

Looking at the human machine

"Human Kinetics has emerged as a legitimate area for study in its own right only in the last five years when many diverse factors previously identified with physiology, psychology and sociology began to be integrated into a single discipline. The term 'kinetic' refers to the dynamics of motion; qualifying it with the word 'human' focusses that study on man moving in relation to his total environment."

The quote is from Professor J.D. Brooke, director of the School of Physical Education, chairman of the Department of Human Kinetics and author of one of the standard texts on the subject — *Human Movement, A Field of Study*. The purpose of the text was to identify the key concepts involved in man in motion to which concepts from other disciplines could be drawn.

Dr. Brooke, who is himself an athlete of some stature — English AAA 440 yd. hurdler, cross country runner, basketball and rugby football player, led a team which conducted one of the first scientific studies of English First Division soccer players.

"It was the first time anyone had tried to analyze exactly what happens to a player in action. How far does he run? How quickly does he run? How far does he run when he is running quickly and how often? How often does he head the ball, strike it more than 20 yards, run with it — and where to? Parallel with movement analysis we considered another set of questions related to the player's actual movement capacity. This called for a physiological evaluation in terms of cardio-respiratory performance and adapting that performance to a specific training program in order to achieve improved capacity in match situations. For example; progressive overload in muscle training, an important factor in the development of footballers, is only achieved when the overload is defined at optimum levels. This means bringing very sophisticated devices onto the playing field itself, but we produced the information and identified the precise intensity of work which would adapt the muscle in the required manner. The resulting improvement was measurable," he said. Human Kinetics by no means limits itself to the field of sports. One of its fundamentals is adaptability of human beings. Man will adapt in a healthy and efficient way only to an environment designed to evoke his capacity as a human. He will adapt with almost equal

facility to an environment which fails to respect this natural capacity, for in failing to make demands, such an environment invites degeneration. Entropy, the Second Law of Thermodynamics applies. This principle has almost universal significance in movement studies with important consequences to education, the armed forces and throughout industry.

"When a man in a large power station is required to monitor constantly a tremendous array of buttons, switches and dials, the manner in which they are laid out, the coordinates relative to his simple movement ranges,



Professor Brooke.

critically affects the efficiency of his performance and the errors he makes," explained Dr. Brooke.

Human Kinetics recognizes three fundamentals of movement — bipedal, manipulative, and communicative. The latter leads into areas of body language, both static in the sense of what you reveal by the way you sit, by the body position you display, and also active as expressed for example, in dance forms, gesticulation, etc. The way in which movement relates quantitatively and qualitatively also communicates. For example, a high quantity of movement without efficiency or purpose is one way in which a child is identified as hyper-kinetic — a problem, but when great energy in a child is expressed in movements which do achieve their purpose, there is far less likely to be a problem.

Dr. Brooke is beginning to probe into some of the questions which underlie the whole concept of physical activity for recreation. There are obvious justifications — improved cardiac efficiency, better health, a more shapely body etc. However there are aspects less well described — feelings of well being from participation, feelings of relaxation, even feelings of sensuous joy from moments of peak experience when the whole body is working in near perfect unison.

"We are looking at normal people" said Dr. Brooke. "We are looking at them intact, going about their daily lives; we are trying to understand what it is about this exquisite machine which is so much more than a machine, that enables it to work and to want to work. I cannot imagine a more fascinating field of study — especially at this time when new technologies and new insights are opening up whole new horizons."

Carcinogens in bacon studied

Nitrites have been used for centuries in the curing of meat, but in the last decade scientists have taken a long hard look at the role of nitrites in the formation of carcinogenic agents. Recent government legislation has restricted the use of nitrites, but they are here to stay. Why? Because they are essential for controlling the growth of *clostridium botulinum*, a lethal bacterium which causes botulism in humans. Nitrites also contribute to the flavor and color of cured meats.

Professor J.I. Gray, Department of Food Science, has received a \$17,000 grant from the Canada Department of Agriculture to study the precursors of known carcinogens in bacon. Nitrosamines, these carcinogens, are not themselves present in bacon, but are readily formed by the reaction of nitrites with secondary amines which can be produced by pyrolysis of certain naturally occurring amino acids.

FACULTY ACTIVITIES

Professor Hugh MacCrimmon, Department of Zoology, has been re-appointed to the Board of Professional Certification of the American Fisheries Society. A principal objective of this 7,000 member organization is to establish criteria and foster high professional standards in the university training of aquatic biologists. Professor MacCrimmon has recently returned from Wales where he has been undertaking cooperative biological studies with the Welsh National Water Board. Principal interest lies in the creation of novel fisheries in a number of major impoundments, up to 500 feet in depth, built for domestic water supply and hydroelectric power; and in the utilization of heated wastewater from nuclear reactors for the aquacultural production of trout and salmon.

Professor G. Karl, Department of Physics, gave a seminar entitled Parity violation in atoms at the University of Toronto, Physics Department.

Professors L.N. Christofides and C. Nathan, Department of Economics attended a conference on Keynes, Cambridge and the general theory at the University of Western Ontario. The conference was sponsored by the University of Western Ontario, The Hebrew University of Jerusalem and the Canada Council.

Professor B.L. Raktoe, Mathematics and Statistics attended the Joint Statistical meetings in Atlanta, Georgia, where he presented a paper On aliasing in fractional factorial designs. He also attended the 40th session for the International Statistical Institute, in Warsaw, Poland. Professor Raktoe, has been elected a Fellow of the Institute of Mathematical Statistics in recognition of contributions to the development, dissemination, and application of mathematical statistics and probability. He was previously elected a fellow of three other professional societies, the American Statistical Association, the Royal Statistical Society, and the American Association for the Advancement of Science. Professor Raktoe is also an elected member of the International Statistical Institute.

Professor Homer Hogan, Department of English, chaired discussions of the issue The three R's versus value education at the Politics of English conference of the Ontario Council of Teachers of English in Toronto. He is currently preparing a position paper on this issue for the council.

