairman of a technical group formed to produce CSA guidelines for office ergonomics and is involved in planning an international ergonomics conference to be held in Toronto next May.

The conference is aimed at occupational users, research workers and practising professionals with introductory workshops for those new to ergonomics. Review papers, case studies and research papers will also be presented, and organizers are expecting between 500 and 600 people at the three-day event.

Primary sponsors for the events are the Human Factors Association of Canada and the International Ergonomics Association. The University of Guelph, the Ontario Council of Safety Associations, the Ontario Ministry of Labour and Imperial Oil, among others, are also supporting the conference.

For more information, contact Prof. Webb, Ext. 3705. □

Quebec honors Languages author

The news that her novel, *De Memoire de Femme*, has been awarded the prestigious 1983 Prix du Journal de Montreal, comes as a pleasant surprise to Professor Marguerite Andersen, Languages and Literatures.

The selection is made by the Quebec Writers' Union. Nearly 100 Quebecois novels were considered and it is unusual — possibly unprecedented — for the prize to be given to a non-Quebec writer, she says. Prof. Andersen has taught in Montreal but her cultural roots are European rather than Quebecois. However, the novel was published in Montreal.

De Memoire de Femme is a partly autobiographical novel in which Prof. Andersen uses her own experiences to make a universal statement about the unfolding of a woman's life. Its emphasis is on the internal, rather than the external, she explains. It says less about the protagonist's career, her achievements and the visible events in her life than the development of spiritual and physical self-awareness through the nature of her relationships, her memories and her feelings. *Memoire* charts the emergence of a woman out of the chrysalis of her upbringing into full human autonomy.

Critics are impressed by Prof. Andersen's non-traditional structure and her ability to write about emotions in a way that is real and sensitive.

The French language is Prof. Andersen's mother tongue only because her German mother insisted that she learn it. Prof. Andersen wrote a great deal of the book in France partly because she was able to make use of the time created by administrative leave and partly because she needed to be soaked in the French language while working on it.

Prof. Andersen has completed a new work that explores the feelings between mothers and daughters. □

Books

Art, science, languages, history and pharmacology come together to shed new light on the most important physician in the Roman world in "The Arabic Materia Medica of Dioscorides," written by Fine Art professor Mahmoud Sadek, centre. Discussing Pedanius Dioscorides of Anazarba are, left, Arts Dean, Professor Davi Murray, and, right, Acting President, Dr. Howard Clark.



Three universities may share research

Dr. Kokke, centre, with Prof. Howell and Acting Vice-President, Academic, Dr. Janet Wardlaw.



Dr. Robert Kokke of the United Nations University, Tokyo, Japan was on campus recently to discuss a proposed joint association of the Universities of Guelph and Waterloo with the United Nations University.

The proposal, developed in Tokyo this summer by Professor D.G. Howell, head of international projects, Centre for Interna-

tional Programs, and endorsed by both Ontario universities, calls for joint research in the area of microbiology and biotechnology within a broad scenario of rural development in the Third World.

The United Nations University engages in research and post-graduate study in a wide range of disciplines pertinent to human survival and welfare. □

"Special Plan Agreement" Notice

Copies of the *Special Plan Agreement* have been mailed to faculty members and librarians covered by the terms of the agreement. These are faculty members holding probationary or tenured appointments, on a full-time or part-time basis, those with contractually limited appointments of more than 12 months, those with three-year part-time appointments and librarians holding probationary, renewable or continuing appointments on a full-time or limited appointment basis, together with those who have contractually limited appointments of more than 12 months.

If you have not received your copy, contact John Hurst, Ext. 3438. □

Vegetable oils may replace diesel fuel

Ontario farmers use about 220 million litres of diesel fuel per year, but dramatic cost increases have convinced engineers to look for cheaper alternatives.

Oil from soybeans, sunflowers, rapeseed or mustard may replace diesel fuel for tractors and other farm equipment, says Engineering professor Peter Southwell.

He has been investigating home-grown vegetable oils as substitutes for diesel fuel. These oils are already widely used as cooking oils and in food products such as margarine. Until recently, however, their potential as fuels has been overlooked.

Fuel is not the only usable product of an oilseed crop. Prof. Southwell points out that the residue left after extracting the oil is a high-protein feed for livestock.

Prof. Southwell's research on cooking oils began with laboratory engine experi-

ments and quickly moved into the field. For three seasons four tractors on University-operated research farms have run on rapeseed oil, soybean oil and oil/diesel fuel mixtures. Almost 2,000 hours of actual farm work have been logged on the oil-fueled tractors. Future work, he says, will focus on reducing the viscosity of vegetable oil fuels, particularly for cold weather operation.

