

REPORTS

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Enrolment controls set for arts and science

UBC's Senate has approved recommendations that will control the numbers of students who will be admitted in September from secondary schools to first year in the Faculties of Arts and Science.

The enrolment-control motion for the Faculty of Arts provides for the admission of 1,500 students into the first year of the Bachelor of Arts program in 1986-87. Last September, the arts faculty approved admissions into first year totalling 1,484 students.

The enrolment-control motion in the Faculty of Science provides for admission of 1,400 students into the first year of the Bachelor of Science program in 1986-87. Last September, the science faculty approved admissions into first year totalling 1,312 students, all of whom met the faculty's admission requirements.

In addition, Senate approved a second motion from the Faculty of Arts limiting to 750 the number of students from other colleges and universities who will be able to transfer into the second and third years of the Bachelor of Arts program in September. Last year, the faculty approved the admission of 749 students via this route.

The enrolment-control motions are subject to annual review and to approval by the UBC Board of Governors, which meets today.

Discipline cases before committee

Prof. Cyril Finnegan, chairman of an advisory committee to President David Strangway on student discipline, says the committee will probably have to deal with 20 to 30 cases involving exam cheating, plagiarism and other offences by students in the current academic year.

Prof. Finnegan is reluctant to confirm that such offences are on the increase at UBC. "Faculty are, I think, more alert to cheating and other offences now and are taking steps to report cases more frequently than in the past," he said.

Faculty who suspect that a student has committed an offence first discuss the matter with their department head. Details that go forward to the dean of the faculty, who may decide to refer the matter to the president's committee.

Students may appear before the committee and all documentation connected with the case is made available to them. Students may also meet with the president to discuss the committee's recommendations.

The University Act, the provincial legislation that outlines the basic governmental structure of B.C. universities, gives the president the power "to suspend a student and to deal summarily with any matter of student discipline."

Penalties can range from the student receiving no credit for a course or paper to suspension for a year or more. Most students re-register at the University when the suspension period ends, Prof. Finnegan said.

This year the committee has dealt with eight cases, three of which have resulted in suspension. Some 10 additional cases are currently in progress.

In addition to dealing with academic offences, the committee also deals with cases involving vandalism, theft and misuse of UBC computer facilities.

Dr. Robert Will, dean of the Faculty of Arts, said the enrolment-control motions in Arts had been approved "with regret."

He said enrolment limitations were the result of significant reductions in faculty resources in recent years, which has implications for the arts faculty's ability to service students and to maintain the quality of education which students have traditionally enjoyed and expected.

He told Senate during last week's debate that faculty resources declined 10 per cent since 1981-82 while enrolment had increased by nine per cent in the same period. He said that faculty strength had declined by 38 since 1983.

Dean Will emphasized that the number of students who can be admitted under the new enrolment-control regulations will be slightly higher than the number enrolled in September of 1985.

"UBC is not cutting back on admissions," he said. "We are putting a cap on enrolment in the light of limited financial resources."

The arts enrolment-control figure, he said, was intended to guard against a situation the faculty faced in 1983-84, when new admissions to first year totalled 1,521, up from 1,313 the previous year.

"In September, 1985," he said, "all students seeking admission to Arts with the minimum requirements were accepted and we have no statistics to indicate that the situation in September, 1986 will be any different."

Dean Will said the enrolment control for students transferring into the University from

