

NEWS BULLETIN

UNIVERSITY OF GUELPH

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OVC research on germ-free pigs and mice

You don't see them, you don't hear them, you don't smell, touch or taste them, but bacteria are practically everywhere . . . everywhere, that is, except in the gnotobiotics laboratory in the OVC's Clinical Research building where germ-free animals are raised.

The gnotobiotics laboratory was started seven years ago and is, with the exception of a recently opened facility near Ottawa, the only one of its kind in Canada, according to Professor O. P. Miniats of the Department of Clinical Studies, the laboratory supervisor. It supplies some 200 germ-free pigs a year, as well as mice, rats and "nude" or athymic mice, for research projects.

"Animals carry microbes in many parts of their bodies," says Professor Miniats. "But often we don't know how these microbes work, or how they influence health and behavior. By using germ-free animals, scientists can introduce one or more known species, and study their effects in a pure state."

Developed by Pasteur

The science of gnotobiology goes back a century to the time of Louis Pasteur. But the most significant developments came after World War II when plastic or polyvinyl isolators (completely enclosed chambers for germ-free animals) were introduced. Previously the isolators were costly devices, made of glass and steel, built to withstand high temperature and pressure, and sterilized by heat. But Dr. P. C. Trexler, a scientist who was at Notre Dame University in the United States, developed a light, flexible, inexpensive polyvinyl isolator, which could be sterilized with peracetic acid. This gave a great impetus to research in gnotobiology, and today there are a number of germ-free laboratories located around the world.

Germ-free pigs

At Guelph the gnotobiotic laboratory developed out of a lab that raised pigs for SPF (specific pathogen free) swine herds across Ontario. Such pigs are still being raised. Now, they are started in a germ-free state and kept in isolators for the first five weeks of their lives. This practice has one drawback: the young pigs have been taken from the mother by Caesarian section and have no antibodies from her milk. Therefore, laboratory personnel have developed a procedure to "acclimatize" the pigs to a germ-filled world: they first expose them to various harmless microbes. However, the majority of the germ-free pigs are used for the investigation of diseases of importance in agriculture and medicine.

The Guelph gnotobiotics laboratory is probably the only place in the world that produces germ-free athymic mice. These mice are important for research because they lack the thymus gland and have poorly developed immunity mechanisms.

"It is normally hard to raise these mice because of their low resistance to infection," says Dr. Miniats. "But we have been quite successful in raising them in the conventional state under strict sanitary conditions as well as in the germ-free state. A number have been donated to institutions in Ontario and New York State for medical research."

Other animals raised in the laboratory have also been sent to distant places. For instance, two litters of germ-free pigs were sent to Alberta in August for pollution research.

Keeping microbes out

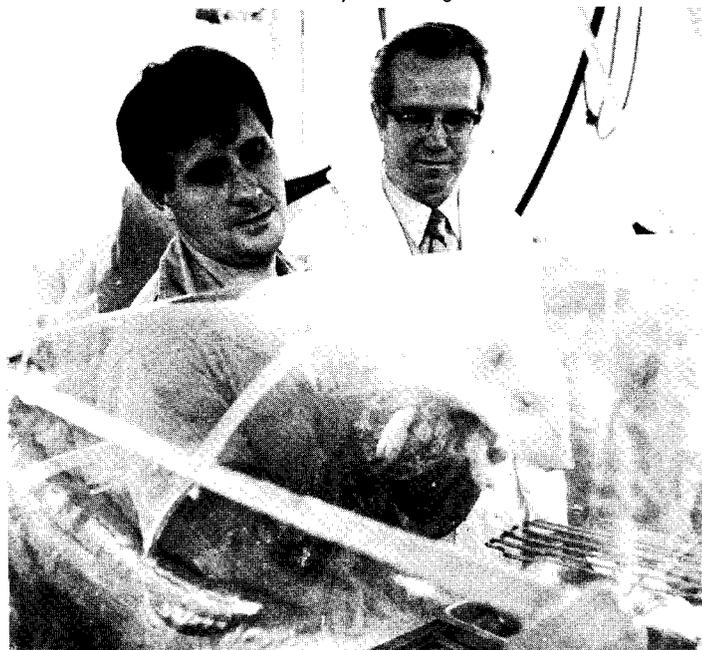
The laboratory is staffed by Professor Miniats and technicians Dick Jol and Pauline Lehmann, and has some 21 isolators now in use, 12 for pigs, five for rodents, two for larger animals such as calves, should the need for rearing these arise, and two for transporting the animals. Disposable surgical isolators are manufactured at the laboratory according

to needs. Nothing goes into these isolators without having been fully sterilized: the food is brought in cans or plastic bags whose surfaces are scraped and rubbed with a fat solvent so that no dirt remains for bacteria to hide in. They are then introduced into an "air-lock" of the type used in outer space, sterilized with peracetic acid, put into the isolator and opened. To carry out these jobs, laboratory personnel use rubber gloves which are mounted in the chamber walls. Water and other supplies are introduced into the isolator in the same careful way. Air is filtered twice before it enters. The air pressure inside is always slightly above the outside air pressure, so that any leak in the chamber walls will expel air, not let it in.