This research demonstrates co-operation between industry, government and the University. Massey Ferguson Ltd. loaned a 95-horsepower tractor; the Ontario Ministry of Agriculture and Food and the Ontario Ministry of Energy financed the purchase of the vegetable oils and the University of Guelph provided a research grant to initiate the project and enabled the tractors to be used at its research facilities. □

Dilip K. Banerji

Dilip K. Banerji has joined the Computing and Information Science Department as professor.

Prof. Banerji has a B.Tech. in electrical engineering from the Indian Institute of Technology in Kanpur, India. He received his M.Sc. in electrical engineering from the University of Ottawa and a Ph.D. in computer science from the University of Waterloo.

He has held teaching positions at the Universities of Toronto, Waterloo and Ottawa and, most recently, was dean of the School of Computer and Systems Sciences at Jawaharlal Nehru University, New Delhi, India. Prof. Banerji was a visiting professor at Guelph in 1980-1981.

Prof. Banerji is a well known researcher in the areas of computer arithmetic and computer architecture with current interests in microcomputer software and applications, microprogramming and operating systems.

At Guelph, his duties will include teaching, research and committee assignments.

Jeffrey Mitscherling

The final oral examination of Jeffrey A. Mitscherling, Philosophy, a candidate for the Doctor of Philosophy degree, is Monday, December 12, 2 p.m., Room 421, MacKinnon building.

Mr. Mitscherling's thesis is entitled "The Image of a Second Sun: Plato's Criticism of Poetry." His supervisor is Dr. K.N. Dorter.

Interested members of the University community are invited to attend. □

Harold Burton

The final oral examination of Harold W. Burton, Biomedical Sciences, a candidate for the Ph.D. degree, will be held Thursday, December 15 at 1:30 p.m. in Room 309, Biomedical Sciences.

The title of his thesis is "The Identification of Potential Metabolic Angiogenic Factors."

Dr. H.G. Downie, Biomedical Sciences, is chairman of the examining committee. □

News Bulletin Schedule

The Christmas issue of the *News Bulletin* will be published December 15. Copy for this issue should reach the editor by December 8. There will be no issues December 22 and December 29.

The first issue in the New Year is January 5. Copy for this issue should be submitted by December 16. □

Library honors staff for long service

Four staff members in the Library were recently honored with long-service pins and certificates.

Chief Librarian Margaret Beckman, who made the presentation to Gail Russell, Bob Logan, Gabriel Pal and Margaret Jackson, commented that their 15 years with the University began with the opening of the McLaughlin Library itself.

"We had to move everything out of Massey Hall and the Zavitz building during the last weekend of July, 1968," Mrs. Beckman recalled. "Gail, Bob and Gabby had only just joined us. They were on hand to receive the cartons of books which kept coming down the chute from the Massey Hall window all through that weekend. Their job was to load the books onto dollies and take them away to their proper location. Margaret Jackson joined the staff a few days later and was very much involved through the settling-in period." □



Long-service pins and certificates are presented by Chief Librarian Margaret Beckman to, left to right, Gail Russell, Bob Logan, Gabriel Pal and Margaret Jackson.

GUELPH CAMPUS CO-OPERATIVE HAS changed its telephone number at the Post Office in the Co-op Shop. The new number is 824-7140.

THE COLLEGE OF Biological Science Alumni Association has instituted the Keith Ronald Graduate Scholarship award which will be presented for the first time in 1984. It is for a graduate of the College who wishes to study further at the University in any College and in any area of biology.

This will have particular appeal to those who graduated earlier in the College's history and who may wish to return for study.

Contributions to the fund may be made in the name of the Fellowship through the Alma Mater Fund or directly to the Alumni Association, c/o Johnston Hall.

APPLICATIONS for the Queen Elizabeth Silver Jubilee Awards are available and must be completed before February 15.

The awards are to encourage young Canadians who wish to become proficient in their second official language to pursue studies in their second official language.

For details, contact Gerry Davidson, Ext. 8796.

THE UNIVERSITY CATHOLIC Community is sponsoring a retreat "for personal growth through spiritual direction" from Sunday, January 15 to Saturday, January 21. This week of guided prayer will be held on campus with the conclusion at Ignatius College, Guelph.

For more information, contact Lee Gamble, 821-5667 or Father Ed Merchant, Johnston Hall, Room 151, or Ext. 3244.