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Documentaries promote UBC

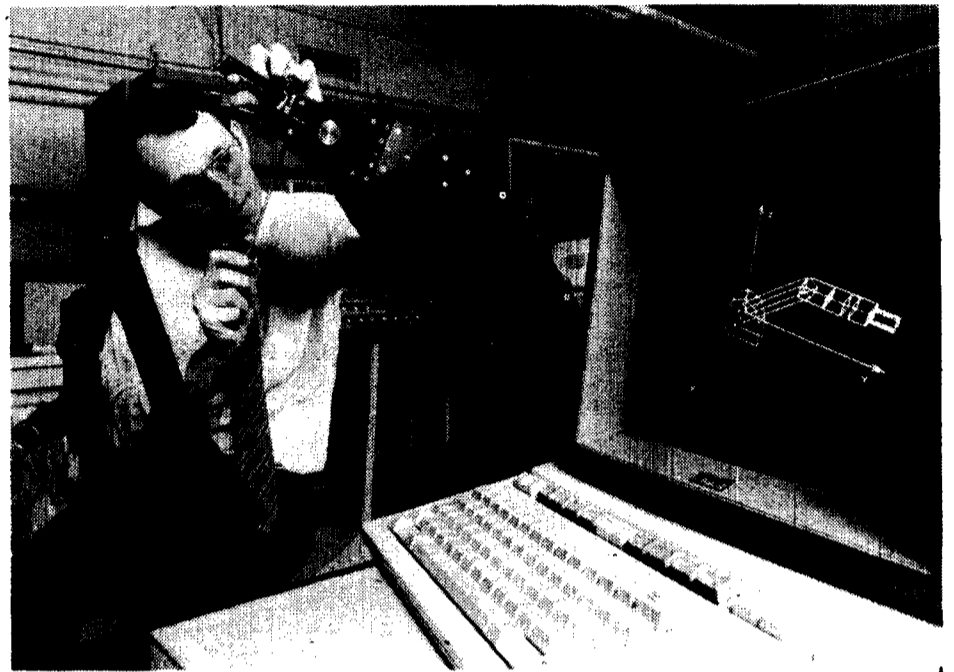
The Community Relations Office has just completed a series of 13 radio mini-documentaries entitled "UBC Perspectives" as part of a short-term media campaign highlighting UBC's strengths in the six areas of research named by Premier Bennett in his February announcement on the Fund for Excellence in Education.

The mini-documentaries, which were written and produced by Community Relations staff, focus on UBC's leading teaching and research activities in such areas as cancer treatment, telerobotics, reforestation, artificial intelligence, filmmaking, Pacific Rim trade, experimental music technology and international finance.

The programs are three to four minutes in length and feature interviews with faculty members with opening and closing narration by Dr. David Suzuki.

The Community Relations Office has received several enthusiastic letters and telephone calls from radio stations throughout the province in response to a pilot tape sent out in March.

"We anticipate that the mini-documentaries will be used extensively by approximately 60 radio stations throughout B.C.," said Community Relations director Margaret Nevin. "The tapes are relatively inexpensive to produce and we feel they'll be a very effective means of promoting UBC activities, particularly to residents outside the Lower Mainland. We hope to produce additional programs highlighting a whole range of UBC teaching and research activities."



The work of Dr. Peter Lawrence of the Electrical Engineering Department will mean a safer, more efficient work environment for B.C.'s foresters.

Telerobotics increases safety for forest workers

Computers have already transformed our lives in banking, business and medicine. Now researchers in UBC's Department of Electrical Engineering are applying advanced computer technology to increase safety and efficiency in B.C.'s forest industry.

Telerobotics -- or computer-aided machine control -- is the concept behind the extensive research under way in the Electrical Engineering Department under the direction of Dr. Peter Lawrence. Dr. Lawrence is using computers to help machine operators control heavy pieces of harvesting equipment with greater safety and ease.

"At present operators control harvesting equipment from inside the machine, often using many individual levers on a control panel," says Dr. Lawrence. "Not only is it extremely difficult to simultaneously manipulate these levers, but it can be dangerous. Operators have inadvertently tipped over machines because they've attempted to place too heavy a load on the equipment."

"What we have done is to put a computer between the operator and the machine. The operator controls the computer which in turn controls the machine."

Using this new technology, operators can

Dan Spinner named development officer

UBC has appointed Alumni Association director Dan Spinner as chief development officer to head the University's overall fund raising efforts.

In announcing the appointment, President David Strangway said that Dan Spinner's "experience in fund raising, both at the Alumni Association and in previous positions with the United Way will serve the University well."

Mr. Spinner, who has been director of the UBC Alumni Association for a year, will take on additional responsibilities for overall fund raising at the University. Before joining UBC, he was campaign director of the United Way of the Lower Mainland.

The appointment, which was effective April 1, reflects UBC's intention to increase the profile of fund raising and related activities in the immediate future.

give voice commands to control the machine or manipulate the equipment manually using a digital control panel.

The computer relays information back to the operator about the stress being placed on the machine so that overloading does not occur.

"It's even possible to build a safety check into the system so that a machine will not pick up a load if it is over a certain weight or is not balanced properly," says Dr. Lawrence.

He adds that the use of computers with heavy machinery will likely result in less product damage and equipment maintenance.

