

\$397,100 grants for Dalhousie researchers

Grants totalling \$397,100 have been awarded to Dalhousie University researchers for 1978-79.

This represents a substantial share of the \$2.4 million allocated as part of its strategic grants program by The National Research Council of Canada for the whole of the country for the coming year.

In most cases, the Dalhousie projects will be supported for a second year and in some instances funding will extend to a third year. In all, the total amount awarded to Dalhousie will run over \$750,000.

Classified as strategic grants in the national interest, the NRC funds have been designated for research in three areas—oceanography, energy resources and environmental toxicology.

Although the grants have been made to the applicants who submitted proposals, the awards made to researchers constitute co-operative grants involving more than one scientist.

Oceanographers have been awarded \$198,300. Project teams will study the influence of particle concentration on productivity, the abundance of benthic animals and phytoplankton on the Scotian Shelf; effects of turbulence, tides, and surface waves on shores and bays.

One team of geologists will use their grant monies for a geological and geophysical investigation of Iceland and the submarine parts of other Atlantic oceanic islands by deep drilling. Another team of marine geologists will conduct an inquiry into aspects of the internal structure of the earth's mantle and carry out sedimentation studies. The total grant to members in the geology department is \$44,900.

Biologists will use their \$35,900 grant (the first of two) to concentrate on a coastal productivity project.

In the environmental toxicology field, \$100,000 will be used to test new techniques that could aid in the earlier detection and diagnosis of damage to the sensory nervous system caused by exposure to toxic environmental pollutants. In addition a grant worth \$18,000 will go towards research in environmental poisoning of trace elements.

DFA steps up union campaign

The Dalhousie Faculty Association certification campaign is in high gear, with poll captains of the organizing committee making the rounds, seeking the signatures of members of faculty and librarians in support of a union.

Meanwhile, at Faculty Council meetings, the Administration has briefed faculty on the situation and has given its point of view.

The DFA held a general meeting on March 22, a report of which was too late for this issue of University News.

In addition, the DFA issued three "certification information" Newsletters between March 13 and 21.

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Dalhousie-Russia exchange agreement reached

The Dalhousie Russian Studies program will have an exchange scholarship arrangement with the Pushkin Institute in Moscow, beginning in 1978-79.

One place at the institute will be set aside for a Dalhousie award winner and a Russian student will spend at least one semester at Dalhousie.

Another major area of agreement worked out with Pushkin is in the number of Canadian students the institute will take. In the next two academic years, 12 students will travel to Moscow each year. In 1980-81 it will increase to 15 students.

The arrangements have been made

possible through co-operative agreements between Canada and the Soviet Union. History professor Norman Pereira, who was instrumental in getting the program off the ground, was a member of the negotiating commission which met in Ottawa to set

Photos—Page 2

down the guidelines for scientific, academic and cultural exchanges for 1978-79 between the two countries.

Prof. Pereira has just returned from Moscow. He reports that this year's group of nine students are settled into

their program of intensive Russian language studies. By 1980, he says, students will be housed in a new university residence. This will mean a reduction in the overall cost of the program for each student. Also in 1980 the program will be extended from four to five months.

Dr. Pereira is encouraged by the response to the program. Interest appears high. To date 14 applications are already in hand for next year and this does not include Dalhousie students who have indicated an interest in applying.

The annual Athletic Awards



Meet Dalhousie's top athletes of 1977-78:

Julie West, field hockey and basketball star, won the Class of '55 Trophy, awarded to the best woman athlete.

Bob Fagan, high-scoring star of the basketball Tigers, who won the men's top honor—the Climo Award.



The third Dalhousie Award, for outstanding contribution to Nova Scotia sport, went to Colonel Samuel R. Balcom who, in the Twenties and Thirties, was almost unbeatable on snow shoes.

Full reports: Pages 10 and 11.

Your horoscope—and Dal's—by biorhythms

Millions of people in Canada and the United States today wouldn't dream of taking a trip, making an investment or having a surgical operation without consulting their biorhythm charts.

If this is all new to you, it's the latest in the boom of psychic phenomena. Biorhythm claims are that, from the moment of birth, we are all slaves of three regular cycles operating in our bodies. There's the 23-day "physical" cycle which determines strength, energy, and resistance to disease. During the "up" phase of the cycle you will be able to perform like Superman, but in the "down" portion you will be lacklustre. There is also the 28-day "emotional" cycle—you are cheerful

and productive when it's "up"; depressed when it is "down." If two or three of your cycles are in the down swing of your cycle at the same time, you are vulnerable and must live cautiously, but the most hazardous

Charts—Page 2

time is when a cycle is crossing the zero line from the positive to the negative cycle. When all three cycles are crossing this point at the same time, it is best to stay in bed until they are all over.

Staffers Kate Carmichael and Judith Campbell discovered that Plato IV, a computer learning device based at Dalhousie for a trial period, will provide its users with graphs of their biorhythms if given enough information.

We decided to ask for a forecast of the 1978 year for Dalhousie Staff and Faculty associations, and for the university generally.

The graph for the DSA suggests that the organization should stay at home and keep quiet for the first half of the year, and although it sits near or on the critical point through the fall and winter, there is hope, because it is on the "up" side of the zero line.

For the DFA, times appear to be good and relatively stable for the year, with some critical points in the spring and early summer.

For the university, the year will be spent mostly in the negative cycle. With the exception of a few high points, the forecast suggests that the university should lay low and bide its time—and hope for better years.

Experts in the theory of biorhythms, and true believers, are probably aghast to see their "religion" so used.

Organizations, we were told, cannot be charted this way. But this is a light-hearted look at the university in 1978 and who knows, things may get better.





ABOVE: The Canadian student contingent at the Pushkin Institute in Moscow arranged a farewell party for their director, Professor Pereira, the evening before he was scheduled to return to Canada.

LEFT: Professor V.G. Kostomarov, director of the Pushkin Institute, chats with Professor Pereira.

LUNAR SHOW & TELL

MAR 30 6-9 PM
 MAR 31 6-9 PM
 APR 1 10AM-4PM

3RD FLOOR DUNN BLD., DAL.

SEE THIN SECTIONS OF MOON ROCKS THROUGH PETROLOGICAL MICROSCOPES*
 MEET AND TALK WITH KATHY SULLIVAN, DALHOUSIE'S ASTRONAUT*

VIEW FILMS OF THE MOON LANDINGS WITH APOLLO 15 AND 16 AND A VIDEO TAPE ON THE "SPACE SHUTTLE"*

BROWSE THROUGH BOOKS AND JOURNALS*

There Stands Dal autograph night April 4

The "stars", writers and technical staff of the Alumni Association movie, *There Stands Dalhousie*, will be on hand to autograph the book of the

same name at Autograph Night, an event organized by the alumni association and to be held next Tuesday (April 4).

The location: The Green Room of the Student Union Building, from 8 to 11 p.m.

The movie will be shown, and copies of the book will be on sale.

In addition, Ken Bellemare, head of the division of athletic and recreation services, will give a presentation on the facilities of the new physical education, recreation and athletic centre.

Two lectures on capitalism

Professor Cy Gonik, former NDP member of the Manitoba Legislature, and now professor of economics at the University of Manitoba, will give two lectures at Dalhousie next week.

Prof. Gonik, who is editor and founder of the journal *Canadian Dimensions* and author of numerous articles, will give his first lecture at 11:30 a.m. on Tuesday, April 4 in Room 2805 of the Life Sciences Centre. The topic: *Alternative explanations of the crisis of modern capitalism.*

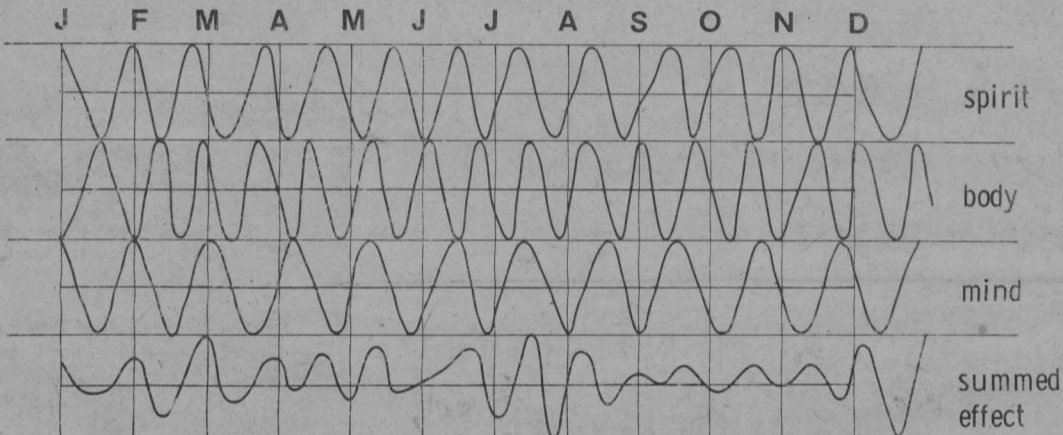
His second lecture, at 2:30 p.m. the same day, in Room 2815 of the Life Sciences Centre, is: *Options for handling crisis in capitalism in Canada.*

Both lectures are open to faculty and students.

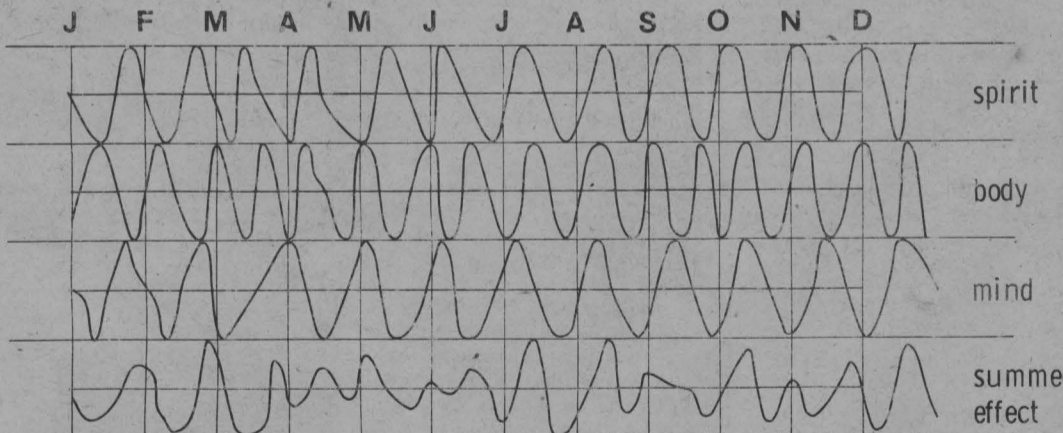
Class approval

Students—it's not too early to select classes and get class approval for 1978-79 courses in Arts and Science, Administrative Studies and Health Professions.

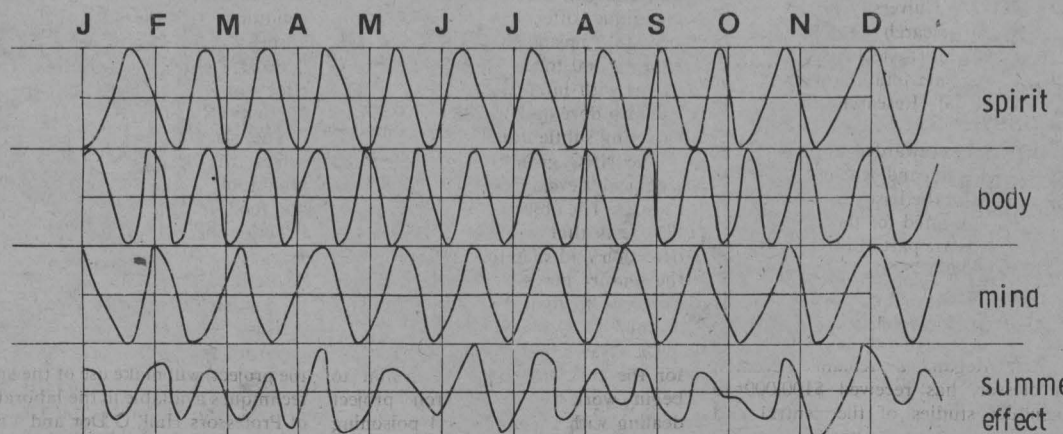
Completed forms can be handed in at the Registrar's Office, Room 133B, Arts and Administration Building, during regular office hours (9-5, Mon.-Fri.).



Serious biorhythm buffs will be appalled at this lighthearted use of their theories, but members of the Dalhousie Staff Association may be encouraged by the optimistic outlook Plato produced for their group in 1978.



Does one of the peaks or hollows in the 1978 biorhythm chart for the Dalhousie Faculty Association signify results of a vote on unionization?



Plato recorded the date of Dalhousie's incorporation and devised the above biorhythm chart for the university. What exciting event is on the horizon signified by the peak in mid-April?

