

**The
President's
Report
1982-83**

The University of British Columbia



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*The report of President Douglas T. Kenny
to the Senate and Board of Governors
of the University of British Columbia
for the academic year September 1,
1982, to August 31, 1983.*

The University of British Columbia

Foreword

To the Board of Governors and Senate,
The University of British Columbia.

Ladies and Gentlemen:

This is the eighth and last time that I will have the privilege of reporting to you on the activities of The University of British Columbia, which is approaching maturity as a world-class institution and is now regarded as one of the leading institutions of higher education in Canada.

The difficulties which the University has experienced in recent years as a result of financial restraint and underfunding sometimes obscure the very real progress we have made as a result of the efforts of the many dedicated people who are responsible for the day-to-day operations of the University.

In recent years, everything possible has been done to improve the quality of instruction offered to our students, who are subject to higher entrance requirements than in the past, to expand the research capacity of the University, to provide adequate library and computing facilities as well as new buildings in keeping with academic priorities; in short, to create an environment in which learning and our long-standing commitment to excellence can flourish. Some of the accomplishments of recent years were detailed for you in my report on the 1981-82 academic year.

No one individual can take credit for all the accomplishments of an institution as complex as The University of B.C. It therefore gives me pleasure to extend my gratitude to members of the Board and Senate, the faculty and support staff, and the students of UBC, who have never failed to provide advice and counsel when called upon. I am deeply indebted to each and every one of you.

I take leave of my duties as the University's chief executive officer in the knowledge that a firm foundation has been laid for the continued progress of the University.

Sincerely,

A handwritten signature in black ink, reading "Douglas T. Kenny". The signature is fluid and cursive, with the first name "Douglas" and last name "Kenny" clearly legible.

Douglas T. Kenny,
President.

*COVER: An aerial view of the
UBC campus on Point Grey
and the City of Vancouver in
the background. George Allen
Aerial Photos Ltd.*

The President's Report 1982-83

A PERSONAL COMMENT

On this occasion, I have the honour of preparing my eighth and last annual report. In calling attention to this circumstance of time, I feel a trifling embarrassment because it is of no great consequence in itself. But I would like to place on record my grateful appreciation for the support, wise counsel and friendly criticism I have always received from my vice-presidents, deans, faculty, the members of Senate and the Board, and, indeed, from all members of the University community. It has been a happy experience to work with generations of earnest, at times over-spirited, students. With sincerity, I express my warm gratitude to the students for their unfailing support and loyalty to their University. I remain enormously proud of our students, for they have made my years exciting, stimulating, instructive and very worthwhile.

I would like to be permitted, just this once, to comment on three exceptional individuals who have contributed to the well-being of the University. Perhaps the choice of individuals is always invidious, as can be perceived by entering randomly into the rest of this report. I should, however, like to thank them publicly and to express my deep appreciation for their excellent assistance to me and the University.

The University was truly favoured that it was able to secure the benefits of William White as the Bursar and Vice-President of finance. I am especially grateful for his guidance in all matters relating to finance. His counsel was invaluable. He is a person of exceptional integrity who answered without stint the many demands which the University made upon him over the years. While his departure will be widely felt, he takes with him the respect of us all and we wish him well in his retirement.

Michael Shaw, my academic vice-president, is a very distinguished member of the University, both as a teacher and a world-class researcher. The unmistakable academic improvement of the University over the past eight years is a lasting tribute to his term of office. His years of unstinting support of academic excellence brought more than a dash of academic reality to the aid of the University. I shall remember him as a wise man who was capable of engendering a remarkable spirit of academic co-operation and friendliness across the University, of a quality not always found on university campuses. It would be difficult, if not impossible, to have secured a better academic vice-president. I wish him continued success as a University Professor.

My last words of warm thanks go, appropriately enough, to Martha Hazevoet, my secretary. For her exemplary dedication to the University and unfailing good-humored efficiency, I express my hearty thanks.

At this time of financial stress for the University, I congratulate the Board of Governors for attracting as my successor, K.G. Pedersen. He is an experienced administrator and I extend my sincere best wishes for a fruitful term of office.

As this is my last report, I cannot refrain from

looking back upon the growth of the University and its prospects.

I remain particularly delighted to be part of The University of British Columbia and to have a role in its voyage of growing importance and meaning in our provincial and national life. During my time in the University as a student, professor, head of a department, dean and president — almost 40 years — I have seen it grow from a very small institution to a first-class University which is the beacon of hope and intellectual life for all our citizens. The University's leadership, its tremendous intellectual resources, its high-quality academic programs, the opportunities provided, careers launched, the sanctuary for freedom of thought and expression, its research which pries open the door to tomorrow, have played a vigorous role in shaping the destiny of British Columbia. The importance and meaning of UBC is virtually beyond assessment. The very existence of The University of British Columbia adds an enormous dimension to the life of every British Columbian.

It is in creativity that pride properly lies and The University of British Columbia is one of this province's most notable creations. British Columbians are fortunate in having a University which people all over the world admire, for the academic community of the world recognizes that it is a priceless provincial, national and international asset.

And yet somehow higher education in this province continues to be in various minds a suspect investment. Good universities, such as UBC, take a long time to develop and flourish. Moreover, they are built at substantial cost and dedication.

Unfortunately, a world-class university can be dismembered in brisk time by financial strangulation. No university can flourish if it is repeatedly jostled at its roots or intemperately pruned.

Even in the present times of financial stress, it would be shortsighted and counter-productive to reduce the province's commitment to higher education. At a time when Canada faces countless opportunities and challenges, I believe it to be incompatible with provincial needs if this University were to fall victim to the proposed scale of fiscal cuts that are being considered. If the cuts were to happen, then the voyage of The University of British Columbia toward a growing importance and meaning in our provincial and national life will prove to be nugatory.

I can only hope that this is not the intention of the provincial government and that wisdom will prevail.

CHALLENGES TO THE UNIVERSITY IN A CHANGING WORLD. A retrospective view of the University's academic session 1982-83 is sketched in considerable detail in this annual report. A temptation to focus only on the past or fiscal problems needs correction, however;

and that is why I have considered it appropriate to include as my lead essay the speech I delivered at the international symposium on "The University, Today and Tomorrow," held at the University of Tsukuba, Japan, in September of 1983. The symposium was held in celebration of the tenth anniversary of the University of Tsukuba, the first new university in Japan. I had the honour, which I greatly appreciated, of being invited to the conference and being asked to bring forth recommendations on the future of universities. Perhaps I should mention that the recommendations, contained in the body of the text, were wholeheartedly adopted, by formal resolution, by the Japanese in attendance at the symposium.

The speech was as follows:

Distinguished guests, ladies and gentlemen.

It is an honour and a pleasure for me to be here on this special occasion of the tenth anniversary of the University of Tsukuba. I was delighted to accept President Fukuda's invitation, both because the visionary University of Tsukuba has built up a tremendous world-wide reputation in a very short time and also as the subject of your symposium is one that interests me very deeply.

I would like to talk about two things: first, some powerful social trends that are inexorably restructuring the world; and second, how the universities should respond to these trends.

A university cannot stand still. No university can afford to ignore the *zeitgeist*, for we can no longer let the past determine the present. Instead, we must look at the future to shape the present. While a modern university may be rooted in the historical vision of higher education, its nature equally must be determined by the longer view of global change.

In charting the university's directions for the future, academic planning should be responsive to the dramatic global trends that are taking place. Let me mention at least five well-identified social trends that will condition the public attitude and the planning for universities. These global trends, which I consider to be fundamental, are:

- Application of scientific findings to a multitude of problems;
- The shift from a mass industrial society to an information society;
- The accelerating impact of technology on society;
- The increasing demand for quality and excellence;
- The interdependent world as a truly global economy.

Now let us consider each of these trends and assess their implications, drawing upon my own experience.

I acknowledge that it is no easy task to reach academic consensus on how higher education will respond to these key trends. We do live in an imperfect world. Nevertheless, history will judge us most harshly if we do not give attention to these trends.

I. Higher education is clearly a major element on the social agenda of a scientific and technological society. We live in the midst of a

fall-out from the technological explosion that is re-making the face of the world and all of its institutions. These monumental winds of change appear to be blowing stronger than ever, with the world changing radically, rapidly and constantly. It is apparent that science and technology are beating the tambours, leading the march of irresistible events.