THE CHILDREN'S CHRISTMAS PARTY for children of Faculty Club members will be held Saturday, December 17 at 2 p.m. in the Faculty Club. For reservations, telephone 824-3150 or Ext. 8578.

THE LAST PICK-UP DATE for the Inter University Transit System will be December 21 and the last delivery will be on December 22. Service will resume January 3, 1984.

UNEXPECTED SIDELIGHTS help make participation in exhibits, such as the University exhibit at the Royal Agricultural Winter Fair, interesting and satisfying. Early in the morning during the first day of the RAWF, a senior citizen from Niagara Falls, New York, came to the booth with a newspaper clipping. "I come to the Fair every year, and I thought the 'people from the College' might be interested in this," he said. The clipping from a June issue of a Buffalo newspaper, was an off-beat tidbit relating to food science.

ORDERS WILL BE ACCEPTED until further notice for the official University of Guelph Westminster chime clock, available to all members of the University of Guelph community through the University of Guelph Alumni Association. However, Christmas delivery cannot be assumed.

An original design of Johnston Hall, as viewed from the historic portico, is the centrepiece of the clock dial. The design was hand-sculpted in high relief by Caesar Rufo and minted in solid bronze.

Each \$250 clock will be registered in the name of the owner and will include a brass plate engraved with the owner's name. A sample may be seen in Room 273, Johnston Hall. Details: Jim Elmslie, Alumni Affairs and Development, Ext. 3355.

KAYE POWELL, clarinet, accompanied by Valerie Candelaria, piano will perform a student recital Friday, December 9 at 12:15 p.m. in Music Room 107, MacKinnon building.

The program will include "Concerto No. 1 in F Minor, Op. 73" by Carl Maria von Weber, "Three Romances, Op. 94" by Robert Schumann, "Clarinet Concerto in A Major, K. 622" by Mozart, Carl Nielsen's "Fantasistykke in G Minor" and Brahms' "Sonata No. 1, Op. 120."

Kay Powell is studying clarinet with Dr. Stanley Saunders, Director of Music, and Valerie Candelaria, piano, is teaching in the Department.

THE GUELPH CHAMBER CHOIR, with the Kitchener-Waterloo Symphony, will present Bach's "Mass in G Minor" and the "Christmas Cantata" Sunday, December 11 and Tuesday, December 13 at 8 p.m. in St. George's Anglican Church, Guelph.

Soloists will be Donna Trifunovich, soprano, Elizabeth Simmons, contralto, Dennis Giesbrecht, tenor, and Gary Gable, bass. The organ continuo will be played by Jan Overduin.

Tickets, at \$4 and \$6, are available at the University Centre box office.

TO FACILITATE SNOW REMOVAL, the following restrictions will apply between December 1, 1983 and March 31, 1984: no parking in lots P.12, P.15, P.26, P.30 (excluding the horse trailer section) and P.31 between 1 a.m. and 6 a.m.; no parking in any university lot between 3 a.m. and 6 a.m., except in lots P.42, P.64, the horse trailer section in P.30 and the resident students lots numbered P.13, P.17, P.18, the designated north section of P.19, and the designated south section of P.14.

An exception to these regulations will be extended to University personnel who are required to park their vehicles during this period as a normal condition of their employment. Such persons will be issued with a special sticker upon application from their Chairman or Head of their Department to the Parking Administration Office, Room 107, Day Hall.

FACULTY, STAFF AND FRIENDS of Dr. T.D. (Tom) Burgess are cordially invited to a recognition night to honor him on his retirement Friday, January 20 in the Cutten Club Trophy Room from 8 p.m. to 10 p.m. Tickets are \$10 per person and \$16 per couple (includes gift contribution, hot and cold hors d'oeuvres, dessert, tea and coffee). Cash bar. If you are unable to attend but wish to make a contribution, please make cheque payable to T.D. Burgess Appreciation Night and forward to Mrs. J. Cunningham, Department of Animal and Poultry Science.

Professor C.A. **Guldner**, Family Studies, presented a keynote address, "Models for Marriage Preparation" and a plenary session, "Critical Issues in Marriage Preparation" at the recent National Marriage Preparation Conference held in Montreal. He also led two workshops for the participants.

Professor R.W. Irwin, School of Engineering, was on a panel discussing "Differing Views on Wetland Use," held at the Nottawasaga Inn, Alliston. The seminar was sponsored by the Ontario chapter, Soil Conservation Society. Professor W.T. **Dickinson**, School of Engineering, who is vice-president of the Society, also attended.