UNIVERSITY NEWS

UNIVERSITY NEWS is published by Dalhousie University every two weeks between September and May.

Inquiries and contributions should be sent to The Editor, University News, Information Office, Old Law Building, Dalhousie University, 1236 Henry Street, Halifax, Nova Scotia, B3H 3J5. Tel: 902-424-2517.

Registered as third-class mail; Permit number, Dartmouth, N.S. 59. Following is the balance of the publishing schedule for 1977-78;

Volume 8 1977-78	DEADLINE (5 p.m. - Tuesdays)	DATE OF ISSUE (Fridays)
14	April 4	April 14
15	April 25	May 5

The NRC grants: \$198,300 for oceanography researchers

National Research Council supplementary grants have been awarded to a team of oceanographers at Dalhousie University. These are co-operative grants involving more than one scientist in each phase of research and have been made in addition to the normal negotiated grants now held by the professors. The total amount for the 1978-79 year is \$198,300.

Recipients are Professors **Peter Wangersky**, chairman of the department and a chemical oceanographer; **Eric Mills**, **Robert Fournier** and **Carl Boyd**, biological oceanographers; and **Anthony Bowen**, a physical oceanographer.

Professor Wangersky will study how particle concentration influences productivity. This involves examining the regeneration rates of nutrients and how these rates affect productivity. Work will be carried out on the Scotian Shelf and in the laboratory. Professors R.C. Cooke and R. Moore (oceanography) and James Novitsky (biology) will co-operate in the project.

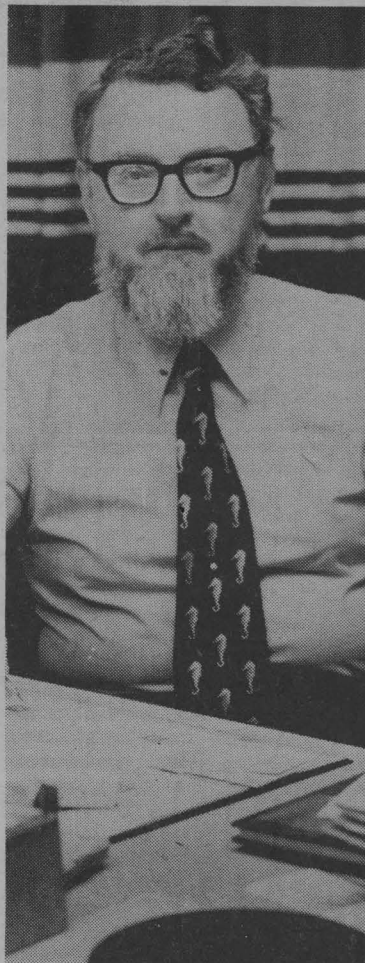
Dr. Eric Mills will measure the abundance of animals on the sea bottom (benthic level) at the edge of the Scotian Shelf, an area with a known high level of productivity. Researchers have reason to believe that there has been an increase in the number of these animals which serve as the food base for the shelf fishery. The Mills study will attempt to determine this.

Robert Fournier will continue with work now in progress. He is investigating the physical and chemical mechanisms of water that control the biological productivity off the edge of the Continental Shelf. Fournier's work involves studies of water movement and content that aid in the growth of phytoplankton.

Anthony Bowen, with fellow physical oceanographer David Huntley and marine geologist David Piper, will make use of instrumentation to study the bottom boundary level of the ocean floor. In particular, they will be monitoring turbulence, water currents, stress on the sea bottom and movement of sediment.

This is an extension of work already in progress which is concerned with the effects of storms, tides and surface waves on shores, bays and the Scotian Shelf.

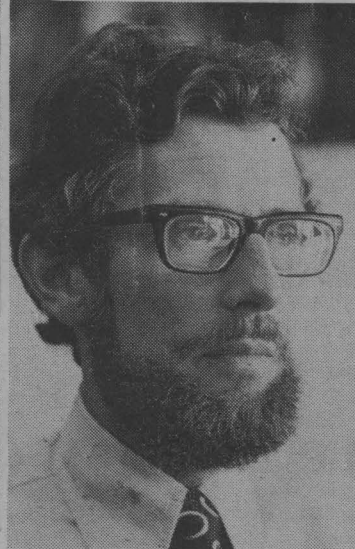
Carl Boyd will carry out grazing and feeding studies on marine invertebrates (zooplankton). The research will be conducted at sea in a natural environment rather than in the lab, and will consist of an analysis of such factors as ingestion, food particle size and metabolic demands of these animals. The project is a joint effort with mathematician Joseph Wroblowski, who will take the data generated by Dr. Boyd and develop numerical models.



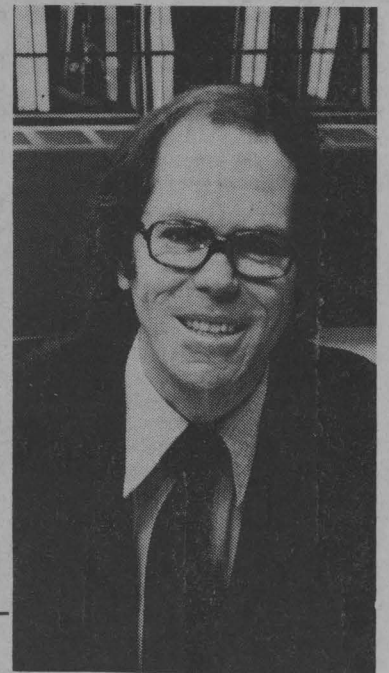
Wangersky



Fournier



Mills



Boyd

\$53,000 for coastal productivity studies

Staff in the Dalhousie Department of Biology have been awarded a National Research Council strategic grant valued at \$53,000, of which \$35,900 is payable in the first year.

The award is based on a proposal for a coastal productivity project involving seven biologists: **A.R.O. Chapman**, **E.C. Pielou**, **I. McLaren**, **B. Hall**, **R. O'Dor**, and **L.C. Vining** and co-ordinated by **Kenneth Mann**, chairman of the department.

The project has two major streams: primary (plant) and secondary (animal) productivity. Both have economic implications for effective management of our aquatic coastal resources.

The team has been directed to emphasize the first part, on-plant productivity. It has three parts.

Dr. Mann will continue with his study of the growth of kelp in the southern end of the province, and with developing his hypothesis that a rich growth of kelp is essential for a healthy lobster fishery.

Investigator Chapman will study the importance of kelp in the Canadian Arctic. His research will be devoted to measuring the growth rate of kelp in the Northern latitudes in an effort to determine how they grow under conditions of low light and temperature.

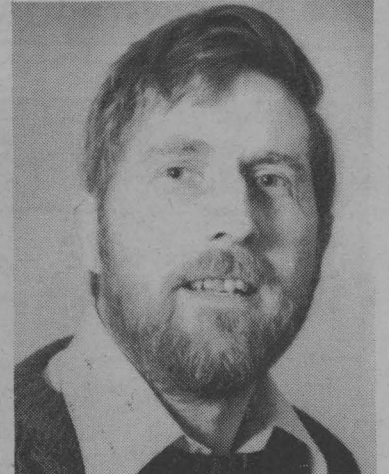
Prof. Pielou will enquire into the effect of wave action on the productivity of rockweeds.

The second research proposal involves the study of small inshore planktonic creatures (copepods) that are food for an important group of fisheries including tuna, herring and mackerel. The overall aim will be to devise a method for measuring the productivity of the copepods.

This is an extremely difficult problem, and Dr. McLaren, who leads the project, will make use of the special techniques available in the laboratories of Professors Hall, O'Dor and Vining.



Co-ordinator Mann



Bowen

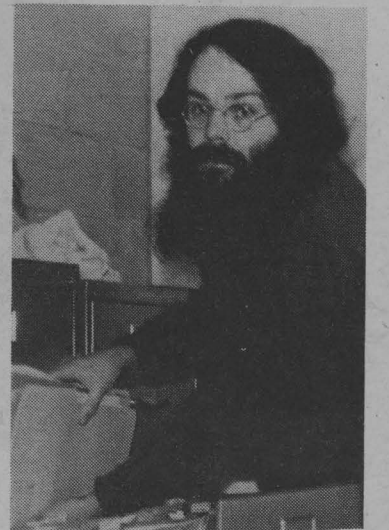
\$44,900 for study of land movement

Dalhousie geophysicist Christopher Beaumont is one member of a team that has been awarded a National Research Council grant valued at \$44,900 to conduct studies in marine geology in Atlantic Canada.

His interest is related to ice sheet history and its effects on the earth's surface over the long term.

The levels of land have risen and fallen as a result of the retreat of the last ice sheet which began about 18,000 years ago. These up and down movements can tell scientists something about the internal structure of the earth's mantle.

The particular phenomenon Beaumont will study is viscosity, the ease with which material flows within the mantle. This characteristic controls the rise and fall of the earth's surface when it is loaded.



Beaumont

Pollution: \$118,000 for Regan, Ryan



Regan: \$100,000

Dalhousie University professors engaged in research in the field of environmental toxicology have been awarded grants totalling \$118,000 by the National Research Council of Canada.

The grants, awarded to psychologist **David Regan** and chemist **Douglas Ryan**, are for the first year with further funding allocated for the second year. The awards are part of the \$2.4 million NRC strategic grants made in the public interest and awarded in the areas of oceanography, energy and environmental studies.

Dr. Regan, a Killam Research Professor, has received \$100,000 to conduct studies of the central and peripheral nervous systems.

Between 1960 and 1964 Dr. Regan developed a fast method for recording, from small metal discs held onto the



Ryan: \$18,000

scalp, the minute electrical signals generated by the parts of the brain that handle sight, hearing and touch. This technique offers an objective, non-stressful means of testing vision, hearing and touch that is particularly useful with infants. More recently he has also developed subjective tests for detecting subtle damage to vision.

The NRC grant is to support the technical development of these procedures. The objective will be to evolve new tests that will aid in the earlier detection and diagnosis of damage to the sensory nervous system caused by exposure to toxic environmental pollutants.

Dr. Ryan's grant, valued at \$18,000 for the first year, will allow him to begin work on a research project dealing with environmental poisoning of trace elements. Professors A. Chattopadhyay and R.G. Guy are members of the research team.

(Continued on page 7)

AN OPEN LETTER

Facilis descensus averno *

—from Dr. Roy M. Haines,
Professor of History

Dear Dr. Welch and members
of the DFA executive:

As a member of the DFA I should like to express some reservations about the bias exhibited in the 'literature' which you have been disseminating. For instance, in a newsletter dated March 13, a copy of which I obtained purely by chance (!), you use the expression "certification campaign" and every subsequent item is devoted to the repudiation of arguments that have been or might be advanced against unionization. You do not countenance any aspects of the matter which run counter to the thrust of this "campaign". Clearly our DFA representatives have closed their minds to alternative arrangements, despite protestations to the contrary. Naively I had thought that the DFA was intended to represent the interests of **all members** and hence to have some appreciation of other facets of so important an issue.

Since "bad faith" has been alleged against the Administration, I think the DFA executive should be doubly careful to keep its own house in order. We have been told that strikes are rare in universities, but considering the relative novelty of unionization in Canadian institutions that is hardly surprising. Surely the hardships of the Laval strike have not been forgotten? They were made known in general to every member of our faculty and published in detail in the CAUT bulletin of January 1977. University work at Laval was stopped for 15 weeks, the faculty suffered a substantial loss of pay and was put in a position of having to hold classes from

April to July. There had in any case to be a compromise on the union's demands with respect to salary levels and a debt of \$800,000 was incurred. The Laval faculty will not only have to repay this but also all the money its members were forced to borrow in order to meet liabilities and to keep themselves and their families alive.

Nearer home, it is true that the frequent confrontation at St. Mary's, leading to the adoption of a 'strike position', has so far been resolved by convenient administrative collapse, but the process is hardly edifying.

Implicit in all the DFA arguments I have heard so far is the notion that a strike is unlikely to occur at Dalhousie. We have been told that a union will guarantee faculty rights by law and that this is the best method of securing such 'rights'. But in the last resort this can only be done by calling a 'legal strike'—and it must be a 'successful' one at that! Why is this unpalatable area glossed over? If the Administration is as intransigent as we have been led to believe, then a strike at Dalhousie would seem to be a distinct possibility. This is no bogey, merely the manner in which a union is legally permitted, indeed expected to enforce its demands.