Milk doesn't sour

The world within the isolator is different from the world outside. There is no decay inside: milk doesn't go sour; feces do not smell. Each isolator is tested regularly to make sure that no microbes have gained entry, but occasionally something does go wrong. Once a mouse escaped from his cage and gnawed a hole in the chamber wall. At that point it was back to square one for the isolator and everything inside.

Gnotobiotics is a young field, not much more than three decades old. Its applications are mainly in biological and medical research and in patient care. Where it's going and what influence it will have on the health sciences is difficult to predict. But some of the people best qualified to know will be on campus next spring. An international conference of the Association for Gnotobiotics will be held at Guelph from June 9 to 12. Some 150 participants are expected to attend, mainly from the United States, but also from Western Europe and Japan. The theme is comparative aspects of gnotobiotic research, and symposia are being held on large animals in gnotobiotic research and on the evaluating of patient isolation.



Dick Jol, left, and Professor Miniats inspect a young pig inside a germ-free isolator. Young pigs taken from the mother by Caesarian section have to be gradually acclimatized to a germ-filled world. Since they have no antibodies from the mother's milk, they are first exposed to various harmless microbes.

Transitional housing needed in cities

Young people who come to the city often need special "transition housing" to help them adjust to city life, according to Professor Joan Simon, Consumer Studies.

In the past, special accommodation has been provided for young people who leave home to attend university or to take nurse's training. Today transition housing is also provided for people, such as the mentally ill, drug users and former prison inmates, who pose serious social problems. But there is little provision for those who need just a small amount of help, she says. Young people from the country, for instance, just need some transition accommodation while they come to grips with living on their own.

It's pretty expensive to live on your own in a city, says Professor Simon. You can arrange to share an apartment with other people, but you have to have a place to meet them first.

One example of such accommodation is the 14-storey, \$2.3 million McPhail Residence, built in 1970 in downtown Toronto and administered by the YWCA. The residence is for women only — this was a stipulation of the Ontario Housing Corporation which financed its construction. Rents are set at 25 per cent of gross monthly income with a minimum of \$32 per month. It consists of a series of apartment suites, each accommodating from two to six girls.

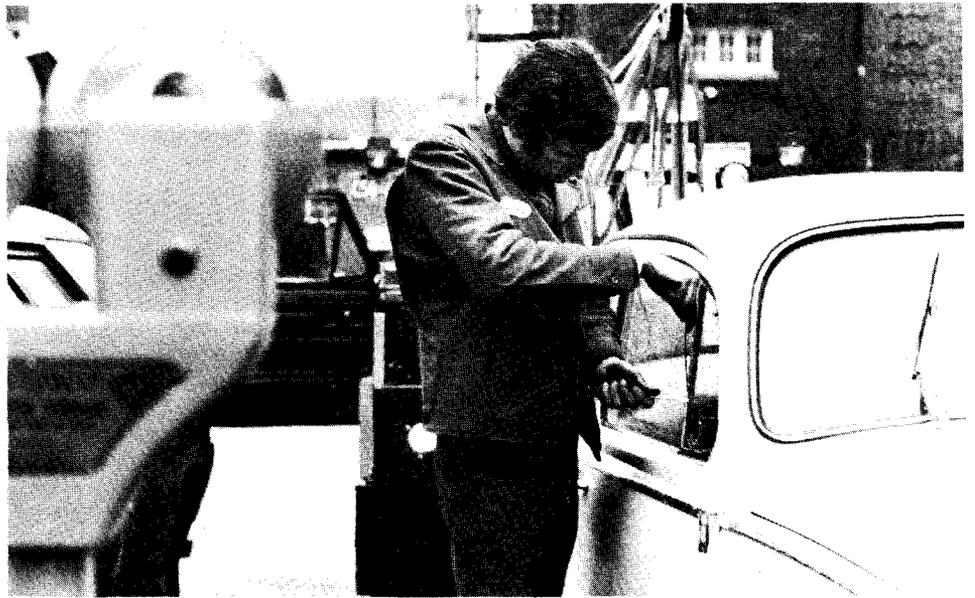
The residence provides a setting for strangers to become friends, a framework within which young persons can learn to cope with independent living, says Professor Simon.

A similar type of transition housing is provided by the Anduhyaun house, also in Toronto, which is designed for girls who come to the city from Indian reserves. Such housing fills a great need, says Professor Simon. But at the moment the government finances it only on a short-term basis. She feels some more stable and continuous funding should be provided.

The housing needs of young people may be similar in some ways to those of the elderly, but they are different in that senior citizens are likely to need increasingly specialized services as they grow older. The goal of housing for young people should be to direct them into the mainstream of life, and to prevent the development of social ills which can later be costly to both the individual and society, Professor Simon says.

