

# UBC REPORTS

VOLUME SIXTEEN, NUMBER FOUR

JANUARY 29, 1970, VANCOUVER 8, B.C.

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## CONTROVERSY

has centered on plans of the Vancouver Park Board to develop the foreshore area at the base of the Point Grey cliffs below the UBC campus. The aim of the Park Board is to curtail erosion which is slowly eating away the exposed cliffs shown in the photograph below. For the pros and cons of the argument by a Park Board official and a UBC assistant professor who wants to retain the wilderness quality of the beach area, turn to Pages Six and Seven.



George Allen Aerial Photos

## Geologists Aim for New Center

—See Pages Two and Three

## The New Frontiers of Metallurgy

—See Pages Four and Five

## Typical UBC Student Described

—See Pages Eight and Nine



# UBC's GEOLOGY DEPARTMENT

lives in a Salvador Dali world of decaying army huts and cluttered corridors (see pictures on page opposite). The main Geology Building on the West Mall, although still structurally sound, has to be inspected each time large quantities of rock samples are imported or moved around to ensure that the floors won't collapse. UBC's Board of Governors has pledged an initial \$930,000 for a new Geological Sciences Center and fund-raisers will ask industry to contribute \$3.1 million to aid a department which has directly or indirectly contributed to the discovery of \$13 billion of mineral deposits in B.C. and \$35 billion in Canada.

UBC's Geology Department is going to turn a few rocks instead of analysing them. Ground is scheduled to be broken sometime this spring on a \$4-million Geological Sciences Center which will move Geology out of the sagging, dilapidated tar-paper shacks housing much of the department now.

The new building will be west of the old B.C. Research Council building on UBC's Main Mall.

## BUILDING SAGS

The geology department and the buildings which house it are something of an academic phenomenon. The department is the largest geology department in the free world and its graduates have directly or indirectly contributed to the discovery of \$13 billion of mineral deposits in B.C. and \$35 billion in Canada.

The structures housing the department—they can hardly be called buildings—have become part of the folklore of UBC. Four of the five shacks now in use were built as huts for the armed forces at the beginning of the Second World War and moved onto the campus when the war ended. The fifth, a two-storey frame building, was built immediately after the war. Due to lack of funds its exterior was never finished and it has stood covered in tar-paper for more than two decades. The walls of the buildings are visibly sagging.

Conditions are so impossible that a tour of the buildings leaves the visitor choking as much with laughter as horror. Let's consider the old Applied Science building, by far the best of the buildings used by Geology. It seems to be made of plastic.

"Last summer when we were re-arranging a room we took some rocks lying on a window sill and put them on those workbenches,"

explained department head Prof. William Mathews. "The floor sagged three inches."

Supporting columns and walls seem to be independent of each other. At least they move independently. Lines established by Dr. Mathews where the walls join columns show that the walls move up and down in relation to the columns.

Before rock samples are brought into the building or moved around in the building Prof. Mathews calls the Physical Plant Department. Physical Plant has also inspected the building at the request of the administration on a number of occasions and found it structurally safe. "Perhaps our most famous example was Dr. Hugh Greenwood's lab," Prof. Mathews said. "He discovered that whenever someone answered the phone in his lab, his weighing scales went out of balance."

From the point of view of load weight, the entire building is like a stack of cards. Rock samples and research equipment have been carefully placed in the rooms so that their weight is as close as possible to walls supporting the floor. Door frames and floor moldings are as much curved as straight. If the angle is right, looking down a corridor is like looking at a Salvador Dali painting.

## FUND APPEAL

Mining and oil companies and firms related to the mineral industry have been pressing for new facilities for years. Industry leaders will ask colleagues to donate \$3.1 million toward the new building. UBC has committed \$930,000 for 1970-71.

Since 1916, the department has produced 680 graduates. In the past five years it has graduated about 20 per cent of all geologists in Canada and one out of every 60 trained in North America. Undergraduate enrolment in September stood at more than 1,700, the largest in the free world.

Chairmen of geology departments in at least four other Canadian universities are UBC geology graduates. The list of graduates now active in the province reads like a who's who of the mining and oil industry. Craigmont, Endako and the other discoveries they have been associated with mark the beginning of the modern history of mining in B.C.

Here is a list of some graduates and the projects associated with them:

Mr. John Rudolph: oil and gas deposits at Bellshill Lake, East Calgary and the Rainbow Lake trend with a total gross value of \$2.55 billion.

## FINDS LISTED

Mr. Bern Brynensen and Mr. Morris Menzies: metal deposits at Brenda Mines, Boss Mountain, Bugaboo Mountain, Kennedy Lake, Mount Washington and Newman Peninsula; \$1.2 billion.

Mr. Walter Holyk: the tremendous copper find at Timmins, Ontario; \$2 billion.

Mr. R.H.B. Jones: iron at Lac Jeannine; \$10 billion.

Mr. G.W.H. Norman: copper at Granduc; \$500 million.

Dr. F.R. Joubin: uranium at Elliott Lake; \$4 billion.

Dr. A.E. Aho: zinc, lead and silver at Dynasty Explorations; \$1 billion.

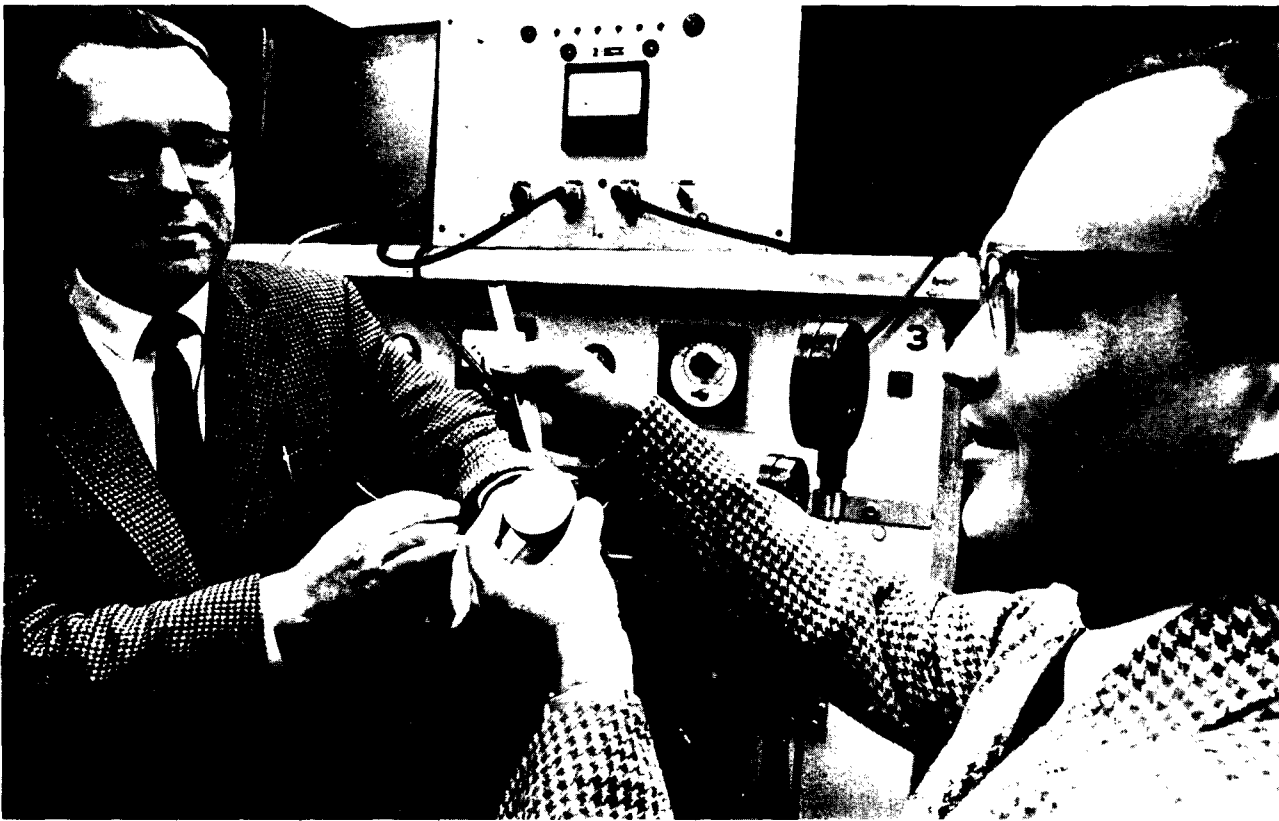
The mineral industry is the second most important after forestry to British Columbia. Gross value of production last year was about \$460 million. This is about \$700,000 for every graduate from the department since 1916 in one year of production alone.

And the demand for earth scientists continues to grow, especially in western Canada. Canadian geology departments could supply only 40 per cent of the geologists required by Canadian industry in 1968.

The projected Geological Sciences Center will go a long way to remedy the imbalance.

# POWDER MATERIALS

are the latest glamour substances of the world of metallurgy—a world where metals “creep” and particles “freeze” at extremely high temperatures. At the University of B.C., metallurgists have already developed the first-ever process for rolling metal powders which has enabled a Canadian company to supply the federal mint with blanks for silver coinage. The day may come when research will produce car parts that will never loosen and cause rattles and when whole ships’ hulls may be cast as a single unit from ceramic materials. Free-lance writer John Barber describes these and other research projects going on in UBC’s Department of Metallurgy.