In this international scientific and technological race, no developed nation can afford to become the intellectual backwater of the world. All modern governments have taken measures, and justifiably so, to keep their nations in at least some of the "international technological olympics." Clearly, universities must also act.

In 1980, the federal government of Canada took a vital stand about the importance of research and development (R&D) to the Canadian economy. Canada's 1985 goal for R&D in the natural sciences is 1.5 per cent of the gross national product. The R&D investment has grown substantially from the 1976 level of 0.94 per cent to 1.07 per cent of the GNP in 1981. Even so, this compares unfavourably with Japan, where R&D is 2.4 per cent of the GNP.

Canada's 1985 target in research and development has placed pressure on its universities to increase substantially both the present rate of production of highly qualified scientific manpower and the amount of scientific research.

Let me share with you a few activities of my University that support the objectives of Canada's research policies. Today, unlike a decade ago, the University believes that its responsibilities for research are equal to its responsibilities for teaching. This change has not always been welcomed with open arms by all faculty. Nevertheless, it is fair to say that the University provides a rich environment for research and advanced education. Illustrative of my own University's increasing emphasis on research are the following:

1. It has become one of the major research and graduate universities in Canada, second only to the University of Toronto.

2. Expansion of the Computing Centre to have two fourth-generation, mainframe computers, one for teaching — the other solely for research.

3. Establishment within the past two years of three new centres in the Faculty of Graduate Studies, namely, the Centre for Advanced Technology in Microelectronics, the Centre for Coal Research, and the Centre for Molecular Genetics.

4. Development of a world-class Imaging Centre, including equipment for: Computer-assisted x-ray tomography (C.A.T.), Positron emission tomography (P.E.T.) and Nuclear magnetic resonance scanning (N.M.R.).

5. In 1981 the University established a 56-acre research park on campus with the aim of strengthening the linkages between research and innovation; and between the University and private industry. Man does not live by rice alone, but equally, man does not live without rice.

II. Higher educational policy needs to take cognizance of the consequences of the accelerating shift from a mass industrial society to an



A new centre for research on coal is one of three units established at UBC over the past two years to support Canada's research policies.

information society. As we live today and dream tomorrow, we must accept the sad fact that the intellectual community has not seriously come to grips with this issue.

Without seeming to "preach to the choir," let us remind ourselves of some of the broad realities in this area:

1. The information industry joins with the manufacturing industry as two powerful forces in the economies of nations; as a consequence, today's society does not bear a close similarity to what it was 25 years ago.

2. With knowledge doubling every eight years, the information explosion is upon us.

3. Information investment and information workers will increase dramatically between now and the year 2000. It has been estimated by the Department of Commerce that more than half of the work force in the United States consists today of information workers who are engaged in an over \$500 billion a year information industry.

4. There are approximately 100,000 technical journals today, and the number doubles every 15 years.

5. We all know that what took researchers days to acquire in the past now can be obtained in a matter of seconds.

6. Telecommunications technology is the wave of the future, as the need for national and international transaction services grows. For example, in 1981, voice communications alone accounted for \$55 billion in revenues for United States telephone companies, and it is predicted that it will grow by at least 20 per cent per year.

In a word, the problem lies in the question of what the information era means for universities.

It seems to me that one has to ask: What are the attributes required of the leaders and innovators 20 years from now?

I am confident that they will have to be broad-banded or broadly-gauged, flexible in

order to respond to the challenges provided by a constant flow of new information, intellectually directed, and of deep global awareness.

Fortunately for our peace of mind, the centuries-long history of universities has revealed how best and most effectively to educate this kind of individual. Universities inculcate these attributes superbly by exposing students to depth, rather than breadth, in a specialized discipline. In short, students should be educated as if they were going to be professional scholars. Unbiased critical enquiry in a discipline tends to produce a person with all-round ability, intellectual versatility and a desire to continue to learn.

There are two additional observations that need to be made about this new era.

First, in some countries, government and industry will have to show a greater commitment to higher education than is manifested today, otherwise they will not be able to compete socially or economically.

In Canada, about 20 per cent of the population between the ages of 20 and 24 attends some institution of higher education. In Japan, the figure is slightly over 33 per cent. Unfortunately, I do not think this situation will change in Canada. In fact, clarion calls to government on this issue have fallen on deaf ears. Under such circumstances, I don't see how Canada can be a world leader.

Universities must expand graduate education. To cope adequately with a highly-oriented information society, we require a far greater number of highly educated graduate students.

Second, in order to cope with the rapid information change, continuing education will become even more essential in the future than it is today. First-class professionals will be looking for first-class continuing education.

In general, the continuing education programs of North American universities are



The humanities, creative arts and social sciences can be helpful in understanding and explaining social change.

thought of as the educational warehouse for academic miscellany. I do not hold that view, for no university will stand in high regard unless it shows a willingness to place its intellectual resources at the disposal of all the professions and the general public. Lifelong learning will grow as knowledge expands. To be sure, the agenda for the future of higher education must include continuing education.

The University of British Columbia is taking deliberate steps to improve its commitment to adult learning. To appreciate the magnitude of

this endeavour, let me say that the University, in addition to regular session students of over 34,000, has approximately 91,000 individuals taking non-credit courses to upgrade their intellectual capital. These programs are self-supporting, with no prospect of persuading government to finance such activities.

III. *In assessing the impact of science and technology on society, one must not overlook the value of the humanities, the creative arts and the social sciences.* I suspect that some of you, who have been willing to follow my contention concerning the role of science and technology thus far, will by now feel a little impatient at this technological know-how emphasis.

Is there not a level of experience, reviewing which any one of us, when he comes to die, may say: "I have lived"? If so, what is the role of the universities in this context? It is a searching question, to which it is all too easy to make the conventional reply that science only searches for the truth and that technology satisfies consumer needs. We should not be content with this.

People find that with the fast changes in how things are done, their lives change. The current word-processing revolution is a small example. Another is the advent of "pay for what you want to see" television, where the choice ranges from what is in today's *London Times* to the Peking Ballet. Also to be considered are: satellite receivers on the tops of suburban homes, videotape recorders, pocket calculators, personal computers, video games, digital watches.

The less observable must not be overlooked — the use of silicon chips in household appliances, medical instruments, aerospace products, robots, automobiles, and on and on and on. These and dozens of other examples all contribute to the expectation of profound disturbance in the *status quo*. Technological change is a major element in the social disorientation of our times. And therein lies the problem for the universities.

Individuals are voicing their anxieties about the worth of all this new technological achievement. We are witnessing increasing resentment between those who work with the new technology and those who do not. This disquiet is implicit in the complaint against male computer addicts who have produced computer widows, presumably neglecting opportunities for procreation. The public is having a hard time coming to terms with genetic engineering, the biological deterioration of the Earth by high-tech contamination, and the large number of data banks held on individuals by government and the private sector. It would be easy to dismiss these anxieties as a new form of anti-intellectualism or as a naive yearning for the simpler days of a bygone era. On close examination, however, most individuals recognize that they cannot turn back the clock. They also know that there is no point in painting science and technology into the scapegoat's corner.

The question remaining for universities is: If the future is golden for science and technology, then what is the future for humanity? Should not the universities remember what and who we are? Or, putting it more sharply, should not universities deal with the relationship between man and the technological world?

Whichever way we put it, universities should

grapple with these troublesome questions. We should not lag behind society on these topics. We should lead. Humanity should not be left by the universities to twist slowly in the wind.

You may ask how this can be made possible. The answer is that the humanities, the creative arts and the social sciences can be helpful in understanding and explaining social change. However, all individuals within the university must come to grips with the issue of how to manage science and technology in order to get us where we want to go and what kind of person we wish to be.

IV. *Higher education needs to improve and maintain quality and excellence.* The public is no longer innocent on the issue of quality and excellence. Of all the social challenges a nation faces, the increasing demand for quality is one of the most important. The yearning for excellence extends into all spheres of life, including technological products and the world of ideas.

Let me cite but one example from industry — the automobile industry. The quality of Japanese cars was an electrifying example to the American car industry. As a consequence, American industry has been racing to upgrade the quality of its cars. So, we have today the advertising of the Ford company boasting that "Quality is Job 1." Perhaps all of education should take a warning from this pleasing example.