Chamber orchestra concert

A chamber concert of music by Bach, Mozart, Biscogli and Ridout will be held in War Memorial Hall at 8:30 p.m. on December 14. The New Chamber Orchestra of Canada has as its concert master Gerard Kantarjian with soloists Anton Kuerti at the piano, flautist Robert Aitken and trumpeter Bill Phillips. Tickets are available from Rutledges on the square, or at the door — adults \$4, students and senior citizens \$2.



If you have an outstanding parking ticket — take care not to make another goof. The second time you don't get a ticket — your car is towed away. On the tow-away list carried by campus policemen are the license numbers of people with outstanding parking violations. It was a long wet walk down Gordon St. hill for this car-owner. And it cost him \$7. In cases where dolly wheels have to be used it costs \$12 to reclaim your vehicle.



Construction starts on new OVC building

Construction is now under way on a building which will house both the Department of Pathology and the Department of Veterinary Microbiology and Immunology. The spaces vacated by these departments will be made available for the other two OVC buildings, Clinical Studies and Biomedical Sciences, after renovation and alteration. These departments are currently short of space for their academic programs.

The new building, which will be located between the present Veterinary Microbiology and Immunology building and the clinical wing of OVC, should be completed by September, 1975. Estimated cost of construction is \$4,150,000.

OVC dean D. G. Howell examines architect's drawing of the new Pathology building with the Veterinary Microbiology and Immunology extension.



Jack McNie, left, meets with the president, members of faculty, and students.



Dr. Henry Hurtig, an international authority on pesticides, who has worked in the field for 25 years, gave a seminar on the future of pesticides in Canada on campus recently. Dr. Hurtig is now the coordinator of environmental quality with Agriculture Canada in Ottawa. He is shown here with Environmental Biology professors L. V. Edginton, left, and Jack Alex, right, who arranged the seminar.

Universities must reach communities

"The universities must reach the people on the assembly lines," Jack McNie, minister of colleges and universities, said on campus Friday. He was speaking about mature students, both from his vantage point as minister and from personal experience at McMaster where he has taken part-time studies over a 15 year period.

"Maturity is not something that one arrives at with the receipt of a piece of paper — it must be strived at throughout a lifetime," he said. He said the three semester system at Guelph has encouraged the involvement of mature students here.

He pointed out that it is possible to get very good marks in early years at high school or university without getting much out of the courses offered. "What we perceive at 18, is not what we perceive at 28, 38 etc.," he said, "when we may have greater knowledge and insight."

He suggested that the way to get people in industry into post-secondary education is through their peers. A project in Sweden where people in plants talked to their friends about their studies was successful in bringing people into further education. But in many cases, Mr. McNie said, it is necessary to bring the university to the people since environment is a very real part of learning.

"We as a community have an obligation to encourage people to stretch their minds," he said.

Winter carnival

Skippin' and slidin' will be the theme of winter carnival January 15-20. A giant slide will be made on the front campus in the same area as the snow sculptures. There will be skating on the track to music, tobogganing under lights, arm wrestling, hockey and the crowning of the king. Winter carnival tries to cater to all tastes.

FACULTY ACTIVITIES

Professor W. K. Bilanski, Engineering, has returned from Barbados where he spent a week sponsored by C.I.D.A. examining uses of sugar cane as an animal feed, specifically the drying and pelleting of the pith.

Professor D. E. Gaskin and B. A. Blair, Zoology, recently visited the Department of Pathology, University of Illinois, and the Department of Biology, University of Notre Dame, Indiana, for meetings.

Professor D. E. Gaskin and G.J.D. Smith, Zoology, visited Université de Montreal to attend research meetings of GIROQ (Groupe interuniversitaire de recherches océanographiques du Québec). Professor Gaskin gave a seminar in the Department des sciences biologiques entitled The biology of the sperm whale in the South Pacific.

Professor R. W. Barron, Psychology, gave a colloquium at Oakland University, Rochester, Michigan, on the extraction of meaning in the processes of word perception and reading.

Professor R. Protz, Land Resource Science and **Professor A. Falconer**, Geography, were in Ottawa to attend the technical program committee meeting for the second Canadian Symposium on Remote Sensing which will be held at the University of Guelph in April.

Professor T. J. Heeg, Land Resource Science, spoke to the OMAF fruit and vegetable extension specialists at a meeting held at Guelph on recent changes in the soil testing program and on up-dating the fruit and vegetable requirement tables.

Professor L. R. Webber, **Professor Eric Beauchamp**, **Professor T. E. Bates**, **Professor Tom Lane**, and **G. H. Henry**, Soils and Crops extension specialist, Land Resource Science, participated in a one day program organized by OMAF on the feasibility of utilizing sludge in Ontario agriculture.

Professor R.A.M. Carlton, Sociology and Anthropology, addressed the regional conference of the Ontario English Catholic Teachers Association on Professionalization: problems of role and organizational setting.

Professor C. L. Duitschaefer, Food Science, was an invited participant in the second Food Microbiology Research Conference at Allerton House, Monticello, Illinois. Professor Duitschaefer presented a paper co-authored by **Professor D. C. Jordan**, Microbiology, on unexpected observations on the behavior of sublethally heat-treated *Streptococcus faecium*.