The argument you have advanced to justify the route taken by the DFA is one of democratic process—any meeting of the association can reverse a previous decision. Certainly that is so, but by itself this constitutes a very crude notion of democracy, which is more properly concerned with securing a consensus than forcing dissenters

into unacceptable situations. It is only too well known that radical groups of quite undemocratic principles have utilized democratic process for their own ends. Individual trade unions have provided conspicuous examples of this. Do we wish to saddle ourselves with an institution which in practice we may find ourselves unable to control? One of the difficulties of democracy is that one has to be exceptionally vigilant! You yourselves have often pointed out that meetings of the DFA have been thinly attended. With a union the same situation is likely to obtain, but the capacity for harm will be infinitely greater. You may find yourselves in the position of saying: *'Ego reges eieci, vos tyrannos introducitis'*.**

My experience of the last year or so's DFA meetings devoted to negotiations with the administration (I missed only one, unavoidably) was that a clearly defined group of ideologically committed persons was forcing the DFA along the road to unionization. The process was facilitated by the unyielding attitude of the administration. It soon became clear that the executive grew to welcome the momentum provided by this pressure group and even began to set the pace itself. DFA support of strike action by other

groups was widely publicized and a contribution to trade union funds figured in the accounts. So clear had become the political involvement that amendments designed to restore the balance were made to a revised DFA constitution. At the departmental level I have found this sort of political involvement both divisive and destructive of academic standards; at the university level it could well have a corresponding effect.

If all this provides a pointer to the future, then we shall be changing one unsatisfactory master for two and it will be the individual of independent mind, whom the university is supposed to cherish, that will be caught between the upper and nether millstones of administration and union. What is more, an individual who feels that he does not wish to join a union, with all that membership entails, will have no opportunity to influence decisions which will vitally affect him, whether for better or worse.

Unions have been forged in an industrial context and with an historically understandable emphasis on the conflict of interest between employer and employee. There is no doubt that they have brought immeasurable benefits to workers of many kinds, but they have also done incalculable harm, not only to their own members, but also to third parties and to society in general. How the scales of advantage and disadvantage are weighted must depend very much upon individual judgement. It is, however, becoming increasingly obvious to more constructive thinkers that the ultimate weapon

of unions for the enforcement of their demands—the strike—is a very blunt instrument indeed and by no means appropriate to a modern interdependent society. Its very nature is one of violence; not necessarily of physical violence, although in British trade-unionism physical violence has become a prominent feature in recent years.

Before setting up a union we need to be aware of the sort of 'movement' we are joining. For make no mistake about it, we shall not be able to concoct some cosy Dalhousie pattern of utopian unionism isolated from the 'labour movement' as a whole. The front-runners in this affair favour unionism *per se* and are not unduly concerned to weigh the consequences.

You give the impression that the faculty has nothing to lose by unionization and much to gain. In fact the loss, though intangible, will be none the less real, and not only real, but fundamental. Even at the most pragmatic level some basic questions need to be posed. Are members of the faculty really prepared to press their sectional interests, however justifiable, to the point of disrupting the university? And, if they are, how successful can they hope to be in the present economic climate? What we need in this crucial situation, I would suggest, is not political opportunism but statesmanship. I am sorry to say that I can discern few traces of this quality in the present situation.

Yours sincerely
Roy M. Haines

**Easy is the descent to hell.*

***I have driven out the kings,
you have introduced the
tyrants.*



Carolyn Savoy is an assistant professor in physical education at Dalhousie. She coaches field hockey and women's basketball.

Women's sports have made some progress on U.S. campuses, but have still not reached parity with men's programs, according to many athletic directors.

Title IX: A workable document

By Caroline Savoy

Many universities in the U.S. have only "token" women's athletic programs. Others have adequate programs and excellent facilities but, the unwritten law is that men take priority and have first choice at the use of these facilities.

In Canada there is no Title IX. Canadian universities have many of the same problems that arise with our southern neighbours. It is rare that Canadian universities are non-sexist with regards to athletics. Many Canadian universities need a Title IX bill to liberate the women's athletic programs.

The same old argument is being used by Canadian university athletic directors as in the U.S. They argue that women's sports are non-revenue and therefore cannot expect to be equal to the money-making football, hockey, or men's

basketball programs. This seems to tell them that men's programs should have priority game times, priority practice times, budgets and out of region trips.

Athletic directors will say that women can have special out-of-region trips, but only if there is a guarantee as the men. This is one area where the female programs in Canada are behind the times and yet can be improved. Athletic directors have to start offering guarantees for women's sports and promoting their programs just as they do for the men.

Dalhousie University is, however, one Canadian university that does not need a Title IX to equalize male and female programs. In looking at the United States and Canada, women at Dalhousie are fortunate to have the advantages of Title IX.

Title IX is a United States federal government bill which requires that men's and women's athletics be treated equally.

Equality in athletics means equal number of programs, parity in practice times and use of facilities, scholarships available to women where they are available to men, equal treatment for budgets and equipment.

The sports groups have been given to July 31 to enforce this bill. But many female athletes, coaches and athletic directors are complaining about the method of enforcement.

Dalhousie is a leader in the field and has been for the past six years.

At Dal men and women athletes are treated equally. In the Dalhousie gymnasium, practice times are rotated among the varsity teams. No one team has priority! There is no discrimination between male and female sports budgets. Travel funds are the same.

In sports like basketball and volleyball there is no difference between the male and female budget. Uniforms are bought and replaced on a rotation basis for all the varsity teams. Athletic scholarships are non-existent in any form, for men or women.

Dalhousie is a working example of Title IX. Whatever the problems are in ironing out the wrinkles of Title IX, women should not despair, for Title IX is a workable document. That has been proved at Dalhousie.

Efficient, inexpensive, TV Services can help in the classroom

By Judith Campbell

Television is a visual medium but the office of Television Services at Dalhousie is not the most visible. Hidden in the nether regions of the Life Sciences Centre are Unit Director John Barry and his production staff, Gerard Dolan and Bill Stark, with a wealth of equipment to assist professors and students alike.

Several academic departments of the university are already making good use of the facilities but Barry feels that many more would find the service useful if they knew of the unit's capabilities.

There are two basic functions for TV Services on campus. One is their archival role, recording events such as the Killam Lecture series for future reference. The other is that television can be of benefit in the classroom. The School of Business Administration has used videotape as a teaching tool for interviewing techniques in much the same way as the School of Physical Education has recorded certain sports. In both cases, the tapes are replayed for the participants and professors to comment on their own performances.

Classes in the three large auditoriums of the Life Sciences Centre can benefit from magnified views of demonstrations being carried out by lecturers at the front of the rooms. Each of these lecture halls is equipped with six monitors, permitting students a clear view of the demonstration from all points in the auditorium. The professor need only request the assistance of TV Services to make this possible.

Professors lecturing on difficult concepts can have such talks recorded on video-cassettes and then deposited in the Killam Library. Students who

missed the lecture, or who had difficulty grasping the theory can then review the material on their own time. Professor John Clements, of the Mathematics Department, has recorded a series of introductory lectures in calculus. Philosophy's Professor Peter Schotch also recorded a series of logic.

The service is not as expensive as might be supposed. Departments in the Faculty of Arts and Science pay only direct costs, (i.e. graphics, tape and overtime on the part of the operator). Other users are charged for the direct costs, plus \$7 an hour for each person involved from TV Services.

The tapes themselves are relatively inexpensive. A new, one-hour videocassette costs \$36; a half-hour tape can be had for \$23. These charges obtain when the user wants to keep the tape. If he wants tape on a rental basis, the charge is reduced to 10 per cent of the cost of new tape. Used (erased) tape can be purchased at half price.

The unit has a wide range of technical services. Its video editing system can edit to 1/10 of a second, giving the impression that several cameras were used when only one was involved. Video tape is available in half-inch reel-to-reel or three-quarter-inch cassette; audio tape is available in quarter-inch reel-to-reel and cassette tapes. The unit has three black and white cameras, a portable video switcher and audio mixer, microphones, lights and a recording machine. It also has in-house playback facilities for tapes from other sources. Any member of the unit would be pleased to discuss the service with potential users.



John Barry at the portable video switcher used for remote location TV productions (Campbell photo).



Gerard Dolan transfers a Killam Lecture from video to audio tape for Dal Radio. (Campbell photo).

Mount honorary degrees for Wall, Duckworth

Mount Saint Vincent University will confer honorary degrees on two women who have made notable contributions to education and to the Mount. Muriel Duckworth and Florence Wall will each receive honorary Doctor of Humane Letters degrees at convocation in May.

Mrs. Duckworth, 17 years with the N.S. Department of Education's Adult Education Division, was instrumental in promoting the study by parents and teachers of the normal growth and basic needs of children. A former president of the N.S. Federation of Home and School Associations, she holds an honorary life membership in that association and also in the Canadian Association for Adult Education.

She was a member of the steering committee of the Nova Scotia International Women's Year Committee; represented several Canadian organizations at the International Women's Year meeting in Mexico City; a founding member and former president of the Voice of Women; a founding member and current member of the Board of Directors of the Canadian Research Institute for the Advancement of Women (CRIA) and is the NDP candidate in the provincial riding of Halifax-Cornwallis.

Florence Wall received her undergraduate degree from the Mount and went on to become chairman of the board of governors. A former president of the Nova Scotia Teachers Union, the second woman to hold that post, she spent 23 years as a teacher, vice-principal and acting principal and worked for the Halifax Board of School Commissioners. She was co-chairman of the steering committee to implement a total educational program development system for Nova Scotia schools and is a former board member of the Canadian Teacher's Federation.

End of tariff exemptions costly—CAUT

Canadian universities may be forced to spend some \$20 million over and above their current expenditures if the Canadian Tariff Board goes ahead with its proposal to eliminate exemptions from duty on certain equipment and material currently in use on university campuses.

The costs to Canadian universities of such a move have been studied by the Canadian Association of University Business Officers, which estimates that Canada's universities stand to lose approximately \$20 million.

The Canadian Association of University Teachers, which is opposed to the removal of the tariff exemptions, says that if the tariff board goes ahead with its plans and the universities are forced to spend more money, there is little likelihood that the sums will be recovered through increased funding from the provincial or the federal governments.

CAUT says the proposed move overlooks the fact that a considerable portion of university scientific research funding comes from the MRC and the NRC, and university funds from these granting agencies were increased by 5.8 per cent and 7.1 per cent—significantly less than the current 9 per cent inflation rate; but perhaps the most important point is that the cost of conducting scientific research in universities has risen much higher than the normal inflation rate.

All these factors combined, but particularly the effect of removing the tariff exemptions, will have a negative influence on many disciplines within the university sector—health, agriculture, forestry, chemistry, physics, biology and the like, says CAUT.

A prize of \$10 will be awarded for the first correct entry opened.

All members of the university community—faculty, staff and students, alumni and members of affiliated universities—are eligible to enter, with the exception of the staff of the Information Office and others involved in the production of University News.

Entries must be received no later than one week from the date of the paper in which the puzzle appears.

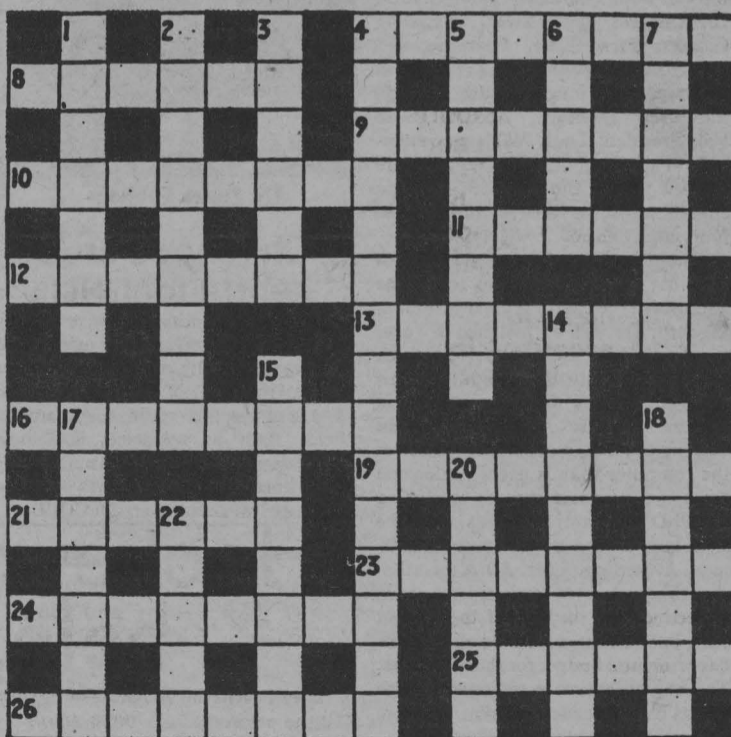
Winner of Puzzle 2751 was James Phillips of the Department of History.

CROSSWORD No. 2751

Across: 1, Comfortably off; 10, One club; 11, Scandal; 12, Saltation; 13, Serai; 14, Napkin; 15, Sheepdog; 18, Strangle; 20, Sprout; 23, Hives; 25, Underwent; 26, Marconi; 27, Pintado; 28, Stepping-stones.

Down: 2, Overlap; 3, Filiation; 4, Rabbit; 5, Absinthe; 6, Leans; 7, Ordered; 8, Filling station; 9, Housing schemes; 16, Esperanto; 17, Allusion; 19, Reverse; 21, Operate; 22, Adopts; 24, Stoop.