Possibly the comments that follow are more addressed to my fellow North Americans than to others, for my experience elsewhere is not sufficient to inflate my personal observations into universal truths.

Consider the state of affairs in 1983. The North American public is disenchanted with the unenviable learning record of the elementary and secondary schools. Moreover, the public is starting to voice similar concerns about universities. Public universities cannot expect to advance if public confidence is weakened. More than anything, universities must sharpen their emphasis on quality and excellence.

In the fierce global competition that lies ahead, nations will need more of excellence than mediocrity. For this pragmatic reason alone, no part of the world's intellectual capacity should lose ground because of the slipping standards of higher education. In this context, perhaps it is worth examining the delicate relationship between quality and the adequacy of financial resources. In the minds of many North American faculty members, the wistful maxim "the greater the financial resources, the higher the academic quality", has always been attractive. This dictum escapes me. Money does not necessarily ensure excellence. A good university can continue to be good with less money, providing it adheres to the veritable truth that if learning is worth doing at all, it is worth doing well.

This simply reflects a policy of backing winning horses and denying oats to the swaybacks, which is in the best of university traditions. Today, most North American university presidents would say that shrinking funds are their number one concern. Perhaps they should become as self-conscious about quality as the Ford Motor Company has. I fully recognize that

such a sweeping statement may seem harsh. But as George Bernard Shaw once remarked, "All great truths begin as blasphemies."

If the agenda for the future includes excellence, then what needs to be done to encourage it to happen? In answering this question, and to give some idea of how these elements operate in practice, I will make reference to some changes in The University of British Columbia during the past few years.

First, raise the quality of faculty members. This is imperative since faculty set the academic tone and are the shapers of university policies. As all university professors know, one sparkling professor is more valuable than two mediocre ones. Since faculty members are the most important resource in a university, they should be recruited, retained and promoted on the basis of their dual commitment to teaching and excellence in research. During the past few years my University has put in place a more rigorous appointment, tenure and promotion policy. Naturally, faculty do not always cheer when they fail to meet the higher standards, and those who are not retained often become angry.

Second, raise standards of admission for students. This is ensured in the first instance by the admission policies. During the 1960s and early 1970s, many North American universities lowered their admission standards. This was a mistake.

Third, and by far the most anxiety provoking, is to have academic program reviews by external review groups. This is one sure way of avoiding a static academic environment. Over the past eight years we have reviewed a large number of faculties and academic departments, with resultant academic gains.

Fourth, the most direct method by which a university can uplift the academic standards of students and faculty is to enhance its own expectations of excellence and make them known.

V. *In a truly global economy, higher education should be high on the agenda of an interdependent world.* As the world moves in and knowledge extends out, the world becomes more interactive. The global economic interdependence is in evidence everywhere; integration of the world's financial systems, international co-operation in joint ventures for economic well-being, internationalization of production, growth of multinationals, and the interlocking fields of transportation and communications. It is no coincidence that the nations which have had a vital impact on the course of events are those who have been alert and responsive to the rising tide of events.

Some of the global realities of the 1980s are:

- The intellectual plane of the world is on the way up;
- The unprecedented increase of new knowledge and innovation will increase;
- There will be increased international co-ordination and co-operation of information gathering sources; and
- Money-conserving strategies will be highlighted between countries in order to cope with the massive fiscal resources required.

It is a good time for self-assessment by universities, and now I would like to suggest a few ideas for your consideration.



UBC's new Asian Centre reflects UBC's commitment to stronger intellectual and cultural ties with the countries on the Pacific Rim.

First, there should be a growing propensity in our universities to provide all students with an international perspective. I am afraid that most North American graduates are illiterate about the world. This is not surprising because an international perspective is a rather neglected orphan in our universities.

Second, universities should be involved in research related to the dynamics of international change and the realities of interdependence. Historically, we have largely ignored this area. Studies have hardly begun. Universities can play a refreshing leadership role by keeping nations on their toes.

Third, it is important that universities of the developed countries commit themselves to co-operating with universities of the less developed countries. In particular, all nations have shared interests in the world population explosion, food, energy supplies, peace and the wave of new information technologies. The less developed countries should identify the areas of sought co-operation.

Fourth, I fear that some research projects may be beyond the technical or fiscal capacity of nations, not to mention universities. Therefore, the next thrust should be to fund and operate such projects internationally. Happily, there are examples of this type of co-operation already, such as the Canada-France-Hawaii Telescope.

You may ask, what has this international perspective meant for The University of British Columbia? While we have made some important beginnings, they do not constitute a revolution. But let me highlight a few: Of some importance, approximately 16 per cent of our graduate students are non-Canadians and about 30 per cent of our faculty members are non-Canadians. Both groups do add significantly to the international outlook of the University.

While we have linkages with Germany, Poland and Saudi Arabia, we have been fashioning our strongest links with Asia. Not

surprisingly, I perceive the University as the intellectual gateway to the Pacific Rim. Thus, we have been strengthening our Asian studies programs, opened our Asian Centre, and have established closer ties with China, Japan, South Korea and Thailand. More recently, we have made agreements with four Chinese universities. Most of these agreements provide for faculty exchanges, but one agreement provides for the training of Chinese students in western business methods. During the course of any year we also have about 50 mid-career Chinese scholars who do research in our laboratories.

What conclusions about the universities of the 1980s and the future should be drawn then, from all of my observations, keeping in mind the long-term view? We are all part of the great enterprise of learning. We prepare students to continue to learn. Present learning and future learning are what a university is really about.

When I say that, I don't mean just the learning by students. I also mean the learning in which professors are engaged, their engagement in continuing discovery. Research within the university is, in fact, the cutting edge of a nation's movement to discovery. Without that cutting edge, the collective mind of a nation would soon become dull. Without it, any country would become nothing more than a placid preserve for hunters from everywhere — a sitting duck.

My view is that the university of today and tomorrow is primarily an institution of new ideas and new knowledge. Naturally, a university must reconcile its past with its future. Increasingly, universities will be very potentially affected by present trends and our expectancies of the future. The tide of knowledge is the basic building block of a nation and of the world. We should anticipate this tide and not let it bypass us. Thank you for your attention and I hope we will see one another in the 21st century.

Teaching and the Curriculum

The curriculum of the University — the entire range of courses and programs offered for academic study — is continually changing. The most important innovations, which must be approved by Senate and the Board of Governors as well as the Universities Council, are easily documented. It should also be remembered that nearly every course offered by the University is amended annually as a result of the increase of knowledge resulting from research and, to a lesser extent, as the result of the expressed needs of students and society.

In 1982-83, the Universities Council approved the following new UBC programs: A Doctor of Philosophy degree program in Education in the social foundations of educational policy; a dance specialization in the degree program leading to the Bachelor of Physical Education; a Ph.D. degree program in audiology and speech sciences; a certificate program in site planning; a Bachelor of Science degree program in Atmospheric Science and a Diploma in Meteorology; and a Bachelor of Science degree program in pharmacology.

The most important innovative curriculum change approved by UBC's Senate and Board of Governors during the academic year was the new four-year engineering program in the Faculty of Applied Science. Implementation of this program will mean that the faculty may begin admitting in September, 1984, a carefully selected group of students directly from high school instead of following the completion of first-year science, as has been the case in the past. However, it will still be possible for some students to enter the engineering program after completion of first-year science at UBC. Co-operation with other B.C. universities and a number of regional colleges will also enable their engineering students to enter the UBC degree program. The four-year program will be possible in eight of the nine engineering fields available at UBC — bio-resource engineering, chemical, civil, electrical, geological, mechanical, metallurgical and mining and mineral process engineering. Engineering physics will remain a five-year program.

It is perhaps a sign of the times that not all members of Senate and the Board of Governors welcomed this engineering proposal. It is to be hoped that the changes in the engineering program are correct.

The significant change in the engineering degree program will, of course, be felt in other faculties of the University. It will affect the Department of Bio-Resource Engineering in the Faculty of Agricultural Sciences and numerous departments in the Faculty of Science, including Geological Sciences, Chemistry, Mathematics and Physics.

The new four-year program in the Faculty of Forestry, which I described in detail in my 1981-82 report, will be implemented in September of 1983.

What follows are significant curriculum changes selected from the reports of the deans of UBC's faculties.

