

Test spray for spruce budworm control

"They say it takes a million dollars to get a new product on the market, after you've done all the safety testing," says University of Guelph pathologist V.E. Valli. Prof. Valli is working with the Insect Pathology Research Institute, safety testing a live viral spray which hopefully will control outbreaks of the spruce budworm population.

The spruce budworm is an innocent looking caterpillar which is held responsible for turning many acres of beautiful New England forest into desolate areas of bare trees. In Canada, the problem is most severe in Northeastern Quebec and the maritimes, with estimates as high as 400 square miles of dead forest in the maritime provinces.

The Ontario Ministry of the Environment reports some damage in northern Ontario, including Algonquin Park.

Some environmental biologists say it takes 10,000 worms to kill a large spruce tree. The larvae burrow into the buds, killing all new growth. A spruce tree forms new needles yearly which last for three or four years, so it takes several years for severe damage to show up.

One of the worm's natural enemies is a parasitic virus. In some years, however, the worm gets ahead of the virus causing severe outbreaks or hot spots of damage. The increased worm population may kill an entire section of forest. It will grow back in 100 to 200 years. In the past, people have just accepted this natural cycle, says Prof. Valli, but we don't have to.

Chemical insecticides have been tried. Some were moderately successful in controlling the spruce budworm, says Prof. Valli, but they also kill off-target insects and are hard on the environment leaving a hydrocarbon build-up in the soil and waterways.

The Insect Pathology Research Institute at Sault Ste. Marie has taken a different approach, using the natural parasite virus to control the worm population. This work is under the direction of the doctors Tom Angus, John Cunningham, and Basil Arif.

"My job is to determine if the virus is hazardous to species other than the spruce budworm," explains Prof. Valli. Safety tests have been under way since 1974 involving rabbits, rats, ducks, and Japanese quail. Fish are currently under study. Our format is to

give as much virus to the animal as would happen if a man got all the virus sprayed on 20 acres," says Prof. Valli. So far there has been no evidence of infection, in birds or in animals. Maybe the testing has already been done for us, suggests Prof. Valli. The virus has existed in nature for millions of years and the spruce budworm is apparently the only thing it will grow on. Therefore, it appears to be a biologically safe means of control. "I think we have very well characterized the safety of it," believes Prof. Valli.

Spruce budworms are grown in the laboratory, infected with the virus, dried, ground to a powder which is then mixed with water to form a spray. Spraying is a matter of timing, reports Prof. Valli. It must be done as the tree forms buds, in the early hours of the morning when there is a down draft. The spray usually includes a carrying agent such as heavy oil or molasses. This holds it on the tree and protects the virus from sunlight.

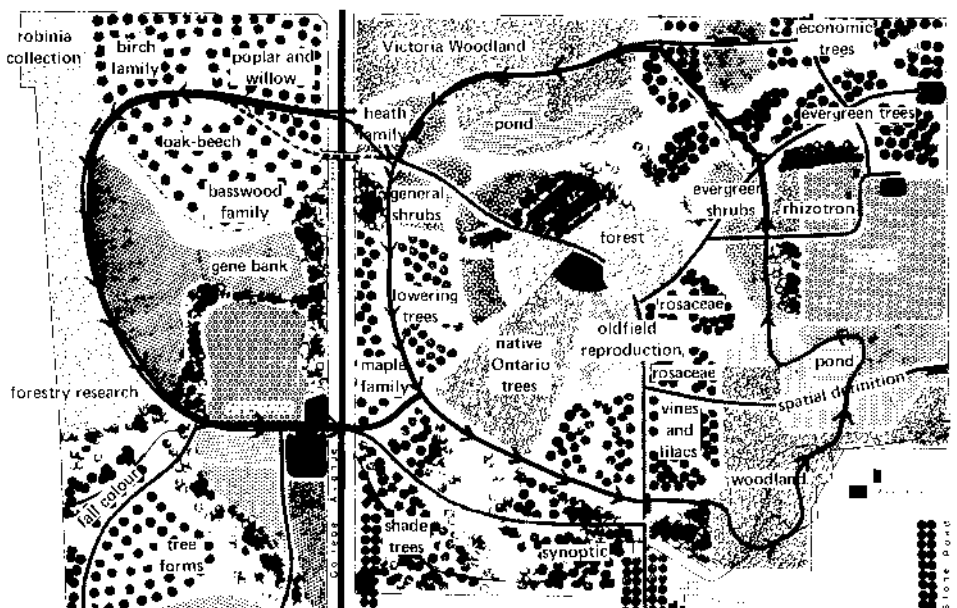
The spray is not yet licensed by the Food and Drug Administration. Prof. Valli predicts this will come in a year or two when safety

testing is completed. He adds, however, he would like to see a temporary licence issued so the spray could be tried in extensive field tests for a few years to see if it is commercially and biologically feasible.

The technical problems have largely been solved, says Prof. Valli. It's matter of society's deciding it wants to spend money to save trees and then picking a method to do it.

Budworm Fact Sheet:

Although the spruce budworm is primarily a forest insect, large flights of the moths have invaded many suburban areas in the past few years, causing injury to fir and larch trees as well as spruce. The Ontario Ministry of the Environment has published a fact sheet describing the damage in suburban areas and including a list of chemical treatments endorsed by the Ontario Pesticides Advisory Committee. To obtain a copy, write to the Ontario Ministry of the Environment, Cambridge District Office, Box 219, 400 Clyde Road, Cambridge, and ask for FACTS about pesticides number 20-02-07. □



Spring's warm sunshine beckons us to the outdoors now. Try walking the trail at the Arboretum Centre. It's a lovely little noon hour walk and Arboretum Centre director, Prof. R.J. Hilton, says the area is drying nicely. Just follow the arrows on this map.