CROSSWORD



ACROSS

- 4 Message about a case in Greek. (8)
- 8 Old man behind the times in taste. (6)
- 9 Sound of breathing makes snake angry. (8)
- 10 Song and a fight for an idler. (8)
- 11 King of ring in which a bird holds everything back. (6)

- 12 Bothered about nothing ahead of us so went drinking. (8)
- 13 Encouraging with something sugary behind the tangled net. (8)
- 16 Inter alia an international organization will serve for this part of the world. (8)
- 19 Possibly sterling and they may be gold. (8)
- 21 Mountain range in which I lose my way in an African country. (6)

- 23 Providing fertility for a chap with universal symbol of marriage. (8)
- 24 Animal which has sleeping place by the river. (8)
- 25 Purpose of being under canvas? (6)
- 26 It is fragrant when one payment is included in another. (8)

DOWN

- 1 Part of India where there is potential alarm about a bachelor. (7)
- 2 Superior as a hill behind a town. (9)
- 3 Look in the marshes for criminals. (6)
- 4 Foreign affairs men leave in the middle of an announcement. (5, 10)
- 5 Size is needed to make a town international. (8)
- 6 'Men are _____ when they woo' (As You Like It). (5)
- 7 Get on in the world when training to win. (7)
- 14 All secret ingredients where bottles are kept. (9)
- 15 Something enjoyable which makes its appeal certain. (8)
- 17 Unpleasant, but a change of heart could produce a return of feeling. (7)
- 18 When attacking with missiles it is something painful holding on. (7)
- 20 Messenger who makes a hundred in a different union. (6)
- 22 City with nothing for a lover. (5)

Computer aid eases thesis production

By Kate Carmichael and Judith Campbell

Graduate students, take heart! For those of you in the humanities who have always considered computers fancy gadgets for scientifically inclined colleagues, there is good news on the horizon.

There are now on the Dalhousie campus about 60 "upper and lower case" terminals which can be used to type material into the CDC 6400 computer in the basement of the Killam library. These terminals resemble a typewriter, albeit a highly sophisticated one, and the advantages to the researcher are enormous. Use of the machines does, however, require a certain amount of adjustment on the part of the user who has been conditioned to other methods of recording his thoughts.

There are two types of upper and lower case terminals. One is a combination keyboard and screen, in which the copy is visible to the typist only on the monitor (considered "soft" copy); the other terminal looks like a portable typewriter and reproduces the typed material on paper ("hard" copy) as well as storing it in the computer.

Researchers conditioned to conventional methods of producing papers will find the second type of terminal more useful. The one we examined weighed only 13 pounds and came in a

carrying case. At the back of the machine were two rubber devices shaped like ears, which allow the researcher to work with his material at home, in his office, or at any other location with access to a telephone. The telephone receiver is simply placed in those "ears" and the computer number dialed on the phone. Once answered, the terminal is attached to the computer.

But why bother putting a research paper, thesis or any other manuscript on the computer? Other advantages of the system become obvious when you begin to edit the material and to produce a second draft. Changes in content and style can be made with a few deft motions; the old material is replaced by the new copy in less time than it would take a typist to retype one page and the whole body of material is realigned. The proverbial second and third drafts of theses (or whatever) need no longer be completely retyped incorporating the supervisor's requested amendments. Only the changes need be typed into the computer. The rest of the material is automatically realigned (and this left and right "justification" is an important feature) and the resulting print-out produces that second draft in record time.

This machinery has been available for some time but the arrival on campus of 10 multiwriters (six of which are for general use by the university community) a year ago was the major breakthrough for scholars. The 60 "upper and lower case" terminals mentioned above produce legible copy, but the print is of the standard square-letter sort usually associated with computers. The multiwriter will provide a print-out on regular bond paper, in typewriter quality print at the rate of 30 characters per second in 15 different type faces. (including Courier, Pica, Elite, German, and French). The machine can be set at whatever page length, width or style the user requests. According to Vice-President Louis Vagianos, members of the Dalhousie community are entitled to use these machines at no charge, subject to rules set down by the Computer Centre.

Computer Centre Director Intab Ali says that all a student needs to use the facilities of the centre is a valid student ID card. He will be assigned a "user number" which must be included each time he logs into the computer. This number entitles him to a certain amount of disc space. A student wishing to make more extensive use of the computer than is usually allocated (such as a graduate student producing his PhD dissertation) needs only the signature of the departmental chairman. According to Mr. Ali, a record of the time used is assigned to each department at the end of the budget year, but no charge is made against the departmental budget for those services. The one exception is researchers with grants from outside agencies. They are charged for their computer usage.

So it would be well worth a graduate student's while to visit the Computer Centre to see what use can be made of its services.

The user's manual (Draft/UCFMT Text Processor PL 156) explains clearly how to record and retrieve material on the computer. The Computer Centre is providing a valuable service which may make long hours of editing and recopying material a thing of the past, and it will certainly eliminate high typing costs which graduate students can ill afford.



This "Silent 700" electronic data terminal weighs only 13 pounds and permits the scholar to record his material on Dalhousie's computer in the Killam Library while sitting at home by his telephone. [Carmichael Photo].



Combination keyboard and monitor allows the typist to read material off the screen which is simultaneously being stored in the Dalhousie computer. [Carmichael Photo].



Above, the body. Right, clue-hunting. (A/V Services)

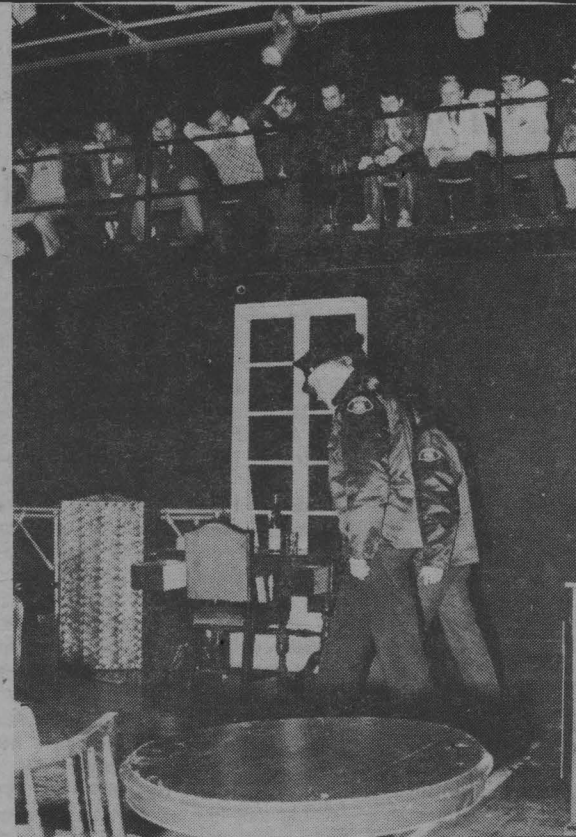
Murder in Studio One

—simulated, of course

The living room was a shambles. Overturned furniture, a broken window, and a safe that had been forced open, were part of the evidence. But all eyes were riveted on the woman's body sprawled across a settee in the centre of the room.

This was the scene in Theatre's Studio One as 26 members of various Maritime police forces (municipal, armed forces, National Harbours Board, Department of Lands and Forests and two Micmacs from Reservation police) completed their course at the Maritime Police Academy.

This is the fourth year in which the Theatre Department at Dalhousie has assisted the



academy by setting up a simulated crime. Arrangements for the crime lab were co-ordinated by Blanche Potter, business co-ordinator at the Theatre Department, with Detective-Sergeant Ron Grantham and Superintendent Emmons Devine of the Criminal Investigation Bureau. Theatre's technical director David Mardon drew up the floor plan with Det.-Sgt. Grantham, and light and sound technician Sharon Wade completed the team.

Harwell's services described



Dr. Derek Gibbons

Childhood study centre for UBC

An interdisciplinary Centre for the Study of Childhood will be established within the faculty of graduate studies at the University of British Columbia. The centre will co-ordinate research in fields such as medicine, sociology, education, psychology, law, nursing and librarianship and will not be restricted to researchers at U.B.C..

Profiles on current programs at two very different installations—Harwell's atomic energy installation in Britain and the Criminal Detection Laboratory at Sackville, New Brunswick, were outlined by visitors to the Chemistry Department recently.

Dr. Derek Gibbons, principal scientific officer with the United Kingdom Atomic Energy Research Establishment at Harwell, is touring the five Slowpoke installations in Canada. He was at Dalhousie where he took time from a busy schedule to describe the Harwell program.

Since the mid-60s Harwell had

developed four basic services, he said. The first was the basic research needed for its nuclear power program; another was the support program for the nuclear power project which covers safety monitoring and waste management. Harwell was now conducting research projects in co-operation with industry as well as providing direct support to government departments and research councils.

Dr. Gibbons said that chemical analysis was a major factor in providing analytical support for all the Harwell programs.

Only the best scientific evidence will do

R.B. Tucker is with the RCMP crime detection lab in Sackville. He told students in the Chemistry Department about the lab's work in forensic toxicology.

Before outlining the work and the methods employed in his division, he emphasized his staff had to provide the best possible scientific evidence in all matters because their information was used by the courts. So he and his staff saw themselves as servants of the courts.

In the toxicology section, personnel supervised narcotic, food and drug control; carried out drug and poison identification in animals; did toxicological examination of living subjects, and post-mortem examinations. As for instrumentation methods, there is a wide array, covering such techniques as paper and gas-liquid chromatography, ultra-violet visible and atomic absorption spectroscopy, and radio frequency ashing.

Hockey scholarships would help, say MPs, Page

They heard the footsteps and they felt the pressure.

In Vienna, perhaps realizing that they were no match for their European opponents, the Team Canada players tried to intimidate their rivals. It backfired. They didn't win and the fans at home soured.

Iona Campagnolo, Minister of Fitness and Amateur Sport, recognized the uproar and formed the Committee on International Hockey to study and evaluate Canadian participation in international hockey.

The committee, all MPs, found "that what is happening in the domestic hockey scene is a contributing

factor to our often disappointing performance and achievement in world competition." Both, they felt, were a reflection of the importance in Canadian junior hockey to develop players for the professional leagues.

The report, released earlier this month, makes a variety of suggestions on the possible improvement of amateur hockey in Canada.

In the area of education, the recurring theme of the hearings, said the committee, was "the situation within junior hockey, where 15 to 19-year-old junior players are neglecting their education while playing major junior hockey."

In Canada, they found, hockey was often in direct competition with school. On the university level, many players, wishing to continue their secondary education, were forced to accept scholarships to American schools in order to follow their hockey career.

The committee report takes a poke at the CIAU (Canadian Intercollegiate Athletic Union) for what it terms "a certain righteousness" on the part of Canadian college athletics "which neglects all favourable aspects of the scholarship as a vehicle to encourage both academic and athletic pursuits."

The committee recommended that the CIAU and Hockey Canada consider

10 \$13,000 fellowships awarded

Over 230 young PhD graduates applied for Killam post-doctoral fellowships for the 1978-79 academic year. Preliminary screening by the academic departments produced a "short list" of 81 candidates from which the seven-member selection committee of the Faculty of Graduate Studies picked 10 winners.

According to the terms of Dorothy J. Killam's will, the fellowships are open to scholars of all nationalities. This year, five of the 10 winners are Canadian or landed immigrants, four are American and one is Swiss. The fellowships are worth \$13,000 each.

Holder of the 1978-79 awards and their departmental affiliations are as follows:

Robert Berard, PhD (McMaster), Education; Peter Dodd, PhD expected 1978 (Queen's), Psychology; Patricia Egli, PhD (Northwestern), Chemistry/Oceanography; Helga Guderley, PhD (UBC), Biology; Wyman Herendeen, PhD (U of T), English; Laura Kendrick, PhD expected 1978 (Columbia), English; Alan Nelson, PhD expected 1978 (Colorado-Boulder), Geology; Richard Roberts, PhD expected 1978 (U of T), African Studies; Allan Stairs, PhD expected 1978 (Western), Philosophy; Edward Tucker, PhD expected 1978 (Brown), History.

New department's head appointed

Dr. Michael Robertson Banks, a Dalhousie medical graduate of 1970, has been appointed head of the new department of family medicine at the Grace Maternity Hospital.

About 200 metropolitan area family physicians are courtesy staff at the hospital, and formation of the new department acknowledges the role they play in the area's maternity service.

The appointment of some family doctors to the hospital's active staff will give the 200 courtesy staff a more active role in administrative affairs at the teaching hospital, where fourth year medical students and interns help in the delivery of nearly 5,000 babies each year.

Dr. Banks is a lecturer in the department of family medicine at Dalhousie.