"Operators sometimes damage the trees they are loading or pieces of equipment because they are applying too much pressure or haven't aligned their load properly. Computers will provide immediate digital feedback on stress and alignment factors so that operators can make the proper adjustments."

A major safety advantage of this new technology is that industrial equipment can be operated from a remote location rather than from inside the cab of the machine. The operator controls the machine using stereo images obtained from video cameras attached to the machine.

"Remote control operation of machinery is already being used in sub-sea work," says Dr. Lawrence, "and we believe it can be applied successfully to the forest industry and to the mining and construction industries as well."

"Operators would still have control over the machinery, but they would be removed from any possible danger on the work site."

Dr. Lawrence emphasizes that the application of computer technology to the forest industry will not mean fewer jobs.

"The forest environment is far too complex for machines to operate without some sort of human guidance. Value judgments and the human decision-making process are still critical in harvesting operations. Our goal is not to replace humans, but to free them from stressful or hazardous work environments."

Dr. Lawrence and his colleagues at UBC, MacMillan Bloedel Research and Robotic Systems International will evaluate the new technology during field tests being carried out in B.C. harvesting operations.

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colleges and other universities was designed to guard against an imbalance in numbers between students entering from grade 12 and those transferring in.

Mr. Kenneth Young, UBC's registrar, said he expects the University will be able to accommodate all students seeking admission who meet basic admission requirements. "I urge all students who are planning to enrol at UBC in September to proceed with the usual application procedure," he added.

The enrolment-control proposals did not pass without protest, however.

One Convocation Senator who is a Vancouver high school principal said the proposals would cause "unnecessary anxiety" among high school students. He admitted, however, that the proposals "probably wouldn't have any effect on enrolments in the coming year or in subsequent years."

Commenting on the proposal to control the number of transfer students, Prof. John Dennison of the Faculty of Education said there were ramifications to such proposals that were not always appreciated by Senate.

Noting that transfer students would be chosen on the basis of their grade point average, Prof. Dennison said this selection method often results in grade inflation with the result that "the institutions that are the most penalized are those that act most responsibly and choose to maintain their standards."

He said there had been a steady increase over the past four years in the number of students transferring in. "If the rate of increase continues next year," he added, "the proposal would involve a reduction of 10 to 15 per cent in transfer-student enrolment."

He said approval of the transfer motion would have a detrimental affect on academic program enrolments in B.C. colleges. Dr. Dennison added that while he had no quarrel with the logic of the report, he felt implementation of the transfer motion should be delayed for a year.

Yet another enrolment restriction motion approved by Senate last week was a proposal to continue until further notice the admission level of 80 students to the Bachelor of Science in Nursing program in the Faculty of Applied Science.

World's most accurate clock built

Seiko, look out!

UBC physicists have completed the first and most difficult phase towards building the most accurate clock in the world. When completed, it will tell you if you're on time for your appointments to within one-billionth of a second.

A clock that accurate has no earthly use. Its major application will be in tracking deep space missions and astronomy research.

The clock is a new type of hydrogen maser. A maser works on the same principle as the more familiar laser except that the radiation is in the form of microwaves instead of light.

The most accurate clocks in the world today are hydrogen masers operating at room temperature. Over a one hour period hydrogen masers operating at room temperature lose time at the rate of about a second every 30 million years.

Good, but not good enough for some scientific purposes.

The UBC research team, experts on hydrogen atom interactions at extremely low temperatures, wanted to improve on the hydrogen maser clock.

"We knew that in theory, we could get major improvements in stability by building a hydrogen maser that operated at extremely low temperatures," said Dr. Walter Hardy of UBC's physics department.

"We could improve accuracy a thousand fold if we built a cryogenic hydrogen maser that operated at half a degree Kelvin, or half a degree above absolute zero.

"At those temperatures the physics of hydrogen masers is such that a signal from it is much more accurate. And at low temperatures, virtually all contractions have been eliminated in the materials making up the maser. Expansion and contraction lengthen or shorten components making up the instruments. That affects the time it takes for electrical signals to travel through the apparatus and affects the accuracy of our measurements.

"No one had done this before and we were faced with a number of technical problems that had to be overcome."

Dr. Hardy and Dr. John Berlinsky applied three years ago and received an annual \$30,000 grant from the U.S. National Bureau of Standards to carry out the work. They competed against 29 other research teams and were one of two to receive funding. The

other grant went to a team at the California Institute of Technology. The UBC grant was the first awarded by the bureau outside of the U.S.