PUBLICATIONS

Alyea, E.C., A. Costin, G. Ferguson, G.T. Fey, R.G. Goel, and R.J. Restivo, 1975. *The synthesis, crystal and molecular structure of tris-(t-butyl) phosphonium tribromo-tris-(t-butyl) phosphinenickelate(11), j (t-C₄H₉13PH.1 (t-C₄H₉)₃PNiBr₃1; A paramagnetic nickel (II) complex of tris-(t-butyl)-phosphine*. J.Chem. Soc. Dalton, 1294-1298, (Chemistry).

Brisson, J.D. and R.L. Peterson, 1976. *A critical review of the use of scanning electron microscopy in the study of the seed coat*. Scanning Electron Microscopy/ ITR I Vol. II: 477-495. (Department of Botany and Genetics).

Dorter, Kenneth, 1976. *Socrates on life, death, and suicide*. Laval Theologique et Philosophique, Vol. 32, no. 1, February, pp. 23-44, (Philosophy).

Ferguson, G., W.C. Marsh, R.J. Restivo and D. Lloyd, 1975. *Conformation studies of 1, 2-diacetyl-4-nitrocyclopentadienes; delocalized systems with very short intramolecular O...H...O hydrogen bonds. The crystal and molecular structures of 1, 2-diacetyl- and 1, 2-dibenzoyl-4-nitrocyclopentadiene*. J. Chem. Soc. Perkin (II), 999-1004, (Chemistry).

Ferguson, G., R.G. Goel and D.R. Ridley, 1975. *The stereochemistry of some organic derivatives of group Vb elements, part V1. The crystal and molecular structure of Bis(Isocyanato) tri-phenylantimony, (C₆H₅)₃Sb(NC₀)₂*. J. Chem. Soc. Dalton, 1288-1290, (Chemistry).

Ferguson, G., D.F. Rendle, 1975. *The stereochemistry of some organic derivatives of group Vb elements part IV. The crystal and molecular structure of tri-phenylarsonium- 2-acetyl-3, 4, 5-triphenylcyclopentadienylide*. J. Chem. Soc. Dalton, 1284-1288. (Chemistry).

Ho, K.M. and K.J. Kasha, 1975. *Genetic control of chromosome elimination during haploid formation in barley*. Genetics, 81:263-275, (Crop Science).

Kelly, K., 1976. *The artificial drainage of /and in nineteenth century southern Ontario*. The Canadian Geographer, Volume 19, Number 4, 279-298. (Geography).

Kelly, K., 1976. *The transfer of British ideas to nineteenth century Ontario in Osborne (ed.) The settlement of Canada: origins and transfer*, Queen's University; pgs. 70-94. Proceedings of the British-Canadian Symposium on Historical Geography. (Geography).

Kigatiira, I.K., 1974. *Hive designs for beekeeping in Kenya*. Proc. Ent. Soc. Ont. 105: 118-128. (Environmental Biology).

Moore, G.A.B., 1975. *The evaluation of a media resource-based learning project and its modification of traditional classroom procedures*. Educational Media International, No. 4, 18-20. (Audio Visual Services and Extension Education).

Ormrod, D. P., and D.J. Ballantyne, 1976. *Chlorflurenol increases beanching of evergreen azaleas (rhododendron cv)*. Die Naturwissenschaften 92:63. (Department of Horticultural Science).

Powell, John T., 1976. Chapter on *Training-environment*, Vol. II, Encyclopaedia of Physical Education, AAHPER USA. (Human Kinetics).

Powell, John T, 1976. Five chapters on *Research in track and field athletics*, Vol. III, Encyclopaedia of Physical Education, AAHPER — USA. (Human Kinetics).

Raeseide, J.I., 1976. *Dehydroepiandrosterone in the fetal gonads of the horse*. J. Reprod. Fert. 46: 423-425, (Biomedical Sciences).

Simmons, Robert, 1975. *The strained alliance*, published a year ago by McMillan-Free Press, has been issued in a Japanese edition by Korea Hyoron Sha, Ltd. (Political Studies).

Smith, M.V., 1974. *Relationship of age to brood-rearing activities of worker honey bees, Apis mellifera L.* Proc. Ent. Soc. Ont. 105: 128-132. (Environmental Biology).

Subrahmanyam, N.C. and K.H. Kasha, 1975. *Chromosome doubling of barley haploids by nitrous oxide and colchicine treatments*. Can. J. Genetic. Cytol. 17:573-583, (Crop Science).



Mrs. Margaret Beckman, Chief Librarian, receives copies of the HELPS Media catalogue from Professor G.A.B. Moore, director, Office of Audio Visual Services. The HELPS project (Higher Education Learning Program Survey) directed by Prof. Moore, was a co-operative undertaking by the media directors of Ontario universities and contains for the first time a catalogue of all instructional media programs produced within the Ontario universities and available for exchange. Work on the project was done at the Media Centre, University of Toronto, and Office of Audio Visual Services, University of Guelph. The funding for the project was provided by the Media Research Division, National Film Board of Canada. Copies of the catalogue are available from R.H. Ellis, Ext. 3106. One copy will be provided upon request at no charge to each academic department. Additional copies will be available at the cost of printing.

FACULTY ACTIVITIES

Professor Margret Andersen, Languages, participated in a Canada-wide, satellite-televised French program, organized recently by Radio Canada, to discuss Values for the next generation.

Professor N.D. Ayers, School of Engineering, attended a meeting of the Ontario Agricultural Services Co-ordinating Committee in Toronto recently.

Professors F.A. Dahms, K. Kelly and **W.E. Te Brake** Geography, attended the annual meeting of the Ontario Historical Geographers Association at McMaster University recently. Prof. Dahms presented a paper entitled Some factors affecting settlement patterns in the Guelph area: 1827-1970.

Professor V.J. Matthews, Languages, recently gave an invited lecture entitled Ancient Olympia: The place and the games, at Wilfrid Laurier University. The lecture was the last of a series on archaeological topics presented by Wilfrid Laurier University.

Professor J.A. Neill, Psychology, and co-ordinator, Senate Committee on Teaching and Learning, attended the 31st National Conference on Higher Education, in Chicago. The theme of the conference was Equality.