\$44,900 for study of land movement

Because the area is not accessible to direct observation—it's between 50 and 3000 km below the earth's surface—he will combine numerical models and field observations in his investigation.

The research team includes marine geologist David Piper as senior investigator, who is concerned with sedimentation studies offshore and, in particular, the effects of glaciation and changes on ocean circulation on the accumulation of offshore sediments in the last 200,000 years. Other members are Dr. H.B.S. Cooke, an authority on glaciation; Professors Franco Mediolani and David Scott, who will use microscopic remains of marine plankton to determine former sea levels; Gary Quinlan, a PhD candidate in oceanography; and four graduate geology students.

The studies have long-term implications for coastal erosion and offshore sedimentation.



School gets a radio station, thanks to Dal students

Early last year, a group of Dalhousie students led by Douglas Harvey and George Garner embarked on an experimental project that materialized into one that is unique not only in Atlantic Canada but in the country as a whole.

Their aim was to introduce students at the Sir Frederick Fraser School, the Atlantic provinces resource centre for the visually impaired (formerly known as the Halifax School for the Blind), to radio.

With financial assistance from Dalhousie Student Union, Harvey and Garner demonstrated control room equipment and techniques to four students each weekend at Dal Radio (CKDU). Basic skills were quickly acquired by the students, and their progress encouraging to Harvey and Garner, but the major drawback was not being able to give the students enough practice.

It was then decided to attempt to set up a radio station in the Fraser school, where students could practise on their own equipment at their convenience.

Appeals to radio stations in the region produced encouraging responses, and the CBC donated a surplus control room console, the major component. Harvey and Garner

obtained a grant from the Department of the Secretary of State towards the cost of a complete closed circuit radio station within the school.

With surplus equipment and other assistance, worth a total of about \$40,000, the equipment was installed, and planning began on an extra-curricular program for afternoons and evenings.

Earlier this month, Radio Station CFGH was officially opened.

Internships for library students

Two Dalhousie School of Library Service students have been awarded internships at the Canada Institute for Scientific and Technical Information in Ottawa. They are Gail Gaudet and Jean Guy, who will be working there from May to August.

Ms. Gaudet, a resident of Dartmouth, graduated with distinction from Dalhousie in 1971 with a B.Sc. in mathematics. Her B.Ed. was taken at Acadia and she taught at Trenton High School for two years before joining the staff of the Nova Scotia Technical College Library in 1975. In September 1977 she entered the MLS program at the Dalhousie School of Library Service.

Ms. Guy attended Bishop's College before graduating from Memorial University in 1970. Before entering the Dalhousie School of Library Service she worked at the Scientific Information Centre, Crime Detection Laboratories of the RCMP in Ottawa, at the Multilingual Biblioservice of the National Library of Canada and at the library of the Federal Court of Canada. During this period she completed the library technician diploma at Algonquin College.

AUCC meeting

The annual business meeting of the AUCC will be held at 8 p.m. on June 20 at Morisset Hall, University of Ottawa following meetings of the AUCC Committee of Presidents on June 19 and of the AUCC Board of Directors on June 20. There will not be a conference in conjunction with the meetings.

Open house at the official opening of Radio Station CFGH, at the Sir Frederick Fraser School. Left to right, back row: George Garner, Colin Pottie, Doug Harvey and Rhonda Underhill; front row: Duncan Fowler and Glenn Hallihan.

[Paul Morris Photo].

Australian visitor studies cataloguing

Smith Richardson, Jr., university librarian on sabbatical leave from the University of New England in New South Wales, Australia, spent two weeks in March as librarian-in-residence at the Dalhousie School of Library Service. Mr. Richardson's objective during his sabbatical is threefold. He is visiting university libraries and schools of library science, attending seminars and conferences, and investigating established co-operative networks among libraries.

While at Dalhousie, he studied the Association of Atlantic Universities/Blackwell North America system of cataloguing used by the Killam Library and discussed its broader, network implications with project co-ordinator Anna Oxley and Vice-President Louis Vagianos. The Blackwell North America base at Portland, Oregon is a source of cataloguing information for 13 institutions in the Atlantic provinces. It consolidates cataloguing information from the United States Library of Congress, the National Library in Ottawa and other national libraries around the world. By making use of this data base, libraries are spared the lengthy process of individual cataloguing decisions with the added benefit of uniform listings.

According to Mr. Richardson, several Australian libraries are considering setting up similar co-operative schemes and he is pleased with the opportunity provided by his sabbatical to study existing arrangements. He has already spent two months at Syracuse University and two weeks at Simmons College in Boston. He returned to Boston from Dalhousie, and from there will travel to Washington and other centres in the north-eastern United States. He will spend two months in the United Kingdom and Europe before returning to Australia at the end of the summer.

LETTERS

The Editor
University News.
Sir:

THE OUTLAWS

When one turns over the leaves of our academic calendar and reads the names of the many distinguished visiting professors, visiting assistant professors and visiting lecturers, one is led to believe that the University is most seriously concerned with the advancement of learning and research.

But here too appearance is deceptive.

The "honoured guests" are, in fact, underprivileged "part-timers", hired for one year only—dupes who work half-time but draw not even one quarter of their normal salary—outlaws not entitled to any benefits or increments given to full-time Academic Staff.

The Regulations concerning Appointments and Tenure, 1974, [amended 1976] deal with these "Pariahs" in a special paragraph (3.3.1.) which states: "... None of the other regulations on appointments and conditions of appointments apply in the case of part-time faculty members." This "Law" makes it possible to hire professors on the cheap. (I know of better and fairer means and ways to balance the budget!)

Our "Untouchables" are summarily referred to by University officials as "part-time lecturers" (whether they are full professors or not)—in the same way as prisoners in a penitentiary are called by their numbers only. When the salaries of these outcasts are fixed on the "take it or leave it" basis, they are told that they now belong to the "part-time" academic staff. However, the obscure term "part-time" is never explained to them. When they finally find out that "part-time" actually means half-time and when they then complain to the Administration, their letters are usually ignored, or they are told: Too bad! You agreed to the conditions: CONSENSUS FACIT LEGEM (which is, of course, false, seeing that an agreement is only as binding as a legal enactment if it is not illegal in its terms).

"Part-time" agreements, however, violate Article 23 (2) of the UN Universal Declaration of Human Rights (proclaimed on Dec. 10, 1948) which reads: "Everyone, without any discrimination, has the right to equal pay for equal work."

The great American humorist Ambrose Bierce defines PREROGATIVE as: "A Sovereign's right to do wrong". The Administration, not being a Sovereign, but rather the Servant of the Faculty ("Ich dien"), can hardly claim this privilege!

Prince John Loewenstein
Somerset Place
South Park Street
Halifax, N.S.

Hockey

(Continued from page 6)

financing scholarships and assisting hockey programs.

Pierre Page, Dalhousie hockey coach, welcomed the suggestions of the committee, saying that scholarships would be an aid to keeping the best Maritime players at home and playing in the collegiate league.

College athletics, he said, were exercises in excellence and not a service provided by the university for interested students. With the allowance of scholarships, he felt the first moves towards realizing the value of player development would be realized.

Ken Bellemare, head of Athletic and Recreation Services, thought that the CIAU would consider the recommendations, but would find it impossible to allow scholarships in only one area of college athletics.



Piper

Mathematician helps glider club with new winch-launch

By Kate Carmichael

Stanley airfield in the Annapolis Valley may seem to many to be a strange place to find a mathematician putting some of his expertise to work.

But Dr. John Clements is a mathematician, a glider pilot, and holds a private flying licence.

The Bluenose Soaring Club, with 35 glider pilot members, uses Stanley as a base for its summer flying activities.

Until recently, the club depended on a power plane to tow-launch their gliders—at \$6 per launch. The cost was high and the availability of the tow-planes a problem.

In the fall of 1976, the club decided to investigate the feasibility of constructing a winch-launch system, in which the glider is pulled into the air by a long cable attached to the winch.

According to the club's calculations, the winch-launch system would be a

financially viable operation at 45 cents per launch.

Such systems have long been used by other gliding clubs to achieve an operational height of 800 or 900 feet, which is usually enough altitude in areas of hilly terrain where ridge or wave lift keeps the glider up once it has been released, since the glider pilot can readily make use of the strong prevailing updrafts of gain altitude.

The terrain at Stanley, however, is relatively flat and the pilot must depend on thermal uplifts to maintain altitude after release. The problem with this is that the thermals at Stanley do not become well developed below 1200 to 1400 feet.

The launching system, therefore, had to be capable of getting the glider to 1200 feet or more before release.

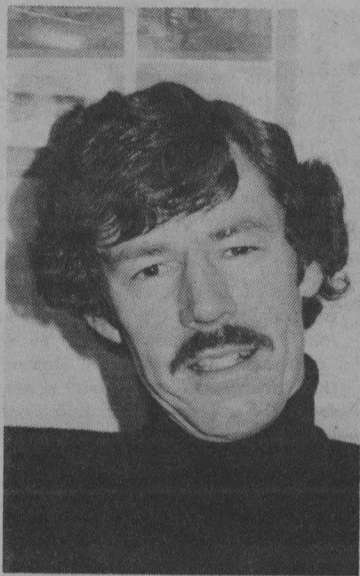
In the winter of 1976, John Clements was asked to develop a mathematical model to stimulate the operation of the winch-launch system, with a view to determining the operational height bands it could achieve within the existing limits of the facilities and equipment (e.g. runway length, allowable cable tensions, permissible winch and glider velocities, and prevailing winds).

Since one of Dr. Clement's primary interests is the study and development of research topics which can be approached by those having only a knowledge of undergraduate mathematics, the problem at Stanley was of particular appeal to him.

Dr. Clements was able to chart the height bands attainable by the glider pilot under a variety of conditions. The results obtained from the mathematical model will provide the glider pilot with information about the speed profiles to fly and the cable tensions which must be maintained in order to reach maximum altitude before release.

During launching the speed of the glider and the tension of the cable are critical, because exceeding the limits of either the aircraft or the cable could result in a serious accident.

The Stanley winch-launch system was installed last summer and while Dr. Clements has obtained some interesting results, he says that more study is required before firm conclusions can be reached.



Dr. JOHN CLEMENTS, associate professor of mathematics at Dalhousie, uses his hobby of flying powered aircraft to save time and money. "If I have to give a lecture or attend a meeting at, say, Moncton, it's more economical for me to fly a small plane there than go by commercial airline."

[Carmichael Photo]

For mathematics buffs or glider pilots wanting the inside information on launching techniques here is the mathematical model, in a simplified form:

$$\frac{dx}{dt} = V \cos(B) - U$$

$t > 0$

$$\frac{dy}{dt} = V \sin(B)$$

with $x(0) = y(0) = 0$ and

$$B = \arctan \left(\frac{SH - By}{WR + BH + Sy} \right) - G(t),$$

G = glide angle
 B = cable drag

Science under-funded neglected—CAUT

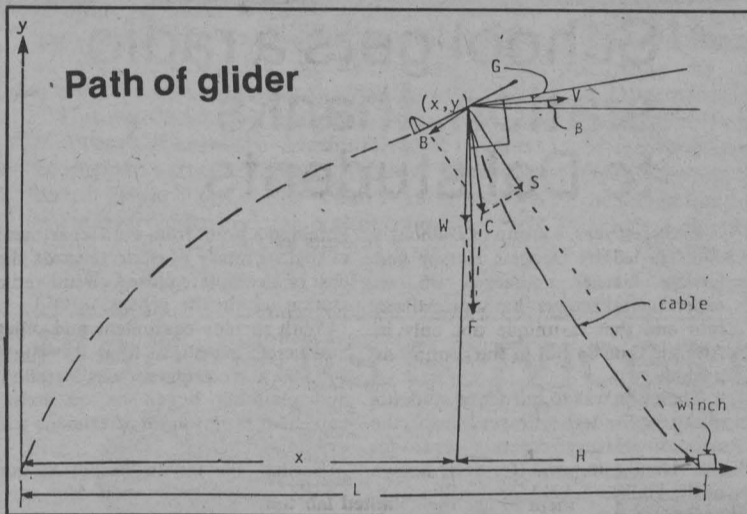
The main estimates for 1978-79, which allocate research funds to universities and federal research institutions—The National Research Council, the Medical Research Council and the Social Science and Humanities Research Program of the Canada Council—are adequate for continuation of present research projects and will not permit funding of new research endeavours supported by the granting

councils, says the Canadian Association of University Teachers.

The NRC will receive a grant of \$104.8 million, up 7.1 per cent; the MRC is slated to receive \$60 million, an increase of 3.8 per cent over the last year's funding; and the SSHRC and Canada Council will benefit by \$31.1 million, or some 7.9 per cent higher than last year's figure.