Abdus Sattar, Nutrition, presented a paper on effect of wavelength of fluorescent light upon vitamin A and B-carotene content of milk fat, at the annual fall meeting of the American Oil Chemists' Society in Cincinnati, Ohio. **Professor J.M. deMan**, Food Science, and **Professor J.C. Alexander**, Nutrition, were co-authors.

Professor Norman A. Fish, Department of Veterinary Microbiology and Immunology, was an invited speaker at the 26th annual meeting of the Ontario Public Health Association held in Toronto. The topic of his presentation was The question of food microbiological standards.

Professor J.B. Derbyshire, Department of Veterinary Microbiology and Immunology, attended the official opening of the WHO Centre for Collection and Evaluation of Data on Comparative Virology in Munich, Germany and participated in a three day workshop in comparative virology at the centre. He presented a paper on recent advances in reovirus research and chaired one of the workshop sessions.

Professor S.J. Slinger, Department of Nutrition, was an invited participant in an international workshop Low-grade heat: a resource in cold climates held at the Chalk River Nuclear Laboratories. Dr. Slinger also spoke to the Rotary Club of Cambridge, on the subject Nutritional status of Canadians.

Professor Lois C. Gottlieb, English, presented a paper on Changing images of the American businessman in American drama, 1880-1920, at the eleventh annual conference of the Canadian Association for American Studies, recently held at the University of Waterloo.

Under contractual arrangements with Agriculture Canada (Farm and Rural Development Division, Economics Branch), **Professor D.J. Blackburn, G.L. Brinkman and H.C. Driver**, School of Agricultural Economics and Extension Education, have received financial support of approximately \$100,000 for the identification and evaluation of human and economic factors facilitating or impeding adjustment processes of limited resource farms.

Professor Alexander H. Brodie, English and visiting professor **R.C. Gordon** participated in the eleventh Scottish Colloquium here recently. Professor Brodie spoke on The Walter Scott letters in the Ewen-Graham collection at the University of Guelph. Professor Gordon's paper was on Scott, Ferguson and the martial spirit.

Jean D. Brisson, Department of Botany and Genetics, attended the Botany-Entomology-Phytopathology meeting at Saskatoon, and he presented two papers: Taxonomic implications of the seed coat structure of some North American *Vaccinium* species, co-authored by **Professor R.L. Peterson**, and Mycological and histopathological aspects of stem dieback in lowbush blueberry (*Vaccinium angustifolium* ait.) co-authored by Drs. J.F. Pauze and V. Lavoie, both from Laval University, Quebec. He also co-authored with **Dr. J. Robb**, Botany and Genetics, and **Professor L. Busch**, Environmental Biology, a paper entitled Ultrastructure of early foliar symptom development in *Verticillium*-infected sunflowers. The paper was given by Dr. Busch.

Mrs. Judith Nasby, Curator of Art, attended the recent annual meeting of the Ontario Association of Art Galleries held at Rodman Hall, St. Catharines.

Dean Janet Wardlaw, College of Family & Consumer Studies, was the banquet speaker at the 60th anniversary convention of the Eastern Ontario Women's Institute which was held in Ottawa. Dean Wardlaw reviewed recent developments at the University of Guelph and in the College of Family and Consumer Studies. Dean Wardlaw also spoke at the October meeting of the Household Science Alumnae Association of the University of Toronto.

PUBLICATIONS

John, T.M., B.A. McKeown, and J.C. George, 1975. Effect of thermal stress and dehydration on plasma levels of glucose, free fatty acids and growth hormone in the pigeon. *Arch. Internat. Physiol. Biochem.* 83: 303-308. (Zoology)

Thomas, V.G., and J.C. George, 1975. Plasma and depot fat fatty acids in Canada geese in relation to diet, migration, and reproduction. *Physiol. Zool.* 48: 157-167. (Zoology)

Thomas, V.G., and J.C. George, 1975. Changes in plasma, liver and muscle metabolite levels in Japanese quail exposed to different cold stress situations. *J. Comp. Physiol.* 100: 297-306. (Zoology)

Nicholls, K.H., and H.R. MacCrimmon, 1975. Nutrients in subsurface and runoff waters of the Holland Marsh, Ontario. *J. Environ. Quality* 3 (1): 31-35. (Zoology)

Nicholls, K.H., and H.R. MacCrimmon, 1975. Nutrient loading to Cook Bay of Lake Simcoe from the Holland River watershed. *Int. Rev. ges Hydrobiol.* 60(2): 159-193. (Zoology)

Pesotan, H., B.L. Raktoe, and W.T. Federer, Cornell University, 1975. On complexes of abelian groups with applications to fractional factorial designs. *Annals of the Institute of Mathematics*, Vol. 27, 117-142. (Mathematics and Statistics)

Jackson, D.A., and J.R. Stevens, 1975. A study of the polymerization of styrene by Rayleigh-Brillouin spectroscopy. *Mol. Phys.* 30, 911-919. (Physics)

Kabir, P.K. (Virginia) and G. Karl, 1975. Electron-positron annihilation and the high energy behavior of weak interactions. *Nuclear Physics B90*, 125. (Physics)

Karl, G., B. Nickel, J.D. Poll and L. Wolniewicz, 1975. Molecular quadrupoles and atomic shielding factors. *Physical Review Letters* 34, 1302. (Physics)

Law, J., and J.L. Campbell, 1975. Mechanisms contributing to K electron ejection in nuclear beta decay. *Physical Review C* 12, 984-996. (Physics)

Campbell, J.L., and B. Martin, 1975. Discrepancies between experimental and theoretical internal conversion coefficients. *Zeitschrift fur Physik*, A274, 9-13. (Physics; with Max Planck Institute, Heidelberg)

Martin, B., D. Merkert and J.L. Campbell, 1975. Intensity ratios of L, M, N, O subshell conversion electrons in M3 and E4 transitions. *Zeitschrift fur Physik*, A274, 9-13. (Physics with Max Planck Institute, Heidelberg)

Nasby, Judith, 1975. *Victoriana, Canadian Collector*, Summer/October. (Cultural Affairs)

Martin, Larry and H.A. Hedley, 1975. An analysis of structural change in the Ontario feed milling sector, School of Agricultural Economics and Extension Education. *Technical Bulletin AE/75/6*. (Agricultural Economics and Extension Education)