UBC METALLURGISTS are working on research projects which have enormous industrial potential. Dr. A.C. Chaklader, at right in photo above, shows Dr. J.A.H. Lund clay discs produced by a new process called “reactive hot pressing.” The materials produced have improved qualities of strength, density and durability and have potential in the manufacture of commercial bricks and tiles, in high temperature refractory furnaces and parts for computers. At right, Dr. Lund demonstrates for Dr. Chaklader a high frequency induction machine in which iron powders coalesce in a chemical atmosphere at high temperatures. The research could give rise to a novel production method for producing cheaper fabricated steel parts. Photos by Extension Graphic Arts.



**T**ake that nickel out of your pocket and have a good look at it. It’s pretty solid. Bite it, if you like. Your teeth will probably break off first. It was made out of a nickel powder. You could mark it “Made at UBC,” and you wouldn’t be far wrong.

“It’s probably the powder metals work we are most proud of,” said Dr. John Lund of the Department of Metallurgy, “and we developed the whole process right here at UBC.”

Dr. Lund, who lectures on physical metallurgy and is an international consultant on powder metals, supervised a research project sponsored by Sherritt-Gordon Mines Limited that lasted two years and led to the first-ever commercial process for rolling metal powders.

Because of that work, Canada now produces and stamps its own nickels, dimes, and quarters.

“Prior to 1961 Canada imported coinage blanks which the Canadian mint stamped,” said Dr. Lund. “In 1961 Sherritt-Gordon started delivering nickel blanks to the mint, and by 1967 the mint was stamping Canadian-made dime and quarter blanks as well as nickels — all made via the powder-rolling process.”

That nickel in your pocket is one result of the great drive for new, versatile materials made to fit particular needs. Materials that might stop the rattle in your car or make a much more efficient nuclear reactor fuel to produce cheaper electric power. Materials that the discoveries of science tell us we need, to do what we should be able to do. Powder materials may just fill a great part of our coming needs.

“We would probably not have got to the moon but for the development of new materials for nose cones that would not burn up as the space vehicle re-entered the earth’s atmosphere,” said Dr. A.C.D. Chaklader, the ceramicist with the Department of Metallurgy. “We call such heat-resistant materials cermets, mixtures of ceramic and metal powders.”

Dr. Chaklader, who lectures on materials science, does most of his research work with ceramic powder. The clay ceramics, old but still new materials, are part of his domain and many a third-year metallurgical engineer, studying the science of the potter’s materials in one of Dr. Chaklader’s labs, has made himself a non-porous clay beer mug to swill down his “40 beers.” Just another illustration of the use of powder materials!

Powder materials, with individual particles sometimes many times smaller than a grain of salt, lend themselves well to making small, shaped parts which, at one time, had to be carved or machined out of a larger, solid chunk of the same material. To make the part out of powder, metallurgists pour the powder into a mould having the precise shape of the final part, press the powder under a few thousand pounds of pressure, and heat the powder enough to cause incipient fusion without melting of the particles. The result is a powder-compacted, accurately shaped part with built-in strength, ductility, and other desired physical properties.

**‘W**e can control the internal structure of a small particle much better than we can a large ingot of a metal,” explained Dr. Lund.

Small particles solidify and cool much faster than a larger ingot and this does not allow the internal order to change as might happen when an ingot cools slowly. With slow cooling, atoms migrate, micro-grains grow larger, and the metallic compounds



disappear or form new ones, all of which can result in a material with undesirable properties.

"Before we develop a material or an alloy we think will have the properties we want it to have, we apply well-researched principles on what makes a metal behave in the way it does under normal conditions, and on how to eliminate properties we don't want it to have," Dr. Lund said.

"It doesn't always work that way. Sometimes we know something should happen but, in practice, it is not possible to make it happen. Theoretically, alloying small amounts of tungsten with zinc as the host metal whose properties we want to modify looks most intriguing and might give zinc properties we would like it to have. When we try to add tungsten to molten zinc by conventional alloying we find that zinc will boil off before we can get the tungsten into it."

A lot of Dr. Lund's work has been concerned with the development of alloys for use in metal powder work. The results of one five-year research program, sponsored by the International Lead Zinc Research Association, are now in the hands of an Italian zinc manufacturer who is developing those results into a commercial operation.

One way John Lund makes his powders is by atomizing a molten mass of the alloy with blasts of gas.

The blast breaks up a falling stream of the molten alloy into droplets and they solidify quickly into

BY  
JOHN  
BARBER

stable structures. The small particles "freeze" so quickly, as the metallurgist say, that alloying atoms are trapped in the atomic structure of the host metal and compounds of the alloying metals become finely dispersed between the grains of the material micro-structure. When the "powder men" talk about a particle freezing, it may still be too hot to handle after it has frozen.

Many metals have an internal structure that is only stable at very high temperatures but highly desirable at normal temperatures. Alloying elements will often lock into this structure or phase only as the metal is quenched, making it stable at normal temperatures and providing an atomic barrier to any further rearrangement of the atoms.

The fame of Damascus steel and the Saracen blade depended on this fast freezing to lock in the high-temperature phase of carbon in iron, producing the internal structure of steel and making it tough and durable. Of course, the Damascenes didn't use iron and carbon powders pressed together under a few thousand pounds of pressure and then fused into a solid blade without melting the particles, as would modern powder metallurgists, but archaeologists believe the Incas of Peru must have used a form of this to produce their platinum ornaments from platinum metal powders.

The Damascenes may not have known that they had alloyed carbon with iron to form steel when some of the ashes from their furnace fires mixed in with the molten iron or that they were freezing the carbon atoms into the high temperature crystal structure of iron when they quenched the thin, glowing blade in a bath of water. They certainly would not have known that the secret they guarded so zealously depended on phase changes in the iron and they might have conquered the world had they

known many other materials also go through these atomic crystal and chemical changes as the material gets hotter. Materials scientists call each different and distinct micro-structure or chemical compound in a solid material a phase of that material.

Dr. Chaklader has studied phase changes in his powder ceramics for more than 10 years, and to him, any metal oxide is a ceramic.

"I have studied phase changes in the broad sense," said Dr. Chaklader. "I include changes in the chemistry of the material as well as changes in the crystal structure."

**T**he ten years of research has produced, for Dr. Chaklader and UBC, five patents covering some of his discoveries. His latest patent covers his discovery of the plasticity of a normally brittle and very hard ceramic powder as it goes through the atomic rearrangement process of chemical decomposition at temperatures much below the normal melting point of the material.

"During the phase change, which lasts for a very short time, the material is extremely plastic and can be pressed into a solid dense ceramic, with much less than the force normally used, and in minutes instead of hours, days, or weeks." Dr. Chaklader coined the term "reactive hot pressing" for his discovery.

The ceramicist picked up a small solid cylinder about the size of a large thimble. "This is a uranium dioxide pellet used for nuclear fuel in the Canadian reactors. It takes days of high-pressure pressing at 1000 degrees centigrade to produce, and it still contains many pores which are detrimental to its use as an efficient nuclear fuel. My process will produce a much more dense pellet — about 99 per cent of the theoretical density of uranium oxide with no pores and do it in minutes, much more cheaply and efficiently at temperatures as low as 700 degrees centigrade.

"Porosity in a powder part is a property we try to control because it decreases the physical strength, among other properties, of the part.

"This piece of ordinary clay I put through the process has more than 15 times the strength of a similar material made by conventional processes." The clay had the sheen and feel of beautiful marble.

Dr. Chaklader said that not all ceramics go through this phase change but when he needs to he can tailor-make the phase transformation. The uranium dioxide nuclear fuel does not go through a phase change, so he starts off with a powder of another decomposable uranium compound, puts it into a mold, and applies pressure as he heats the powder.

"As it transforms into uranium dioxide it becomes plastic for a very short while and, under the pressure, it suddenly reaches about 99 per cent of the theoretical density of the oxide."

It's as quick as that — snap — and the material you started with changes into the material you want with the density you want.

"One U.S. firm has expressed a great interest in the process," Dr. Chaklader said. "They immediately recognized its potential but we have had no real response from any Canadian company, except for Canadian Westinghouse, who are involved in the production of nuclear fuel for Canadian power reactors."

This "plasticity" discovery of Dr. Chaklader's was not the result of research sponsored by an industrial sponsor, and therefore the patent belongs to UBC and Industrial Patent and Development Ltd., a Crown Corporation which does all the legal and other work selling patentable processes developed in Canadian universities.

Most of the work done in powder research is sponsored by an industrial group interested in developing the potential of a material.

"In fact," said Dr. Lund, "all the work we have done on powder metals has been sponsored by industry, and it is most important that we get such contracts.

"There are those who knock industrially sponsored research at a university, but I disagree. It is important to the quality of teaching in an engineering school and it improves the competence of the teaching staff to engage in some contract research.

"At no time has it detracted from the teaching process in our own department.

"Research for research's sake only is pretty sterile in a university engineering school. We must also have directed research with a definite goal, and an industrial contract is just that.

"Although I never use students for work on these projects because of patent security problems, the benefits to them are enormous. They benefit from a teaching staff who are and become recognized experts in a particular field.

"Any contract the University signs with an industrial sponsor always contains a clause which gives the University title to any equipment we buy with the sponsor's funds. And we don't have to buy the equipment which is only intended for the research we have contracted to do. We can buy whatever we need for the department under a 100 per cent overhead clause.

"The students thus have laboratory equipment to work with and get to know the problems of modern technological research and development. I could go around much of the equipment in our student labs and name you the industrial contract it was bought under."