Professor D. H. Stott, Center for Educational Disabilities, gave two papers at Temple University, Philadelphia, on his new test of motor impairment and on epidemiological indicators of the causes of behavior disturbance. He also spoke on learning disabilities at the Columbia Teachers' College, New York, to meetings of special education personnel of the Wellesley School Board, Massachusetts and to the supervisors of early-childhood education of the New York City School Board.

Professor T. H. Lane, Land Resource Science, and **Professor R. S. Rodd**, Agricultural Economics and Extension Education, participated in a panel discussion of effects of transmission lines on agriculture, before the Solandt Commission at Queen's Park, Toronto.

Professor J. T. Powell, Human Kinetics, gave a talk at a parents' night in Preston entitled So you're fit, so what?

Professor B. R. Christie, **Professor E. Reinbergs**, and **Professor J. W. Tanner**, Crop Science, were judges for the seed division of the Royal Agricultural Winter Fair.

Professor J. R. Geraci, Pathology, contributed to a continuing education course on fish diseases conducted by the Ontario Veterinary Association in Toronto.

Professor G. J. Losos, Pathology, travelled to London, England, and Nairobi, East Africa, on consultation for the International Development Research Centre with regard to a trypanosomiasis project.

J. C. Irwin, Pathology, presented a paper at a meeting of the Mid-West Fish and Wildlife Conference in St. Louis, on lead-iron shot, a possible solution to the lead poisoning problem in waterfowl.

Professor H. C. Carlson, Pathology, participated in the second annual Poultry Health Conference in Toronto. Professor Carlson also presented two topics at a continuing education course in Kemptville on current topics for federal veterinarians. The subjects were Marek's disease — a modern success story and How toxoplasmosis becomes coccidiosis and incorporates sarcosporidiosis.

Professor R. G. Thomson, Pathology, presented a paper on Pathology and pathogenesis of the common diseases of the respiratory tract of cattle at a symposium on respiratory tract disease of cattle in Saskatoon.

Professor G. F. Townsend, **Professor P. W. Burke** and **Professor M. V. Smith**, Environmental Biology, attended the meetings of the Canadian Association of Apiculturists and the Canadian Honey Council in Toronto.

Professor J. B. Derbyshire, Veterinary Microbiology and Immunology, presented a paper on viral pollution hazards of animal wastes at a symposium on viruses in the environment and their potential hazards at the Canada Centre for Inland Waters at Burlington. He also gave a paper entitled Detection of transmissible gastroenteritis (TGE) viral antigens by immunodiffusion, co-authored by Dr. J. Bohac, at the 54th annual meeting of the Conference of Research Workers in Animal Disease in Chicago, and acted as chairman of one of the sessions on virology at this meeting.

Professor J.W. Tanner, **Professor R.B. Hunter**, **Visiting Professor D. Byth**, and **research scientist Dr. J. Criswell**, Crop Science, attended the recent meetings of the American Society of Agronomy in Las Vegas, Nevada.

Professor C. L. Gyles, **Professor D. G. Ingram**, **Professor G. Papp-Vid**, and **Professor I. R. Tizard**, Veterinary Microbiology and Immunology, attended the meeting of the Canadian Public Health Association laboratory division in Toronto and presented papers.

Professor J. C. Alexander, Nutrition, was a guest recently on Information Hour — CKCO-TV, Kitchener. He discussed the facts revealed by the Nutrition Canada Survey national summary which is now available.

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Leask, W. C. and T. B. Daynard, 1973. Effects of per cent moisture and compaction pressure on the ensiling of corn stover in laboratory silos. *Can. J. Plant Sci.* 53: 523-533. (Crop Science)

Twamley, B.E., 1973. An undergraduate seminar course in Crop Science. *J. Agron. Ed.* 2: 16-18. (Crop Science)

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Stresses need for advisory buffer

President Winegard made a plea for the continuing independence of the universities of Ontario when he gave the convocation address at the University of Toronto Friday night. The president was at his alma mater receiving an honorary LL.D. for his contributions to metallurgical engineering.

President Winegard told the recipients of graduate degrees that our university system has responded to the pressures of immense growth in the last 15 years better than any system in the world, "because of our sense of responsibility and our independence of action as single institutions and as a co-operative system."