AGRICULTURAL SCIENCES. New courses approved for introduction in this faculty, which reflect important developing aspects of the discipline, include Genetics in Agriculture, Soil and Water Engineering and Energy Use in Agriculture. These changes reflect consolidation and refinement of courses within this vital faculty.

APPLIED SCIENCE. Quite apart from the massive reorganization of courses required for introduction of the four-year engineering program, the following new courses were introduced or approved in 1983-84: Engineering Aspects of Industrial Hygiene and Safety in Chemical Engineering; and a new graduate elective course in Construction and Engineering Management in Civil Engineering. In the Department of Mining and Mineral Process Engineering there has been a dramatic expansion and welcome enhancement of the engineering applications of geostatistics and operations research in mine design and operation, greater emphasis on major group design projects and greater attention in each year to both coal mining and preparation technologies, reflecting the ever-increasing importance of coal in the mining industry of Western Canada.

The School of Nursing in the applied science faculty completed the introduction of the major revisions in the undergraduate curriculum in progress since 1979. Apart from these events, a recommendation that will have major implications for the school was passed by the Registered Nurses' Association of B.C., the professional licensing body, in conjunction with other provincial associations and the Canadian Nurses Association. These bodies have recommended that by the year 2000, the basic educational level for entry into the profession should be a baccalaureate degree in nursing. This implies significant changes for the UBC school over the next 15 years. To address the issues raised by this move, the director of the school is appointing a special committee that will begin work in 1983-84.

The school, in co-operation with its counterpart at the University of Victoria, is now well along in its plans to enable registered nurses in other parts of B.C. to obtain at least a portion of their baccalaureate credits through distance education.

ARTS. In Anthropology and Sociology, a revised graduate program, designed to upgrade all courses, was introduced and the undergraduate program was strengthened through Senate-approved courses that update offerings in such areas as ethnic relations, crime and society and applied sociology.

The teaching capacity of the Museum of Anthropology was enhanced through the installation of a conservation laboratory, which enabled introduction of a new course on artifact conservation. A total of 1,256 students enrolled in 34 UBC courses made use of museum resources and collections in the course of the year.



The curriculum of the University is constantly changing as the result of the increase in knowledge resulting from research and the needs of students and society.

In the Department of Geography, a new program in Atmospheric Science, to be offered jointly in Geography and Oceanography, will be introduced in 1983-84 if funding is forthcoming; a successful student exchange program involving students from UBC, Trent University in Ontario and Memorial University of Newfoundland was introduced; and a special field course on the geography of China was offered in the spring of 1983, involving visits to major centres of geographical research and training as well as to sites in Mongolia and North China and the basins of the Yangtze and Pearl Rivers.

Another notable course introduction in the 1982-83 academic year was the teaching of the Korean language and civilization in the Department of Asian Studies.

Approved by Senate during the academic year were an extensive revision in the curriculum of the Department of Fine Arts to make courses more flexible and to rationalize the program through the third year; a new course in the history of the Native Peoples of Canada to be offered in History; and the revision and expansion of the social and clinical psychology programs in the Department of Psychology, which will occupy a new building on the West Mall of the campus early in 1984.

Worth mentioning here is a \$500,000 grant the University received in the academic year from the Vancouver Foundation for the support of the humanities. The funds will be used to purchase library materials, appoint sessional lecturers and teaching assistants to reduce class sizes, bring in senior or well-established academics to assist in graduate teaching and

supervision and to appoint post-doctoral and pre-doctoral teaching fellows and research assistants. The foundation, which has been a strong supporter of UBC programs in other faculties, is to be congratulated on the far-sighted attitude which it has taken in supporting the humanities, which are the basis for all other higher education studies and which may be downplayed in periods of financial restraint.

COMMERCE AND BUSINESS ADMINISTRATION. In an overview statement on curriculum development, Dean Peter Lusztig observes that the faculty has moved to provide students with more computing experience, with the international and social-political contexts within which managers must operate and has placed greater emphasis on verbal and written communication skills. The faculty has also moved into important new areas, such as production management and public and private sector enterprises, both of which reflect the changing demands of the management workplace. To meet the demand for such material, the financial and managerial accounting courses for non-Commerce students were revised to permit larger enrolments.

The following divisions of the faculty introduced new material in 1982-83: Finance division — a new seminar on financial planning and budgeting for general management executives was offered through the faculty's executive programs; Industrial Relations Management — two senior courses were revised in form and content to place new emphasis on quantitative methods, computer analysis of human resource

management data and decision-making, and collective bargaining simulations reflecting B.C. labor relations situations are being developed for use in graduate and undergraduate courses; Management Science — introduction of two new courses to strengthen work in the areas of production and operations management; Policy division — offered a course in the management of regulated industries and mixed enterprises for the first time; Urban Land Economics — developed, in co-operation with the Superintendent of Brokers, Consumer and Corporate Affairs, a professional program in Real Estate Syndication for the purpose of licensing brokers and salesmen; Master's programs — started a co-operative program which involved students participating as small business consultants on a team basis with case counselors from the Federal Business Development Bank and added new experimental courses in such areas as office information systems, productivity and innovation management and forecasting for planning and operations.

DENTISTRY. There were some major developments in the hospital dentistry program in the 1982-83 academic year. An intensive hospital service program was initiated under which final-year students are rotated through the Vancouver General, Shaughnessy and Health Sciences Centre Hospitals, where they are exposed to general anaesthesia, pathology, surgery, etc. A fourth-year Hospital Dentistry pilot program, three weeks in length for 10 selected students, was initiated at Shaughnessy Hospital and will go into full operation in January, 1984.

Other innovations in various departments of the Faculty of Dentistry are as follows: Oral Biology — two courses were modified to provide a third-year course linking relevant areas of basic science with clinic studies and to provide fourth-year students with first-hand experience in an active research laboratory, and a new course on dental morphology was introduced; Oral Medicine — bench microscopy has been added as a lab component to this department's courses in accordance with a recommendation of the Canadian Dental Association's conference on oral pathology; Orthodontics — a major rearrangement of three fourth-year courses was undertaken in 1982-83 in accordance with current changes in clinical practice where more orthodontics is undertaken by general practitioners each year.

EDUCATION. Dean Daniel Birch has established and is chairing a faculty Committee on Undergraduate Program Revision which is considering the nature of programs of teacher preparation for the society of today and tomorrow and which will propose both the principles that will govern change and the ways in which these principles may be implemented. The committee has met with representatives of all departments and has solicited comments on its draft principles from a wide variety of sources, including other UBC departments and the B.C. school system. The committee hopes to report its findings in the next — 1983-84 — academic year. I have no doubt that the results of this study will strengthen the teaching structures of the Faculty of Education.

Other innovations in Education included the

following: the former Diploma in Counselling Psychology has been replaced by a sequence of undergraduate courses as a prerequisite for a master's program currently being revised; several new courses in modern languages were approved by Senate to provide a richer and more sharply focussed program for students preparing to teach French; the master's program in higher education has been thoroughly reviewed and updated; nine units of graduate work is now available in Prince George and Kamloops; and sessions devoted to various aspects of mainframe and microcomputer usage have been injected into existing credit course offerings.

GRADUATE STUDIES. The School of Community and Regional Planning will initiate a program in September, 1983, leading to a Certificate in Site Planning following approval from UBC governing bodies and the Universities Council. The Jerusalem Urban Planning Project, a "Studies-Aboard" program initiated in 1982, was offered for a second time in 1983 and attracted 19 participants, 18 from UBC and one from McGill. The program has attracted considerable interest internationally and contacts are continuing with Massachusetts Institute of Technology and the Universities of Pennsylvania and Washington. With the support of the Donner Canadian Foundation, the school initiated a two-week intensive training program in planning theory and practice for Native Indian leaders whose communities are confronted with major resource development projects. It was presented with great success to Native Indians from the western provinces in the summer of 1983. A new graduate course entitled "Planning for Water Resource Management" is a significant addition to teaching in integrated resource management.

MEDICINE. Among many ventures of significance to the Faculty of Medicine was Senate approval for the establishment of a Department of Orthopaedics. At the moment orthopaedics is a division in the Department of Surgery. A search is in progress to find a head for this department and arrangements are being made to establish the department as a separate entity in the Faculty of Medicine.