Forster, B.A., 1975. Optimal pollution control with a nonconstant exponential rate of decay, *Journal of Environmental Economics and Management*, Vol. 2, No. 1. (Economics)

Grovum, W.L., and J.F. Hecker, 1975. Rates of passage of digesta and water absorption along the large intestines of sheep, cows and pigs. *Aust. J. Biol. Sci.*, 28, 161-7. (Biomedical Science)

Sidlofsky, Samuel, 1975. The OACETT technologist: Identity and occupational role - part II: The work milieu. *The Ontario technologist*, Vol. XVII, No. 5, pp. 4-7. (Sociology and Anthropology)

Singh, A., Y. Le Marchand, L. Orci, and B. Jeanrenaud, 1975. Action of colchicine on mouse liver: an ultrastructural and metabolic study. *Proc. Can. Fed. Biol. Soc.*, 18: 90. (Biomedical Sciences and Geneva University Medical School, Geneva, Switzerland)

Chand, N., and P. Eyre, 1975. Cardiovascular histamine receptors in the domestic chicken: *Archives internationales de Pharmacodynamie et de Therapie* 216(2): 197-207. (Biomedical Sciences)

CAMPUS BRIEFS

Dental plan is in!

When the enrolment deadline in the dental plan was reached last month the number enrolled was sufficient to implement the plan, and claims are now being processed. Forms and mailing envelopes are available from the Personnel Department. To avoid delays you must show your social insurance number opposite "Cert. No." in the bottom section of the back page.

Art programs

Special film and video evening programs will be held in conjunction with the narrative in contemporary art exhibition this month in McLaughlin Library. The presentations will be shown at 8 p.m. in the listening room of the Library: November 12 — Watching Leslie by James Colling and Rebecca and Nigel Come to Visit by Noel Harding and November 19, Rodger Woodward Niagara Falls Project by Rodger Welch.

Grad bag weekend

Application forms are now available at the Alumni Office, level 4, University Centre, for College Bowl Festival Grad Bag Weekend '75, November 21 to November 23, in Toronto. The festival is organized by the Toronto Junior Board of Trade and the Toronto Jaycees.

Grub on sale

The October edition of Grub is now on sale in the English Department. Prose, pictures and verse are invited for the next edition. Please forward material to Professor Linda Marshall, Department of English.

Remembrance Day

This year's Remembrance Day Service will be held Tuesday, November 11 from 10:55 to 11:10 a.m., in War Memorial Hall. Classes will be withdrawn from 10:45 to 11:20 a.m. so that all members of the University community may participate in this service.

Faculty club party

An informal dance will be held November 7, 8:30 p.m. in the Faculty Club, level 5, University Centre. Also, the Faculty Club Childrens' Christmas party will be held Saturday, December 6, 1 p.m. to 3 p.m., at the Faculty Club. The Christmas party is for members' children only, 10 years old and under. For reservations, call Ext. 2211 for both the informal dance, and the Christmas party. No reservations will be accepted for the Christmas party after November 14.

Host families needed

Are you interested in giving your family an exciting international experience over Christmas and the New Year? The experiment in international living is looking for two Canadian families to host one female Mexican student each for a two-week stay in their homes, December 19 to January 3, and January 3 to January 16. Believing that people best learn to live together by living together, the organization sends selected participants for a home-stay visit in another country. The host families provide room and board and include their visitor in the regular family activities. For further information, please call Elaine Dove, Centre for International Programs, Ext. 3256, or 822-2780.

Painting purchase

A painting by Professor Eric Cameron, Fine Art, has been purchased by the Canada Council Art Bank, Ottawa. Entitled Black and White on Yellow, the canvas is 17 inches high and 131 inches long. It was produced through grids of adhesive tape that produce a theoretical regular system, but in practice generates complex irregularities of detail.

Universities and Research

The Wellington-Waterloo Section of the Chemical Institute of Canada presents a public lecture by President D.F. Forster, Thursday, November 13, at 8:00 p.m. in Room 103, University Centre. President Forster will speak on universities and research. In his lecture he will discuss a number of important issues concerning universities and their role in today's society.

Soiree cabaret

The French Canadian Club of Guelph, invites members of the university community to an evening with Francois Lemieux, November 8, 8:30 p.m. at the Sacred Heart Hall, corner of Huron and Alice streets.

Painters painting

Emile de Antonio's provocative documentary on the art world of New York 1945 to 1970 entitled Painters Painting will be shown November 6, in Soils 124 at 7 p.m. (Please note change of room). This film features interviews with the superstars of American art of the last thirty years, their dealers and their patrons. Emile de Antonio has edited his film to one-twentieth of the original footage. Like Mac Ophuls, in The Sorrow and the Pity he has used the juxtaposition of interviews and images to involve the spectator in drawing comparisons and making evaluations. The film-maker claims his real subject is American society in the cold war.

New minister

A new minister of Colleges and Universities was announced recently by Premier William Davis. Dr. Harry Parrott, MPP for Oxford, and former parliamentary assistant to the minister of colleges and universities was appointed to the post. Dr. Parrott was first elected to the Ontario legislature in 1971. A member of the Select Committee of the Legislature to study the Ontario Municipal Board, he was appointed parliamentary assistant to the Minister of Colleges and Universities in 1974. He was an elected member of the Woodstock City council for five years, an elected member of the Woodstock Board of Education for three years, and an elected member of Woodstock Public Utility Commission for three years. He has served on the Woodstock Traffic Committee, Woodstock Industrial Commission and the Upper Thames Valley Conservation Authority prior to the election to the Legislature. Dr. Parrott graduated from the Faculty of Dentistry, University of Toronto, in 1947 and completed two years in post-graduate study in the field of orthodontics, graduating in 1965. Born in 1925, Dr. Parrott is married and has three children.

Phedre production

The Treteau de Paris production of the Racine masterpiece Phedre will be presented by the University of Guelph, Wednesday, November 26, 8 p.m., at War Memorial Hall. The presentation takes place under the auspices of L'Association Française d'Action Artistique of the Government of the French Republic and will be presented in the French-language. Tickets are on sale at the Central Box Office, University Centre, Ext. 3940.