Professor John McMurtry, Philosophy, presented an invited paper "Marx's General Theory of the State" to the Social Science History Annual Meeting in Washington, D.C. He also read an invited paper "On Political Obligation" to a Queen's University philosophy colloquium and appeared as a special guest on CBC's "Morningside" to discuss his work on the philosophy of neo-conservatism.

Professor Alex Michalos, Philosophy, gave two lectures at the University College of Cape Breton in Sydney on 15 bad ways for business people to try to avoid social responsibilities and what makes people satisfied with their jobs, marriages and life as a whole.

Professor G.S. Mittal, School of Engineering, attended the Canadian General Standard Board's two-day pouch subcommittee (thermal processing) meetings held in Hamilton and Mississauga. This committee is writing a standard for the processing of foods in retortable pouches.

Professor Robert Munsch, Family Studies, addressed the annual conference of the Nova Scotia Reading Specialists Association held at Acadia University concerning the relation of storytelling to reading ability.

He also toured southern Alberta during Children's Book Week. He lectured on storytelling at Red Deer and Medicine Hat Colleges, gave public readings at libraries in Calgary, Medicine Hat, Lethbridge, Olds and Didsbury, and he also gave readings at several elementary schools.

Professor J.R. Ogilvie, School of Engineering, has returned from his administrative leave to New Zealand and Australia. He spent seven weeks at Lincoln College, Canterbury, New Zealand, visiting the agricultural engineering department there. He also worked with the New Zealand Agricultural Engineering Institute at Lincoln on ethanol from beets and whole crop harvesting for wheat and barley. During his visit to New Zealand he visited the Ruakura research station near Hamilton and the Invermay station near Dunedin. Work on leaf protein concentrate from alfalfa was seen at Ruakura and on biogas generation from field crops at Invermay.

Prof. Ogilvie also visited the geo-thermal steam alfalfa drying plant at Broadlands where a full-scale leaf protein plant has been installed.

While en route to New Zealand, Prof. Ogilvie visited the agricultural engineering section at the University of Melbourne, Australia.

Dr. Ogilvie returns to the Director's office January 1.

Professor Francois Pare, Languages and Literatures, was a special consultant in a meeting of the editorial board of the Dictionnaire des Ecrits de l'Ontario Francais held at the University of Sudbury.

Prof. Pare is also associate editor, Canadian Children's Literature/Litterature Canadienne pour la Jeunesse, a journal published at Guelph.

Professor David Prescott, Economics, was invited to address the provincial advisory council of the Conference Board of Canada in Ottawa where he presented a paper on the role of temporary provincial sales tax cuts in fiscal policy. This research is being done jointly with Professor D. Wilton, University of Waterloo, and is funded by SSHRC.

Professor Messod Salama, Languages and Literatures, presented a paper "Romancero B ibleico Judeo Espanol, Caracteristicas y Peculiaridades" at the First Judeo-Spanish Symposium held in Toronto under the sponsorship of the Spanish Embassy.

Professor Francis Tapon, Economics, delivered a paper "The Products Differentiation Advantage of the Patent-Holder: Post-patent Barriers to Entry in the Canadian Pharmaceutical Industry" at the Southern Economics Association Meeting held in Washington, D.C.

Professor J.T. Trevors, Environmental Biology, presented a paper, "A Method for Assessing the Effect of Pollutants on Electron Transport System Activity in Soil and Sediment," at the First International Symposium on Toxicity Testing Using Bacteria held in Burlington, Ontario at the National Water Research Institute.

Prof. Trevors has also been appointed to the editorial board of the international journal, Microbial Toxicity Assessment Bulletin, which was organized at the First International Symposium.

Professor John Vanderkamp, Dean, College of Social Science, attended the second annual workshop on Canadian-US relations held at the University of Western Ontario, London.

Professor Elizabeth Waterston, English Language and Literature, addressed the English-Speaking Union, London, on "What Canadian Children Read." She also spoke to members of the Sir Walter Scott Club of Toronto on "The Lady of the Lake: Scottish Nationalism and Irony."

Professor Jack Weiner, Mathematics and Statistics, presented "Math for Life" at a meeting of the Grand Valley Mathematics Association at the University of Waterloo.