What about the future? Let your imagination roam.

Making ships hulls with ceramic materials is a futuristic possibility, Dr. Chaklader agreed. Theoretically, all you would have to do is pour a ceramic powder into a mold the shape of a hull, heat it, and press it as it goes through the plastic phase change. In a few minutes, the result would be a dense sea-going vessel, forever watertight.

"However, the ceramic material is still very brittle although it has become super-strong," warns Dr. Chaklader. A sudden powerful shock, like hitting a submerged rock at full speed, could shatter the hull. Solving the brittleness problem also belongs to the future.

**H**ave you noticed any rattles in your car lately? These may have been caused by the fellow who ploughed into your back end, but they could also have been caused by creeping metal. Yes—metals do creep, not that you'd notice if you sat and looked. The fasteners, nuts, bolts, screws, and other gadgets that hold things together grow longer, shorter, fatter, thinner, under the stresses of turning a corner or banging a door shut, and in time, they loosen. Hence, the rattle in your car. With the development of more creep-resistant alloys for use in metal powder parts, you may not hear another rattle or squeak in your car.

And, if the interest expressed in Dr. Chaklader's discovery by geologists bears fruit, we may just have a clue to the reason for the Mohorovicic discontinuity which marks the base of the earth's crust and the beginning of the "molten" core of the earth. Maybe the material in the earth's core is solid but plastic, and not molten and fluid.

At a recent iron powder conference in Windsor, Ontario, the extent of the iron powder production in Canada indicated that Canada is on the way to becoming the "iron powder giant" of the world. Maybe the "powder materials" giant of the world would be more appropriate.

# One View: 'Preserve Point Grey

*Dr. Maria Furstenwald, assistant professor of German at UBC, is one opposed to the plans of the Vancouver Park Board for development of the Point Grey beach. In the following article she makes a case for retaining the beach in its present form and offers possible alternate proposals.*

By DR. MARIA FURSTENWALD  
Assistant Professor of German, UBC

If the Point Grey peninsula had been settled by old world colonists in the Middle Ages, it would, on account of its unique location, have become the site of a monastery or a castle. It is not without logic that in modern times such a privilege has fallen to a young but serious and ambitious University. Like all privileges, it is not without obligations.

While important developments are taking place on the campus, the University community should not remain indifferent to the fact that below the campus a beautiful remnant of our original landscape—with great recreational, ecological and historic values — is being threatened by unnecessary and undesirable construction. It was heartening to read that the Senate Committee on Long-Range Objectives was concerned not only with the resources for study but also for reflection and recreation (*UBC Reports*, Nov. 6, 1969). The natural beach at our doorstep offers both in good measure.

The Vancouver *Province* booklet about hiking in B.C. features Point Grey Beach as trip number one, a "strip of marine wilderness under the noses of Vancouverites.

## WALK DESCRIBED

"There are a couple of giant boulders on the beach where the Totem Park trail comes out. . . Turn to the right. . . you will find that the only signs of civilization are rafts of logs and the breakwater. On clear days there is a magnificent seaward view of Howe Sound and Sechelt's mountains; Vancouver and the North Shore are completely out of sight. . . . Protected by the breakwater, the sea in the first half of the walk seems more like a lake, with no waves and gently ruffled sand. . . . Below UBC's Fort Camp, the clay cliffs become more forbidding; big waves crush in on windy days and the effect is of some remote wild region instead of a beach on the edge of Vancouver. This is a rewarding and interesting trip; it approaches a dramatic experience on a bright windy day."

Driven by our gregarious instincts we enjoy being in a crowd and we willingly subscribe to the laws of streamlined and often gadget-oriented recreation. But we need more. Our desire for tranquility takes us to this beach where our minds find space to drift, our ears find silence to rest, our eyes find natural patterns, shapes and colours on which to linger. Here we may restore our

physical, emotional and spiritual viability and regain the awareness that we are part of nature, not masters over it.

At all seasons of the year, this sheltered shore offers varied recreation to many. When the smelt start running, the walkers (and their dogs) are joined by the fishermen. After five p.m. they appear and go about their business with serious devotion. Even when this beach teems with people in summer, a closer relationship between man and nature can be experienced here than on other city beaches. Here people are far away from the family car and the compulsion of going places. They are free from the pressure of organized leisure and the temptation of buying ice cream, soft drinks or hot dogs just to pass the time. The gap between grown-ups and children seems to be bridged here, and a more spontaneous relationship between people develops. Children look for crabs; Japanese show Canadians edible mussels; young and old build sandcastles or play with their dogs. On evenings when the tide rises high, families, sweethearts, and groups of friends withdraw into the sand pockets to eat and drink.

Park Board members call the users of this beach a "minority". Let us remember that all recreational facilities—camping grounds, ski slopes, marinas, planetariums, botanical gardens or even our venerable Stanley Park—cater to minorities. There are no universal parks to satisfy all people. While the Point Grey



## EROSION

is threatening the Point Grey cliff-face below the UBC campus. The Vancouver Park Board, which controls development of the area, desperately wants to do something to prevent buildings near the cliff-edge from toppling into the sea. Opposing the Park Board Plan are a number of Vancouver organizations and some UBC students, teachers and citizens who claim that the proposals for the area will destroy the beach for recreation and as an ecological resource. The case for preserving the beach with a minimum of disturbance is put by Dr. Maria Furstenwald in the article at the top of this page. At right, a Park Board Commissioner sets out the case for immediate action to halt the erosion problem.

## Another Vi

*In the following article, Park Board Commissioner Andy J. Livingstone sets out the case for immediate action to halt the erosion problem of the Point Grey cliffs.*

By ANDY J. LIVINGSTON,  
Commissioner, Vancouver Park Board

In 1930 the Vancouver Park Board obtained a 99 year lease from the Provincial Government of all lands between Marine Drive and the low water mark from Spanish Banks westerly around Point Grey to the Musqueam Indian Reserve. The Board has jealously guarded and maintained this natural, forested waterfront park from many despoilers, promoters and developers during the past 40 years. Proposals to build airports, University buildings, apartment developments, etc. have been effectively defeated by the Board.

## BUCK PASSED

For the past 25 years the Board has actively worked with the University of B.C., the University Endowment Lands, and the Provincial and Federal Governments to consider ways of controlling the continuing serious erosion of Spanish Banks. Many fruitless hours of committee meetings resulted in the buck being passed

# Beach Without Drastic Changes'

foreshore is the property of all and open to all, it appeals most to people who love "unimproved" nature.

After a glance at the transients, let us turn to the residents of this ecological unity. About 150 species of birds are found in this tiny remnant of the coastal forest and in the water. The great blue herons and, occasionally, bald eagles and hawks, nest above Wreck Beach. On the tall snags birds of prey find a vantage point. The woods provide food for migrating birds, nesting cover for summer residents and one of the last habitats in the Lower Mainland for the ruffed grouse. At present, zoology students are examining the results of a unique overlapping of the habitat of two species of intertidal crabs.

## DAMAGE DONE

Concerning the flora, Dr. Katherine Beamish of the Department of Botany notes that "damage has been done by dumping and erosion but the effects are not beyond repair. The forest still includes fine grand firs and other conifers, great broad-leaf maples, a lower layer of red berried elder, bird cherry and salmon berry (among other shrubs), and a still lower cover of ferns and other herbs." Botanist Dr. Vladimir Krajina estimates the age of the oldest grand firs along the cliffs at 350 years, Douglas firs at 500, and western red cedars at 800 years. "All these growing things," says Dr.

Beamish, "were once common in this area and would still be common if given a chance."

However, the important point is this: the bluffs and beach are not of value now because they grow rare species or special plant associations but because they are still there and near us, the forest green and quiet, the beach a place to walk or scramble on and enjoy the wind and waves. Plans for both road and marina should be abandoned. Rather we should preserve what remains and work toward restoration of what was and can be again.

"What was" is of growing interest and appreciation in all parts of our country. A great deal of historic restoration is being done in the eastern provinces, and similar developments are taking place here. The latest is the decision of a committee of Vancouver businessmen and interested citizens under the leadership of MLA Harold Merilees to build a replica of Captain Vancouver's flagship, the Discovery. What would be more gratifying than to see her sail again against the background of the original shore as beheld (and named "Point Grey") by Captain Vancouver? This coast is the authentic remnant of that last frontier as found by Simon Fraser when he came in contact with the Musqueam Indians at the east end of Wreck Beach. These facts offer great possibilities that might be considered in relation to the recently announced plans for the future development of Totem Park.

From the long public debate over the future of the Point Grey foreshore two points have emerged quite clearly. First, public opinion is stubbornly against any interference with Vancouver's last natural beach beyond the necessary minimum for its conservation and, second, such conservation is feasible without drastic changes which, under the name of "erosion protection blanket," would destroy the whole beach.

## BUILD BREAKWATER

An alternate proposal (to the Parks Board plan) is being advanced by engineers to halt removal of sand by storm waves attacking the base of the cliffs below Cecil Green Park and Fort Camp. A rock groyne (like a breakwater, only perpendicular rather than parallel to the beach) could be built below Cecil Green Park within a few months. Sand would accumulate to the west into a new beach, hold back the waves and allow the cliff to stabilize. Less serious erosion scars at other points would heal if fronted by barriers of large beach boulders. This program could be completed at about one-tenth of the cost of the sand/gravel blanket proposed by the Park Board, and without seriously altering the character of the natural beach.