Professor I.L. Nonnecke, Horticultural Science, spoke at the 14th Carrot Researchers Workshop, Department of Vegetable Crops, University of California, El Centro, California. His topic was Rusty root disorder. Prof. Nonnecke represented Canada and the northeast in the panel discussion on the state of the industry in North America.

Professor Joan Simon, Department of Consumer Studies, participated in a seminar on housing alternatives put on by The Ontario Federation of Labour at Niagara-on-the-Lake. Mrs. Simon spoke on Planned unit developments as a way of increasing density and user satisfaction.

Professor J.B. Sprague, Zoology, gave requested testimony on protection of natural waters recently, for the Mackenzie Valley Pipeline Inquiry, in Yellowknife.

Fred Stoltzfus, baritone, and Ruth Stoltzfus, piano, Department of Music, recently performed with Stephen Green, cellist, in the Hamilton Philharmonic, on the noon hour concert series at Trent University, Peterborough.

Professor F. Theakston, School of Engineering, was special guest speaker at the American Railway Engineer's Association annual Conference held in Palmer House, Chicago, recently.

Professor Elizabeth Waterston, English, was a speaker in a symposium on Canadian writing convened at Trent University in honour of Gordon Roper. Her topic was Canadian best sellers: A look at David Walker.

Professor Lari M. Wester, School of Landscape Architecture, gave a slide lecture to the first year students in the landscape architecture technology program at the Ryerson Institute of Technology, Toronto. His lecture was entitled Message organization in graphic communications. Prof. Wester was accompanied by Professor Robert A. Scarfo and second-year landscape architecture students, Tom Kopf, Linda Chu and Juris Berzins.

Professor M. Zerner, Chemistry, was invited speaker at Case Western Reserve University, Cleveland, where he presented a lecture entitled A new look at some old chemical bonding schemes.

CAMPUS BRIEFS

Student grades distribution on pick-up basis

Academic review committees are scheduled to meet up to Tuesday, April 27, and consequently the Office of the Registrar will not be able to use the mail system to distribute student grades for the winter semester prior to registration Friday, April 30.

The following method of distribution will be implemented so students who are contemplating attendance during the spring semester can review their academic standing before registration:

Examination reports for the winter semester may be picked up in person at Rooms 444 and 445, University Centre, from 12:00 noon to 4:30 p.m., Wednesday, April 28, and from 8:45 a.m. to 4:30 p.m., Thursday, April 29, and Friday, April 30. Examination reports which have not been picked up by 4:45 p.m. April 30 will be placed in the mail for regular distribution.

Examination reports will be released only upon presentation of a University of Guelph card. Students who have been placed on academic sanction must clear their accounts at the Office of the Bursar before the report will be released.

New switchboard hours

In an effort to reduce the cost of telephone service to the University, new switchboard hours have been implemented. The cost of telephone service to the University has been increasing, according to Administrative Services, amounting to about \$600,000 per year. As of April 19, the University switchboard will be open only between 8 a.m. and 10 p.m. daily, Mondays to Saturdays. It will be closed on Sundays and holidays, and between 10 p.m. and 8 a.m. daily. Special arrangements are being provided to deal with emergency calls, or calls of an urgent nature, when the switchboard is closed. Night-answering equipment has been installed in the communications centre in the police building to receive emergency calls and to alert the appropriate service agency. Similarly, urgent incoming calls will be redirected to the appropriate department on campus. If you wish assistance when the switchboard is closed, please call 824-4120. The new service will also cover the normal telemetry alarms and be responsive to emergency elevator telephone calls. Circuits have been diverted to the communications centre in the police building, and alarm "light" panels have been installed to permit continuous monitoring of these essential services.

Remote sensing course

The registration form and program for the remote sensing short course May 3, 4 and 5 at the University of Toronto are now available from Professor Stanley Collins, School of Engineering. Call Ext. 3048 for further information.

Summer accommodation

Summer accommodation from May 1 to August 15, will be available in Maids Hall to anyone requiring short term accommodation on campus and who is not an in-semester student. For further information please contact Mrs. Marg Morrell, Conference Office, Room 137, Lambton Hall, Ext. 2638.

English riding lessons

English riding lessons are offered this spring semester by the University of Guelph Horsemen Society. Apply to Cedric Nathan, 3273 or 822-2624 after 6 p.m.; Shirley Traggano, 822-2357 or Nora Lee, 822-4075. You may also sign up at Room 234, University Centre.

OSAP applications

For those students who have applied for OSAP this year, pre-printed 76-77 applications will be mailed to your local on-campus post office box this week. Those students who did not apply this year and wish to apply next year, are requested to leave their name and summer mailing address at the student awards section, Office of the Registrar, as blank applications will not be available until mid-April. Please note that it takes a minimum of two months to process applications and therefore fall applications should be submitted prior to July 1. Spring applications are made on the current form and should be submitted immediately.

Computer overload

For the first time since 1971, when the Institute of Computer Science acquired the present computer system, ICS has a serious overload situation. Work has been turned away in order to realign priorities and to allow some of the critical jobs, such as payroll, to be processed. The peak in the workload occurs annually at this time, hence, ICS expected the peak but did not expect to be swamped. All areas of the university are presently affected: undergraduate, research and administrative work. ICS will, as it has in the last few days, turn off services when necessary so that the processor can catch up. Extra shifts will be scheduled on the weekends until the peak passes at the end of this month.

Quilt won

The Canadian Crossroads International hand-made Canadian will rose quilt was won by Mrs. Sandilands of R.R. No. 1, Caledon. Mrs. Sandilands son, a second semester arts student at Guelph will deliver the quilt to his mother this week. The winning ticket was sold to Mrs. Sandilands by former Crossroader Susan Hancock, who was in Zambia. Susan is a childcare worker at the Willowdale municipal daycare centre in Guelph. Canadian Crossroads International fund-raising activities continued with a craft sale April 3, and an appeal for personal donations. A slave day will be held April 24. Volunteers will help with household chores, gardening, etc. Funds from the slave day will help send Pam Dalseg to Sri Lanka, Kathy Sutherland to Zambia, and Stephanie Merrin to India. If you have any chores you would like some help with please contact Ian White, Ext. 2213, or Diane Goodwillie, Ext. 3953.