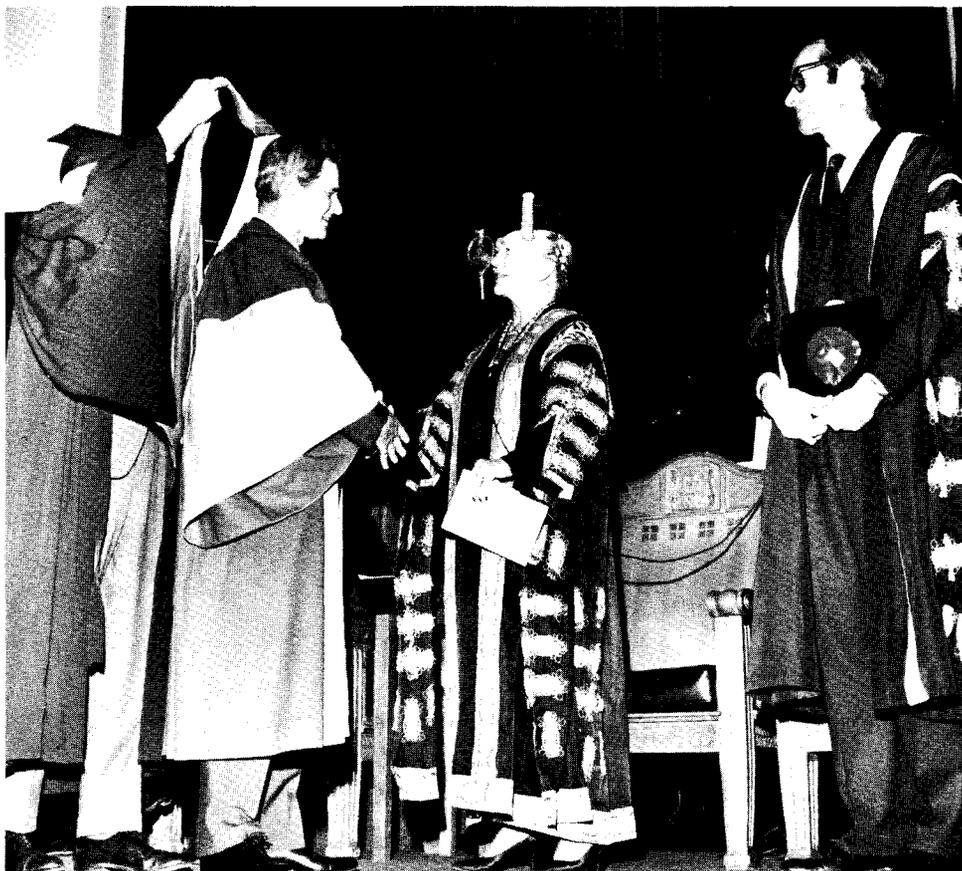
In the next few weeks the Ontario government will decide the relationship of the Ministry of Colleges and Universities to the individual universities of Ontario. As the chairman of the Council of Ontario Universities, President Winegard urged the government to replace the present advisory buffer between ministry and universities (the CUA - Committee on University Affairs) with an independent committee. A committee of this type, as was recommended in the report of the Committee on Post Secondary Education, would be independent of both ministry and universities, although appointed by the minister.

The president warned against a return to the old Ontario system where the university reports directly to the ministry for funding, a situation conducive to salesmanship and political influence. He stressed that in any system "the government and no one else decides the total amount of money available . . . that must be so because it is a political decision."

President Winegard said "the uncertain future enrolment pattern is a springboard for pressure on the ministry, pressure to allow funding for a new program in one place while denying funding some place else, pressure to consider efficiency as more important than education."

Quoting from the COPSE report, he said, "there must be accountability, but this accountability should take its own special form for the same reasons that a democratic society protects the freedom of the press and the independence of the judiciary." In conclusion the president said that if he had in any way influenced the cabinet, he had done more in one night to earn his LL.D. than anything he has done before.

In presenting W. C. Winegard to the chancellor for admission to the degree of Doctor of Laws, honoris causa, Professor J. M. Ham said, "As a person he is the living denial of that proverbial image of the engineer as a technocrat . . . his rapport with students and colleagues has been sustained from a base of independent judgement through a readiness to share problems and experiences . . . I am told that as president one of his few failures has been to retain a seat on a bull at the aggie fair."



Chancellor Pauline McGibbon congratulates W. C. Winegard as he received the honorary LL.D. University of Toronto president J. R. Evans is on the right.

FACULTY ACTIVITIES

Professor J. D. Bandeen, Crop Science, attended the national executive meeting of the Canada Weed Committee in Calgary.

Professor E. A. Cebotarev, Department of Sociology and Anthropology, recently attended a one day meeting of the Rural Sociological Society Development Committee.

Professor Edward Herold and Professor Kathryn Kopf, Family Studies, and former graduate student **Maria De Carlo** recently presented a paper on the topic of family life education in the secondary schools of Wellington county: student perspectives, at the annual meeting of the Ontario Educational Research Council in Toronto.

Professor Norman A. Fish, Veterinary Microbiology and Immunology, was an invited participant at the 15th annual Food Hygiene Symposium for teachers of food hygiene in Colleges of Veterinary Medicine in the United States and Canada, sponsored by the Animal and Plant Health Inspection Service, United States Department of Agriculture and held in Roseville, Minnesota. Professor Fish conducted a session on the teaching of food hygiene in veterinary medicine.