Although erosion control is a provincial responsibility, friends of the beach have offered financial support for this alternative plan. One of these offers amounts to \$5,000.



# ew: 'Action Now to Halt Erosion'

and no responsibility being accepted. Many technical people have considered the problem.

## ENGINEERS RETAINED

In 1961, Swan Wooster Engineering Co. Ltd., eminent consulting engineers who have had extensive experience with marine protective works, were retained by the Park Board to fully examine the erosion problem and recommend a solution. They concluded that erosion was caused mainly by the sea undercutting the base of the sand cliffs. Surface runoff and ground water seepage are considered secondary causes. The consultants recommended the pumping of sand from deep water to the base of the cliffs to form a natural blanket graded to a light slope-off and faced with gravel as the most economical and practical way to control the erosion.

In 1967, after five years of unsuccessful endeavours to find capital funds to provide the recommended erosion blanket, the Board requested their consultants to prepare a multiple plan to encourage public support for erosion protection to include a rowing course for UBC and provision for a future marina at the mouth of the north arm of the Fraser River. Access roads from Spanish Banks and from S.E. Marine Drive at beach level were shown on the 1967 plan. The Board again endeavoured without success to gain acceptance of the

plan and to have funds provided by the Provincial and Federal Governments.

In the Fall of 1968, the Board decided something must be done and started work on an erosion blanket to protect the base of the sand cliffs by utilizing free excavated material from contractors. It was planned to eventually face the free fill with a pumped sand and gravel beach as recommended by consultants. The proposed excavated material blanket would have considerably reduced the estimated \$420,000 cost of a complete pumped sand and gravel erosion blanket.

## PLAN CHALLENGED

A number of people challenged the Board's proposal with the cry that the Board was ruining the natural beach. The Board decided to stop work and to again endeavour to have the Provincial Government provide the \$420,000 necessary for a more acceptable natural pumped sand and gravel blanket. Opponents have doggedly endeavoured to paint the Park Board as "nature destroyers" and "bad guys" and the Board has unfortunately been put on the defensive by such tactics. Opponents have erroneously stated that the Park Board is planning a freeway at beach level around Point Grey. The Board is unanimously opposed to a public highway

at this location and plans for a marina and rowing course are not being pursued.

The basic question is: do we want to stop the continuing erosion at Spanish Banks? Most opponents agree that erosion must be stopped. Alternate erosion protective methods have been considered that would be more unnatural and more expensive such as rock dikes and groynes, steel or wood sheet piling, or creosoted pole piling, concrete and stone retaining walls. The obvious alternative to the Board's proposal is to do nothing. If erosion protection is not provided, UBC should vacate buildings threatened by the erosion such as Cecil Green Park. The Board considers the matter to be most serious and believes that action must be taken to arrest the erosion.

## HELP REQUESTED

It is ridiculous to continue with academic disputes as to the Park Board's intentions. The record shows that we are preservers and protectors of what little remains of natural areas in Vancouver. We would like the knockers to become supporters and assist us to obtain funds to stop the erosion by means that have been recommended to us by recognized experts. I hope there are people on the University of B.C. campus who will help us to get on with the job.



**UBC REPORTS:** Gentlemen, this is the second installment of your survey of student attitudes, opinions and habits. Can we begin with some facts on the geographic origins and socio-economic background of your sample.

**DR. VANCE MITCHELL:** As might be expected at a provincial university such as UBC, three out of five of the students were born in British Columbia, with the remainder divided fairly equally between those born elsewhere in Canada and 22 per cent who were born in some other country. Since approximately six per cent of UBC students last year were foreign students, we would assume that the 22 per cent who were born outside Canada reflect the large-scale immigration of the past 20 years.

## URBAN STUDENTS

Students from urban centres constitute the majority of our respondents. However, the population density pattern of the province is reflected to some degree by the 22 per cent who come from small towns of less than 5,000 population. Nearly all our survey people—89 per cent—graduated from a public high school, less than six per cent came through the parochial school system, and less than six per cent received their secondary education in a private school with no religious affiliation.

There are some predictable differences in the type of secondary school that was attended by students from families of different economic levels. A considerably larger proportion of the students from families with an annual income of more than \$15,000 attended private secondary schools as compared to students from lower income groups.

Getting to the economic backgrounds of our students, we find that virtually all levels of family income are represented in the sample. More than 36 per cent of the students come from families with a yearly income of \$7,500 or less. On the other hand, one out of five, or 21 per cent, reported an annual family income in excess of \$15,000.

When we compare family incomes of the UBC students with census data for Canada and B.C., adjusted for changes in income levels since 1961, it's apparent that ours is definitely a middle-class University. The lower income groups are under-represented as compared to the population as a whole and families earning more than \$10,000 a year are over-represented at UBC in terms of the national and provincial distributions of family incomes.

**UBC REPORTS:** So the claim that is sometimes made that there are a disproportionate number of students from higher-income families attending this University is generally borne out by the results of your survey?

**DR. MITCHELL:** As compared to the income distributions across the population as a whole, certainly. This, however, would be expected, I think. More than just financial opportunity to go on for higher education is at stake here. The motivational environment in which the student grows up is a great eliminator of people.

**UBC REPORTS:** Do you have more data in this area?

**DR. LARRY MOORE:** I think some of the other data we have tend to bear out what Dr. Mitchell has just said, particularly that concerning the parents' educational attainment. The parents of UBC students tend to be considerably more highly educated than the population of Canada or of B.C. For instance, the percentage of students' parents having a university degree was 28, and this compares with the average population of males in British Columbia of seven per cent and for all of Canada of six per cent. The same results roughly, would apply to the parents of female students at UBC.

**DR. MITCHELL:** Let me view this statistic another way. Seventy-two per cent of our students came from families that are not university-educated. This is not surprising since such a small segment of the Canadian populace has completed university. However, as the Dominion Bureau of Statistics and the Economic Council of Canada have demonstrated, there is a well-established trend for improving the level of educational attainment across the population. Our statistics are simply an illustration of this trend. However, the data also illustrate the increased likelihood that a person from a university-educated family will elect to seek a higher education.

**UBC REPORTS:** There has been in recent years, some criticism of the University about what is thought to be a declining standard of education. I understand another part of your survey deals with the reasons why students chose to come to UBC.

**DR. MOORE:** We find from the data that almost 79 per cent of our respondents consider the general academic reputation of UBC to have been important, or somewhat important, in their decision. This is the major factor in the decision of students to come to UBC. Some other factors were also important. For instance, geographic location and climate were listed by about 66 per cent as being somewhat important.

The least important factors were that UBC would be easy to get into or that they had friends or family members who had gone to UBC before. I think we can say from these data that the general academic reputation of UBC certainly is a very important factor in students' perceptions of this University, and this directly influences their decision to come here.

**UBC REPORTS:** This section of your survey has also analysed the sources of finance which are available to students to pay for their education. Is there any overall statement that you can make here?

**DR. MOORE:** Our findings indicate that it would be extremely difficult for most students to finance a university education without help from one or perhaps several sources.

**DR. MITCHELL:** Almost two-thirds of the students in our survey say they receive some assistance from their parents in financing their education. More than 82 per cent have summer jobs and over 42 per cent reported that they worked part-time during the school year. Of those who worked during the summer, one in four had net earnings of less than \$500, slightly more than 25 per cent earned between \$500 and \$1,000, another quarter earned between \$1,000 and \$1,500 and, surprisingly, the remaining 25 per cent earned better than \$1,500 during the summer.

**UBC REPORTS:** Did the students feel that a summer job was a valuable experience for them or did they feel they should spend their summer doing something allied to their academic work?

## SUMMER WORK

**DR. MITCHELL:** More than 88 per cent of them feel that summer work is an important part of the educational experience. I think we might add that despite their summer earnings they don't clear a great deal. Forty-eight per cent of those who worked were able to save less than \$500 from summer earnings. Whether this is spent in riotous living or absorbed by the cost of living away from home, as many of the students must in connection with their summer jobs, we can't say.

**UBC REPORTS:** Dr. Mitchell, you said a substantial number of students worked part-time during the school year. Did they feel this activity interferes with their studies?

**DR. MITCHELL:** Reports were mixed on this. Forty-one per cent feel that part-time work does

# A TYPICAL

UNIVERSITY OF B.C. STUDENT COMES FROM A MIDDLE-CLASS FAMILY, CONTRIBUTES TO THE COST OF HIS EDUCATION BY WORKING PART-TIME AND DURING THE SUMMER, TAKES PART IN STUDENT CLUB ACTIVITIES AND TENDS TO IGNORE TOPICS SUCH AS CIVIL RIGHTS, POLITICAL IDEOLOGIES AND RELIGION AND HOLDS OPINIONS AND ATTITUDES SIMILAR TO HIS PARENTS'. THESE ARE A FEW OF THE FINDINGS OF COMMERCE PROFESSORS DR. LARRY MOORE AND DR. VANCE MITCHELL, WHO HAVE BEEN ANALYSING THE RESULTS OF A QUESTIONNAIRE RETURNED BY 940 STUDENTS.



DR. LARRY MOORE



DR. VANCE MITCHELL



interfere with both their studies and their extra-curricular activities. On the other hand, 34 per cent, or just over a third of the respondents, say that part-time work interferes with neither.

**UBC REPORTS:** Dr. Moore, what about financial aid and assistance from the University itself? Do students call on this source a great deal?