PHARMACEUTICAL SCIENCES. Emphasis in the faculty continues to be on developing the clinical program. Plans are being formulated to further strengthen graduate training in the area of toxicology. The newly established Division of Pharmacy Administration has been given priority in the faculty as an area of development. A new course has been proposed and is in process of academic approval.

It was gratifying to learn that the dean established an External Advisory Committee during the year. Constituted of individuals in various aspects of pharmacy and of other health science professionals, the committee is being asked to provide advice to the faculty on the directions that it might be important to proceed in in order to properly prepare graduates for practice in the many fields of pharmacy.

SCIENCE. As reported earlier, a number of departments in this faculty have generated the new service courses that must be in place for the start of the new four-year program in engineering in the Faculty of Applied Science. Mathe-

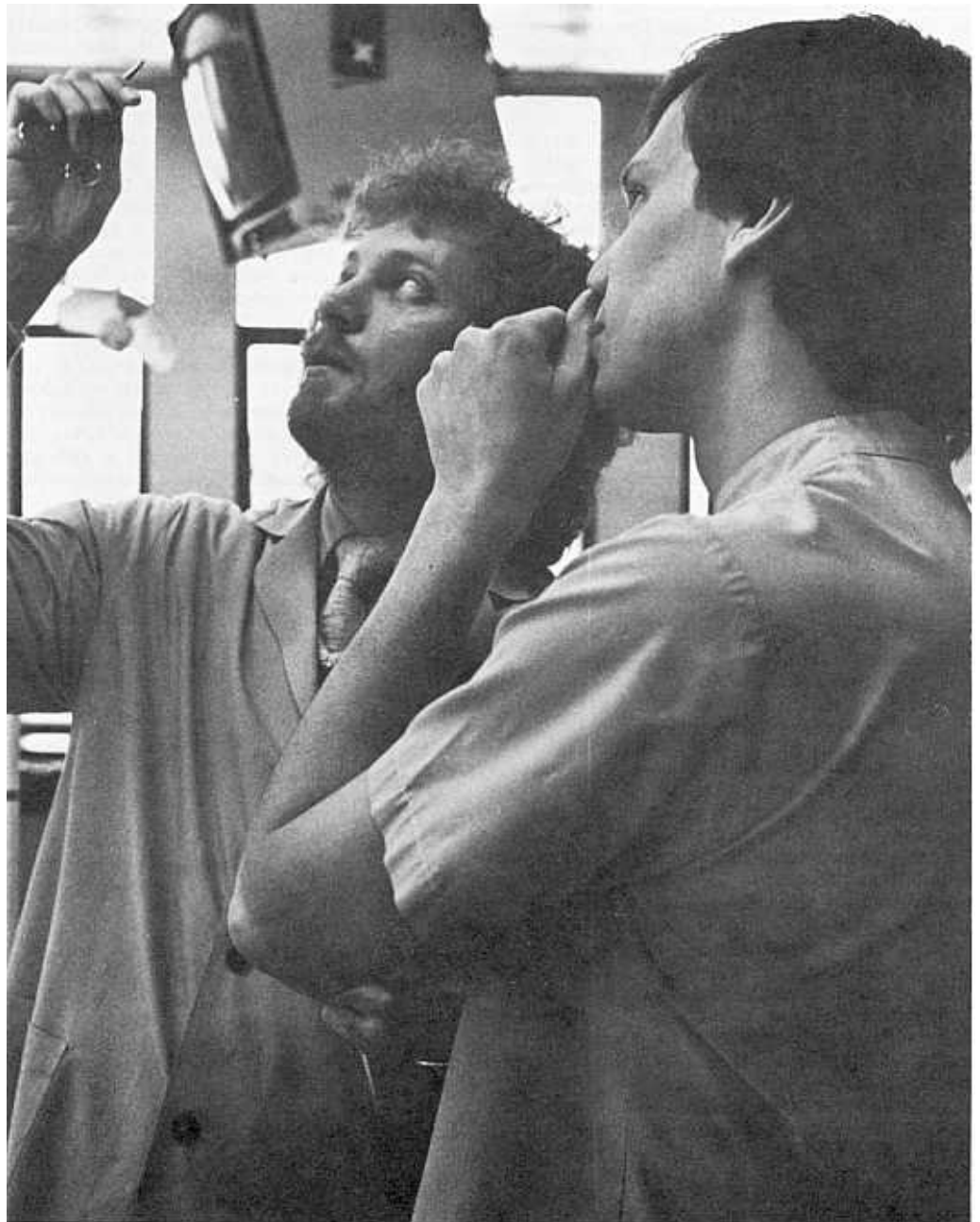
matics has introduced new calculus courses in first year for students in the pre-Commerce program or the major in Economics in the Faculty of Arts. In addition, an extensive reorganization in the graduate program in Mathematics has taken place.

A new Bachelor of Science combined honors program in Oceanography and another subject was initiated in the 1982-83 academic year and the new B.Sc. program in Atmospheric Science will be introduced in September, 1984, if funds are available. The introduction of these two new programs by the University has clearly met a substantial need in the community.

The new Department of Statistics, approved by the Board of Governors on the recommenda-

tion of Senate, came into existence toward the end of the academic year and will assume responsibility for the courses in that subject which were formerly the responsibility of the Department of Mathematics. The formation of this new department will have far-reaching consequences for those involved in statistical teaching and research within the University community. The new reality of a separate Department of Statistics is a welcome and an exciting one, but not wholly unexpected. I have no hesitation in predicting that the academic track record of this new department will be significant and outstanding. I extend to all members of this new department my best wishes for a long and academically successful career.

University laboratories are basically classrooms where students master new skills with guidance from experienced instructors.



Research

Each year I refer to research as an activity of the utmost importance to the University. Once again I am pleased to report that funding for research at the University in the 1982-83 fiscal year increased by 4.5 per cent and now totals almost \$47 million. If non-recurring provincial support for research equipment is deducted from the 1981-82 total the increase exceeds 12 per cent, a significant improvement in a period of general financial restraint.

Awards from national granting councils — up from 45 to 56 per cent of the total — accounted for most of the increase. This additional support, largely for basic research, was reflected in significant increases in funds awarded to the Faculties of Applied Science (up 12.7 per cent to \$5,794,015), Arts (up 15 per cent to \$3,111,414), Medicine (up 9.4 per cent to \$14,684,591) and Science (up 10.6 per cent to \$14,773,184). At the departmental level, Medicine, in the faculty of the same name, maintained its funding lead with a total of \$3.82 million (an increase of 11 per cent over the previous year), with Chemistry at \$3.57 million (up 20 per cent) and Physics at \$3.22 million (up 30 per cent) close behind.

As I have said in previous reports, the University's ability to attract funds of this magnitude reflects the confidence that granting agencies have in the quality and national standards of the work done by faculty and graduate students. The University may express genuine pride in the research achievements of its faculty. For several years, the University has been among the top five in Canada with respect to research funding. There can now be little doubt that this University is one of the two or three leading universities in Canada with particular strengths in a number of fields in the humanities, the social sciences, the natural and applied sciences. In brief, the research work of the University is maturing in a gratifying way.

Of particular note, a few of the larger grants made to UBC faculty members in the academic year were:

- \$181,000 to Prof. J.K. Brimacombe of Metallurgical Engineering for the design and operation of coke-oven flues;
- \$161,172 to Dr. John Dirks of Medicine for his continuing work on the kidney;
- \$232,000 to Prof. R.W. Donaldson and colleagues in Electrical Engineering for a real-time digital processing facility;
- \$261,000 to Prof. H.J. Greenwood and T.H. Brown in Geological Sciences for an assessment of nuclear fuel waste disposal;
- \$795,000 to Prof. L.D. Hall for the purchase and development of a versatile chemical microscope based on nuclear magnetic resonance spectroscopy;
- \$206,000 to Dr. K.V. Lo of BioResource Engineering for improving methane digesters;
- Drs. M.P. Marchak, N. Guppy, J. McMulland and Martin Silverman of Anthropology and Sociology will obtain \$250,000 over three years for a sociological study of the B.C. fishing industry;

- Dr. D.W. Paty and colleagues in Medicine will receive \$1 million over five years for support of the Centre for Movement Disorders; and

- Prof. G.H.N. Towers and his colleagues in Botany and Microbiology will acquire a total of \$200,000 over two years for research on the mechanisms of action of new photosynthesizers from plants.