Professor H.R. Whiteley, School of Engineering, was an invited participant in a Technical Workshop on Streamflow Forecasting held in Toronto. Professor John Fitzgibbon, University School of Rural Planning and Development, also participated. The workshop brought together 65 people from across Canada representing federal government agencies, provincial agencies, conservation authorities, hydropower companies and university researchers. The workshop examined current techniques used in streamflow forecasting and made recommendations for improved use of real-time data and computer models for streamflow forecasts in Canada.

Professor J.M. Wood, Chemistry, while on sabbatical at UCLA, visited the laboratories of Drs. P.J.F. Henderson and Hans Kornberg at Cambridge, Drs. J.B. Jackson and S.J. Ferguson at Birmingham, Dr. D.K. Apps at Edinburgh, and Dr. C.F. Higgins at Dundee. While in Dundee, Prof. Wood presented a seminar, "The Membrane Enzymes Catalyzing L-proline Transport and Oxidation in Escherichia coli."

Coakley, R.W., J.L. Hunt and J.R. Stevens, 1983. "Light Scattering Studies of Atactic Polystyrene Through a Densification Cycle," J. Appl. Phys. 54: 5603-5607 (Physics).

Duda, P.D., 1983. "Do Current Verbal Memory Loads Influence the Verbal Laterality Pattern in the Bilateral Task?," Brain and Language 20: 65-78 (Psychology).

Gaskin, D.E., 1983. "The Marine Mammal Community," Marine and Coastal Systems of the Quoddy Region, New Brunswick, ed. M.L.H. Thomas, Canadian Special Publication of Fisheries and Aquatic Sciences, No. 64: 245-268 (Zoology).

Leslie, J., 1983. "Observership in Cosmology: The Anthropic Principle," Mind, vol. 92, no. 368: 573-579 (Philosophy).

McMurtry, John, 1983. "Boom at the Top," Canadian Association of University Teachers Bulletin, Vol. 30, No. 3: 9-11 (Philosophy).

McMurtry, John, 1983. "Fascism and Neo-Conservatism," Canadian Forum, Vol. LXIII, No. 733: 7-10 (Philosophy).

McMurtry, John, 1983. Review of Bertell Ollman, "Social and Sexual Revolution: Essays on Marx and Reich," Journal of Business Ethics, Vol. 1, No. 4: 326-330 (Philosophy).

McMurtry, John, 1982. Review of Geoffrey Pilling, "Marx's Capital: Philosophy and Political Economy," Canadian Philosophical Reviews, Vol. 1, No. 4: 177-179 (Philosophy).

Mittal, G.S., L. Otten and R.B. Brown, 1983. "Analysis of the Performance of Solar Heated Farm Buildings," Energy Agric. 2: 101-114 (School of Engineering).

Otulakowski, G.L., P.E. Shewen, A.E. Udoh, A. Mellors and R.N. Wilkie, 1983. "Proteolysis of Sialoglycoprotein by Pasteurella haemolytica Cytotoxic Culture Supernatant," Infect. and Immunity, 42(1): 64-70 (Otulakowski, Udoh and Mellors, Chemistry; Shewen and Wilkie, Veterinary Microbiology and Immunology).

Patterson, G.D., P.J. Carroll and J.R. Stevens, 1983. "Photon Correlation Spectroscopy of Poly(methyl methacrylate) Near the Glass Transition," J. Poly. Sci. Phys. Ed. 21: 613-623 (Physics).

Technician, Grant Position. Veterinary Microbiology and Immunology. Salary up to \$338.98 per week commensurate with qualifications and experience. Contact Dr. J.F. Prescott, Ext. 3473.

Program Consultant, Continuing Education Division. Certificate Program in Personnel and Industrial Relations. Part-time, contractually limited. Remuneration is commensurate with qualifications and experience. Assistant Manager, Employment Services and Training. Personnel Department. Salary range: \$21,840.00 - \$32,761.00. Midpoint: \$27,301.00. Normal starting range: \$21,840.00 - \$26,209.00.

Agricultural Assistant, Animal and Poultry Science. Start rate: \$377.23. Six-month rate: \$395.99. One-year job rate: \$414.77.

Technician, Microbiology. MTS III. Salary range: \$287.53 - \$412.50. Job rate (level 5): \$332.20.

Senior OSAP Clerk, Registrar's Office. Clerk III. Salary range: \$306.99 - \$437.74. Job rate (level 5): \$353.75. Open to on-campus employees only.

Library Assistant 1, Track 2, Circulation/Reserve, Library.