## STUDENT AID

**DR. MOORE:** Almost 44 per cent of the students in our survey say that they have applied for and received loans, and three per cent applied for, but did not receive a loan. For bursaries the figures are 38 per cent and eight per cent respectively and for scholarships 51 per cent and ten per cent. These figures don't give us any indication about the adequacy of the financial aid that was provided. Interestingly enough, approximately 10 per cent of the respondents say they needed a loan, bursary, or scholarship but did not apply for any financial assistance. In other words, they may be leaving money on the table.

**UBC REPORTS:** Let's turn to the next section of your survey. What do students do when they're not attending classes or studying?

**DR. MITCHELL:** The most popular centre of extra-curricular activities seems to be the Student Union Building where 24 per cent of the students say they take an active part in activities. Approximately one-fifth of the students report frequent participation in intramural sports, while about the same number belong to one of the many special-interest clubs on campus. Only eight per cent of our respondents say they are at all active in campus politics and less than seven per cent are active in other political activities.

Apart from organized activities, the most popular way of spending free time is in reading the daily newspaper. Sixty-two per cent of our respondents say they read it regularly. Merely spending time with friends is next in order of frequency — 56 per cent regularly, 39 per cent sometimes. Spending time with boy friend or girl friend comes third on the list — 49 per cent regularly, and 30 per cent sometimes, followed quite closely by reading weekly magazines.

The least regular activities, that is those in which over 50 per cent of the students say they seldom participate, are going to recitals or concerts, public lectures or panel discussions, attending athletic events and religious services.

In another section of the questionnaire the students were asked to indicate the frequency with which they discussed typical campus topics. We noted in our first report (See *UBC REPORTS*, Sept. 25, 1969) what seemed to us a major concern on the part of UBC students with the business of getting an education and our current data bear out this earlier result. Thus we find the students' most frequent topics of conversation are their studies and grades. Fifty-four per cent discuss these regularly, 41 per cent sometimes. Next in importance is content of course — 48 per cent and 47 per cent respectively. Plans for after graduation — 32 per cent and 54 per cent. Professors — 27 per cent frequently and 62 per cent sometimes. The least frequent topics of conversation are civil rights, political ideologies and religion.

**UBC REPORTS:** Which bears out your earlier results that universities are not, as the public seems to think, hotbeds of political ideology and revolution?

**DR. MITCHELL:** Very definitely.

**UBC REPORTS:** Do you have any data about where students turn when they feel they have an academic or personal problem that requires consultation?

**DR. MOORE:** We found that 39 per cent of the students said they would turn to a close friend as their

first or second choice; parents and boy or girl friends would be chosen by 21 per cent and 19 per cent of the students respectively. The remaining 20 per cent or so would split their choice between faculty members, who polled a dismal six per cent; classmates, 5 per cent; roommates 4 per cent, and so on.

I think it is interesting to note that the Counselling Service doesn't seem to be a place where students think of turning for advice. We also might note the very small percentage naming a faculty member as their choice. I think this is interesting because it relates to our first report in which we found that most students would very much like to have closer contact with members of the faculty but didn't seem willing to initiate this kind of contact themselves.

**UBC REPORTS:** The one other section which has been analysed in this part of your survey is the home background, the environment from which most students come. Can one of you describe what this section yielded?

**DR. MITCHELL:** Although there has been a lot of discussion and controversy about the so-called generation gap, it is very interesting to note that the majority of our respondents see themselves as holding opinions and attitudes that are very similar to those of their parents. This is true for such diverse matters as political orientation at both the provincial and federal level and the question of recognition of Red China.

Further, while there is a fairly close correlation between what a student sees as being important in life and what he thinks his parents consider important, this correlation is not nearly as strong as that which the student sees as existing between the parents themselves. That is, students see their mothers and fathers as having very similar values, but they see their own as just slightly different.

Most of them feel that they communicate very well with their parents. Three-quarters of the students feel they can discuss at least some or nearly all important matters with their father, while two-thirds express the same opinion with regard to their mother. About 55 per cent of the respondents feel that their parents take their ideas seriously and respect differences of opinion as reasonable choices.

## EXPECT MORE

Twenty-two per cent say their parents feel that "I'm mistaken in my opinions, but that I'll get over them," and over 55 per cent of the students feel that their parents encourage independent activity on the part of their children, whereas only four per cent say that independence was discouraged. The other 40 per cent feel that their parents either tolerated or were indifferent to independent activity.

**DR. MOORE:** I think there are some other interesting data concerning rewards and penalties for achievements and things that might not be considered so worth while. We notice that the parents seem to appreciate the achievements of students. At least, this was reported by nine out of ten of our respondents.

However, 25 per cent of the students feel that although their achievements are appreciated their parents always expect still more of them. One thing that comes out is the tendency, at least on the part of parents of students who go to university, for achievement or drive or at least a parental push in the direction of attaining a university education and perhaps other goals in life.

The influence of the Dr. Spock school on the parents of our respondents is also quite evident. More than 69 per cent of the students consider the punishments given by their parents were somewhat or very mild. Less than three per cent consider their parents imposed very severe penalties. Similarly, 60 per cent of the students describe their parents' overall attitude as somewhat or very

permissive, while less than nine per cent say their parents were very strict.

On the other hand, 90 per cent say they had a somewhat or very clear idea of the type of behaviour expected of them by their parents. So I think we can see that these are enlightened kinds of parents. The data would indicate that the parents would seem to be permissive, but at the same time make it clear to their sons and daughters that achievement was very important.

**DR. MITCHELL:** One other source of data supports the interpretation of a healthy, happy, reasonably well-adjusted group of people. We asked the students to check a phrase that was most descriptive of themselves during high school. The most frequent checked phrase was "Relatively happy and content" by 27 per cent of the respondents. Second was "Independent in my thoughts and actions" by 18 per cent, followed by "Concerned about social acceptance by others my own age" — 17 per cent. Fairly predictable responses from a well-adjusted group of late teen-aged people.

## SUMMARY GIVEN

The least frequent checked phrases were "Unhappy and alienated from most of those around me" (only four per cent), "In conflict and rebellion against my parents" (again four per cent) and "Opposed to almost all authority" (only two per cent).

**UBC REPORTS:** Can you describe a typical student from this section of the survey?

**DR. MITCHELL:** Yes, I think so. The data we've reviewed suggests a middle-class student body with significant, but not proportionate, representation from the lower-income of the population; a sample that comes largely from urban centres of population and is predominantly a product of the public educational system.

Most contribute toward the cost of their education, usually through summer employment, although nearly half of them work part-time during the school year. SUB activities, intramural sports and campus clubs provide the most popular extra-curricular activities with campus politics or student government appealing to the smallest percentage of the students.

Their interests, as shown by topics selected for conversation, are largely centred on their University education and vocational plans and, finally, our data show generally good relationships between the students and their parents with reports suggestive of a supportive and non-punitive home environment and a relatively happy and well-adjusted teen-aged background.

**UBC REPORTS:** Could you recapitulate how many questionnaires you sent out and how many answers you got?

**DR. MITCHELL:** We sent out 1,900 questionnaires to a representative sample of UBC students by year and by Faculty. We received 940 useable replies. We checked a number of demographic characteristics of the sample against data available from the Registrar's office. We found a sufficiently high correspondence to enable us to say with a great deal of confidence that this is a representative sample.

**UBC  
REPORTS**

Volume 16, No. 4—Jan. 29, 1970. Published by the University of British Columbia and distributed free. J.A. Banham, Editor; Barbara Claghorn, Production Supervisor. Letters to the Editor should be addressed to the Information Office, UBC, Vancouver 8, B.C.

# LETTERS TO THE EDITOR

## AN APOLOGIST ORGAN?

Quoting from your Vol. 15, No. 25, p. 6, Letters to the Editor, "By its very nature, UBC Reports is an apologist organ for the policies of the board of governors. *We cannot in clear conscience lend legitimacy to such an organ.*" Sir, aren't you glad that's on record. Let us treasure it: it's almost historic.

Though signed "The Campus Left Action Movement", those words were put down by a person, not a group, and one might, acting under a temptation to give tit for tat, make a snippy reply: Lend us legitimacy? *UBC Reports* needs not borrow legitimacy from anyone—least of all from you, who haven't any.

But the original statement and its manner and tone are too interesting to be wound up quickly like that. Let us look at them. To begin with, the writer of the statement, though a leftist, hides behind the anonymous but royal "we". Wasn't that neat of him? You have to admit he had the *brains* to feel reassurance in that mode of expression, even though he hadn't enough *sense* to avoid an authoritarian style quite foreign to us leftists. But even that is nothing—nothing in comparison with the magnificently arrogant self-estimate to the effect that he is so far above all of us poor democrats that he possesses (unlike us) a sort of store of legitimacy, out of which he may lend when his imperial favour has been won, and by virtue of which he can punish by withholding. He has no rivals in the present age. Most of today's people shrink from appearing even slightly undemocratic. It takes an unusual one to set himself up as the ultimate autocrat, the top of the legitimacy-possession establishment, the imagined archimandrite of his campus and his day. And yet, supposedly, a leftist.

An impassive outsider, looking in, might sum up this anomaly very coolly: callow student, teen-ager, unhappy, probably survivor of a misfortune, thus underprivileged, therefore naturally a leftist. But we who have so much sympathy see it very differently. Almost all go through a period of upset somewhere between ages of 13 and 21, and therein is a source of trouble. This inevitable human ailment is well known to interregional explorers, though insufficiently acknowledged by the town medical crowd, which isn't very observant. It is a transitory mental derangement, and very variable from one victim to another. Very. So, you have to be careful. The usual caution (advised by explorers): when a sufferer betrays his affliction, as by refusing to lend you something he thinks you must want, but which he hasn't got, though leading you to suppose he has a big store of it (for instance, legitimacy), don't smile too openly. Any case might be a bad one, and an adverse reaction on the part of us amused onlookers could well rouse the anguished lamb to a violent act of insanity. Just remember, hopefully, teen-ageitis cures itself in the end; time is therefore on his side—and ours. Shh!