In many ways, I find the section of my annual report dealing with research to be the most difficult one to write. The main reason for this is the embarrassment of riches that are reported to me in detail by the deans of the University's 12 faculties. It would be quite easy for me to devote my entire report to this essential activity, which is the foundation on which the activities of major universities rest. In the material which follows, I have attempted to select items which, in my view, contribute to the scientific, cultural and educational life of Canada in general and B.C. in particular. Even with this narrow focus, I will be unable to include all of UBC's contributions. This limited focus is fine, but I would wish to emphasize the research in the University of British Columbia is characterized by a concern to add to the world's store of new ideas and contribute to the solution of problems faced by the world.

One of the most important aspects of the research process is the dissemination of results when work is completed. One of the ways in which this is done is through the publication of results in the form of books, monographs, and research papers in learned journals or in the book form. I was deeply impressed in the reports I received from the deans on 1982-83 research activities, with the number of books and other publications which appeared during the year. The quality and extent of research conducted by the faculties is indicated by:

- Dean Warren Kitts of the Faculty of Agricultural Sciences reports that members of his faculty produced 7 books or chapters in books, 85 refereed scientific papers, 73 reports, reviews and articles and presented 112 papers and abstracts at professional meetings. This is a notable record, considering the size of the faculty.

- The Department of Electrical Engineering alone in the Faculty of Applied Science published 29 journals and conference papers reflecting the many research activities within the department in such areas as electromagnetics, biomedical engineering, communications and signal processing, power system engineering and systems and control.

- The history of contemporary architecture in Vancouver is outlined in three articles published in the catalogue which marked the opening of the new Vancouver Art Gallery; Prof. Abraham Rogatnick wrote on the architecture of the 1930s, Prof. Douglas Shadbolt on post-war Vancouver architecture and Andrew Graft on the architecture of the last 15 years.

- In the report on research in the Faculty of Arts by Dean Robert Will, there are no fewer

than 41 books listed as having been published or completed in the academic year. The following titles and authors will provide some idea of the wide range of material which was published: In Anthropology and Sociology, Brenda Beck's book *The Three Twins: The Telling of a South Indian Folk Epic*, appeared and in the same department books on the history of Chinese communities in Canada, the B.C. forest industry and the London underworld from 1500-1700 were published; in Asian Studies books on Japanese grammar, the modern Japanese short story and Haiku painting appeared under the names of Matsuo Soga, Kinya Tsuruta and Leon Zolbrod, respectively; works by three faculty members in Creative Writing (including Prof. Robert Harlow's latest novel, *Nolan*) and four students were published or accepted for publication; five members of the Department of Economics appeared in print on such subjects as *Expectations and the Structure of Share Prices* (John Cragg), *Lawyers and the Consumer Interest* (Robert G. Evans), and *Money and Finance* (Keizo Nagatani); three members of the Department of English — S. Grace, L.M. Johnson and G. Wieland — had books published on such widely divergent topics as the fiction of Malcolm Lowry, Wordsworth's metaphysical verse and the Latin glosses of Arator and Prudentius; Rhodri Liscombe of Fine Arts and A.A. Barrett of Classics collaborated on a book about F.M. Rattenbury, the famous architect responsible for many of B.C.'s most famous buildings, including the Parliament Buildings in Victoria; members of the Department of French published books on such diverse topics as modern art, French place names and Canadian history; a major book by David Ley of Geography, entitled *The Social Geography of the City*, was published by Harper and Row; historian David Breen was the author of a volume on ranching on the western Canadian prairies, a three-volume work on musical engraving in the 19th century appeared under the name of Robert Cohen of the music department; Dr. Peter Petro of Slavonic Studies produced studies on satire in the works of Russian, British, American and Czech writers; and Peter Loeffler of the theatre department was the author of a volume on the staging of Wagnerian drama.

- Writing and publishing activity in the Faculty of Commerce and Business Administration covered a comprehensive range of interest, including a book-length treatment of international finance by Prof. Maurice Levi, and papers on such topics as regulated prices and their consequences, commodity futures prices and nominal interest rates, permanent employment in Japan and Mexico and the future of public sector industrial relations.

- Publications in the Faculty of Education have included two books, one school textbook and numerous research and professional articles by members of the Department of Language Education; a book on accessibility to schooling in America by Marvin Lazerson of the Department of Social and Education Studies; papers on microcomputer applications in education by members of the Education Research Service Centre as well as papers based on data collected by the faculty's Field Development Office on the

effectiveness of distance education procedures using television and satellite broadcasting.

The School of Physical Education and Recreation achieved a total of 59 publications for scholarly and professional journals and conference proceedings, with more than half appearing in refereed journals.

- The Institute of Applied Mathematics and Statistics in the Faculty of Graduate Studies published 16 technical reports during the 1982-83 academic year; in the same faculty the Institute of Asian Research is pressing forward with research resulting from a \$300,000 grant from the Max Bell Foundation, which has come to fruition in the form of 12 working papers and work which will result in publications is also being funded under the aegis of the Ohira Commemorative Program in Japanese Studies in such areas as the development of philosophical and religious thought in Japan, Japanese traditional theatre, Japan's evolving strategy on Canadian trade issues and language and cultural issues in contemporary Japan.

Complementing the endeavours of the Asian research institute are the activities of the Institute of International Relations, which is now in the fourth year of a project on Canada and International Trade. In June, 1983, the institute co-sponsored a conference at UBC that will yield a book made up of the papers delivered at the meeting, to be published in the 1983-84 academic year.

The Westwater Research Centre continues its vigorous publishing program based on the research of its members. During the academic year the centre published a valuable volume on estuarine habitat management designed for use in high schools and universities and a major report on the role of water resources in the future development of the Yukon, the fruits of four years of research by a team headed by Prof. Irving Fox.

- The 1982-83 publications of the Faculty of Law cover no less than six pages and include books or book-length reports on solitary confinement in Canadian penitentiaries by Michael Jackson, condominium law in Canada by Dennis Pavlich, double jeopardy by Jerome Atrens, a comparative international analysis of criminal injuries compensation schemes by Dean of Law Peter Burns, and environmental standards, co-authored by Robert Franson, A.R. Lucas and M.A.H. Franson.

Other publications in Law in the form of journal articles covered such widely divergent fields as civil liberties, Canadian cases in international law, the urea formaldehyde problem, international child abduction, labor disputes, police accountability, marriage and separation agreements, costs in criminal cases and the international law of human rights.

In the context of scholarly publications, in addition to the *Canadian Yearbook of International Law*, edited by Charles C. Bourne, four other journals edited by faculty members are now located here. They include the *Canadian Journal of Family Law* (Prof. D.J. MacDougall); the *Property Journal of Canada* (Prof. D. Vaver); the *Canadian Employment Law Review* (Prof. J.P. Weiler), and the *Canadian Bar Review* (Prof. A.J. McLean).

Some illustrations of developments in research of value to various aspects of Canadian life, announced in 1982-83, have been:

- In Agricultural Sciences, Dr. R.C. Lattimore is assessing future beef demand to assist cattle producers in planning ahead following a period of decline in the beef market; Dr. N.R. Bulley is experimenting with "light tubes" in greenhouse and growth chamber lighting; Dr. S. Nakai and Dr. K.V. Lo developed a de-salting system for cheese whey which allows this by-product to be converted into a new, highly nutritious food ingredient; and Dr. P.M. Townsley is experimenting with hydroponic mushroom production.

- In the Faculty of Applied Science negotiations are under way to set up a pilot plant for electrochemical generation of hydrogen sulphide in a B.C. pulp mill using a process designed by Prof. Colin Oloman of Chemical Engineering, which could improve mill economy and reduce peroxide imports; the federal government has awarded a contract for the design of a large-scale spouted-bed coal gasifier to extend technology developed by Prof. Paul Watkinson of Chemical Engineering; community-related projects in Civil Engineering include an automobile accident investigation under a contract with the federal transport ministry to make design recommendations to reduce highway mishaps, and construction of a pilot plant for the removal of phosphorus from biological waste, a process which has just gone on-line at the Kelowna sewage treatment plant in the Okanagan; in Metallurgical Engineering a significant number of projects are continuing in the area of steel production, which has gained for UBC an international reputation, and in the physical metallurgy and material science areas projects related to the behaviour of composite materials, stress and corrosion-cracking, ceramics and other basic areas continue; scientists in Mining and Mineral Process Engineering are involved in a number of projects designed to improve the safety of mines as well as the economics of mining.