Professor John T. Powell, Human Kinetics, presented three papers at two meetings in Chicago this past week at University of Illinois at Chicago Circle and to Sears Sports Advisory Council. The topics were: executive fitness, the parameters of physical fitness and survival - a program K through 12. He also showed the 25-minute film he has just completed with the help of Audio-Visual Services, entitled Olympia.

PUBLICATIONS

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Schreibman, M.P., J. F. Leatherland and B. A. McKeown, 1973. Functional morphology of the teleost pituitary gland. *Amer. Zool. 13*: 719-742. (Zoology)



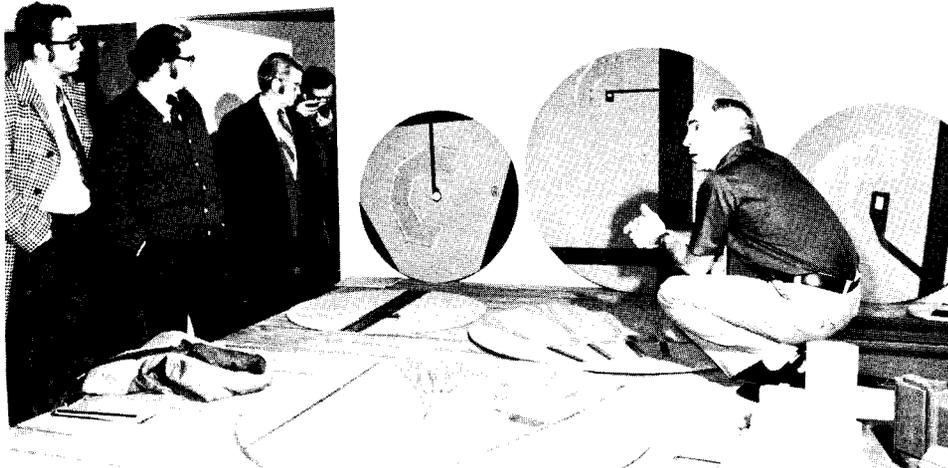
Ross Rowat of CIAG presents a cheque for \$1,000 to Dean Switzer for the OAC centennial fund while Guelph division chairman William Hamilton, left, and Bob Scammel, CIAG, look on. Collections for the fund have been started under the theme "S100,000 in 100 days." The Guelph division has already collected more than half of its \$20,000 objective.

OAC Centennial fund

The Ontario Agricultural College Centennial Fund drew another step nearer its \$100,000 objective recently when the Co-operators Insurance Association of Guelph presented a cheque for \$1,000. The fund has been set up to finance celebrations for the OAC's centennial.

The cheque was presented to Dean Clayton Switzer of the OAC by Ross Rowat, underwriting manager for CIAG and a graduate of the college. Also present was William Hamilton, chairman of the fund's Guelph division and a member of the University's board of governors.

Some of the money from the fund will be earmarked for self-sustaining centennial scholarships. The fund will also finance nine lectures on agriculture in the next 100 years, a two-day symposium on agriculture in a whirlpool of change, a series of historical displays, films and projects, and the July 6 — 13 centennial festival week, which will be the highlight of the year's activities.



Professor Frank Theakston with some of the models used in his snow and wind research. One hundred visiting geography teachers toured the snow and wind exhibits during a visit to the School of Engineering.

CAMPUS BRIEFS

Job recruitment dates

Upcoming dates for job recruitment follow: December 31 — Sainte-Marie among the Hurons and the Royal Navy and Military establishments at Penetanguishene, application deadline for prescreening (summer employment); January 7, 8, 9 — Canada Packers (packing house and Shurgain divisions); January 10 — General Motors of Canada Limited, application deadline for prescreening; January 10 — Union gas, application deadline for prescreening; January 15 — Agriculture Canada (poultry division), application deadline for prescreening; January 15 — Jasper Park Lodge, Alberta, application deadline for prescreening (summer); January 16 — Ford Motor Company of Canada Limited; January 17 — Oxford Farm Silo; January 17 — Ste. Marie among the Hurons, for students selected from prescreening (summer); January 18 — Ministry of Agriculture and Food; Saga Canadian Management Services Limited. For further information contact Career Planning and Placement, Johnston Hall 160.



Animal and poultry science professor J. Buchanan-Smith, right, talks with Dr. D. G. Armstrong, professor and head of Agricultural Biochemistry at the University of Newcastle in England. Dr. Armstrong presented a seminar on protein digestion in ruminants to the Department of Animal and Poultry Science.

Children's swimming

Registration for children's swimming classes will be Saturday, January 5, from 10 a.m. until noon only. Classes will be held Saturdays from noon until 1 p.m. and from 1 p.m. — 2 p.m. for learn to swim and juniors. Intermediate and senior classes will be Saturdays from 2 p.m. — 3 p.m. only. Parent and pre-school classes will be on Wednesdays, Thursdays and Fridays from 3 p.m. — 4 p.m. Saturday classes begin January 12 and pre-school classes the following week. Registration fee is \$10 for child. The classes which run for 10 weeks are open to children of faculty, staff and students.