APPOINTMENT



Z.I. (Zak) Sabry has been appointed professor in the Department of Family Studies. The appointment is to take effect July 1. Professor Sabry, is well known in Canada for his work from 1970 to 1974 as national coordinator of Nutrition Canada. He is also president of Nutrition Research Consultants Ltd. of Toronto.

Prof. Sabry is not new to the university area, having served on the faculty of the food technology division of the American University of Beirut, Lebanon from 1957 to 1961 and again from 1962 to 1964 and on

the faculty of the nutrition department in the University of Toronto's school of hygiene from 1964 to 1972. He has also been involved with food and nutritional research on an international level, having served as consultant to the UNICEF/WHO/FAO protein advisory group and a member of the FAO expert group on food composition in Africa. Nationally, Prof. Sabry was a member of the Canadian Council on Nutrition and is presently a member of the nutrition committee of the Canadian Pediatric Society. In 1974-1975 he served on the Ontario Council of Health's task force on nutrition and dietetic services.

The author of some 50 scientific publications, Prof. Sabry holds a B.Sc. in food technology from Ain Shamse University in Cairo, Egypt; an M.Sc. in food technology from the University of Massachusetts, and a Ph.D. in biochemistry from Pennsylvania State University.

CAMPUS BRIEFS

Cafeteria schedule

Most campus cafeterias will be closing at the end of this semester and reopening at a later date. No meal cards will be honored after April 29. Creelman closes May 3, but will be open each day from April 11 to May 2, including Easter and Good Friday. Reopening time for Creelman is to be announced. Der Keller, including the bar, closes April 15 and reopens May 3. Lennox-Addington and Maritime both close April 15 and reopen in the fall. Mountain closes April 13 and reopens in the fall. Prairie closes April 17 (7 a.m. to 1:10 p.m.) and reopens April 30. At the University Centre, the Whippetree closes April 15 and reopens April 19. Lunches only will be served Monday to Friday, April 19 to April 23 and April 26 to April 30. The Petit Marche closes April 15 and reopens May 3, except for April 30 when it is open from 11 a.m. to 2 p.m. The Glacier closes April 15 and reopens May 3. The Burger Shop closes April 15 and reopens April 19 to April 23 and April 26 to April 30. The Burger shop is open from 11 a.m. to 5 p.m. The 4/20 Pastry Shop closes April 15. It is open April 16 to April 23 and April 26 to April 30 from 8 a.m. to 2 p.m. Sandwich Shop closes April 15 and reopens in the fall. The Hot Plate closes April 13 and reopens in the fall. Effective May 3

Der Keller will open seven days a week from 7 a.m., to 6:30 p.m., for food services. The bar is open Monday to Saturday, 12 noon to 2 p.m., and 4 p.m. to 6:30 p.m. As of May 1, the Prairie dining hall will be open Monday to Friday from 7 a.m. to 6:30 p.m., and on the weekend from 11 a.m., to 6:30 p.m.

Prairie Snacks is open Monday to Friday from 7 p.m., to 9 p.m. At the University Centre, Le Petit Marche is open Monday to Friday from 11 a.m. to 6 p.m., Burger Shop Monday to Friday, 8 a.m., to 7 p.m., and Glacier, Monday to Friday, 11 a.m. to 6 p.m., The Whippetree is open for lunch only Monday to Friday, 11:45 a.m., to 2 p.m. All other units will be closed except for when they are required for visiting groups or special functions. Meal contracts are accepted only in Prairie dining hall during the spring semester.

Cansave party

A Canadian Save the Children Fund wine and cheese party will be held Tuesday, April 13, 6:30 to 9 p.m., at the Amber Cupola. For further information call convenor, Jeannie Arnott, 824-5049.

Vocal competition

An impressive international panel of judges has been announced by the Edward Johnson Music Foundation for the 1977 national vocal competition. The judges are The Earl of Harewood, managing director of the English National Opera; Rose Bampton, former Metropolitan Opera star and in private life Madame Wilfrid Pelletier, and the well-known Canadian tenor Leopold Simoneau. The non-voting chairman of the jury is professor emeritus Trevor Lloyd Jones. The competitions begin with preliminaries from May 9 to May 11, and semi-finals May 12. The finalists will perform with orchestra Friday, May 13. The prizes, donated by corporations and individual bene-

factors, include a \$5,000 first prize, \$3,000 for second prize, \$2,000 for third prize, and three prizes of \$1,000. First prize includes an engagement with the Toronto Symphony. Candidates must be Canadians or landed immigrants, between the ages of 20 and 33. Applications must reach the Edward Johnson Music Foundation, P. O. Box 1091, Guelph by November 1. Sixty-five Canadian singers have already applied. The 1977 national vocal competition is supported by the City of Guelph, as well as by the Canada Council, the Ontario Arts Council, foundations and private benefactors. It will take place as part of the 10th annual Guelph Spring Festival, and celebrations for the 150th anniversary of the City of Guelph. For further information please call Edwina Carson, 821-3210.

JOB OPPORTUNITIES

Mail and Messenger, Communication Services, Salary Grade 2. Salary range \$108 — \$141. Slide Co-Ordinator, Fine Art. Salary Grade 6. Salary range \$156 — \$206.

Special Constable (Police Officer), Safety and Security. Salary range \$11,306 — \$14,508. Professional Therapist, Department of Psychological Services. Salary commensurate with qualifications and experience.

Secretary, Dean's Office, College of Arts. Salary Grade 5. Salary range \$141 — \$187.

Library Assistant, Circulation, Library, (Temp. for 3 months.) Salary Grade 2. Salary range \$108 — \$141.

Waiter/Waitress, (Temporary, Part time), Bullring. Job rate \$2.50 per hour.