C.H. Crickmay,  
Arts '22.

## FOR THOSE INTERESTED

Thank you for publishing the letter from the Campus Left Action Movement (Nov. 27, 1969). It was the first indication I have seen in your pages that there was anything going on at UBC beyond new additions to the plant, and a few bland students vaguely seeking "constructive reform."

Perhaps you'd be kind enough to publish the address of the paper referred to in their letter—the Barnacle—for those of us more interested in analysis than P.R.

Sincerely,  
(Mrs.) Edith Campbell Darknell,  
B.A. 1956.

*Sorry, but the last edition of the CLAM publication, The Barnacle, has no mailing address on the masthead.—Editor.*

## UBC NEEDS FRIENDS

... I had a telephone call (in November) from a very nicely spoken young graduate who had volunteered to round up some of the "strays" through an Alumni Annual Giving Telethon. I asked how much should I give and what I had given last year. To this she replied that it was policy not to suggest the amount of a gift to a potential donor, and that the amount I had given last year was a confidential matter and she therefore would not have access to it. I was very pleasantly surprised by this sound approach.

I was, however, unpleasantly surprised a week later, to learn that these volunteers had had to suffer a great deal of abuse over the telephone from graduates who, in some bizarre way, sought to blame UBC for all the student unrest in North America. If a tiny fraction of the students at UBC cause offence to our graduates, and to our University, it is surely childish to blame UBC. Our Alma Mater needs friends, not more enemies. When it is under attack from within and without, loyal alumni should spring to its defence, not pelt it with rocks.

I am amazed at the peevish attitude of some who have taken a degree at Point Grey, and who naively believe they "paid their way" when they paid their tuition fees. If they were in Arts, they paid about one-quarter of the cost to the taxpayers. If they were in medicine—to cite the other end of the scale—they paid just one-eleventh of the cost.

How can we get through to these graduates the point that their Annual Giving dollars are worth a dozen tax dollars? Free money, without strings, enables the President to build a better university, not a bigger one. Tax dollars will never be available for some of the quality items which UBC needs. This has not stopped students building the recreational facilities from the earliest days of the campus. Now that there are 50,000 of us in the world, we, as graduates, can really make an impact in the direction of excellence.

I for one have increased my Alumni Annual Giving cheque this year to show Walter Gage that I am behind him, not against him. If the going gets tougher for UBC I will increase my gift again.

Depression Years Alumnus

# UBC NEWS IN REVIEW

A COLUMN FOR UBC GRADUATES ROUNDING UP THE TOP NEWS ITEMS OF RECENT WEEKS. THE MATERIAL BELOW APPEARED IN MORE EXTENDED FORM IN CAMPUS EDITIONS OF 'UBC REPORTS'. READERS WHO WISH COPIES OF CAMPUS EDITIONS CAN OBTAIN THEM BY WRITING TO THE INFORMATION OFFICE, UBC, VANCOUVER 8, B.C.

The University of B.C.'s Board of Governors has extended the appointment of Dr. Walter H. Gage as president of the University for a period of from three to five years beyond June 30 this year.

The reappointment followed a report by a special 21-man presidential search committee that President Gage would be available for the position for that period.

Text of the Board's resolution is as follows:

"The Board noted with pleasure the availability of Dr. Walter H. Gage to continue in the position of President of the University on a year-to-year basis for a period from three to five years from June 30, 1970, at the discretion of the Board." (Issue of Jan. 15).

# 64 NEW!

The UBC Extension Department is offering 64 evening and daytime humanities, arts and science courses in its spring program beginning the week of January 26.

Twenty-nine programs will be held at locations throughout the Greater Vancouver area including: The Vancouver Art Gallery, Vancouver Public Library, Hycroft, Maritime Museum, the H.R. MacMillan Planetarium, Kitsilano Library, the Unitarian Church, Queen Elizabeth Theater, West Vancouver, North Vancouver and Richmond.

Programs are listed below. For a brochure with complete information telephone 228-2181 or write: Extension Department, The University of B.C., Vancouver 8.

UBC also offers professional continuing education courses. For spring programs in the fields of education, engineering, law, social work, forestry, agriculture and fisheries contact the Extension Department. For programs in the health sciences and commerce and business administration contact the faculties concerned.

## ANTHROPOLOGY AND SOCIOLOGY

ART AND CULTURE OF TRADITIONAL SOCIETIES — Wednesdays, Jan. 28, 8 p.m., Maritime Museum (13 sessions)

THE BEAVER INDIANS — Jan. 28—Feb. 18

ART AND ARCHITECTURE OF INDIA AND PAKISTAN — Feb. 25—Mar. 18

ESKIMO MYTH AND ART — Mar. 25—Apr. 15

SOCIOLOGY AND EXISTENTIALISM — Tuesdays, Feb. 3, 8 p.m., UBC (6)

SOCIAL SCIENCE AND THE NOVEL — Tuesdays, Jan. 13, 8 p.m. (every second week) Kitsilano Library (5)

GYPSIES OF THE WORLD — Tuesdays, Feb. 3, 8 p.m. (every second week) Kitsilano Library (5)

## ASTRONOMY

INTRODUCTION TO OBSERVATIONAL ASTRONOMY — Mondays, Feb. 2, 8 p.m., H.R. MacMillan Planetarium (10)

## CONTEMPORARY ISSUES

ON THE RENEWAL OF INSTITUTIONS: A REAPPRAISAL OF THE FACTORS AFFECTING THEIR GROWTH AND DECAY — Tuesdays, Feb. 10, 8 p.m., UBC (10)

SOCIAL RESEARCH: IMPLICATIONS AND CONSEQUENCES — Thursdays, Feb. 19, 7:30 p.m. UBC (5)

THE WORLD OF ADOLESCENTS — Thursdays, Feb. 5, 8 p.m., UBC (7)

PESTICIDES: GOOD OR BAD? — Wednesdays, Jan. 14, 8 p.m., North Vancouver (4); Wednesdays, Jan. 21, 8 p.m., Vancouver Public Library (4)

# Information Appeal Made

President Walter Gage today appealed to all members of the University community to come forward with any information that might shed light on two recent bombing incidents on campus.

"These two explosions were apparently carefully planned to create only minor damage and to minimize the risk of injury to students or staff," the president said. "However there is always a possibility that someone might be seriously injured, and we must do our best to see to it that there is no repetition of these incidents.

"Anyone who has any information that might help in our investigation, anyone who saw

anything suspicious preceding either of the explosions, should immediately contact Mr. Hugh Kelly, superintendent of our campus security patrol, at 224-4338."

The first explosion took place in the south vestibule of the Mathematics Building at about 7:30 p.m. Friday, Jan. 9. The second occurred in Room 304 of Brock Hall at about 7:30 p.m. Friday, Jan. 23.

President Gage said that security measures are being increased as a precautionary move.

UBC officials have rejected criticisms of the University for accepting research grants from the United States armed forces and the suggestion that forestry and agricultural teaching facilities be moved off campus.

The reaction followed a speech by Dr. Hugh Keenleyside, an alumnus and former Senator of the University, who is now chancellor of Notre Dame University at Nelson, B.C. He is also former co-chairman of B.C. Hydro and Power Authority.

In his speech Dr. Keenleyside asked: "But will someone tell me why the University of British Columbia in 1969 has been carrying on at least three research projects financed by the Pentagon?"

He also said the Faculty of Forestry and the Faculty of the Agricultural Sciences should be moved closer to areas in the province where their industries operate.

Top UBC officials made the following rebuttals: UBC has five research projects supported by the U.S. armed forces and one by the National Aeronautics and Space Administration. They are basic research with no direct military application and aren't secret.

Financing for the projects totals less than \$130,000 out of a total of more than \$12 million being received from all sources for research.

The Faculties of Forestry and Agricultural Sciences are closely tied to the basic sciences. Removing them from campus would eliminate this vital link and basic science facilities would have to be duplicated (Issue of Jan. 8).

The University's daytime enrolment for the 1969-70 winter session is 20,767, an increase of 679 students or 3.4 per cent over the previous year and the lowest percentage increase recorded in the last five years.

The lower increase resulted from a more rigid interpretation of calendar regulations which prevented marginal students from registering.

UBC also has 1,615 extra-sessional students taking evening courses administered by the Extension Department. (Issue of Jan. 15).

UBC's Board of Governors has approved a Senate recommendation to limit the number of students entering first year for the first time to 3,400. In the current year 3,717 students registered at this level.

The Academic Planner, Dr. Robert M. Clark, explained to Senate that the limitation would not deny higher education to B.C. students. Dr. Clark said post high school universities, colleges and other institutions will be able to take in 4,100 more students than were enrolled in the current academic year. (Issue of Jan. 15).

\* \* \*

A report on what UBC is doing to solve pollution problems will be prepared for President Walter Gage to present to Senate. This is the upshot of a recent Senate debate over a motion presented by student Senator Stanley Persky.

The motion asked for a report to be made to the people of British Columbia on UBC's pollution research. The motion also asked Senate to decide if the research

was sufficient and to devise a more comprehensive program if it was not. It was amended three times.