Flying club

The flying club's first meeting for the winter semester will be on Monday, January 7 at 7:30 p.m. in Physical Science 113. A ground school will run for 11 weeks beginning January 14 at 7 p.m. in Arts 235. Anyone interested write to the flying club at Drew Hall.

University centre

W. A. Brown, director of Physical Resources expects the public areas and the student offices in the new University Centre to be ready by the beginning of the fall semester. Because of delays in construction of the building frame and in delivery of materials, the upper three levels housing the administration are not expected to be finished until later next fall. The first three levels house a meeting area that will seat 1,000 people, commercial facilities, lounges, restaurants, student government offices and the pub.

Ski schools

Faculty and staff alpine ski school will operate again this winter. Registration will be at the first get-together on Monday, December 17, 1973 at 8 p.m. in Human Kinetics 207. Professor Sass Peepre will discuss the program, equipment and show a movie. With the new, improved campus ski hill and lifts, plus plenty of snow (expected) the season is promising. A Nordic cross country ski school with many outings organized will be started once the snow has arrived. Watch for further announcements in the Bulletin.

International Christmas

Don Amichand, international students' advisor, is looking for families who would like to take one or more students into their homes for Christmas dinner. Fifty students, international and Canadian, who have no place to go on Christmas, will be spending five days on campus celebrating an international Christmas. The students, mostly from southern Ontario, but with several from the Maritimes, will stay at International House, Watson Hall. Students and members of the university are invited to join the group from International House in skating, tobogganing and a trip to the Mennonite area, as well as for other Christmas activities. Anyone wishing to play host to students or join in the International Christmas activities, contact Don Amichand at Ext. 3953.

Agricultural conference

One of the first events of 1974 OAC centennial will start January 2 — an agricultural conference on farms and farmers in the years ahead. The three day conference will look at agriculture in the future, pesticides and the environment, consumerism and the cost of food. Thursday, January 3 is the poultry industry school for 1974. The conference is sponsored by OAC and OMAF. Further information is available from Professor W. S. Young, co-ordinator of agricultural extension.

Madrigal singers

The Madrigal Singers Christmas concert will be Wednesday, December 19 at 8:30 p.m. at Harcourt United Church. New conductor Nickolaus Kaethler says the concert will include music by Willan and Joubert, two Spanish carols, and three motets — one each by Praetorius, Schutz and Bach. The Madrigal Singers will be assisted by the Meistersingers and a brass ensemble from Centennial Collegiate. James Bard will accompany the choir on the harpsichord. Tickets are available at Central Box Office.

Phone books ready

The new campus telephone directory is ready. Copies may be picked up at the office of switchboard, Johnston Hall 17.

Students in centennial show

Seven University of Guelph Drama students have been acting on location in Georgetown in the forthcoming C.B.C. television production commemorating the centennial of OAC. The actors, who have been playing the arrival at the Stone farm of the first OAC students, are drawn from an advanced course taught by Rex Buckle, which also includes an introduction to the problems of television acting. Mr. Buckle has been co-ordinating the work of the students in the production in collaboration with the C.B.C. director and producer.

Parking permits

Parking permits must be renewed before the end of the month. Anyone not eligible for payroll deductions should apply in person at the parking office, Johnston Hall 11. Fee for the year is \$42, payable when the permit is picked up or in three cheques of \$14, dated December, May 1 and September 1.

Canada-Britain scholarship

A scholarship worth \$3,500 in the humanities and social sciences is available for a student to study for one year at Oxford, Cambridge, London or another university suitable to the field. The scholarship, available for 1974-75, is provided by the Canada-Britain Scholarship Foundation. Application forms are available in the graduate studies office, and must be submitted by January 15.

Educational disabilities

The Center for Educational Disabilities is starting a remedial program for children and parents. The program is to help children who are having problems at school which may have been caused by a handicap, frequent changes of school in the early years or a social environment not conducive to study or abstract thinking. By teaching parents how to work with their children at learning games, the program aims to deal with the child's sense of failure. Parents play the learning games with their children under the guidance of a trained staff member; after some training the parents can carry on at home, renting the games the child will need by the week. In cases where neither parent can attend, a family friend or another family member may carry out the program. Private tutoring is also available from the center. Further information is available from Mrs. Pat Korte, Ext. 3773.

Energy crisis

The worldwide fuel situation has more ramifications on campus than the conservation of heat and light. Housekeeping head K. W. Schlee says that plastic garbage bags have increased in cost, and may soon be unavailable, another casualty of the energy crisis. The housekeeping staff will re-use all intact plastic bags for wet garbage. However, waste baskets in offices, classrooms and lounges, considered "dry" garbage will no longer have plastic liners. Mr. Schlee asks departments purchasing plastic bags from the physical resources store to do so only when absolutely necessary. Housekeeping hopes to find a method of eliminating the use of plastic bags even for wet garbage in the future. All members of the university community have also received a letter from the president asking for conservation of fuel (by keeping thermostats between 68 and 70 in the day and 63-65 in non-business hours), and lights.