Ballet Ys

The University Centre Programming Office and the Student Federation of the College of Arts are to present Ballet YS (pronounced ecee) in War Memorial Hall November 8 at 8 p.m. The Company's dance approach is explained by the name Ballet YS, meaning ballet of the times. It is a combination of classical ballet with modern dramatic dance styles to produce a unique art form. Ballet YS's aim is to bring more contemporary ballet to audiences in smaller communities. Ballet YS opened its new season in the National Arts Centre September 23. From there they began a six week tour across Ontario that will end with a winter residency at Shaw Festival Theatre. Tickets may be obtained at the Central Box Office, University Centre, Ext. 3940.

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These carcinogens don't seem to be present in other cured meats, such as ham. Professor Gray feels that the high fat content of bacon, coupled with the high frying temperatures to which it is normally subjected somehow encourage the formation of nitrosamines.

During the course of the year, his research will focus on the identity and concentration of precursors present in retail samples of bacon after normal preparation. Gas chromatographic techniques will help identify the compounds present. In the latter stages of the research he will study the mechanism of formation of the carcinogens and will develop model systems to help explain this mechanism.

"In the human body," explained Professor Gray, "the nitrosamines are broken down in the liver or in some other organ of high enzymatic activity. The breakdown products in turn react with nucleic acids, causing abnormal pairing of the genetic materials."

Should we curtail our morning ration of bacon until Professor Gray's findings are published? "I think we should temper any research conclusions with the safe historical record of bacon," said Professor Gray. "Nitrosamines are not the reason I don't eat bacon very often — I think it is just too expensive," he said.

Rent in London

Going to London over the next few months? Space for rent remains available in Guelph-London House for the months of November and December — either a flat or a room with the use of a kitchen and living room. The normal minimum rental period is one week. For booking or information call Mrs. Kathy Beaven, Philosophy department, Ext. 3886.

Extended library hours

Extended hours begin Monday, November 10, at McLaughlin Library and continue to Friday, December 12, inclusive:

Building open	Mon. to Fri.	8 a.m.—2 a.m.
	Sat.	9 a.m.—2 a.m.
	Sun.	10 a.m.—2 a.m.
Full service	Mon. to Thurs.	8:30 a.m.—9 a.m.
	Fri.	8:30 a.m.—5 p.m.
Limited service	Sat.	9 a.m.—5 p.m.
	Sun.	10 a.m.—9 p.m.

Christmas break hours begin Saturday, December 13.

Veterinary Science Division:

Extended hours begin Monday, November 17, and continue to Friday, December 18, inclusive.

Library open	Mon. to Fri.	8:30 a.m.—12 midnight
	Sat.	9 a.m.—12 midnight
	Sun.	1 p.m.—12 midnight

Full service Mon. to Fri. 8:30 a.m.—5 p.m.

Christmas break hours begin Saturday, December 20.

Guelph-Waterloo offer graduate program in Chemistry

To improve the quality of graduate opportunities in Ontario and to expand the coverage of the discipline of chemistry in a single school in these times of levelling student enrolment the departments of Chemistry of the Universities of Guelph and Waterloo, with the unconditional backing of the two universities, decided recently to merge their graduate programs and to create the Guelph-Waterloo Centre for Graduate Work in Chemistry (GWC)². The Centre has been in operation since May, 1974, and enrolled its first new group of students in September, 1974.

Increased overall quality of the course offerings, economy in teaching effort, and avoidance of duplication of major equipment are the immediate advantages of such a structure. Library and computing facilities at both universities are available to all Centre members. Long-term advantages are the increased flexibility with respect to development, the increased scientific interaction between the faculty members of the two departments, and, last but not least, the increased spirit of cooperation between the two universities.

At present the Centre is administered by its acting director, Professor Arthur Carty, who consults laterally with the two departmental chairmen and reports to the two Deans of Graduate Studies. The director is chairman of a coordinating committee which consists of the two departmental chairmen, the departmental graduate officers, four elected faculty members, and two elected graduate student

representatives. A search committee for a permanent director has been formed and interviews of candidates have already begun.

The regulations concerning graduate work in the Centre meet the requirements of the Graduate Councils and Senates of the two universities. Where a disparity was encountered in setting out the regulations, generally the more demanding standard was adopted.

The Centre consists of 46 faculty members of the two chemistry departments who have been approved as Ph.D. supervisors, 77 graduate students, 36 post-doctoral fellows and 15 auxiliary teaching staff.

Active research interests span all the sub-disciplines of chemistry, from basic theoretical research interests span all the sub disciplines of chemistry, from basic theoretical research that attempts to predict the nature of chemistry from the dynamics of individual electrons and nuclei, to integrated system phenomena that attempt explanation of environmental or biological behaviours from the sum of specific chemical reactivities.

Over 280 scientific papers were published or accepted for publication in the open refereed literature during the Centre's first year of operation. In addition, seventeen members presented a total of thirty-one invited lectures at symposia giving the new Centre an excellent start in building an international reputation. Members of the Centre received a total of \$629,000 from the National Research Council of Canada to support research. In addition, \$244,000 has been awarded by over fifteen other granting agencies.

SPORTS NEWS

Gryphon Scoreboard

Thursday, October 23

Men's Hockey — Guelph 7 Sheridan 3

Saturday, October 25

Men's Hockey — Guelph 1 St. Clair 9

Football — Guelph 33 Waterloo 32

Soccer — Guelph 0 RMC 3

Women's Field Hockey

Hockey — Waterloo 1 Guelph 0

Guelph 1 Western 0

Guelph 1 McMaster 3

(triple overtime)

Cross Country — Jim Thomson — 14th Canacius

Invitational

Sunday, October 26

Rugger — Guelph 44 Brock 0

Soccer — Guelph 2 Queen's 4

Women's Ice Hockey — Guelph 7 Metro 2

Future Games

Friday, November 7

Women's Basketball — Ottawa here

Women's Ice Hockey — NBC Tournament

Men's Ice Hockey — Laurentian here

Saturday, November 8

Women's Basketball — Carleton here

Women's Ice Hockey — NBC Tournament

Women's Swimming — at McMaster

Football — OUA final

Cross Country — CIAU final

Tuesday, November 11

Men's Ice Hockey — McMaster here

Women's Basketball — Toronto here

Women's Volleyball — Toronto here

Wednesday, November 12

Women's Ice Hockey — at McMaster at 8 p.m.