Senate objected to part of the motion which stated that UBC has a positive relationship to the community. Speakers said it assumed that UBC's sole function was to serve the community and that it should direct its efforts wherever the community wished.

Senate also maintained that it was not UBC's legal position to report directly to the people of B.C. Senate finally agreed to ask for a report on current pollution research and for an outline of present and proposed teaching and research programs in this area.

By submitting the report to Senate, the document will automatically become public, since almost all Senate documents are open to the public. (Issue of Jan. 22).

## GOOD EYES

will be an asset when you visit UBC's triennial Open House on March 6 and 7. Hundreds of faculty members and students will stage working displays showing the research which goes on in UBC's twelve faculties. Make a day of it and bring the family.

# UBC PROGRAMS OFFERED

**THE GUARANTEED INCOME: PROBLEMS AND PROMISE** — Mondays, Feb. 2, 8 p.m., UBC (8)

**CONTEMPORARY THOUGHT**

**CONTEMPORARY THOUGHT — Spring 1970 Series:** Thursdays, Feb. 12, 8 p.m., Vancouver Public Library (6)

**CREATIVE WRITING**

**CREATIVE WRITING WORKSHOP** — Mondays, Feb. 2, 8 p.m., UBC (10)

**DAYTIME PROGRAMS**

**INTRODUCTION TO ANTHROPOLOGY — Part I** — Tuesdays, Jan. 27, 10 a.m., UBC (8)

**INTRODUCTION TO ANTHROPOLOGY — Part II** — Tuesdays, Jan. 27, 1:30 p.m., UBC (10)

**INTRODUCTION TO SOCIOLOGY — Part I** — Wednesdays, Jan. 28, 1:30 p.m., UBC (8)

**INTRODUCTION TO SOCIOLOGY — Part II** — Wednesdays, Jan. 28, 9:45 a.m., UBC (10)

**INTRODUCTION TO PSYCHOLOGY** — Thursdays, Jan. 29, 1:30 p.m., UBC (8)

**ESKIMO MYTH AND ART** — Wednesdays, Mar. 25, 1:30 p.m., Maritime Museum (4)

**ART NOW: EXHIBITS AND IDEAS** — Wednesdays, Jan. 21, 2 p.m., Vancouver Art Gallery (7)

**MUSIC FOR AWARENESS** — Tuesdays, Feb. 3, noon, Vancouver Public Library (6) Exercises in listening especially created to sharpen and broaden perceptions toward more informed appreciation of music.

**WORLDS OF DIFFERENCE** — Thursdays, Feb. 5, 1:30 p.m., Hycroft (6) Lectures will talk about countries of personal experience including Malta, India, Spain, New Zealand, Jordan and Greece.

**CHINA WITH PAUL LIN** — Three lectures planned around the forthcoming visit of Prof. Paul Lin, Director of Chinese Studies Center at McGill. Dates to be announced.

**THE INTERNATIONAL SCENE** — Wednesdays, Feb. 4, 1:30 p.m., Vancouver Public Library (8)

**THE INDIANS OF BRITISH COLUMBIA** — Tuesdays, Feb. 3, 9:30 a.m., Maritime Museum (6)

**CRITICAL READING** — Thursdays, Feb. 5, 10 a.m., Vancouver Public Library (6)

**THEMES IN CONTEMPORARY FICTION** — Mondays, Feb. 2, 1:30 p.m., North Vancouver City Public Library (6)

**AUTHENTICITY** — Tuesdays, Feb. 3, 1:30 p.m., Vancouver Public Library (7) An exploration of what an "authentic" woman is in contemporary society.

**THE INDIVIDUAL IN YOUR CHILD** — Thursdays, Jan. 29, 1:30 p.m., Kitsilano Public Library (6)

**EXPLORATIONS IN ADOLESCENCE** — Mondays, Feb. 9, noon, Vancouver Public Library (5)

**INTERIORS: OUR IMMEDIATE ENVIRONMENT** — Wednesday, Jan. 28, 10 a.m., Vancouver Public

Library (10) A new approach to the fundamentals of interior design.

**LANDSCAPING THE URBAN HOME** — Tuesdays, Jan. 27, 10 a.m., Vancouver Public Library (6)

**DAY IN COURT** — Tuesdays, Jan. 27, 10 a.m., Kitsilano Public Library (8) Lectures and visits to principal courts in Vancouver.

**EDUCATIONAL SERVICES**

**READING IMPROVEMENT COURSES** — Several sections begin the week of January 19 (8 sessions each)

**WRITING IMPROVEMENT PROGRAM** — Several sections begin the week of January 19 (8 sessions each)

**EDUCATIONAL TRAVEL PROGRAMS**

**FISHERIES OF JAPAN** — March 1970 — Japan

**ANDEAN SOUTH AMERICA** — Summer, 1970 — South America

**ARCHAEOLOGY OF THE ANCIENT NEAR EAST** — July-August, 1970 — Eastern Mediterranean Area

**SUMMER STUDIES IN EUROPE — CULTURE, HISTORY, GEOGRAPHY** — July-August, 1970 — Fourteen European Countries. Of special interest to persons with professional interests in education.

**PHYSICAL EDUCATION IN ENGLAND** — July 1970 — England

**FINE ARTS**

**THE LIVELY ARTS IN VANCOUVER** — Wednesdays, Mar. 4, 8 p.m., various locations (8)

**THE ARTS OF JAPAN** — Thursdays, Mar. 19, 8 p.m., UBC (4)

**THE PHOTOGRAPHER'S EYE: CREATIVE PHOTOGRAPHY WORKSHOP I — INTRODUCTORY** — Tuesdays, Jan. 20, 8 p.m., UBC (10)

**THE PHOTOGRAPHER'S EYE: CREATIVE PHOTOGRAPHY WORKSHOP II — ADVANCED** — Wednesdays, Jan. 21, 8 p.m., UBC (10)

**HUMAN RELATIONS**

**LABORATORY IN INTERPERSONAL COMMUNICATIONS** — Thursdays, Feb. 26, 8 p.m., UBC (6)

**GROUP DYNAMICS** — Thursdays, Jan. 22, 7 p.m., UBC (9)

**WAYS OF LIBERATION WORKSHOP** — Sundays, Feb. 1, 9:30 a.m. — 12:30 p.m., UBC (7)

**LANGUAGE AND COMMUNICATIONS**

**LANGUAGE AND THOUGHT** — Thursdays, Feb. 5, 8 p.m., UBC (8)

**THE MYSTERY OF WORDS** — Wednesdays, Feb. 4, 8 p.m., UBC (8)

**LITERATURE**

**CLASSICAL LITERATURE OF INDIA IN TRANSLATION** — Thursdays, Feb. 5, 8 p.m., UBC (10)

**MATHEMATICS**

**MATHEMATICS: INVENTION OR DISCOVERY?** — Thursdays, Feb. 5, 8 p.m., UBC (6)

**MUSIC**

**20TH CENTURY MUSIC** — Thursdays, Jan. 22, 8 p.m., UBC (8)

**PSYCHOLOGY**

**UNDERSTANDING SOCIAL BEHAVIOR** — Mondays, Feb. 2, 8 p.m., UBC (8)

**THE NATURE AND DIMENSION OF HUMAN INTELLIGENCE** — Wednesdays, Feb. 11, 8 p.m., UBC (8)

**PUBLIC AFFAIRS**

**THE VATICAN: STATE WITHIN A CHURCH** — Thursdays, Feb. 5, 8 p.m., UBC (6)

**WAR GAMES: STRATEGY OF CONFLICT** — Thursdays, Feb. 19, 8 p.m., UBC (5)

**NEGRO AFRICA PART II: AFRICA IN THE MODERN WORLD** — Tuesdays, Feb. 3, 8 p.m., North Vancouver (8)

**ISRAEL: PAST, PRESENT AND FUTURE** — Wednesdays, Feb. 4, 8 p.m., Unitarian Church, Vancouver (9)

**THE INTERNATIONAL SCENE** — Thursdays, Feb. 5, 8 p.m., UBC (8)

**THE INTERNATIONAL SCENE** — Wednesdays, Feb. 4, 8 p.m., North Vancouver (8)

**THE INTERNATIONAL SCENE** — Mondays, Feb. 2, 8 p.m., Richmond

**WORLD CULTURES AND CIVILIZATIONS**

**EASTERN INTROSPECTIVES** — Tuesdays, Feb. 10, 8 p.m., Hycroft (8) A lecture-discussion series on the ways of thinking of Eastern peoples.

**THE MUSLIM CONTRIBUTION TO WESTERN CIVILIZATION** — Mondays, Feb. 16, 8 p.m., Vancouver Public Library (8)

**JAPAN: AN OVERVIEW** — Thursdays, Jan. 22, 8 p.m., UBC (12) An overview of Japan designed particularly for persons planning to visit the country.