The Engineering Physics program in the Faculty of Applied Science continues to develop projects of both a pure and applied nature. The MacMillan Planetarium has a new computerized projection system, thanks to the ingenuity of two UBC engineering physics students, Geoffrey Auchinleck and Andre Godorja. Mr. Godorja, who was employed at the Planetarium on a part-time basis, initiated work on the new system and designed it as an undergraduate student project in association with Mr. Auchinleck. The system was subsequently built by a newly formed high-technology company, with Mr. Godorja as one of the partners. There is a strong possibility that planetariums in other parts of the world will purchase the system designed at UBC. The pure-science aspect of the program has resulted in a major addition to the resources of CERN, one of the world's leading centres for the study of nuclear physics in Switzerland. Five members of the physics department, including Prof. E.G. Auld, director of the engineering physics program, have participated in the building of a large detector for the measurement of the reaction products of the anti-proton with the proton. The equip-



ment is scheduled to begin operation in the fall of 1983.

Research in the School of Nursing, which is part of the applied science faculty, has taken a dramatic upturn as the result of the release of nursing faculty from summer clinical commitments. Grants to members of the school totalled \$136,500 in the last fiscal year and included the following projects: A study of parent-child feeding programs by Lee McKenzie and Judith Mogan on a \$30,000 grant from the B.C. Health Care Research Foundation; evaluation of an early discharge program from a tertiary-care hospital by Elaine Carty, funded by a \$50,000 grant from Mr. and Mrs. P.A. Woodward's Foundation; plus six projects that involve hospitals and community agencies.

- Ongoing major projects in the Faculty of Arts cover a wide range of intellectual topics and interests. Anthropologists and sociologists are involved in studies on the sociology of work and industry and research in the field of archeology includes investigations of prehistoric settlement patterns on the B.C. southern Interior plateau as well as the Far East, where Prof. Richard Pearson is collaborating with a colleague at Yeungnam University on the Silla Kingdom of Korea. Members of the Department of Economics are involved in comprehensive projects as diverse as the theoretical background of decision-making procedures (Charles Blackorby), the theory and application of index numbers (Erwin Diewart), fisheries-management problems arising out of the implementation of the Law of the Sea (Gordon

UBC received almost \$47 million for research in 1982-83, making it one of the two or three leading universities in Canada with particular strengths in a number of fields, including the natural and applied sciences.

Munro), the economics of health care (R.G. Evans), and the financing of unemployment insurance in Canada (Jonathan Kesselman). Members of the Department of English are involved in the creation of a multi-volume Dictionary of Literary Biography, to be published by Gale Research Publications and William New, the editor of *Canadian Literature*, published by the University, is general editor of a forthcoming volume of the *Literary History of Canada*, covering the period 1972-84.

Two members of the Department of Fine Arts served as curators for exhibitions held in Venice in Italy and at the Tate Gallery in London, England, in 1982-83. Prof. George Knox wrote an introduction to the catalogue and contributed to the catalogue of drawings for an exhibition entitled *G.B. Piazzetta: disegni, incisioni, libri, manoscritti*, in Venice, and David Solkin wrote the catalogue for a major exhibition entitled *Richard Wilson — The Landscape of Reaction*, at the Tate Gallery in London. Two members of the department held one-person shows during the year — Wendy Doberciner at the Bau-Xi Gallery in Vancouver and Robert Young at the Redfern Gallery in London, England, and the Mira Godard Gallery in Calgary and Toronto. Sculptor Geoffrey Smedley was one of six artists invited to submit a design for a sculpture to be commissioned by the National Capital Commission of Ottawa.

New research initiatives embarked on by members of the Department of Geography in the academic year included the following: Inuit co-operatives and change in the Canadian North (John Stager); the social landscape of 20th century Peking (Marwyn Samuels); Soviet foreign trade and regional economic development in the U.S.S.R. (Robert North); and fish-forestry interactions in the Queen Charlotte Islands (Michael Church).

Members of the Department of Psychology are also involved in a variety of clinical research projects, including the following: the treatment of hypertensive patients and hypertensive pregnant women (Wolfgang Linden); the improvement of child-rearing procedures, especially in problem families (Robert McMahon); the onset of anorexia (Dimitri Papageorgis); eyewitness testimony, including the investigation of such issues as the reliability of children, the effects of hypnosis, and witness accuracy in cases of crime (John Yuille); the thinking and reasoning processes of children (Merry Bullock, Michael Chandler and Lawrence Walker); prejudice and discrimination (Philip Smith); domestic violence and police-community interactions (Donald Dutton); and person perception, a new three-year project funded to a total of \$105,000 (Jerry Wiggins).

The professional schools associated with the arts faculty are involved in creative research which will have impact on health and community and social services. In Home Economics Patricia Gallo has undertaken new research on neonatal caffeine exposure, Dr. Nancy Schwartz continues to evaluate nutritional care in clinical settings, and the school's director, Dr. Roy Rodgers, has received a grant to carry out a pilot study on post-marital family reorganization. In Librarianship, Lois Bewley has sur-

veyed 31 urban Canadian libraries on the provision of services to the elderly, which will be of considerable value to governments and library boards in future planning, and Peter Simmons continues work on the development of national and international standards for the computer communication of bibliographical information. In Social Work, research projects include studies of computer-assisted social work service (John Crane), the role of workers' associations in the administration of social services (Glenn Drover), the adaptation and resettlement of Southeast Asian refugees (Richard Nann) and the development of a model for predicting effectiveness of service to families with children at risk (Lawrence Shulman).

• Dean Peter Lusztig of Commerce and Business Administration reports that his faculty continues to broaden its research activities through additions to faculty and increases in the number of graduate students, especially at the Ph.D. level. There is a distinct movement toward policy-oriented work which builds directly on the strong theoretical base of earlier periods. He mentions the faculty has achieved a healthy blend of theoretical and applied work across an extensive number of fields in the management area.

Major studies which got under way during the 1982-83 academic year included the following: Acquisition of sophisticated computer hardware to study the influence of color-enhanced and graphical information presentation on managerial decision-making effectiveness; a study of commodity futures prices and nominal interest rates, which has resulted in the inclusion of material on commodity futures being included as a topic in investment courses for the first time; investigation of the relationship between personnel transfers and the professional and personal development of mobile employees; the effect of trucking regulation on the quality and price of trucking services; development of an econometric model of the Vancouver housing market, which includes the ability to forecast housing prices; and the examination of the impact of the light rapid transit system in Vancouver.

• The Faculty of Dentistry continues to foster a broad range of basic and applied research. Dr. Michael I. MacEntee is organizing a series of field trials on research methods designed to gather information on the oral health of patients confined to extended care units. These pilot studies will be a prelude to a request for support to carry out a provincewide dental survey on all long-term care facilities in B.C. Such a survey will be important in the light of the phenomenon of the growing number of elderly people in the Canadian population as a whole, which will put increasing pressure on the health-care system in terms of providing care for the aged, including dental care.

Dr. David Donaldson is involved in an initial study of the clinical properties of a new anaesthetic called Ultracaine, now being introduced in North America. The significance of the project is the new approach the faculty is establishing with major drug companies by allowing them to use the clinical and academic expertise of the faculty for investigation and development of their products while supporting

such research financially.

Dr. Lance Rucker heads a major investigation of the psychological transactions of dentists and other oral health care personnel in their clinical and teaching settings with a view to reducing the traditional clinical anxieties and discomforts that arise in the clinical setting.

In an overview statement of the operations of the Faculty of Dentistry for 1982-83, Dean George Beagrie draws attention to the pressing needs of his faculty for additional space for research, essential if the enviable reputation of the dental school is to be maintained and enhanced in future. The needs of dentistry and numerous other academic units of the University for research space have been drawn to the attention of the Universities Council on a number of occasions and it continues to be my hope that capital funding will be available to meet these needs in the near future.