Thursday, November 13

Men's Ice Hockey — at Laurier

Friday, November 14

Women's Badminton — at Waterloo

Women's Volleyball — at Laurier

Saturday, November 15

Men's Ice Hockey — Windsor here at 2 p.m.

Men's Basketball — Alumni game at 8:15 p.m.

Men's Volleyball — at Laurier

Men's Wrestling — Windsor here

Women's Badminton — at Waterloo

Women's Basketball — at McMaster

Women's Ice Hockey — Queen's here

APPOINTMENTS



John W. Patterson has recently joined the Department of Food Services as manager of Operations, replacing Roger K. Hollyman who accepted an appointment in Amherst, Nova Scotia. John received his

Bachelor of Arts degree at Ohio Wesleyan University, and his Masters degree in Business Administration at Cornell University. He has spent a number of years specializing in cost accounting in the hospitality industry, and during the past three years has served with the Trans-American Restaurant Corporation as a systems development and operational consultant.

Jean Nielsen has been appointed a lecturer in the clothing area of the Department of Consumer Studies. Mrs. Nielsen as a graduate of the University of Alberta, spring 1975. She combined her undergraduate degree in sociology with her interests in clothing as related to behavior. Mrs. Nielsen's M.Sc. thesis was called The influence of clothing and physical attractions on first impression. She was also involved in a research project dealing with clothing for physically disabled people.

Barbara Wackley has been appointed a lecturer with the Consumer Studies Department in the design area. Miss Wackley graduated in 1969 with a B.I.D. degree from the University of Manitoba, Faculty of Architecture. Previous work experience has been with Helen Moffat Associates Ltd., Toronto, as a senior-project designer, where she was involved in designing such projects as hotels, restaurants, stores, shopping plazas, and offices. Miss Wackley has also worked for Jacques Guillon Designers, Montreal, Quebec, as a senior-project designer.

JOB OPPORTUNITIES

Building Mechanic 1 or 2, Job rate for Building Mechanic 1, \$4.91; job rate for Building Mechanic 2, \$5.37; probation rate .20¢ per hour lower than job rate.

Manuals Clerk, Academic Computer Services. Salary grade 2, salary range \$108-\$141.

Secretary to the Assistant Director, Planning Department, Physical Resources. Salary grade 4, salary range \$130-\$172.

Stenographer, Pathology. Salary grade 3, salary range \$117-\$156.

Library Assistant, Reserve (Two Positions), The Library. Salary grade 2, salary range \$108-\$141.

Banquet Manager, Food Services. Salary negotiable according to experience.

Medical Records/Billing Clerk, Clinical Studies. Salary grade 2, salary range \$108-\$141.

For further information please see bulletin boards or call Ext. 3058 or 3059.



The College of Physical Science awards presentation was held recently. Photographed with Dean E.B. MacNaughton, are, left to right, Simon Capstick, honors science, physical, one of two winners of the McArthur-Humphries Entrance Scholarships; Susan Dickout, honors chemistry, Guelph Fall Entrance Science Scholarship and George (Kent) Moore, honors theoretical physics, recipient of the Samuel Acker Memorial Scholarship. Missing from the picture is Rosemary Danielli, honors biochemistry, also a recipient of the McArthur-Humphries Entrance Scholarship.

AWARDS

The Scholler Foundation made a scholarship available to a student entering the last year of study in textiles with high academic standing. Mr. Barnes and Mr. Mansfield, from the Scholler Foundation in St. Catharines, presented Miss Lorraine Jones, a seventh semester, textile major, with this award at a recent dinner.

The Federal Department of Health and Welfare has awarded J.E. Tong, Psychology department, the amount of \$25,800 to continue research into the psychophysiological effects of the joint use of tobacco and alcohol. The work has also been supported by the Alcohol and Drug Addiction Research Foundation. The research associate is Miss Gillian Leigh.

Italian awards for the winter 1975 were recently presented to Velma Carniello, FAcI (Federation of Italian Clubs and Associations), Toronto; Robert Keir, FAcI (Federation of Italian Clubs and Associations); Amelia Amantea, L. Amato; Edoardo Meloni, Olivetti (Canada); Nancy Hindmarsh, Italian Consulate; and Iole Maggiolo, Swiss Consulate.

Graduate student Richard J. Cawthorn, Zoology, was awarded a plaque for the outstanding student presentation at the recent Wildlife Diseases Association annual conference held this year in Guelph. The title of his paper was The biology of *Physaloptera maxillaris*, the stomach worm of skunks.

Mr. Sebastian Teunissen has been awarded the J.K. Galbraith Scholarship in Economics for 1975-76. The Galbraith Scholarship is awarded on the basis of high academic standing to a student proceeding to an honours program in economics.



The student-faculty banquet for the presentation of awards by the Ontario Veterinary College was held recently. Dr. T. Lloyd Jones, right, former dean of OVC, presents the Trevor Lloyd Jones Scholarship, to Paul Tummon. The scholarship is awarded to the student completing the fourth pre-veterinary semester with the highest average of the four semesters.

Tracking down Vitamin A questions

Surprisingly little is known about Vitamin A despite the fact that it was discovered over 40 years ago. More is known about symptoms of deficiency than how it is metabolized and what are its target cells. The part played by Vitamin A in night vision has been extensively studied but it is also involved in the synthesis of certain cells and in the reproduction of animals.

Canadians do not generally suffer from Vitamin A deficiency yet autopsies indicate unexpectedly low storage levels which could be critical under circumstances of stress. There is evidence to suggest a higher requirement by women who use contraceptive pills and by heavy smokers and chronic drug and alcohol users; and when these factors occur in the same person there may also be a parallel increase in total Vitamin A requirements. Under such conditions, low storage levels may be critical.