**THREE SPECIAL EVENTS**

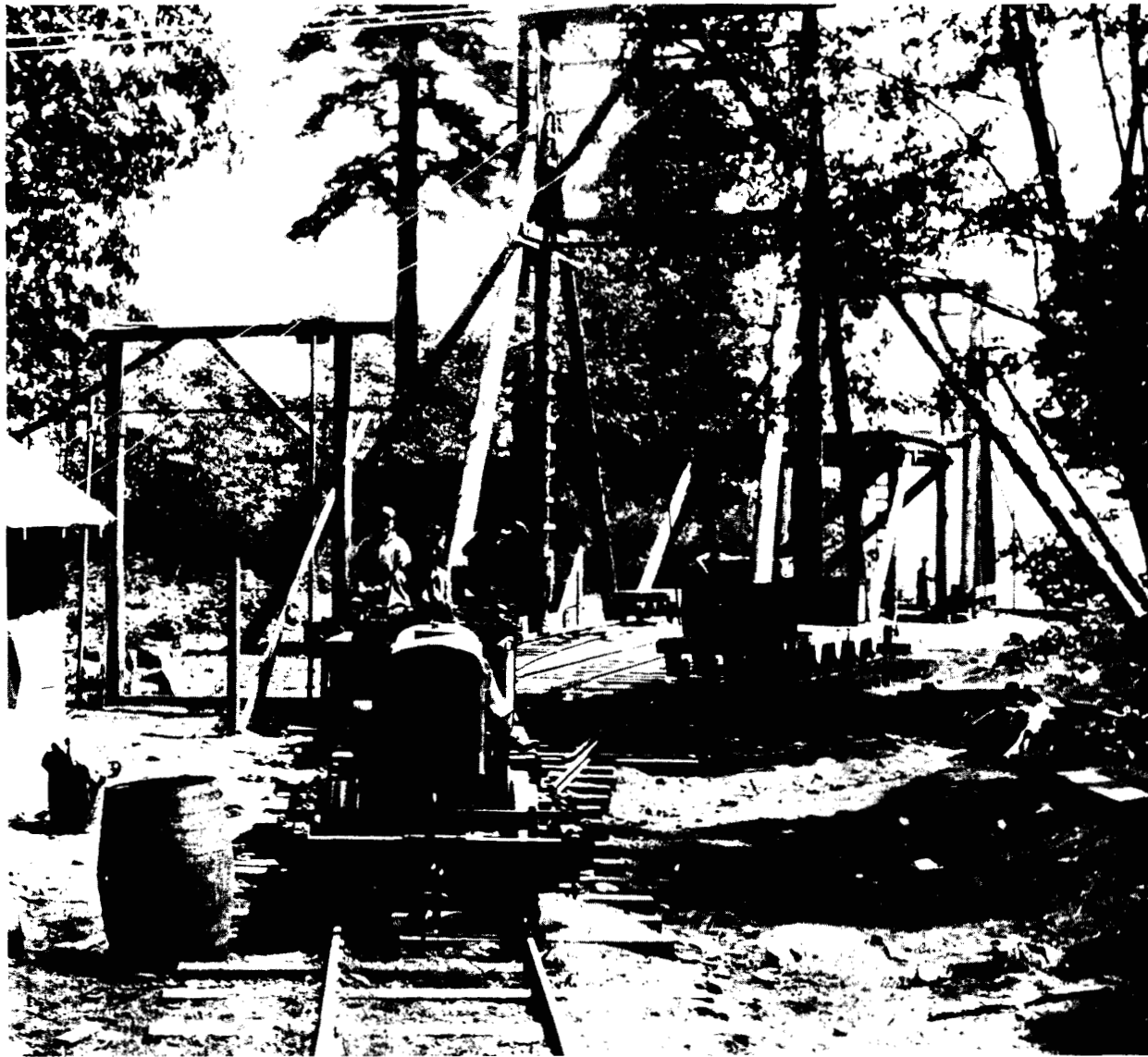
**DIALOGUE WITH MICHAEL MURPHY ON THE REVOLUTION IN CONSCIOUSNESS** — Friday, Feb. 6, 8:30 p.m., UBC, Saturday, Feb. 7, 9:30 a.m. — 2:30 p.m. UBC. First Spring 1970 event in the ongoing series Explorations in the Human Potential

**DIALOGUE WITH ERNEST BECKER ON THE NATURE OF EVIL** — Friday, Mar. 6, 8:30-10:30 p.m., UBC 10th event in the Quest for Liberation series.

**AN AFTERNOON WITH FRITZ PERLS: ON GESTALT THERAPY TODAY or writing one's own life script** — Sunday, Apr. 5, 2:30-5:30 p.m., The Queen Elizabeth Theater 2nd Spring 1970 event in the ongoing series Explorations in the Human Potential.



# UBC ALUMNI Contact



You didn't know that UBC once had its own railway did you? Well, it did back in 1923. It was used for hauling granite for the facades of the new UBC

buildings. The above picture is an example of the kind of picture to be used in a student-developed photographic history of UBC (see story opposite).

## UBC Picture History Planned

The UBC Alumni Association is helping a team of students develop a photographic history of UBC's physical development.

The photographic display, which is a term project for a course in architectural history, is intended to show UBC's sociological, architectural and planning history in pictures, according to fourth-year arts student Phil Aldrich, one of the students involved.

The display will provide a chronological sequence and documentation of the structure of UBC since its inception and the major events which marked its history. The students hope to have the pictorial history ready for UBC's triennial Open House March 6-7.

For *Reunion Days '69* this fall, the Alumni Association developed an abbreviated photographic history of UBC using a series of old photographs enlarged and mounted. Entitled *Memory Lane*, this collection, containing about 50 photographs, has been turned over to the students for use in their project.

The students plan to assemble additional old photographs and maps from the Vancouver and UBC archives and to conduct interviews with architectural firms involved with UBC's development to obtain material relevant to the project.

If any alumni have photographs to contribute, they can be sent to Dr. Giuseppe Milanese, assistant professor of architecture at UBC, who is the faculty director of the project.

On another matter, all alumni and members of the public are invited to drop into Cecil Green Park, the Alumni Association headquarters, during Open House on Saturday, March 7.

Visitors will be able to tour the old mansion, see displays of the work of the Association, view slide shows on student activities and on new campus developments, or relax with refreshments. Further information can be obtained by phoning 228-3313.

## Mysterious East Beckons Alumni

The mysterious East is beckoning and the UBC alumni are answering: they're buying tickets for the alumni charter flight to Expo '70 in Osaka, Japan. And the tour organizers report that there is still room on board the jet flight for additional alumni interested in seeing the Orient—but they would be wise to reserve seats now.

Since the charter flight was first announced there have been a few changes in plans. "We were unable to obtain ground arrangements as originally hoped under our initial scheme," said Byron Hender, charter flight coordinator.

"However, we have now obtained confirmed ground arrangements and are now offering a split charter flight in cooperation with the B.C. Automobile Association. We believe these arrangements will make for a more enjoyable trip."

With these arrangements, the charter flight has been moved ahead about a week. The flight now leaves Vancouver on June 20 and returns on July 12. The return flight fare is now \$337, which is \$7 more than the initial scheme.

Hender said that arrangements have also been made for three tours to be made available to charter flight participants at additional cost to the air fare. Two of the tours will be in Japan and involve visits to everything from theatres to shrines in key Japanese cities. The other tour involves a side trip to Hong Kong. For further information contact Byron Hender at 228-3313.

## OPERATION FEEDBACK

### Alumni Assist COFFE Klatches

The UBC Alumni Association has joined with the UBC Faculty of Education and the B.C. Teachers' Federation in a project designed to stimulate widespread discussion of a report which advocates sweeping changes in UBC's teacher training program.

The Alumni Association is assisting in organizing a series of meetings throughout the province at which teachers and members of the public will have an opportunity to discuss the findings of the report produced by the Commission on the Future of the Faculty of Education (COFFE).

Coordinator of the project, Alumni Branches Director Byron Hender, said the main aim is to obtain the views of teachers on the possible future directions of the Education Faculty, but it is also hoped that alumni and members of the public will participate as well.

### STIMULATE FEEDBACK

"We want the COFFE report to be more fully understood," said Hender. "It's the feeling of the Faculty of Education and the B.C. Teachers' Federation and the Alumni Association that widespread discussion of the report will stimulate feedback which will assist the University community in implementing recommendations of the report."

The meetings will be held between March 2 and 12 at such centres as Prince George, Kamloops, Kelowna, Chilliwack, Nanaimo, Alberni, Castlegar, and Kimberley. Three teams of resource people will go out to the meetings, each team made up of representatives from the B.C.T.F., senior education students and the Commission on the Future of the Faculty of Education.

The representative for the B.C.T.F. will be Bud Winteringham, vice-principal of Eric Hamber Secondary School and chairman of the B.C.T.F. Teacher Education Committee. Representing COFFE will be chairman Dr. George Tomkins, and members Miss S.D. Nalevykin, E.D. MacPherson, and Leroi Daniels, all members of the Faculty of Education.

### SERVE TEACHERS

Student representatives will be Ron Gulmanf, president-elect of the Education Undergraduate Society and Greg Tolliday, John Rodenhizer, and Phyllis Redekop, all officers of the same Society.

The Alumni Association is utilizing local alumni branch contacts in the various centres to work with local teachers in organizing the meetings. Hender said that the Association had got involved in the project in order to serve B.C. teachers, who make up a large part of alumni ranks, and to serve the University.

The COFFE Report was recently approved in principle by the Faculty of Education which also established a Faculty Steering Committee to guide its implementation. It is a 125-page document which calls for top-to-bottom revision of the academic program and administrative structure of the Education Faculty. Some of the main recommendations call for: adoption of a single, five-year Bachelor of Education degree program; introduction of a "teaching associate" concept and abolition of the existing practice teaching method; additions to the Faculty's graduate program, including a new Master of Pedagogy degree without thesis; and appointment of an associate dean of development and planning to act as an "agent of change."