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

VISITORS



Guelph plant pathologists hosted the annual supper meeting of the Western Ontario region of the Canadian Phytopathological Society recently at the University Centre. The meeting gives students a chance to become acquainted with plant pathologists in Ontario. Professor John Sutton, Department of Environmental Biology gave lecture on mycotoxins in food. Above, Prof. Sutton, left is thanked by Professor B.H. MacNeill of the Department of Environmental Biology.

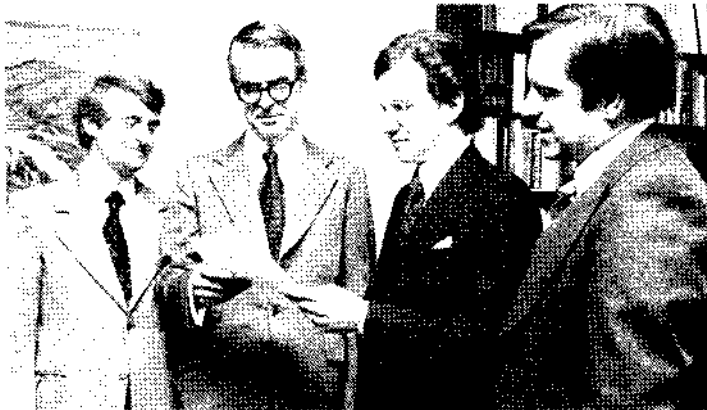


Visitors to the University of Guelph from Bulgaria recently met with President Forster. Left to right are Nicola Roussanoff, who is engaged in translating Bulgarian prose and poetry into English; Ivan Nedeleev, first secretary, Bulgarian embassy, Ottawa, and Sava Savo ^y, consul general of Bulgaria, Toronto.

AWARDS



The Department of Languages recently presented Consulate prizes and awards for the fall semester, 1975. The photo left shows standing; left to right: Professor Manfred Kremer, head, German section, Professor Leonard Adams, head, French section, Lucie Gobeille, Karen Aston and Professor Margret Andersen, chairman, Department of Languages. Seated; left to right, are Karen Peter and Denise Taschereau. In the photograph on the right are, back row; left to right, Professor Luis Lozano, head, Spanish section, Cheryl Street and Fabio Volpi. Front row; left to right, are Lina Dibenedetto, Professor Gianni Bartocci, head, Italian section, Georgina Seiler and Luigi Pacella.



The University of Guelph has once again been selected to participate in the IBM Canada bursary program. IBM Canada Ltd., makes an annual grant to a selected number of Canadian universities for bursaries to students registered in a full-time course at the university who have satisfactory standing and who demonstrate financial need. In addition, an unrestricted grant-in-aid is made each year to each participating university. Here, President Forster receives the bursary from Tom Corcoran, location manager, data processing division, IBM Canada Ltd., Kitchener. Right is Art Armstrong, IBM account representative to University of Guelph, and left is Professor Charles Capstick, chairman, Department of Computing and Information Science.



D. MacPherson, manager of Synthes (Canada) Limited, presents the Synthes Fellowships to Dr. Huw Llewellyn and Dr. David Abdinoor. The fellowships are awarded annually by Synthes (Canada) Limited, to permit interns in the Department of Clinical Studies to attend a course in the advanced treatment of the internal fixation of fractures in Columbus, Ohio. Left is department chairman, Professor J. Archibald.

SPORTS NEWS

Coach Needed

A softball coach is needed for the University of Guelph ladies softball team, sponsored by the U of G Staff Association. Anyone interested should call Judy L. Keer, Ext. 8734.

Tennis Instructors' Clinic

The Ontario Lawn Tennis Association will conduct a clinic for students with some tennis teaching background who are interested in furthering their experience as instructors. The purpose of the clinic is to assist students who are applying to teach in the Department of Athletics' instructional program this spring and fall.

The clinic is Sunday, May 16, 10 a.m., to 4 p.m. Any student who is interested in teaching in the instructional program, whether or not they can

attend the clinic, is asked to contact Joni Johnson, Athletics Centre, Ext. 2124 or 2215 before May 3.

As a community service, the clinic will be open to any other persons interested, providing the maximum enrolment of 25 prospective student instructors is not met.

Women's Field Hockey

Come on out and thump up worms this spring — play field hockey! The Guelph Club is a friendly bunch; besides playing a good brand of hockey, club members have a lot of fun too. You need not be a star; or even a previous starter. Members practice Tuesdays and play Thursday, May through June. Matches are played within the Springfield Hockey Association against Waterloo, Hamilton, London, Oakville and Bramalea Clubs.

If you want to improve your game, there are incentives, such as the selection to the Springfield Representative team to play in the provincial tourna-

ment in July. If you simply enjoy the opportunity to play, socialize and become a fitter person, you are welcome too.

For further information contact, Miss. M. Joni Johnson, Athletics, Ext. 2124, 2215 or Julie From club secretary, 822-3842.

Arm Wrestling Finals

The arm wrestling finals between the University of Guelph and Wilfrid Laurier University will be held at the first annual University Centre games room awards night banquet and pub April 8.

Doug Adams, lightweight champion, Bruce Morris, middleweight champion, and Dan Zuj will meet the Wilfrid Laurier champions.

Tickets are available to the University Centre games awards banquet which includes admission to the pub, featuring Lisa Hartt, and a buffet.

OVC student wives hold 25th anniversary banquet

Some 68 members, past members, sponsors, and special guests celebrated the 25th anniversary of the OVC Student Wives' Club at a banquet March 23.

Professor C.A.V. Barker, historian for OVC, gave a history of the beginnings of the Ontario Veterinary College in Toronto. Of particular interest was the life sketch of John Standish, who graduated from the Ontario Veterinary College in 1876. He was the first known student to be presented with a silver medal for his performance on the general examination. This medal and other personal effects were on display.

Professor T.L. Jones, who was dean of OVC at the time the Student Wives' Club was established, reminisced about the early years of the club and how the main objective of the club in those days was for the wives to learn how they could be more useful to their "lord and master."