These are some of the questions of concern to Dr. D.L. Yeung of the Department of Family Studies who has been engaged in research work on Vitamin A for several years. He has concentrated primarily on such questions as how do animals use Vitamin A; how do they metabolize it; how much do they use under different conditions; how is it transported through the circulatory system; how is it removed from the storage organs; and how much is utilized in terms of storage depletion and through the excretion of metabolites?

Vitamin A is fat soluble and easily destroyed, making it a very difficult substance to work with. Methods that are not well established are time consuming. Dr. Yeung is one of fewer than half a dozen research workers in Canada involved in this field.

"By using radio isotopes" says Dr. Yeung, "we can tag nutrients and track their pathways. Tiny quantities of metabolites which have not yet been chemically identified can be traced this way. Radio isotope labelled Vitamin A also helps track the pathway of breakdown. Using this method some of the metabolites have been identified but unfortunately these are not specific for the vitamin.

Vitamin A is fat soluble and can only circulate when bound to a protein which has now been identified by a team working at Columbia University as the retinol binding protein.

"Vitamin A comes in various forms in the body. You have retinol, you have a group of esters of retinol but by far the most prevalent is retinol palmitate — and there are others. The vitamin is stored in the liver in the form of retinol palmitate along with small quantities of retinol. When it is released into the bloodstream, however, the proportions are reversed — large quantities of retinol and trace amounts of retinol palmitate."



Dr. Yeung.

Dr. Yeung's research is focussing on the process which regulates the supply of these two forms. If the palmitate has to be converted to retinol before it can be released with retinol binding protein to the bloodstream, what is the function of the palmitate itself? One of the first projects was to find out whether retinol palmitate is bound to a lipid

protein but this has yet to be established. As far back as 1963 Columbia researchers postulated an enzyme as responsible for the conversion of retinol palmitate to retinol in the liver but extensive work by Dr. Yeung and his students has failed to confirm this theory.

Another important area of study is that of depletion rate. In animals kept on a Vitamin A free diet this is clearly not linear. A definite slow-down in the depletion rate suggests the existence of some kind of conservation factor. Investigations during the last two years point to the kidney in that while Vitamin A levels in the liver are declining, storage levels in the kidneys go up and for a fairly protracted period the operative levels in the bloodstream are very little affected. At a more advanced stage, however, depletion from the kidneys matches the rate of other organs and general deficiency can then be observed. This suggests the existence of some unknown substance in the kidneys which is inactive while Vitamin A levels are adequate but becomes operative when there is a need to conserve.

Dr. Yeung was attracted to the study of Vitamin A as a result of his concern about widespread deficiencies apparent in children throughout the Third World. The work is sponsored by the National Research Council in Ottawa.



Professors H.J. Malik and K. Mullen, Department of Mathematics and Statistics, have published a new book, *Applied Statistics for Business and Economics*. Dean MacNaughton of the College of Physical Science is shown a copy by, left to right, Professor R.G. Buschman, chairman of the Department of Mathematics and Statistics. Dr. Malik and Dr. Mullen.

Local MP addresses COUSA

The University of Guelph Staff Association hosted the Confederation of Ontario University Staff Association in the University Centre October 25 and 26. Organizers for the Confederation from the University of Guelph Staff Association were Mike Rooke, Sheila McNeil, Linda Bissel, Cal Hutchins, Ann Slot, Alex Nelson, and Richard Gingerich.

Delegates from the following universities attended the conference under the chairmanship of David Priddle, University of Toronto; York, Toronto, Waterloo, Guelph, Laurentian (two associations, staff and professional), Windsor, Ryerson, Wilfrid Laurier, McMaster, Carleton, Queen's, and University of Alberta (observer status).

Dr. Frank Maine, Wellington M.P. addressed the 30 representatives. Dr. Maine claimed that public tolerance of strikes had declined drastically in Canada in the past year. Many systems of settling labour disputes have been proposed but what looks good on paper and may even work during periods of prosperity often breaks down when the economic situation begins driving up wage demands, he said. He branded the postal workers' request for a 71 per cent pay hike as belonging "right in the area of irresponsibility."

Non-stoppage strikes, graduated strikes, employee participation in decision making and combined mediation-arbitration had all

been tried around the world, noted Dr. Maine. His personal favorite is the Japanese system where labour and management "co-operate together rather than confront each other." While in Japan he found workers ready to acknowledge that wage demands had to be reasonable to allow a company to make a profit to continue existing. Companies, in turn, allowed unions to go over the books.

Among the many concerns discussed by the university staff were the implications of the newly announced federal government controls on wages and prices. While the confederation supports the objectives and principle of the guidelines, it was felt that the maximum of \$2,400 could be lived with, but the minimum of \$600 was unacceptable. Another concern of the delegates was the control on prices.

Dr. Maine was asked to comment on the proposed increase of natural gas by 25 per cent. He explained that the Canadian consumer may have to accept the higher price of scarce energy. He suggested that the consumers cut back on the buying of luxury commodities thus saving a greater portion of their budget for necessary items such as fuel.

Dr. Maine summed up the delegates' reaction as "reasonable, without hostility in a calm atmosphere of fact-finding to obtain an analysis of what Mr. Trudeau intends to legislate."



The executive of the International Student Association was elected recently. Standing, left to right, are Dave Clark, vice-president; Don Amichand who is the International Student Advisor Department of Student Affairs; Hiran Amaratunga, president; and Mauve Hennessy, program co-ordinator. Seated, left to right, are Shirley Dunkerly, who is secretary to the International Student Advisor Department of Student Affairs; Jean-Marie Towers, public relations officer; Rozzane De Nobriga, liaison officer; Debbie Sidenber, secretary, and Joe Dolphin, program co-ordinator.