They successfully recorded the first signal from the maser on the evening of April 14. Dr. Berlinsky, on leave at the Institute for Theoretical Physics at Santa Barbara, California, was on the telephone with his UBC colleagues when the first maser signal came through. He flew back to UBC to take part in the excitement.

"We have proved that the idea of a cryogenic hydrogen maser works," Dr. Hardy said. "We also received signals that were much more accurate than we expected for our first try.

"The maser is in fact more accurate than the most accurate atomic clock we have locally. The actual accuracy will remain



Walter Hardy

unknown until we have access to better clocks. The bureau is shipping a quartz crystal clock to us for further measurements."

Simultaneous with the milestone event at UBC, Dr. Daniel Kleppner and colleagues at the Massachusetts Institute of Technology also observed maser signals at half a degree Kelvin during an experiment that is not related to improvement of atomic clocks. Dr. Kleppner was a co-discoverer of hydrogen masers at Harvard University in 1962.

Dr. Hardy is quick to point out that it is unlikely that the ultimate version of the clock will be perfected at UBC. The equipment and funding needed would be on such a scale that only a national facility could hope to carry it out.

"For example, all the apparatus associated with the maser, all the cables and other components would have to be designed and fabricated to extremely exacting standards and kept at an accurately controlled temperature. The cost involved would be huge."

One possible application for the new maser will be to track deep space probes. The location of a space ship is determined by sending a radio signal to it and measuring the time for the signal to bounce off of the craft and return to earth. Since the speed of the signal is known, simple division will locate the space vehicle precisely. Or at least as precisely as the clock used to measure the return time of the signal.

Conventional high-precision clocks are sufficient to position orbiting earth satellites. But for space probes into the solar system and beyond, a clock with the accuracy of the UBC clock is necessary. The Jet Propulsion Laboratory at Pasadena, California, is interested in this clock for this purpose.

"Astronomers can also use the clock in some of their research," said Dr. Berlinsky. "For example, the theory of relativity predicts the existence of gravity waves. We should be able to detect waves of gravity generated by a large source such as the collapse of a star.

"But gravity waves have never been detected. For one thing, we never had clocks that were accurate enough.

"One possible experiment is to put one of our clocks in each of two space craft in deep space. A gravity wave will show up as a difference in the time measured by the two clocks."

Universities: A key resource in a changing society

The following excerpts were taken from a speech made by President David Strangway on April 25 to the Canadian Club of Vancouver. Dr. Strangway outlines UBC's present and future role in our changing society.

My first six months as president of the University of British Columbia have been hectic but productive ones. I accepted the challenge this position represents believing that leading Canada's second largest university through these times of rapid change and problems held significant promise.

These have been difficult times for many institutions both public and private while society has been reassessing what it expects from its institutions. This is just as true of education and of post-secondary education as it is for the private sector and for government agencies. We are facing issues that are not new to universities, as they have always participated in the changing needs of society.

These times have forced universities everywhere to regroup and rethink their role in society and ask themselves and the community to re-evaluate the importance and significance of our system of universities.

In your businesses you are used to dealing with the bottom line, to considering business plans, and to making capital expenditures that will be expected to retain a reasonable yield in a predictable time frame.

In our field, we also have bottom line issues, but we cannot determine our success only on the basis of whether we managed to close our books without a deficit or to make a financial return to the investors in the short term. Our success is surely measured on what we have been able to do for our society in terms of creating opportunity for our youth, in terms of the preservation and study of our heritage and culture and in terms of the research and development that we do for the long term.

These are hard to measure or to quantify, so we must approach our assessments somewhat differently from the private sector. Our bottom line criteria are those associated

with quality; and excellence must be our measuring device.

Breaking New Ground

Many of you are business people and I know you will relate to the need to constantly reassess one's "marketplace". You must ensure that your products and services, and the people and equipment that deliver them, are always up-to-date and relevant. At a university, this market orientation must have a strong future focus because of our mandate to prepare students for society's future needs, and to break new ground in research and development. It is not enough for universities to be meeting today's needs--we must also be thinking of the needs five, ten and twenty years ahead.