Gliding over the Annapolis Valley



Here $C = C(t)$ = cable tension
 L = total cable length
 W = gross weight of glider and occupants

$$R = \text{cable length at time } t = \sqrt{H^2 + y^2} = \sqrt{(L-x)^2 + y^2}$$

$$S = \text{the component of } C \text{ along } R = \sqrt{C^2 - B^2}$$

V = constant speed velocity (manufacturer suggested winch-launch speed for particular glider as well as other trial speeds)

$H = L - x$ = the horizontal distance from the glider to the winch

$X = L$ = coordinate of winch in this reference frame.

U = the constant wind speed.

B = wind drag and weight component of the cable.

Alberta Letts travel award

Gail Fraser is the recipient of Dalhousie University's Alberta Letts Travel Award for 1978. The award, made in memory of the former provincial librarian of Nova Scotia and a former president of the Canadian Library Association, provides funding each year for a student in the Dalhousie School of Library Service to attend the annual conference of the Canadian Library Association. This year's conference will be in Edmonton in June.

Ms. Fraser is from New Glasgow. She graduated in history from Mount Allison University, in 1977. Her honours thesis was "The Maritimes through the Eyes of the Busy East: a study of the Maritime Provinces during the 1920's and 1930's."

3% for Manitoba

The three Manitoba universities and the Collège de Saint-Boniface will receive an average 3 per cent increase in their operating grants for 1978-79. In addition, the government recommends that tuition fees be raised by 20 per cent to provide an aggregate increase in operating capital of 5.1 per cent. The government also urges universities to adopt a common tuition fee for arts and science to eliminate the possibility of a tuition "price war".

Dalart Trio at Cohn on Sunday

The Dalart Trio will give its final concert of the Music Department's Sunday Series on April 2, in the Cohn Auditorium at 3 p.m. Trios by Schumann, Brahms and Mendelssohn will be performed.

Mendelssohn's sound trio in C Major, Opus 66, although less frequently played than his first, is probably the better of the two. Mendelssohn's greatest strength lay in his sprightly scherzos and the scherzo of this trio is one of his best.

Schumann's beautiful second trio in F Major, Opus 80 was written in 1847. Although J.S. Bach's influence on Schumann is unmistakably reflected in the contrapuntal intertwining of the themes, one can recognize a new kind of expressiveness foretelling the direction of music of the "Romantic Era".

Brahm's powerful last Piano Trio in C Major, Opus 101 was written in 1886 and it represents some of the most purely distilled music he ever wrote.

The members of the Dalart Trio, Philippe Djokic, William Valleau and William Tritt have recently returned from a successful Canadian tour.

Indexed pensions just—Bradfield

Professor Michael Bradfield, of the Economics Department, addressed the annual meeting of the Halifax Chapter of Canadian Pensioners Concerned Incorporated, earlier this month on the subject: "Higher Pensions: A Just Cause, A Sensible Cause".

Quoting the Economic Council of Canada, Prof. Bradfield said that 44 per cent of Canadians over 65 were living in poverty in 1961. Despite an increased standard of living for most Canadians, the percentage of over-65s living in poverty had remained the same and the actual number of people in this category had increased.

As a solution, Prof. Bradfield recommended that pensions be indexed to the cost of living guaranteeing pensioners an adequate income which, at the same time, would help the Canadian economy by assuring more money would be spent, more goods demanded, and more jobs created to supply those goods. In his opinion, increased pensions would be a more humane and effective way to increase employment than tax concessions and

capital incentives to big businesses.

Prof. Bradfield argued against the stance of the federal government that social programs, such as unemployment insurance, social assistance and the Canadian Pension Plan, led to delays in research and development in industry. He told the pensioners the real reason was Canada's branch-plant economy.

According to Prof. Bradfield, big business blamed the high inflation of the period 1973 to 1975 on wage demands of labour groups and social assistance programs when it was the corporate sector's increased profits which were to blame.

Arguments such as these, which were against ensuring an adequate standard of living for pensioners, only served to protect vested interests, and turned various sectors of society against one another. He suggested a change in the tax system to shift the burden from sales and property taxes to income tax. In this way the entire tax system would be "progressive".

Resource centres boon to chemistry students

By Roselle Green



Directly beneath the chalk board in the advanced centre is an illustration of the polymer teflon. [A/V Services]

An exercise which began partly as an experiment and partly because of a shortage of lab space has now become an integral part of the Department of Chemistry's undergraduate teaching program.

Several years ago in an effort to meet the needs of its first-year students more effectively, the department established a resource centre. It has proven to be a useful teaching aid and learning lab. At the request of the students, a second resource centre has also been established for students enrolled in advanced classes.

Because chemistry students have a lab every other week with a tutorial during the lab-free week, the introductory resource centre has become a valuable component in both the theoretical and lab aspects of the first-year class.

The centre serves a number of functions. It introduces students to certain basic lab techniques, the staff and the facilities; it also allows them to use their limited lab time more efficiently.

Tools which enable students to learn key skills include film loops on about 50 different topics, audio tapes that can be played while students follow with their work books, written programmed instruction booklets on first-year topics, eight calculators [including one with scientific functions and memory], and a large number of model kits.

The advanced centre serves the needs of students who have a stronger commitment to chemistry. Dr. Bill Jones, chairman of the department, says that this centre has become more like a club where students discuss mutual problems with each other and with the staff.

Equipment includes computer programs and computer-assisted learning aids, three interactive terminals, models, calculators, film loops, problem answers and specially designed assignments.

Faculty with backgrounds in analytical, inorganic, organic and physical chemistry share in staffing the centre.

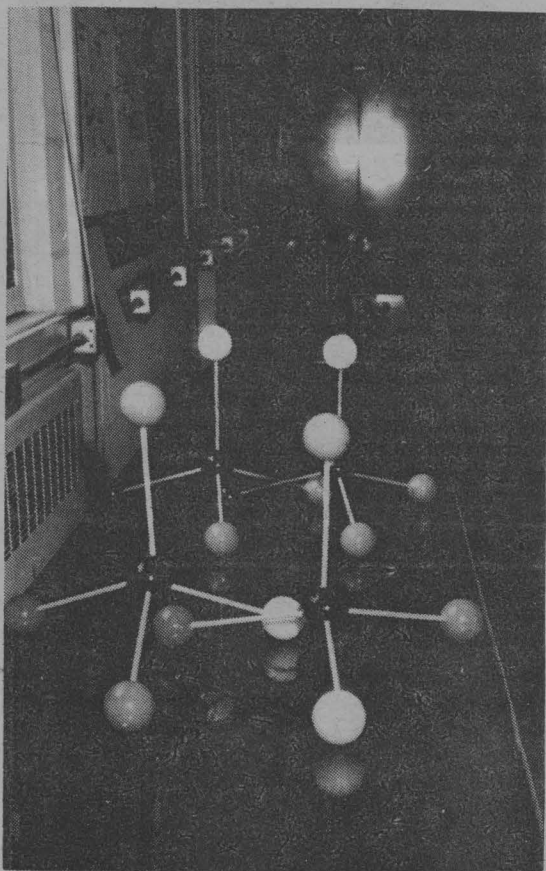
The centres, which are open all day, have staff on hand who serve as help agents. Their role is to come up with leading questions as a way of guiding the students to discover answers to their particular problems.

The resource centres are no substitute for work on the part of the students, says Dr. Jones, but skilled staff can help students to work more efficiently and with less frustration.

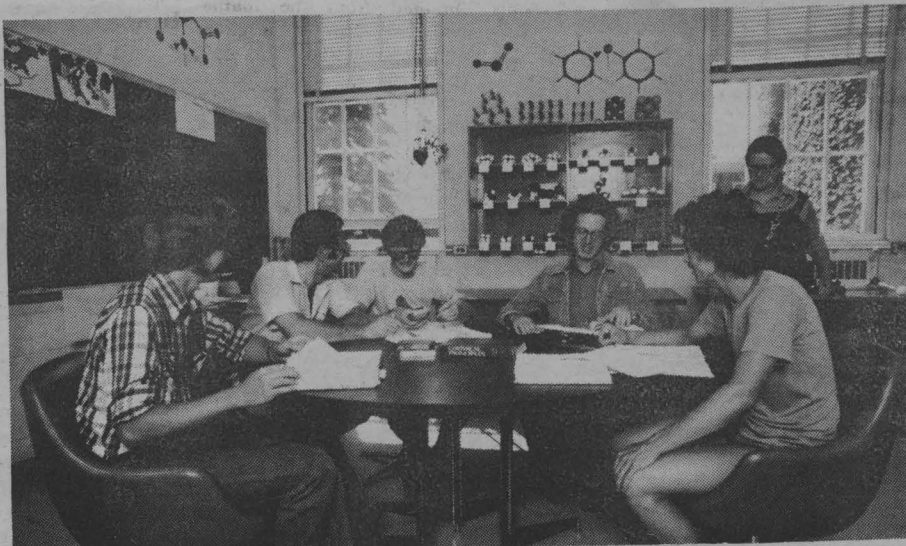


This is one of several computer terminals located in the advanced resource centre. [A/V Services]

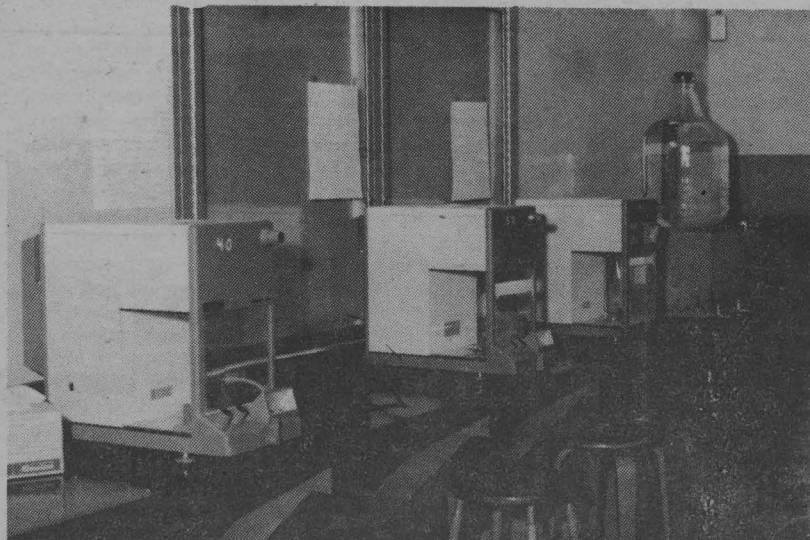
The chemistry department offers instruction to 850 students in the introductory course and serves a total of approximately 1700 students through its class offerings.



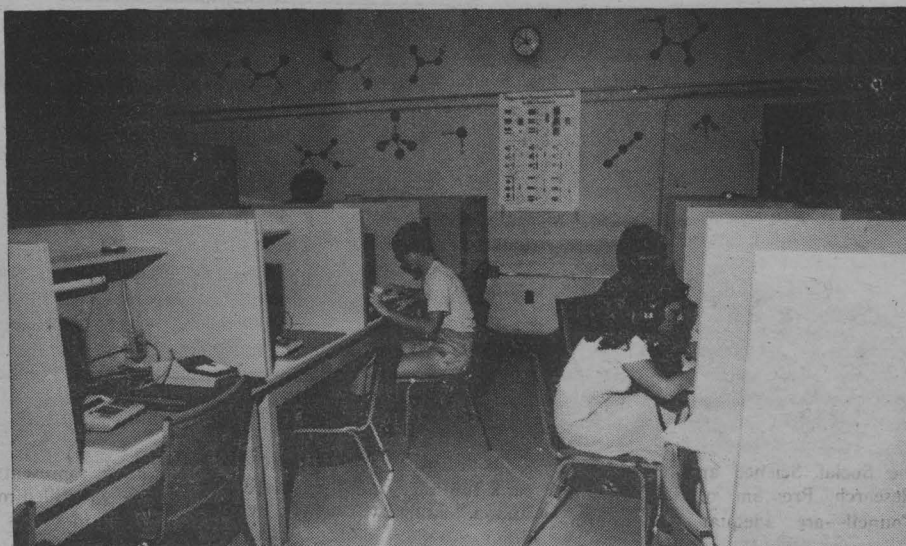
Molecular models such as this one can be found in the resource centre. They are used to illustrate different types of chemical compounds. [A/V Services]



The circular conference table lets the students exchange ideas and discuss problems. [A/V Services]



The First-Year Resource Centre has two balance rooms with 15 analytical balances. Here students can weigh their ingredients before they head for the lab. [A/V Services]



Study carrels are available for students who want to work without interruption.