Mrs. Connie McKibbin, the first president of the club, delighted the audience with a few lively anecdotes on life as a student wife in the trailer camp. Mrs. Barker, wife of Prof. Barker, reminisced about the club and her term as the first sponsor of the club. The post-war years had brought a new phenomenon to the campus—the married student and a housing problem. Mrs. Barker said many of the families lived in a trailer camp that was situated to the east of the main building of OVC. Mrs. Barker remembers the first execu-

tive meeting held in the laundry room of the trailer camp and the charter dinner held in Creelman Hall.

Professor T.J. Hulland brought congratulations from the present administration, and Dean D.G. Howell sent his congratulations in a letter in which he said the club played an important role in the corporate life of the college. To these words Prof. Hulland added his own best wishes and stated that the club was an important organization within the college, and in spite of attitudinal changes, it would continue its vital role as a catalyst to making lasting friendships throughout the college.

Mrs. Eleanor Hulland, retiring from her position as the liaison between the CVMA ladies auxiliary and the Student Wives' Club, was presented a gift as a token of appreciation.

The new executive was installed with the president for 1976-1977, Arlene Wright, taking the chair. Liz Millington was introduced as the new CVMA ladies auxiliary liaison to the Student Wives' Club.

The PHT (putting hubby through) certificates, to honour the four wives of this year's graduates for their organization, planning, and careful budgeting that enabled their husbands to continue their education, were presented by the club's junior sponsor, Mrs. Claire Tizard. The girls also received a complimentary membership and silver spoon from the OVA ladies auxiliary, presented by Jean Willets, president

of OVA LA, and a complimentary membership from the CVMA ladies auxiliary, presented by Lynn Whittick, first vice-president. Mrs. Hulland presented the outstanding wife award to Paula Blaggrave. The award is presented to the wife that the membership feels has contributed the most to the club during the year.

Members enjoyed a club scrapbook which had been completed specifically for this occasion. Jan Wilson (Don, OVC '77) was the winner of the afghan made by the student wives during the year. □



Art of silence

Remember the first time you had to go to the dentist? Ever sat in a doctor's waiting room, wondering why everyone else was there? What does an audience look like from the stage? What happens to the balloon that refuses to stay blown up? Or, how about the squeak you can't get rid of? Or — remember the old silent films with the flickering lights and the Keystone Kops, hero and villain? If you can see yourself in these situations, then you can understand mime.

Mime is a non-speaking form of dramatic communication and unlike the English tradition of pantomime, is a manner of telling a story through movement. Mime is a language and the gestures and body attitudes of the performer make up the verbs of that language. One thing mime theatre does is flex the audience's imagination. Every gesture, facial expression and body movement of the mime must be meaningful if the desired effect, mood or idea is to be achieved and communicated to the audience. Mime is the basis of all other theatre forms. Elements of pantomime can be found in all primitive cultures where mimetic actions are a part of religious rites. Pantomime is a theatrical art form that flourished in Rome for centuries.

Canada's first professional mime company, the Canadian Mime Theatre will give two performances April 30 at War Memorial Hall, as part of the Guelph Spring Festival. A special one-hour afternoon performance beginning at 2 p.m. for children has been created by selecting sketches that children across the country have loved the best. The evening performance, beginning at 8:30 p.m., is a new show which will be launched in Guelph. □

New concepts in theatre design

An exhibition of drawings, photographs, woodcuts, letters, and stage models which deal with the theme of Hamlet will be held in McLaughlin Library, April 23 to May 30.

Towards a new theatre: Edward Gordon Craig and "Hamlet" was organized by Brian Arnott of Toronto for the National Gallery of Canada. Material for the exhibition has been loaned by major collections in England, Europe, the United States and Canada.

Edward Gordon Craig, son of Dame Ellen Terry, a British actress of the Victorian era was born January 16, 1872. Craig spent his boyhood and adolescence as an actor, but turned to theatre design in his late twenties.

The evolution of Craig's new concepts in theatre design came as a result of a number of discoveries. His interest in simplicity of design was spawned originally by wood-engravings. In 1892, he was introduced to the idea of using electric lights instead of footlights and creating atmospheric effects with lanterns, slides and gauze. Through architectural journals, he became aware of the possibilities of vertical scenic movement by use of hydraulic pistons.

The result of these discoveries can be seen in Craig's 1912 Moscow production of Hamlet, where he achieved a cohesive unit in terms of a visual image. Every emotion and setting worked together as a total impression. Any reference to time or place was



Day

Etching. 1907

eliminated in terms of scenery. The set itself remained timeless as Shakespeare's Hamlet has always been.

In addition to the exhibition, Mr. Arnott will be at the University May 12, to present a lecture and discussion on Edward Gordon Craig, 12:10 p.m., Room 107, Arts building. □

Study looks at fabricated foods from fields to shelves

Foods fabricated from plant proteins occupy a growing portion of the Canadian diet and could help ease world food shortages. "Canada has an enormous potential to produce and process plant proteins," says Professor Dave Stanley, a food scientist at the University of Guelph. "We are carrying out research which could stimulate the utilization and processing of plant proteins. Canada already produces a great quantity of plant protein, but most is sold in unprocessed form. We hope our research will encourage development of a processing industry so that plant proteins can be sold or exported as food products."

Why the emphasis on vegetable protein? Protein deficiency and caloric shortages are the major cause of malnutrition in third world countries. Animal protein foods are expensive and animals are not very efficient at converting agricultural feeds into meat protein. Because vegetable proteins are relatively inexpensive and can be processed into a wide variety of finished products, they have the potential of alleviating malnutrition in many parts of the world.

The research focuses on three main areas: raw material, finished food products, and processing methods. At present many fabricated foods, including most meat analogues, are manufactured from soy. Canada grows only about half the soybeans she now uses, but the potential exists to utilize such products as peanuts, sunflower seeds and rapeseed—all crops that could be grown in Canada.