UBC's annual budget from provincial grants, tuition, research grants, contracts and endowments is \$360 million. A study in 1982 estimated that UBC contributed more than \$467 million annually to the economy of the Greater Vancouver area. This includes direct expenditures for goods and services, a payroll for more than 5,000 full-time jobs and indirect business and employment opportunities. UBC

is one of the ten largest corporations in British Columbia, and is the largest employer in the City of Vancouver.

Dozens of companies have been spun-off from research done at UBC. We have just begun to identify and measure the impact of these enterprises, but so far we know of 48 companies, large and small, with estimated annual revenues of \$87.5 million for 1985, employing over 1,600 British Columbians -- and that is direct jobs only.

Almost 50,000 people -- a good-sized city -- go to the campus every day to study, teach, work, volunteer or enjoy. I know that every one of you is affected in one way or other in your personal or business life by what we do at the University.

I have chosen the title of "UBC--A Centre

of Excellence." The phrase "Centre of Excellence" is currently popular across North America and one hears it being used frequently in many provinces and in other countries. I told the Premier recently that I came to British Columbia because I considered UBC to be a Centre of Excellence and that I was therefore delighted that he was planning an excellence fund. My meaning was simply this: The province has universities committed to excellence in their various endeavours and the only sensible approach to centres of excellence is to ensure that the universities of this province are strong, in a position to compete effectively with universities in other jurisdictions, to attract and to retain the best faculty. California, for example, has increased its funding to universities by 31% in the past two years in recognition of the key role they play and of the need to be competitive.

In his announcement for funding of universities, the Premier identified several fields for special attention--computer systems, biotechnology, Pacific Rim studies, international business, cultural activities and forestry.

We look forward to working with you and with governments to reinforce these areas of excellence at our universities. But I assure you that this is only possible because the university has developed these areas along with many others over a period of many years. This has stemmed from a policy of giving universities a great deal of autonomy and by permitting free enquiry we have played a big role in the free enterprise of the country.

Free Inquiry Essential

The question that you and I need to be concerned about is to ensure that we have a healthy and dynamic university system where faculty members are given opportunities for free enquiry. Only if we do this will we be able five years or ten years or twenty years from now to participate in those fields that will then

be seen to be the fields where spin-offs are likely to occur. The spirit of free enquiry is essential now if we are to have the ideas that will be necessary to fuel the free enterprise of the future.

There are many other fields in which even now there are exciting opportunities for university research. These include fields such as materials science, health sciences and the role of various health science professionals in the health care system, and access to one of Canada's best libraries.

It must be remembered that in addition to these roles, we play a most important role in helping to develop individual human potential--whether this is our young people or an aging population as it seeks renewal and new opportunities. In these times of rapid change, it is wise to remind ourselves that we are preparing people to enter their careers after four or five years of intensive study. Who can predict "where the action will be" then? It seems to me that more than ever our universities must continue and renew their commitment to the liberal arts and sciences which will form the base for many different individual choices.

Future Plans

As UBC develops its mission plan for the rest of the century, we must ensure that we keep our commitment to excellence, and we must be given flexibility to play our role in this rapidly changing society. The decisions that we make now will determine what the centres of excellence will be in British Columbia five years, ten years and twenty years from now. If we are not able to continue to pursue interesting and exciting opportunities, there will be no base for future centres of excellence.

May I, as a final note, say how delighted I am to be here and to work with our sister universities who face many of the same issues. Together we are an essential resource for the future of this province.

Int'l disputes examined at law conference

The rapid growth of trade between North America and the Pacific Rim has led to an inevitable increase in the number of international commercial conflicts between East and West.

The resolution of these conflicts will be the focus of a two-day conference co-sponsored by UBC's Faculty of Law and the provincial government on May 12 and 13 on the UBC campus. Attending the conference, entitled "East Meets West: Resolution of International Commercial Disputes in the Pacific Rim", will be international arbitration experts from around the world.

Prof. Robert Paterson of UBC's law faculty was chairman of a 1985 Task Force established by Attorney General Brian Smith to explore the development of British Columbia as a site for international commercial arbitration. One of the recommendations of the Task Force was the adoption of legislation based closely on the law approved by the United Nation's Commission on International Trade Law in 1985. This new legislation, which will be enacted in B.C. this spring, will provide a hospitable climate for international commercial arbitrations.

The recommendations of the Task Force also led to the establishment of the British Columbia International Arbitration Centre, which will be officially opened on May 12 in conjunction with the UBC conference.