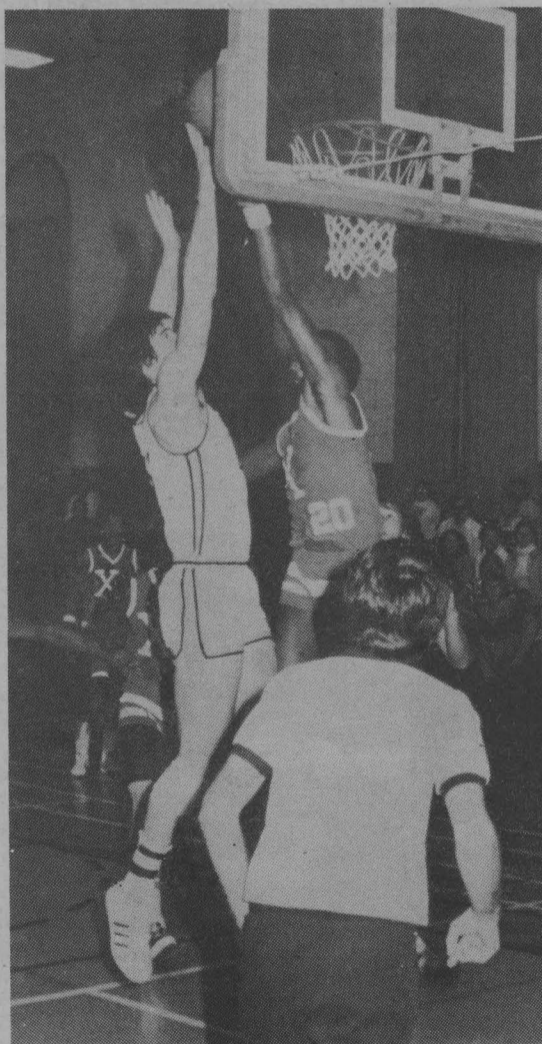
The '77-78 annual



Julie West, this year's best woman athlete at Dalhousie, has had her ups and downs—mostly ups. The photographer caught her (left) in an undignified pose during a 1975 game, but the following year (above middle and right) captured her in ecstatic mood when the Tigerettes won the national field hockey championships.

Meanwhile (lower left and right) Climo Award winner Bob Fagan demonstrates his ability by rising high above the opposition. (A/V Services)

West, Fagan the best athletes of the year



Julie West and Bob Fagan are Dalhousie's top 1977-78 athletes.

Miss West won the Class of '55 Trophy, awarded annually to the outstanding woman athlete for sportsmanship, team spirit, overall contribution to the university athletics program, and ability.

A native of Liverpool, N.S., Miss West graduates this year with her Bachelor of Physical Education degree. She distinguished herself in two varsity sports—field hockey and basketball, on whose teams she was a member for four years.

She took part in the 1976-77 Dalhousie team that won the national field hockey championship, and this year she was selected for the AUAA field hockey all-star team and as most valuable player of the Tigerettes.

On the basketball court, Miss West helped to steer her team through a successful year, to a second place finish in the AUAA conference, for the second successive year.

Bob Fagan, a native of St. Stephen, New Brunswick, competed for four years in the AUAA basketball conference, generally accepted as the toughest in Canada.

As a freshman he averaged 16.8 points per game; as a sophomore, 18.5; as a junior, 22.4; and as a senior, 23.1. His career total of 2215 points is the second highest in CIAU history for a four-year career. In the past year he

scored 759 points and for the second successive year, led the league in scoring.

Elected captain during his junior and senior years, he showed leadership of a high order, as well as consistency and reliability.

Most Valuable Player awards went to:

Badminton: Men's—Bruce Rawding; Women's—Sheila Donovan.

Basketball: Women's—Carol Rosenthal, Anne Lindsay; Men's—Bob Fagan.

Cross-country: Randy Bullerwell, Paul Groarke.

Curling: Men's—Doug Caldwell; Women's—Colleen Jones.

Field Hockey: Julie West.

Gymnastics: Men's—Paul Brousseau; Women's—Lynn Fergusson.

Hockey: Shawn MacDonald.

Alpine Skiing: Reto Barrington.

Soccer: Chris Coleman.

Swimming: Men's—Geoff Camp; Women's—Krista Daley.

Tennis: Men's Perry Smith; Women's—Susan Rubin.

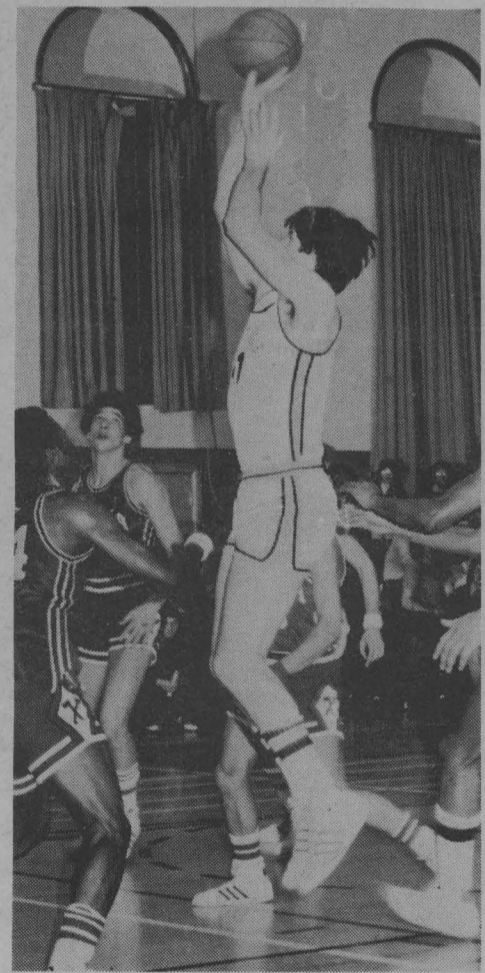
Volleyball: Men's—Jan Prsala; Women's—Susan Cox.

Wrestling: Greg Wilson.

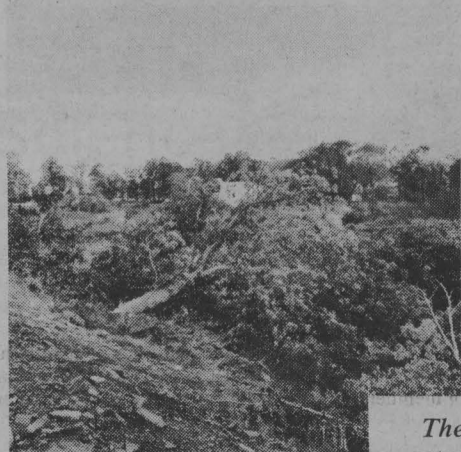
JV Basketball (women): Pinky Schultz.

JV Field Hockey: Mary Louise MacAdam.

JV Volleyball (women): Debbie Hannigan.



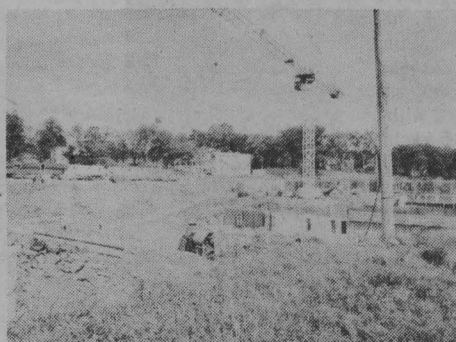
DALPLEX : See how it grows



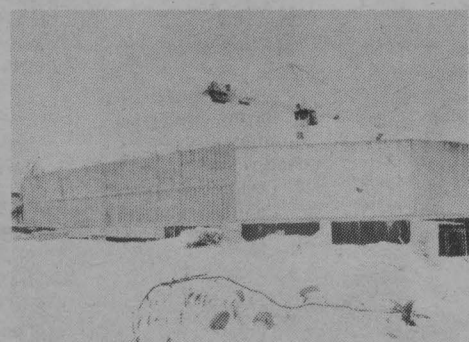
OCTOBER 1976: Site clearing.



APRIL 1977: Digging the hole.



SEPTEMBER 1977: Foundations



MARCH 1978: The wall.

These pictures, by Bruce Moxley, were all taken from almost the same spot on the south western corner of the DALPLEX site. Building in the centre of the first three houses the Personnel Department.

Athletic Awards



LEFT: Julie West receives the Class of '55 Trophy from Dr. Michael J. Ellis, retiring director of the School of Physical Education.



RIGHT: Dr. Hugh Noble presents the Climo Award to Bob Fagan. (A/V Services)

The snow shoeing legend

Special presentations were made to Allison Quinn (right), who is leaving Dalhousie after several years as athletic trainer to many of the varsity teams; and (below) to Dr. Michael J. Ellis, Director of the School of Physical Education, who is leaving the university at the end of the current academic year. (A/V Services)



The Dalhousie Award for Colonel S.R. Balcom

Running 100 yards in 14 seconds would be a major achievement for most over-30s today. But to cover the same distance on snow shoes in that time, and then go on at the same race meeting to win the long race—a little over seven miles—in 80 minutes, would be beyond only the fittest and most expert.



The president, Dr. Henry D. Hicks, reads the citation of the Dalhousie Award as Col. Balcom listens. (A/V Services)

Samuel Rosborough Balcom was both fit and an expert. A stalwart of the Red Cap Snow Shoe Club of Halifax in its heyday, Colonel Balcom became a legend in local snow shoeing history.

And at the 1977-78 annual Athletic Awards banquet earlier this month, he became the third recipient of the Dalhousie Award for Great Contribution to Nova Scotian Sport.

The Red Cap club, formed in 1874 to "encourage a taste for snow shoeing", flourished for more than 50 years, its activities interrupted by two wars and a few winters without snow, and after a period of inactivity, it was disbanded in 1974.

Sam Balcom was one of a dozen new members of the club in 1910. Born in 1888 at Port Dufferin, he was raised in Halifax and, in 1915, was a graduate of Dalhousie's Maritime College of Pharmacy; busy with his studies, he was not too active with the club until 1919, having served with Dalhousie's Mobile Field Hospital in Europe during the First World War, and the club had suspended its activities.

Sam Balcom soon became heavily involved with the club, and in January, 1920—when he was 32—began his racing career, winning both the 100 and 200 yard events—quite an achievement, because it was only the third time he had donned snow shoes. For three years he dominated the short races, and then went on to compete in the long races, and between 1920 and 1927 won the long race four times and was second three times. He continued racing until 1939, and in his 20 years of competition, Sam Balcom won no fewer than 20 races, long and short, and was second or third in ten.



Col. Balcom, Miss Zilpha Linkletter, vice-chairman of the Board of Governors, and Prof. Sandy Young, who conceived the idea of the Dalhousie Award. (A/V Services)

Well-known in Nova Scotia as a businessman, public servant and politician, Sam Balcom practised pharmacy for many years, establishing a retail chain of drug stores throughout Halifax. During the Second World War, he was chief medical stores inspection officer for Canada and Newfoundland, attaining the rank of lieutenant-colonel.

He has been president of the Nova Scotia and the Canadian Pharmaceutical associations, and as a politician, represented Halifax-Dartmouth as Liberal MP from 1950 until 1957. He has also been active in community organizations, was a founding member of the School of Social Work and for many years was a member of Dalhousie's Board of Governors.

The first Dalhousie Award was presented in 1976 to Henry Pelham, the only living member of the famous Mic Mac four-oared crew that won the National Championships in 1932 and represented Canada in the Olympics held that year in Los Angeles.

Aileen Meagher, recipient of the 1977 award, was one of the outstanding athletes of the 1930s. In 1935 she was awarded the Nordin Crowe Award for outstanding athletic performances and sportsmanship (normally awarded to men) and the Velma Springstead Award as the nation's outstanding woman athlete. She was a bronze medallist in the 4 x 100 metre relay at the 1936 Berlin Olympics.



Dichter at Cohn

In 1966 Misha Dichter was hailed by the world press at the Tchaikovsky International Competition in Moscow. In the early 1970s he established himself as one of America's leading young artists, inspiring Newsweek to write that he was "the best of the new breed of pianists."

Today, the 30-year-old virtuoso is busier than ever, having become one of the most sought-after pianists on the international concert scene.

Dichter will perform on Friday, April 7, at the Cohn Auditorium, at 8:30 p.m. The concert will include works by Beethoven, Schubert, Liszt and Prokofiev.

Dichter's piano lessons began when he was six years old in Los Angeles, where he and his Polish-born parents had emigrated. In Los Angeles, he studied with Aubi Tzerko and later, at the Julliard School of Music in New York, under the distinguished piano pedagogue Rosina Lhevinne. While at

Julliard he won the Beethoven Concerto Competition and was awarded the Joseph Lhevinne Scholarship, the highest recognition the school offers. Following these years of intensive preparation, he travelled to Moscow, where he captured the silver medal of the Tchaikovsky Competition.

After his success in Moscow, he performed with the Boston Symphony at the Berkshire Music Festival at Tanglewood. This concert introduced Dichter to millions of Americans across the country as it was broadcast by NBC.

Since then he has made dozens of tours throughout the United States, the Middle East, the Far East, the Soviet Union and Europe, earning an international reputation. He has performed with the world's top orchestras, and has received glowing accolades from the international press who all hail Dichter's "stupendous strength and brilliance".