This research effort covers the entire spectrum of food processing from the farm field to the supermarket shelves. Prof. Stanley works closely with Professor John deMan, Food Science and with crop scientists at the University of Guelph.

Professor Jack Tanner, Crop Science, is currently doing a feasibility study on peanuts as a commercial crop in Ontario. "We are encouraged by our yields, but we still have some problems to overcome in weed control and harvesting. Our feasibility study would enable us to make a decision by next year."

"Early studies of vegetable proteins showed them to be of lower quality than animal proteins, but now we know that mixtures of proteins from different plant sources can be just as good as proteins from animal sources," Prof. Stanley explains. Proteins are made up of many amino acids. Those which cannot be manufactured by the body are called essential amino acids. Animal proteins contain a full complement of these essential amino acids, while proteins from vegetable sources may lack sufficient quantities of one or several. By combining vegetable proteins, each low in different essential amino acids, a good protein balance can be achieved. Alternatively, vegetable proteins can be fortified with individual amino acids, which are now synthesized on an industrial scale.

Many vegetable proteins contain potentially toxic factors which must be removed before being consumed by humans. Current research explores different methods of detoxifying these factors. "We have developed a microwave treatment suitable for soybeans and rapeseed" says Prof. Stanley.

Fabricated foods probably make up a higher portion of the North American diet than we realize. Vegetable protein extenders are routinely added to some prepared soups, stews and meat pies. Soy infant formula is sold commercially as a substitute for cow's milk. Snack foods such as corn chips, bacon bits and cheese flavored curls are fabricated foods. Add-to-hamburger products often contain mixtures of spices and plant protein extenders.

Prof. Stanley explains that "fabricated foods differ from conventional foods in that their basic components—proteins, fats and carbohydrates—may be derived from many sources and combined to form new or improved food products." Ingredients for fabricated foods may come from four different sources. Substances derived from established plant or animal foods, like sodium caseinate from milk, can be used in fabricated foods, such as coffee whiteners. Edible proteins can be derived from the underutilized portions of

conventional plant or animal foods. Such products include protein meal from soybeans and other oil seeds and fish protein concentrates. Unconventional or novel sources of protein now being tapped include leaf protein and single celled organisms such as algae and yeast. Finally ingredients in fabricated foods can be synthetic, like the industrially produced amino acids mentioned earlier.

Texture is one of the most important properties of fabricated foods and much of the research effort in food science is devoted to developing processing methods which will impart the type of chewy texture desired for the various food products. Thermal extrusion is the most common method of producing meat analogues from defatted oil seed meals. Until recently, the scientists employed a trial and error method of finding the right process. Now they are beginning to understand the fundamental principles involved and know how different textures are achieved. It appears that texture is determined by extrusion by the formation of intermolecular peptide bonds between the amino acids in the protein molecules. These bonds link together many protein molecules in long chains, producing the characteristic meat-like texture. "We have developed processes which, with minor changes, will probably work on almost any vegetable protein," explains Prof. Stanley.

Third world countries could benefit by adapting the techniques perfected at Guelph to native agricultural crops. Prof. Stanley and a graduate student from Ghana, Sem Sefadedahy, are exploring the protein potential of the Ghanaian cowpea—a dietary staple.

Foods fabricated from vegetable proteins and other ingredients are here to stay in the North American diet; their number and variety increasing every year. They also seem suited to protein-deficient diets because they can be made into a variety of shapes and textures. Research efforts at the University of Guelph will help ensure that these food products are palatable, nutritious, safe, and reasonably priced.

PERSONALS

For Sale — 1966 Mustang, 2681; Boy's bicycle, child carrier for bike, 3973 or 821-3833; Cradle, baby car carrier, playpen 821-3925; Siamese male kitten, 823-2505; Metal book rack, floor polisher, utility cabinet, telephone table and chair, folding table, three folding chairs, 824-6995; Three pair of soccer shoes, sizes 6, 8 and 9, 824-8298; 1975 Suzuki trail and street bike, 824-3542 after 6 p.m.; 1966 Plymouth Fury 11, 821-2565; Old sofa, small stereo set, wooden table, antique truck, 821-8707; Downhill Fischer President skis, 195 cm. tyrolia bindings, wooden desk, two dining room chairs, table, large wooden picture frame with glass, albums, woman's suede suit, size 10, 11, 821-2564; Heinzman piano, 836-2946; Eumig super 8 sound projector, Kodak super 8 sound camera, 3172 or 821-7333, evening; Mason & Risch piano, 822-6243; 1973 Toyota Celica ST, 836-9784 after 4 p.m.; Hay, 1970 Volkswagen 1600, 3315 or 824-3597; Large

writing desk, oak dining room suite, 821-7393; Bathroom sink, medicine cabinet, kitchen sink, 3518 or 821-3306 after 5:30 p.m.; Kelvinator range and Kelvinator refrigerator, 18 Central Street; 1973 Honda, 1-744-5720; Couch, double bed, step-on table, kitchen dishes, bathtub curtain, washroom scales, Ladies umbrella, raincoat, spring coat, shoes, size 6%, and 8, washing machine, dryer, oven, hi-fi, stereo, 824-9845.

Accommodation Available

For rent — Three bedroom furnished house, June, July and August, 821-2133; Two bedroom apartment, May and June, 3130; Apartment as of May 1 for two girls, 836-6884; Room for summer, 821-3925; Room near campus in exchange for some babysitting as of May 1, 822-0139, after 5 p.m.; Four bedroom furnished house from August, 1976 to June, 1977, 2753 or 822-6702; 250 year-old house in East

Devon, England, furnished, will accommodate 10 people, 3864 or write C.B. Greenberg, 10 Roundacre, Inner Park Road, London, SW19 6DB, England; Three bedroom furnished townhouse, May to September, 836-0436; One bedroom apartment to sublet, May to July or August, 3176, 3844 or 824-0952; Three bedroom house north of Guelph, 822-7209; Four bedroom house, may purchase, available August 1, 2341 or 821-9962; Room in exchange for babysitting from May 1, 822-0139.