The new centre, located in the World Trade Centre at Canada Place, will provide administrative support services to facilitate international commercial arbitrations.

One of the primary reasons for the establishment of an international arbitration centre in Vancouver is the expertise available through UBC's Faculty of Law. UBC pioneered research in the area of Pacific-Rim legal studies and offers Canada's only program in Japanese law. The law faculty is expanding its law program to include other Asia-Pacific regions as well, and has established faculty and student exchange programs with universities in China, Singapore, Malaysia, Hong Kong, Japan, Australia, the South Pacific Islands and South Korea.

Liaison office established

UBC is in the process of establishing a School and College Liaison Office aimed at encouraging academically well-qualified students to seek admission to and enrol at the University.

UBC graduate Mary Stott (BA'74) has been appointed coordinator of the office and is in the process of preparing a proposal for the President's Office outlining the role the liaison office should play at UBC beginning in September. She is currently meeting with deans and other University personnel to learn about current liaison activities and to solicit ideas about services her office should provide and assistance it might offer to faculties in the future.

Members of the University community who have comments or questions on the role of the School and College Liaison Office are asked to contact Ms. Stott by leaving a message at 228-2551.

Chemistry hosts lab competition

More than 40 high school students will compete in the annual laboratory skills competition in UBC's chemistry department tomorrow (May 2).

They will compete in two two and one-half hour events to standardize an acid and a base and to complete a qualitative analysis of an unknown sample.

While their reports are being graded, they will watch the department's popular Chemistry Magic Show. The winner will be announced at the end of the show and will receive a prize of glassware created by the departmental glassblower.

The competition is part of the department's extensive high school liaison program.

Remote Sensing: UBC researchers help make 'forestry of the future' a reality

"Remote Sensing Does It From A Distance" reads a sign on the wall of a small laboratory housed in UBC's MacMillan Building. But don't let the facetious motto fool you. The laboratory is home to one of North America's top researchers in the field of remote sensing, a highly sophisticated technology that is having a significant impact on the management of natural resources in our province.

UBC researcher Dr. Peter Murtha explains the concept of remote sensing:

"Remote sensing is the gathering and interpretation of spacial and spectral (color) information which is collected using sensors on board satellites or airplanes travelling at various altitudes.

"Here at UBC remote sensing research is being carried out in forestry, civil and electrical engineering, computer science, geography, oceanography, soil science and geophysics and astronomy." Dr. Murtha, who holds a joint appointment in UBC's Department of Forest Resources Management in the Faculty of Forestry and the Soil Science Department in the Faculty of Agricultural Sciences, is applying this new technology to the management of B.C.'s forests.

"To make effective decisions in forest management you must have detailed and up-to-date information on forest stands throughout the province. This includes ecological data, information on tree age, species composition and volume, tree condition and damage caused by insects, acid rain, pollution and disease. One very cost-effective means of obtaining this information is through the interpretation of remote aircraft and satellite images of forest stands."

One example of the precise detail obtained through remote imagery is a photo of Vancouver Island which hangs on the wall of Dr. Murtha's office. Clearly identifiable in the photo, taken from 283 miles in space, is the outline of a B.C. ferry crossing Georgia Strait.

"Remote sensing technology has improved dramatically over the past decade," says Dr. Murtha. "We can show you a dead branch on the side of a tree in a photograph taken from



Peter Murtha

an altitude of 70,000 feet or overlay maps on satellite images using a personal computer."

The interpretation of remote sensing images takes skill, experience and often a bit of guesswork.

"What appears on the computer screen is an image of a particular area with different patterns and colors," says Dr. Murtha. "It's our job to determine what these patterns and colors represent in terms of land forms, forest stand characteristics, possible outbreaks of disease, etc."

Dr. Murtha describes the impact of remote sensing technology on forest management in the province as "revolutionary".

"The B.C. Ministry of Forests began computerizing all their forest maps in 1978. Ultimately they plan to have a main data base in Victoria which would be linked to microcomputers in all their field and district offices throughout the province. Each office would have remote sensing capabilities and would be responsible for updating data from their area.

"The impact of this new system on forest management in the province is going to be profound. Remote sensing technology is advancing so rapidly that we are in the process of implementing technology that was virtually unheard of five years ago.

"This has led to an entirely new system of gathering and updating critical forest data," he says. "We're moving from a system where forest management decisions were made using archival data that was up to ten years old to one where forest maps and other data are updated continuously as changes occur and decisions are based on current, accurate data."