CAPSULE: Calendar, Notices, People and Places

PEOPLE

Dr. Friedrich Gaede of the German Department will deliver two lectures entitled, "The Tradition of Realism in German Literature" and "The Function of the Proposition in German Barockliteratur" at the University of Connecticut and the University of Amherst in early April.

Dr. W.C. Smith, chairman, Dept. of Religion, gave a lecture entitled, "Modern Challenges to Buddhism and Christianity" at University of Toronto, March 29.

Dr. William A. Parker, assistant professor of pharmacy, is the recipient of the 1978 Canadian Society of Hospital Pharmacists Burroughs Wellcome Award for developments in administrative practice in hospital pharmacy. The award, for his work on "Serum Digoxin Utilization Review," was presented at the ninth annual CSHP Professional Practice Conference, held in Toronto, Feb. 5-8.

Miss Rebecca Boyd, lecturer in pharmacy, was recently appointed editor of *Update*, the College of Pharmacy's continuing education publication, which is distributed to more than 1,000 pharmacy practitioners in the Maritime provinces. Retiring editor is C. Brian Tuttle, supervisor of drug information services at Camp Hill Hospital, who was editor since publication began in 1972.

Miss Vivian L. Quiring, lecturer in pharmacy, was an invited speaker at the Proprietary Association of Canada's symposium on self-care, in Ottawa last month. Miss Quiring spoke to the assembled group of health professionals, industry and government representatives on what the pharmacy educator was doing to prepare the pharmacist for his role in rational self-medication. She also gave suggestions to the drug industry on how they can help the educator in this endeavor.

Drs. William A. Parker and Cameron A. Shearer, both assistant professors of pharmacy, presented lectures at the P.E.I. Pharmaceutical Association Continuing Education Program, held in Charlottetown last month. Dr. Parker spoke on pediatric therapeutics and Dr. Shearer spoke on diuretics.

Lydia Makrides, School of Physiotherapy, is serving on a federal health directorate expert group. The group has met four times since October. The group meets in Ottawa and its purpose is to develop an instrument to measure the quality of care offered to patients by physiotherapists. The first draft of a model measuring outcome of care is currently being tested in the physiotherapy departments of hospitals in Halifax and Dartmouth.

Dr. David Regan, Psychology Department, recently delivered an invited lecture to the Royal Society of London. In the paper he described research on the visual perception of moving objects being carried out by himself and psychology colleagues K.I. Beverley and M.C. Nader.

Dr. S.B. Singh, Anatomy Dept., will be presenting a paper entitled "Effects of Intramedullary Reaming on Long Bone of Rat", (S.B. Singh and Hans Röckert), at the Canadian Federation of Biological Societies meeting in London, Ont., June 19-23.

Dr. D.G. Gwyn, Anatomy Dept., will be presenting a paper entitled "Vagal Afferents to Area Subpostrema of the Cat", (D.G. Gwyn and R.A. Leslie), at the American Association of Anatomists meeting to be held in Vancouver, April 2 to 6.



Russian Cultural Days

April 1, MacAloney Rm., Arts Centre

10 am - 12 — Russian Culture Panel
2 - 4 pm — Human Rights Panel
4 - 6 pm — Songs & Poetry by Local Russian Community

April 2, Rebecca Cohn, Arts Centre

1 pm — Bruce Vogt's Piano Lecture-Recital

Professor Gilbert R. Winham, Director of the Centre for Foreign Policy Studies, lectured on "The Foreign Policy of the Carter Administration" at the Saint John and Fredericton Branch Associations of the Canadian Institute of International Affairs earlier this year.

He also had published an article entitled "Negotiation as a Management Process" in *World Politics*, Vol. 30, and presented a paper entitled "Report on the Slobbovia Negotiations" at the annual meeting of the International Studies Association, Washington, last month.

Professor Timothy M. Shaw, director of Centre for African Studies, appeared on CBC's Afternoon Show to discuss the North-South Report, "North-South Encounter".

He has had two articles published: "Inequalities and the State in Africa" (with Malcolm J. Grieve) in *Review of Black Political Economy*; and "The political economy of regional detente: Zambia and southern Africa" (with Agrippah T. Mugomba) in *Journal of African Studies*.

Dr. Tom Sinclair-Faulkner, Dept. of Religion, has been giving a series of lectures entitled, "Peculiar Peoples" for the Interchurch Council in Mahone Bay.

Professors Shaw and Munton attended the Inter-University Seminar on International Relations at Laval Univ.; they also completed a Report for Department of External Affairs, "Global Forecasts of the 1980s" on the literature of futurology.

Professor Don Munton, Political Science Dept., attended Round Table discussion on formal models of Canadian Foreign policy, International Studies Association, Washington, D.C. in Feb.

Professor Munton has two articles entitled "Canadian Public Opinion on Foreign Investment" and "Foreign Policy" in the *International Journal*, winter and fall editions. He will have an article appear in *International Perspectives* (May, June) on "Future of Canadian-U.S. Relations".

Dr. D.M. Chapman, Anatomy Dept., will be presenting a paper entitled "TEM of Methylene Blue Molybdate in Vially Stained Nerves", at the Canadian Federation of Biological Societies meeting in London, Ont., June 19-23.

Dr. Michael Ellis, director of the School of Physical Education, and co-author G.T.L. Scholtz have recently had a book, entitled, *Activity and Play of Children*, published. Dr. Scholtz is with the Potchefstroom Univ. of Higher Education in the Republic of

South Africa.

Dr. Ellis was the binding arbitrator in a dispute between the faculty and the administration at the University of Windsor.

Dr. Ellis held a series of seminars on play environment equipment with the design team at BigToys in Tacoma, Wash., for whom he acts as a consultant.

Dr. Sue Moxley, School of Physical Education, attended meetings in Ottawa as a member of the national committee on recreation for synchronized swimming.

Dr. Moxley is technical chairperson of the Nova Scotia division of the Canadian Synchronized Swimming Assoc. responsible for coaching and judging the sport.

Jim Hoyle, School of Physical Education, had an article "Find Your Way by Orienteering", in the latest edition of *AHOY* magazine, a Canadian magazine for children.

Professor Denis Stairs, Political Science Dept., presented a paper entitled "Devolution and Foreign Policy: Prospects and Possibilities" for the Conference on the Future of the Canadian Federation, U. of Toronto.

He had two articles published in the *International Journal*; one with Prof. Daniel Madar of Brock University entitled "Alone on Killer's Row: The Policy Analysis Group and the Department of External Affairs" and another entitled "Public Opinion and External Affairs: Reflections on the Domestication of Canadian Foreign Policy".

He gave a lecture on "The Quebec Independence Movement and Foreign Policy" at Mount Allison Univ. and was elected vice-president of the Canadian Political Science Assoc.

German students win awards

Catherine Dok, a first-year German student, and **Bianca Lang**, a second-year student, have been awarded an eight-week scholarship at the German Goethe Institut for their performance in the German Language Competition.

Miss Dok passed the exam with no mistakes to beat the 44 other competitors from Quebec and the Atlantic Provinces. Since the inception of the language competition four years ago, Dalhousie students have won the top place and have been awarded more scholarships than any other university in Eastern Canada.

Peter Dale Richard, a second-year student, has scored 2nd place in the Canada-wide German Academic Exchange Assoc. (DAAD) competition. He will take a two month summer course at the University of Freiburg in Germany.

CALENDAR

MARCH

31 Law Lecture & Discussion—Contract, Freedom & the Political Order—Dr. David Braybrook & Jennifer Nedelsky, Dal. "Contract & Laizzez-faire. Rm. 11, Weldon Law. 1:30 p.m.

Library Service Symposium. "Libraries & Popular Education". MacMechan Auditorium, Killam Library. 10:45-4 p.m.

Dalhousie Christian Fellowship & Trinity Graduate Christian Fellowship. Film Series, "The Rise & Decline of Western Thought & Culture". MacMechan Auditorium. 7 p.m.

Science Fiction Horror Cinema. "Colossus: The Forbin Project" (1970). Rm. 2815. L.S.C. 7 & 9 p.m.

APRIL

1 W.C. Fields / Mae West Films. All Night Film Festival (The Wizard of Oz. Follow The Boys, Invasion of the Body Snatchers, THEM!). Rm. 2815. L.S.C.. 7 p.m. Adm. \$3.50.

2 Movies at the SUB. "The Omen". McInnes Room. SUB. 7:30 p.m.

3 Dalhousie-King's Reading Club, for members, with hostess Mrs. W.J. Chute and speaker, Dr. E.C. Pielou. Topic is "The Conservation Dilemma". 8 p.m.

3-4 AMC. Time Management with Dr. Alex MacKenzie. Holiday Inn, Robie St.

4 African Studies Seminar, Bernard Wood, North-South Institute, Ottawa. "Canada & the UN Conference on Science & Technology for Development". MacMechan Auditorium. 7 p.m.

5 German Film. MacMechan Auditorium. 8 p.m. Free.

Biological Oceanography. Mr. Leonard Mukai, Rm. 4662. L.S.C. 4 p.m.

6 Biology Seminar. Dr. V. Gerard, U. of California & Dal. Rm. 2970. L.S.C.. 11:30 a.m.

African Studies Seminar. Zbigniew Konczacki. 1444 Seymour St. 12:30 p.m.

International Business & Ocean Resources. "Ocean Industries in Canada" with Martin J. Colpitts. Ocean Industries Division. Dept. Industry, Trade & Commerce. Rm. 4207. L.S.C. 6:30 p.m.

Physical Oceanography. Brad Blackford, Dal. 5th floor lounge. Oceanography Wing, L.S.C.. 7:30 p.m.

7 Psychology Dept. Lecture Series. "On the Nature of Thought". Ulric Neisser. Cornell U. Rm. 4258. L.S.C. 3:30 p.m.

Law Lecture & Discussion. The Contract, Freedom & the Political Order. Chris Axworthy & Bruce Archibald, Dal. "Contract in the Regulated Economy: East & West". Rm. 114, Weldon Law. 1:30 p.m.

Library Service Seminar. "The Canadian Periodical Scene Today". MacMechan Auditorium, 10:45 a.m.

Friday-at-Four. Dr. Roger Seal. Farmers Lung and Extrinsic Allergic Alveolitis.

Science Fiction Horror Cinema. "Zardoz" (1975) Restricted. Room 2815. L.S.C. 7 & 9 p.m.

9 Movies at the SUB. "How The West Was Won". McInnes Room. 7:30 p.m.

11-14 AMC. Executive Secretary Workshop.

12 Biological Oceanography. Mr. Richard Bohrer. Rm. 4664. L.S.C. 4 p.m.

13 African Studies. D.K. Doherty, External Affairs, "Canada's Relations with Africa", 1444 Seymour St., 4:30 p.m.

International Business & Ocean Resources. Conclusion: Roundtable Discussion. (overview of international business operations in the offshore). Rm. 4207. L.S.C. 6:30 p.m.

Physical Oceanography Seminar. Lung Ku, Jerry Smith, John Loder & Tony Bowen. "Pre-Conference Talks". 5th fl. Lounge. Oceanography Wing, L.S.C. 7:30 p.m.

AT THE ARTS CENTRE

ART GALLERY

March 7 - April 1 — Peter Kolisnyk Sculpture
March 7 - April 9 — Richards Jarden: New Works
April 2 - 15 — Nova Scotia Stamp Club
April 11 - 30 — Jon Whyte - Concrete Poetry

DALHOUSIE REGIONAL FILM THEATRE

April 2 — F for Fake (1973 France in English), Cohn, 8 pm
April 9 — Lalka (The Doll)(1968 Poland, English subtitles), Cohn, 8 pm
April 16 — Marquise of O (1976 France/Germany, English subtitles), Cohn, 8 pm
April 23 — To Be Or Not To Be (1942, U.S.A.), Cohn, 8 pm

REBECCA COHN AUDITORIUM

March 31 - April 1 — Bach's St. Matthew Passion, Dal Chorale & A.S.O., 8:30 pm
April 7 — Misha Dichter, pianist, 8:30 pm
April 8 — Carroll Baker, country female singer, 8:30 pm
April 12 — Jessy Dixon & the Dixon Singers, gospel group, 8:30 pm

MUSIC

March 31 - April 1 — Bach's St. Matthew Passion, Dal Chorale & A.S.O., 8:30 pm
March 31 — Noon Hour Recital, Dal Brass Ensemble, main foyer, Arts Centre, 12:45
April 2 — Dalart Trio, Cohn, 3 pm
April 3 — Graduate recital, Len Hild, tenor. Cohn, 8:30 pm
April 4 — Graduate recital, Judy Grace, mezzo soprano. Cohn, 8:30 pm
April 5 — Student concert, Cohn, 8:30 pm
April 8 — Graduate recital, Ruth Prentice and Barbara Fischer, sopranos, Dunn Theatre, 8:30 pm