PERSONALS

For Sale — 8 hp. Bolens garden tractor with 32" mowing pan and 32" auger-type snow blower, 3274 or 824-2034; Combination aluminum storm door w/screen, aluminum frame included, 33½" x 81 ¾, 3059 or 822-4334; 1970 Toyota, 836-9166 or 822-6243, evenings; Lhasa Apso pups, 3888 or 821-6547, evenings; Oak buffett, 821-6932; 54" oak roll-top desk, 8167 or 821-8992; 1966 Plymouth, 821-9871; Guitar, Martin D-18, plus case, 824-5974; 1847 Rogers silverplate, Renaissance, 4 piece setting and two serving forks, serving spoons, 3054; King size bed-spread, 821-7991; 30" electric range, 824-6835; Portable washing machine, 821-0936; Stereo component, 3176 or 824-0952; Typewriter, 8 track tape player, 821-9975 after 5 p.m.; 1975 Vega hatch-back, 8715 or 822-4359; All furniture in house, 823-5137; Console Marconi stereo, 822-8973 after 5 p.m.; Registered Irish Setter pups, 824-7769; Digimatic 8 calculator, small animal cages, women's 3 speed bicycle, Bombardier-Puch moped, dissection kit, 836-2068; 1973 Ford LTD, snow tires, 824-1364, weekends; 1967 MGB, 3357 or 824-9333 after 5 p.m.; 1973 Alfa Romeo Spider, 821-5663; Hair dryer, fan, vacuum cleaner, Electrolux, rug shampooer, child's bed, 836-1331, Ext. 411; Refrigerator, 30" stove, 3703 or 823-2699 after 5 p.m.; Portable color television, 821-9189; Canoe, 14' cedar strip, paddles, 823-5424; 1968 Mustang, 821-4962; Two 18" black and white television sets, 3864; Two chesterfields, double bed spring, 824-9587; Chesterfield, kitchen stool, dining table, double bed mattress, electric iron, raincoat, umbrella, black and white television, sewing machine, dishwasher, 824-9845 after 5 p.m.

Accommodation Available

For Sale — Three bedroom condominium, 2728 or 823-2923 after 5 p.m.

For Rent — Furnished two-bedroom house for faculty, staff or post-graduate student, January 1, 1976 to May 1, 1976, 822-5675; Furnished rooms, garage, 824-9845; Three-bedroom house, Mary Street, January 1, 1976 to August, 1976, 824-5093; Single and double rooms, light cooking, 836-4953 after 6 p.m.; Three-bedroom house near University, January 1, 1976 to August, 1976, 824-5093.

Goods and Services

Wanted — Passengers commuting from Kitchener to Guelph daily to share expenses, 2523; Lost — Hoop earring between Audio Visual Photography and Slinger's Drug Store, October 24, 3614; Disc-jockey services, 824-8356; 3484 or 822-1354.

Habitat seminar

Professor F.A. Dahms, Geography, has been appointed Regional Co-ordinator of the Ontario Habitat Seminar on Human Settlements, for the counties of Waterloo, Wellington, Halton, Wentworth, and Brant. This seminar is part of the Ontario Government's participation in the U.N. Habitat Conference on Human Settlement to be held in Vancouver in May 1976. The local seminar will be attended by 40 leading municipal officials from the area, who will spend a day identifying human settlement problems in their municipalities. The results of the day's deliberations and those of the 10 other regions, will be integrated by co-ordinators and provincial officials into an Ontario position paper to be presented to the U.N. Conference in Vancouver next May.

Next Week at Guelph

THURSDAY, NOVEMBER 6

Meeting – WOMEN'S FEDERATION, 5 p.m., Room 335, UC.
Films – PAINTERS PAINTING, 7 p.m., Room 124, Soils; FAD DIET AND WEIGHT CONTROL: JUST A STEP AWAY, 12:15 to 1 p.m., Room 442, UC.
Job Recruitment – CARNATION COMPANY LIMITED: Application deadline for prescreening.
Employment Search Program – THE JOB INTERVIEW, Department of Career Planning & Placement, 1 p.m., Room 301, UC.
Thursday Noon Hour Concert – YOSSI ZIVONI, violin, VALERIE TRYON, piano, 12:10 to 12:45 and 1:10 to 1:45 p.m., Music Room 107, Arts building.
Worship – ROMAN CATHOLIC MASS, 12 noon, Chapel, level 5, UC.
Fellowship – INTER-VARSITY CHRISTIAN FELLOWSHIP, John Lamont on Servanthood, 7:30 p.m., Room 204, Landscape Architecture.
Display – NUTRITION WEEK, courtyard, UC.
Pub – HOMESPUN, 8 p.m., to 1 a.m., Peter Clark Hall, UC.
Christmas Tea – COLLEGE WOMEN'S CLUB, 1:30 p.m. to 4:30 p.m., 18 Kathleen Street.
TV – SPOTLIGHT ON UNIVERSITY OF GUELPH, Cable 8 at 5 p.m.
Bridge – DUPLICATE BRIDGE, Arts building, 8th floor lounge, play, 7:30, learn 6:30 to 7:15 p.m.

FRIDAY, NOVEMBER 7

Lecture – GARDEN EELS AND SHARKS, Dr. Eugenie Clark, sponsored by The Biological Science Students' Council, 8 p.m., War Memorial Hall.
Worship – JUMA PRAYERS, 12:20 p.m., Room 533, Chapel, UC.
TV – SPOTLIGHT ON UNIVERSITY OF GUELPH, Cable 8, 5 p.m.
Video Tape – GROWING UP FEMALE, 11 a.m. to 3 p.m., Room 103, UC.
Projections – QUO VADIS, MRS. LUMB?, LITTLE WHITE CRIMES, 12 noon to 1 p.m., Room 442, UC.
Display – NUTRITION WEEK, courtyard, UC.

SATURDAY, NOVEMBER 8

Ballet – BALLET YS, 8 p.m., War Memorial Hall.
Piano – SUZUKI PIANO WEEKEND WORKSHOP, 8 a.m. to 5 p.m., Arts 107.

SUNDAY, NOVEMBER 9

Worship – PUJA, sponsored by the Hindu Cultural Society, 11 a.m., 8th floor lounge, Arts building; ZOHR PRAYERS AND QURANIC DISCUSSION, 1 p.m., 9th floor lounge, Arts building; ROMAN CATHOLIC MASS, 11 a.m., War Memorial lounge, CHRISTIAN WORSHIP, Chaplain Remkes Kooistra, 11 a.m., 9th floor lounge, Arts building; ANGLICAN AND UNITED WORSHIP SERVICE, 11 a.m., Chapel, level 5, UC.
Meeting – SIMS CLUB, 8:15 p.m., Room 421, Arts building.
Concert – SUZUKI PIANO WORKSHOP, 2 p.m., Music Room, Arts 107.
Coffeeshouse – SUNDAY BULL COFFEEHOUSE, 7:30 p.m. to 11 p.m., Bullring, featuring Ron Chong, classical guitarist.
Video Tape – THE ORIGINAL FLASH GORDON, 7 p.m. to 9 p.m. Room 103, UC.