UBC pitches new use for waste products

A waste product from the Canadian pulp and paper industry may become the source of pharmaceuticals worth millions of dollars.

The waste product is pitch which is found in tall oil, a by-product of pulp making. About half of the pitch consists of steroids which could be used in the pharmaceutical industry to produce birth control pills, anti-inflammatory drugs such as cortisone and other products.

A biotechnology research team led by Dr. James Kutney of UBC's chemistry department is using genetically-engineered micro-organisms to convert the steroids into valuable starting materials for the pharmaceutical industry.

"We know that certain bacteria are capable of transforming the pitch to steroids that can be used to produce drugs," Dr. Kutney says. "We're trying to make the conversion commercially viable."

His research is supported by a strategic grant in biotechnology from the Natural Sciences and Engineering Research Council of Canada (NSERC) and by Micropharm, a Vancouver company. NSERC is financing basic small-scale research, while Micropharm is providing support for scale-up studies so that laboratory techniques can be applied to large-scale, commercial production.

The largest producer of tall oil in Canada and one of the largest in the world is B.C. Chemicals Ltd. of Prince George, a wholly-owned subsidiary of three Prince George forest

companies -- Northwood Pulp and Paper, Prince George Pulp and Paper, and Intercontinental Pulp.

B.C. Chemicals collects a by-product of the pulping process from its three parent companies and from B.C. Forest Products at Mackenzie, Cariboo Pulp and Paper at Quesnel, and others.

The by-product is converted by B.C. Chemicals to tall oil which it sells to Mitsui & Co. for use in Japan and to Reichhold Chemical in Louisiana. The two companies distil the tall oil to obtain products used in the paint industry and for sizing paper. The residue left over after distillation is pitch which is burnt.

B.C. Chemicals' pitch is five times richer in steroids than the pitch from southern U.S. pulp producers.

"The high concentration of steroids makes the pitch very attractive to our biotechnology program," Dr. Kutney says. "Our tall oil is unique because it is an enormous storehouse of steroids which are now literally going up in smoke. We have to take advantage of our situation."

Dr. Kutney says his research team is able to convert with up to 85 per cent efficiency a substance in the pitch called betasitosterol into a family of compounds known as androstanes, basic starting materials in the steroid pharmaceutical industry.

"We have improved the efficiency of the

micro-organisms that were already known to do the conversion to the specific requirements of our pitch.

"Our conversion efficiency of 85 per cent is in small laboratory batches. We now have to demonstrate that the efficiency can be maintained in large commercial batches. We need to scale up."

He says B.C. Chemicals has contracted the private research group on the UBC campus, B.C. Research, to determine which of a variety of methods should be used to purify the pitch before it is micro-biologically converted into the starting androstane compounds.

If the entire process is successful, he said, B.C. Chemicals will be able to sell its pitch separately to the pharmaceutical industry. And the material sold to Mitsui & Co. and Reichhold Chemical would be more valuable too.

"Mitsui and Reichhold would receive the material they want - minus the pitch which is to them a waste product."



James Kutney

Van Dusen gift helps business school

The VanDusen Foundation of Calgary has endowed a management research fellowship at UBC through a gift of \$850,000 over three years.

The W.J. VanDusen Distinguished Research Fellowship in Management will be in UBC's Faculty of Commerce and Business Administration.

"It will allow us to invite the very best academics in management science and business administration from around the world to spend from six months to a year at our Management Research Centre," said Dr. Peter Lusztig, dean of the faculty.

"While at the centre they will continue their research into new areas of management and administration, enriching the resources available to our graduate students.

"The fellowship will improve the education of our students who will be better prepared

when they graduate to contribute to the competitiveness of Canadian companies and other institutions."

The fellowship is in honor of the late W.J. VanDusen, industrialist and philanthropist, who had an enormous impact on B.C.'s society and economy.

Mr. VanDusen was part of the formidable team that created MacMillan Bloedel Ltd., the largest forest products company in Canada. While Mr. VanDusen ran the company during the Second World War he created The Vancouver Foundation, a non-profit perpetual philanthropic trust that is now one of the 10 largest community foundations in North America.

He was joined in the trust by dozens of other Vancouver friends and acquaintances. The Vancouver Foundation now consists of 95 individual funds.