Next Week at Guelph

THURSDAY, 83 12 08

Worship - CATHOLIC MASS, 1200, chapel, level 5, UC.
Graduate Seminars - HORMONAL ASYNCHRONY AS A CAUSE OF REPEAT BREEDING IN CATTLE, A.P. Britton, 1110, Path220.
Guelph Field Naturalists - MEMBERS NIGHT, 1945, Arboretum, for details contact Stan Kozak, 836-4186.
Staff Development Opportunities - CPR HEART SAVER LEVEL, Norm Hinds, 0830, Ext. 3058 to register.
Concert - PIANO STUDENTS OF ANYA LAURENCE, 1210 and 1310, MacK107.
Meeting - CHILD CARE CONCERNS GROUP, 1200, UC332.

FRIDAY, 83 12 09

Exams Begin
Worship - FACULTY CHRISTIAN FELLOWSHIP, 1200, Johnston Hall 157; MUSLIM PRAYERS, 1200, chapel, level 5, UC.
Staff Development Opportunities - CPR HEART SAVER LEVEL, Norm Hinds, 0830; EMPLOYMENT INTERVIEWING SKILLS, 0900, Ext. 3058.
Concert - KAYE POWELL AND VALERIE CANDELARIA, clarinet and piano, 1215, MacK107.

SATURDAY, 83 12 10

NO SCHEDULED EVENTS

SUNDAY, 83 12 11

Concert - GUELPH CHAMBER CHOIR, 2000, St. George's Anglican Church, Guelph.
Worship - ANGLICAN/UNITED, 1600, UC441; CAMPUS CHURCH SERVICE, 1030, P5113; CATHOLIC MASS, 1000, PCH.

MONDAY, 83 12 12

Multicultural Centre - EDUCATION RELATING TO RACE AND ETHNIC RELATIONS, Cynthia R. Taylor, Hamilton Rd. of Ed., 1930, 128 Woolwich St., Suite 203.
Ontario Institute of Agrolologists Meeting - FUNDING OF AGRICULTURAL RESEARCH, Clay Switzer, 1900, PCH.
City Watch - RICK FERRARO, 1900, Cable 8.

TUESDAY, 83 12 13

Worship - CATHOLIC MASS, 1700, chapel, level 5, UC; CHRISTIANITY AND MARXISM, 1700, UC332.
Concert - GUELPH CHAMBER CHOIR, 2000, St. George's Anglican Church, Guelph.
Meeting - MICROCOMPUTER CLUB, 1900, ICS212.
Faculty Association - COUNCIL MEETING, 1530, Faculty Club Lounge.

WEDNESDAY, 83 12 14

Worship - CHRISTIAN DOCTRINE CLASS, 1700, UC334; IMMANUEL FELLOWSHIP, 1900, AS141; ANGLICAN EUCHARIST, 1210, UC 301; CATHOLIC MASS, 1700, chapel, level 5, UC.
Clinic - RED CROSS BLOOD DONOR CLINIC, 1400, St. George's Church.

THURSDAY, 83 12 15

Worship - CATHOLIC MASS, 1200, chapel, level 5, UC.
Meeting - BOARD OF GOVERNORS, executive committee only, 1000, UC424.

Available

French and Polish tutoring, translations and typing for European languages, 821-0546.

For Sale

Hotpoint 30" stove, man's Raleigh 5-speed, contact Ross, 8718; Bateman limited edition prints, 824-5865; 150 cm. Elan downhill skis and size 6 San Remo boots, 822-7335; Renault 5 GTL Le Car 1980, silver, 821-3261 after 1800; 1976 Vega, contact Jill, 2254.

Wanted

170-180 cm. downhill skis, size 8 boots, 822-7335; child's spring horse, cold air humidifier, baby alarm, bike with training wheels, 823-1268; bean bag chair, band saw, 658-9938 after 1800; fridge, baby furniture and clothes, 821-6432 evenings; ride for daily commuter from Toronto to Guelph, contact Betty, 2443.

Lost and Found

Found: blue budgie on Vancouver Drive, Sat. Nov. 26, contact Michele, 2233.

For Rent

Three bedroom apartment to sublet, Dec. 10, contact Valencia, 2173 before Dec. 9 or Mahmoud, 8363 after Dec.10.



Flora Macdonald is 'Antigone' and Eric Brandsma 'Creon' in Jean Anouilh's modern dress adaptation of the classic confrontation between personal integrity and political expediency. Department of Drama Chairman, Professor Len Conolly directed the ambitious and tightly crafted production of 'Antigone' at the Inner Stage.

Postage Paid-In-Cash at Third Class Rates Permit 1149, Guelph, Ontario N1G 2W1



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