MONDAY, NOVEMBER 10

Course – INTRODUCTION TO APL. Course continues Wednesday, November 12 and Friday, November 14, 1:30 to 4:30 p.m., Institute of Computer Science building, call Ext. 3046 to register.
Job Recruitment – SHELL CANADA: Permanent employment interviews. Employment Search Program – INTRODUCTION AND THE SELF-ASSESSMENT Department of Career Planning & Placement, 1 p.m., Room 301, UC.
Women's Hour – RAPE AND SEXUAL HARRASSMENT, 12:10, Room 442, UC.
Video Tape – DON MCLEAN, 11 a.m., to 3 p.m., Room 103, UC.
Monday Night Football – KANSAS CITY AT DALLAS, 7 to 11 p.m., Room 103, UC.
TV – SPOTLIGHT ON UNIVERSITY OF GUELPH, Cable 8, 7 p.m.
Worship – ANGLICAN EUCHARIST, 12 noon, Chapel, level 5, UC.

TUESDAY, NOVEMBER 11

Symposium – ALTERNATIVE ENERGY SYMPOSIUM, sponsored by Pollution Probe of Guelph, 7:30 p.m., Room G49, Botany, Zoology and Genetics.
Speaker – DEEP INELASTIC ELECTRON SCATTERING – Professor R.E. Taylor Stanford Linear Accelerator Center, 4 p.m., Room 113, Physics.
Worship – PRAYER SERVICE, with Chaplain Ed Merchant, 12 noon, Chapel, level 5, UC; MASS, 12 noon to 1 p.m., Room 533 UC; QUAKER MEETING, 9 to 11 p.m., Room 237, Arts.
Employment Search Program – THE RESUME, Department of Career Planning & Placement, 1 p.m., Room 301, UC.
Job Recruitment – SHELL CANADA, permanent employment interviews; CLARKSON, GORDON & COMPANY, GENERAL FOODS LIMITED, application deadlines for prescreening.
International Film Series – THE GLASS SQUARE, 12 noon, Room 103, UC.
Projections – ANTONIO, DO YOUR THING, 12 noon to 1 p.m., Room 442, UC.
Discussion-Fellowship – Chaplain Remkes Kooistra, 7 to 8:30 p.m., 8th floor lounge, Arts building.
Course – THE CONTOURS OF CHRISTIAN PHILOSOPHY, Chaplain Kooistra, 9 to 10 p.m., 8th floor lounge, Arts building.
Dance – UNIVERSITY OF GUELPH SQUARE DANCE CLUB, Room 116, 117, 8 p.m., Crop Science.

WEDNESDAY, NOVEMBER 12

Audio Visual Presents – Film made by students of Dr. Mary Singer's course, Resource Management and Families, on how a wife and mother, crippled with arthritis, copes with the running of a home, 4 p.m., Room 103, UC.
Employment Search Program – JOB LOCATIONS/STRATEGIES: THE LETTER OF APPLICATION, Department of Career Planning and Placement, 1 p.m., Room 301, UC.
Job Recruitment – Information session on career opportunities in the CANADIAN ARMED FORCES for graduates in engineering mathematics, chemistry and physics, 10 a.m., Room 441, UC; AGRICULTURE CANADA, briefing session, Mr. Wickham, Production and Marketing Branch, 4 p.m., Room 124, Soil Science building.
Video Tape – DON MCLEAN, 11 a.m. to 3 p.m., Room 103, UC.
Easy Wednesday Folk Hour – IAN WHEATLEY, 12 noon to 1 p.m., Courtyard, UC
Easy Wednesday Coffeeshouse – IAN WHEATLEY, 8 p.m. to 11 p.m., Room 103, UC.
Worship – ROMAN CATHOLIC MASS, 5 p.m., Chapel, level 5, UC; ANGLICAN AND UNITED DISCUSSION GROUP, 1 p.m., to 2 p.m., Chapel, level 5, UC; CAMPUS CHRISTIAN FELLOWSHIP, 8 p.m., Chapel, level 5, UC; BUDDHIST MEDITATION GROUP, 7 p.m. to 9 p.m., Room 535, UC; CHRISTIAN SCIENCE SERVICE, 6:30 to 7:30 p.m., Room 533, UC.
Meeting – UNIVERSITY OF GUELPH HOMOPHILE ASSOCIATION, 8 p.m., 9th floor lounge, Arts building.

THURSDAY, NOVEMBER 13

Speaker – UNIVERSITIES AND RESEARCH, President D.F. Forster, to The Wellington-Waterloo Section of the Chemical Institute of Canada, 8 p.m., Room 103, UC.
Noon Hour Concert – HIDY OZOLINS TSUSUMI PIANO TRIO, 12:10 p.m. to 12:45 p.m., and 1:10 p.m. to 1:45 p.m., Music Room 107, Arts building.
Employment Search Program – THE JOB INTERVIEW, Department of Career Planning & Placement, 1 p.m., Room 301, UC.
Worship – ROMAN CATHOLIC MASS, 12 noon to 1 p.m., Room 533, UC; INTER-VARSITY CHRISTIAN FELLOWSHIP, 7:30 p.m., Room 204, Landscape Architecture, speaker, Gord Potts.
Meeting – WOMEN'S FEDERATION, 5 p.m., Room 335, UC.
Bridge – DUPLICATE BRIDGE, Arts building, 8th floor lounge, play, 7:30, learn 6:30 to 7:15 p.m.
Pub – CANON, 8 p.m. to 1 p.m., Peter Clark Hall, UC.
TV – SPOTLIGHT ON UNIVERSITY OF GUELPH, Cable 8, 5 p.m.

NOTE – UC = University Centre.



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