NEXT WEEK AT GUELPH

THURSDAY, DECEMBER 13

T.V. — SPOTLIGHT ON UNIVERSITY OF GUELPH. Cable 8 at 6:15 p.m.
Radio — HEIDELBERG HI-LITES, University of Guelph news program. CJOY 1460, 6:20 p.m. Monday — Friday.

FRIDAY, DECEMBER 14

Worship — MUSLIM JUMA PRAYER, 12:30 p.m. Arts 312.
T. V. — SPOTLIGHT ON UNIVERSITY OF GUELPH, Cable 8 at 5 p.m.

SATURDAY, DECEMBER 15

Examinations — CONCLUDE
Worship — MUSLIM ZUHR PRAYER, 1 p.m. 9th floor lounge, Arts.

SUNDAY, DECEMBER 16

Worship — PUJA, sponsored by the Hindu Cultural Society, 11 a.m. 8th floor lounge, Arts.

TUESDAY, DECEMBER 18

Dinner — FACULTY CLUB ANNUAL CHRISTMAS DINNER. 12 noon and 1 p.m. sittings. Full Christmas dinner at \$3. Small dining rooms fully booked.
Meeting — FELLOWSHIP GROUP. 8 p.m. Arts 306.
Meeting — INDIAN WEEK, Arts 107, all evening today and tomorrow, Wednesday, December 19.
Seminar — MINIMAL EVOLUTIONARY TREES, Dr. N. F. Stewart, U. of Montreal, Computer Science 116.

THURSDAY, DECEMBER 20

Job recruitment — BELL CANADA, application deadline for prescreening for summer and permanent positions. Contact Career Planning and Placement. See page 6 for other recruitment dates.

KEEP THESE DATES

December 23 — INTERNATIONAL CHRISTMAS. Contact: Don Amichand.

McLaughlin library hours

Friday, December 21	8:00 a.m. — 5:00 p.m.
Saturday and Sunday, December 22, 23	1:00 p.m. — 5:00 p.m.
Monday, December 24 — Wednesday, December 26	CLOSED
Thursday and Friday, December 27, 28	8:00 a.m. — 5:00 p.m.
Saturday, December 29	1:00 p.m. — 5:00 p.m.
Sunday, December 30 — Tuesday, January 1	CLOSED

Between semester hours resume Wednesday, January 2, 1974 (8:00 a.m. — 9:00 p.m.)

Saturday — 9:00 a.m. — 9:00 p.m.
 Sunday — 1:00 p.m. — 9:00 p.m.

Regular semester hours resume Monday, January 7, 1974.

The News Bulletin is published every Thursday by the University of Guelph's Department of Information. News items must reach the Information Office, Room 361, McLaughlin Library, in writing by noon Friday. Articles and news items may be quoted or reproduced in full.

**NEWS
BULLETIN**

UNIVERSITY OF GUELPH

Holiday food services

Cafeteria	Final day of operation	Time
Macdonald Hall	Wednesday, December 12	7 p.m.
Lennox-Addington Snack Bar	Thursday, December 13	11 p.m.
Ottawa	Thursday, December 13	7 p.m.
Creelman	Friday, December 14	7 p.m.
Orangeville	Friday, December 14	7 p.m.
Midland	Saturday, December 15	3 p.m.

Der Keller Tavern

Will close after December 22, 1973
 re-open on December 27
 close after December 29 and
 re-open on January 1, 1974 (7:00 p.m. 'till 11:00 p.m.)

Opening days for the winter semester:

Cafeteria	Date	Hours
Creelman	January 2, 1974	7:00 a.m. — 7:00 p.m.
Midland	January 2, 1974	9:00 a.m. — 11:00 p.m.
Orangeville	January 2, 1974	7:00 a.m. — 7:00 p.m.
Lennox-Addington	January 7, 1974	4:00 p.m. — 11:00 p.m.
Ottawa	January 7, 1974	11:00 a.m. — 7:00 p.m.

JOB OPPORTUNITIES

New Listing as of December 7, 1973.

Electrician, Maintenance Department. *Correction. Qualified — Starting rate: \$4.26. 3 month job rate: \$4.73. Unlicensed — 90% of trades rates.
Library Assistant, Circulation, Library. Salary grade 2. Salary range: \$85 — \$112.
Technician II, Family Studies. Salary grade 6. Salary range: \$123 — \$163.
Senior Cooks, Food Services. Salary range: \$3.49 — \$4.65.
Sessional Lecturer or Instructor to teach one or two introductory computing courses. FORTRAN essential, COBOL/PLI useful. Contractually limited appointment, January to April 1974. Apply to Dr. C. K. Capstick, Department of Computing and Information Science, College of Physical Science.

For further information please see Bulletin Boards or call Extension 3058 or 3059.



It's not a greenhouse, but it all started with a tree. When a tree died between Arts and the library, Physical Resources replaced it with several more, disturbing the brick pedestrian spine. The bricks had to be laid in asphalt at a temperature above freezing — hence the shelter.

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