Goods and Services

Wanted to Buy — Good sewing machine, 824-9845; Used 750 Honda, 836-9784 after 4 p.m.; General Motors child's car seat, 822-9711 after 5 p.m.; 1970

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Next Week at Guelph

THURSDAY, APRIL 8

Employment Search Program — THE JOB INTERVIEW, 1 p.m., Rm. 301, UC. Department of Career Planning and Placement.
Meeting — INTER VARSITY CHRISTIAN FELLOWSHIP MEETING, 7:30 p.m., 8th floor lounge, Arts building.
TV — SPOTLIGHT ON UNIVERSITY OF GUELPH, Cable 8 at 6:15 p.m.
Worship — ROMAN CATHOLIC MASS, 12 noon, Chapel, UC.

FRIDAY, APRIL 9

Seminar — Dr. V.K. Chawla, Canada Centre for Inland Waters, Burlington, ENVIRONMENT CANADA'S RESEARCH AND DEVELOPMENT ACTIVITIES IN LAND APPLICATION OF SEWAGE SLUDGES. 10:10 a.m., Rm. 22, Soil Science. Sponsored by Land Resource Science.
Projections — THE RISE AND FALL OF THE GREAT LAKES, and BREAK-DOWN, 12 noon, Rm. 442, UC.
Worship — JUMA PRAYERS, 12:20 p.m., Rm. 533, Chapel, UC.
TV — SPOTLIGHT ON UNIVERSITY OF GUELPH, Cable 8 at 5 p.m.

SATURDAY, APRIL 10

Panel discussion, speakers — ABERDEEN ANGUS CENTENNIAL, opening at 10:30 a.m., judging pavilion; 12:15 p.m., commemoration ceremony in foyer of Animal Science building. Luncheon and afternoon program at the Arboretum Centre.

SUNDAY, APRIL 11

Worship — ROMAN CATHOLIC MASS. 11 a.m., War Memorial Lounge; ANGLICAN AND UNITED WORSHIP SERVICE. 11 a.m., Chapel, level 5 UC;

CHRISTIAN WORSHIP SERVICE, 7:30 p.m., 8th floor lounge, Arts building.
Meeting — SIMS CLUB advanced lecture series for group meditation and TM meditation, 8:15 p.m., 9th floor lounge, Arts building.
Choir — UNIVERSITY OF GUELPH CHAMBER SINGERS, recital of unaccompanied choral music 4 p.m., Dublin Street United Church, 4 p.m.

MONDAY, APRIL 12

Worship — ANGLICAN EUCHARIST, 12 noon, Chapel, level 5 UC.

TUESDAY, APRIL 13

Worship — ROMAN CATHOLIC MASS, 12 noon Chapel, UC.
Discussion-Fellowship — 8 to 10 p.m., 9th floor lounge, Arts building.

WEDNESDAY, APRIL 14

Meeting — ASSOCIATION FOR CHILDREN WITH LEARNING DISABILITIES, Wellington County Chapter, 8 p.m. Fergus High School
Fellowship — CAMPUS CHRISTIAN FELLOWSHIP, 7:30 p.m., Chapel, UC.
Worship — ROMAN CATHOLIC MASS, 5 p.m., Chapel, UC; ANGLICAN AND UNITED DISCUSSION GROUP, 1 p.m., to 2 p.m., Chapel, UC.
Bridge — DUPLICATE BRIDGE, Arts building, 8th floor lounge, Play: 7:30 p.m., Learn, 6:30 to 7:15 p.m.
Dance — UNIVERSITY OF GUELPH SQUARE DANCE CLUB, 8 p.m., Rm. 116, Crop Science.
Meeting — ALCOHOLICS ANONYMOUS, 8 p.m., Rm. 332, UC.

THURSDAY, APRIL 15

TV — SPOTLIGHT ON UNIVERSITY OF GUELPH, Cable 8 at 6:15 p.m.
Worship — ROMAN CATHOLIC MASS, 12 noon, Chapel, UC.

PERSONALS

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to 1974 six cylinder car, 2146 or 822-3977; Bicycle with trainer wheels for five year-old, 823-2012 after 5:30 p.m.; Baby's car seat, 821-5556; Baby carriage 821-7482; Small freezer, 2626; Electric typewriter with injectable correction ribbon, 822-4391 after 5 p.m.

To give away — Purebred St. Bernard to country house, Mike, 3997.

Babysitting — 821-5556, 824-9845

Ride — Graduate student couple want ride to Ottawa or New York. Will share expenses, 824-9845

Disc Jockey — 824-8356, 822-1354

Typing — 853-0599, 8708, 853-2091, 823-5037 after 5:30 p.m., 836-2647

Wanted — Babysitters, 3773, 836-8724, 821-7482

Wanted — Used English saddle, 2632, 822-0658 after 5 p.m.

Found — Man's graduation ring for Chesley District High School, 2449 or 3424; Black, white and orange female cat, 84 Durham Street or 836-3253.

Wanted — Someone to translate English letter to Portuguese, 3221, 3887.

Lost — Woman's gold watch near Phys-Ed complex, 821-2699.

Accommodation Wanted

Accommodation — Two bedroom furnished apartment or condominium early June to early October for visiting professor from Argentina with small family, 2756 or 2707. House in Guelph — for graduate student and family, 8524 or 846-5119; Small apartment or cottage — or share house — in Belfountain, Erin area, May to September, 823-2196 before 8 a.m.; Graduate couple seek accommodation with family. Wife will help with babysitting and housekeeping, 824-9845; House for two adults and two children, a visiting research scientist, June 1 to July 31, 2578.



President Forster and Guelph mayor Norm Jary receive daffodils from Sylvia Winship, president of the Beta Sigma Phi Sorority, to kick off the campaign for funds in support of the Cancer Society. Your home will be visited in the door-to-door canvas during April. However, if you are missed, you may contribute through the Department of Information, Mrs. Marilyn McCarthy, Ext. 3863. A receipt will be given.



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