Despite these continuing difficulties, the first two theses for the Master of Science degree in the dentistry faculty were completed during the academic year in the Department of Oral Biology. This is the start of a move into the development of graduate work which commenced four years ago.

• Dean Daniel Birch, who heads the Faculty of Education, notes that increased research activity within his faculty has resulted from the appointment of high-calibre young faculty in areas critical to development of the faculty — early childhood education, teacher education and sport sociology. He also attributes the increased activity to the appointment of permanent heads to the departments formed within the faculty recently. The number of research grants secured by faculty continues to increase and so does research productivity. A parallel increase is also evident in the number of students, mainly doctoral, receiving fellowships and other financial awards from granting agencies and the University.

I am also pleased to draw to the attention of the Board and Senate the results of a survey carried out by the Learning Resources Network in Kansas, which asked professors of adult education in North America to rate graduate programs in adult education. UBC was one of two Canadian institutions that was ranked in the top three programs on the continent. The department in Education which offers this program is the Department of Administrative, Adult and Higher Education, where the following innovative research is in progress: Decentralization of decision-making in educational finance (Dan Brown); the superintendency in B.C. (Lorne Downey); career and technical programs in B.C. schools (John Dennison); studies of aging (James Thornton); and professional development and training in Canada's correctional service (Roger Boshier, Peter Cookson, William Griffith and Paz Buttedahl).

In the Department of Counselling Psychology, the following notable research is under way: Dr. Les Greenberg is investigating effective procedures for resolving couple/family conflicts; barriers to cross-cultural communication in major institutions are being looked at by William Borgen, Marv Westwood and Vince D'Oyley; and Dr. John Allan is studying the impact of mainstreaming handicapped children in schools.



In Educational Psychology and Special Education, faculty have mounted projects in such areas as communication for the hearing impaired (Bryan Clarke), problems of mastery learning (Marshall Arlin), policy development for special education (Perry Leslie), problems related to teacher-aide preparation and development of an appropriate training program.

In the Department of Language Education, projects related to child language acquisition, the teaching of composition and grammar and children's literature are under way. In the mathematics and science education department research studies encompass acquisition of science concepts and problem-solving in mathematics, a collaborative project with staff and students in the Richmond School District. Research in the Department of Social and Educational Studies includes work in the areas of curriculum for penitentiary inmates, business

Medical geneticist Dr. Patricia Baird, right, serves as acting director of UBC's new Centre for Molecular Genetics, which includes researchers who hold grants totalling \$2 million for studies on recombinant technology.

education, Canadian studies and accessibility to schooling in America.

The School of Physical Education and Recreation is rapidly developing a specialization in microcomputer applications in sport and physical education and it is anticipated that this will result in extensive modifications in undergraduate instructional methods and the development of distance-education packages in sport education, suitable for transmission by the Knowledge Network.

A doctoral student in school psychology, C.T. Wormeli, working in the Education Clinic supervised by Dr. O.A. Oldridge, has developed the first educational achievement test based on the B.C. elementary school curriculum. The test has attracted a great deal of attention from school psychologists and others in the school system.

- There was a significant increase in support for research in the Faculty of Forestry during the academic year from the federal Canadian Forest Service, which somewhat offset the decline in support from industry and provincial government sources as a result of the economic recession. The federal service increased direct grants to each of the six Canadian forestry faculties from \$48,000 to \$214,000, an additional \$1 million was made available for distribution on a research-contact basis, and \$200,000 was made available nationally, for new awards, known as "Canada Forestry Scholarships," each worth \$10,500.

Research in the faculty covers a comprehensive range of interests in such areas as remote sensing, computer simulation modelling, problems associated with forest insect infestations and wildlife management. Of particular interest is the work of Dr. Les Paszner and his associates, who have patented a new pulping process which has significant potential for industrial development and who have overcome problems which have inhibited commercial production of mineral cement-wood particle boards in North America. By applying new cement technology, the research group has originated a composite that is fire resistant, water, insect and fungi proof and which can be used structurally or as an insulation.

- The institutes and centres that report directly to the Faculty of Graduate Studies received funds totalling \$1,625,809 in the last fiscal year. The interdisciplinary Institute of Animal Resource Ecology continued an active research program covering cyclical fluctuations in animal and marine populations and the biological control of weeds and parasitic insects. Significant support for the work of scientists in fisheries, ecology, forestry, oceanography, medicine and the social and physical sciences is provided by scholars associated with the Institute of Applied Mathematics and Statistics. Particularly important is the institute's statistical consulting service, which provides advice and assistance to both faculty members and graduate students.

The Clinical Engineering Program in the graduate studies faculty, in addition to continuing work on nutrition and health hazard appraisal systems under federal government contracts, has been investigating methods of efficient introduction of computers into the hospitals as well as the Faculty of Dentistry. Other

valuable work has proceeded on hospital-oriented projects, such as research instrumentation projects, devices for the hearing impaired, and mechanical and rehabilitation-oriented resources for amputees and people with cervical spine injuries.

Research in the School of Community and Regional Planning includes extensive studies on evaluation of impact assessment procedures, northern land use planning and regional and community economic structural changes resulting from mega-projects. Other faculty members and graduate students enrolled in the school are studying habitat management in B.C. estuaries, housing opportunities and pressures resulting from new transit systems, planning in Pacific Rim metropolitan areas and suburbanization of office employment. An urban design project in the city of Jerusalem in Israel has taken a number of faculty members and students abroad in the course of the summer and has aroused considerable interest on the part of other universities.

The Centre for Human Settlements prepared a wide-reaching paper for the sixth session of the United Nations Commission on Human Settlements, which met in Helsinki in May, 1983. The UBC centre also continues to carry out admirable research on the impact of an aging population on Canadian cities.

The Resource Management Science group in the Faculty of Graduate Studies is fostering a broad range of studies on such topics as maize production management in Mexico, the effects of coal development on elk populations in the East Kootenay area of the province, evaluation of the effect of provincial coal guidelines, oyster culture on Vancouver Island as affected by other resource developments, recreational uses of reclaimed coal-mined land and the effects of forest harvesting on groundwater systems.

Projects of significant community interest in the Centre for Transportation Studies include one dealing with the impact of U.S. motor carrier deregulation on the transborder trucking industry, construction of a computer simulation model of liner traffic between Australia and Western Canada to assess the efficiency of liner services, and a project investigating the financial viability of the western Canadian rail system.

Prof. H. Robert Cohen, director of the Centre for Studies in 19th-Century Music, was the recipient during the academic year of a three-year, \$250,000 grant from the Social Sciences and Humanities Research Council for a 12-volume, first edition of the music criticism of the French composer Hector Berlioz.

The Soil Dynamics group in Graduate Studies continues its valuable investigations in earthquake and ocean engineering, which has put the University on the cutting edge of research and development and clearly demonstrates the worthwhile returns on investment in research.

Two new graduate research centres were formed during the academic year to bring together scientists working in related areas. The Centre for Molecular Genetics includes individuals who hold research grants totalling \$2 million for studies on the use of recombinant technology to approach biological problems. A total of 68 students — 16 postdoctorals, 11 master's and 41 Ph.D.'s — are being trained in

the centre. The new Centre for Advanced Microelectronics is working in conjunction with Cominco Ltd. on problems associated with gallium arsenide, which Cominco manufactures, and which has exciting prospects for ultra-fast, integrated optic and electronic devices. Other work in progress includes projects on solar cells, a high-energy particle detector and new approaches to silicon devices.

- The Faculty of Medicine continues to sponsor an expansive program of research that has led to a reputation as one of the leading centres in Canada for innovation. Last year, I reported to you on the plans being made for development of an Imaging Research Centre, which brings together scientists and medical specialists from a number of pure and applied disciplines for the development of diagnostic tools to show what is happening at a microscopic level in the human body. In February, 1983, the first images were obtained through the use of PET, an acronym for positron emission tomograph, which uses short-lived radioisotopes produced at the TRIUMF cyclotron located on UBC's south campus, for research on such common neurological conditions as stroke, epilepsy, multiple sclerosis and Parkinson's disease. Less than a month later, Queen Elizabeth II officially opened the Imaging Centre, which is located in the Health Sciences Centre Hospital on Wesbrook Mall. The Imaging Centre will be a unique facility in Canada when other advanced imaging devices are in place and operating.

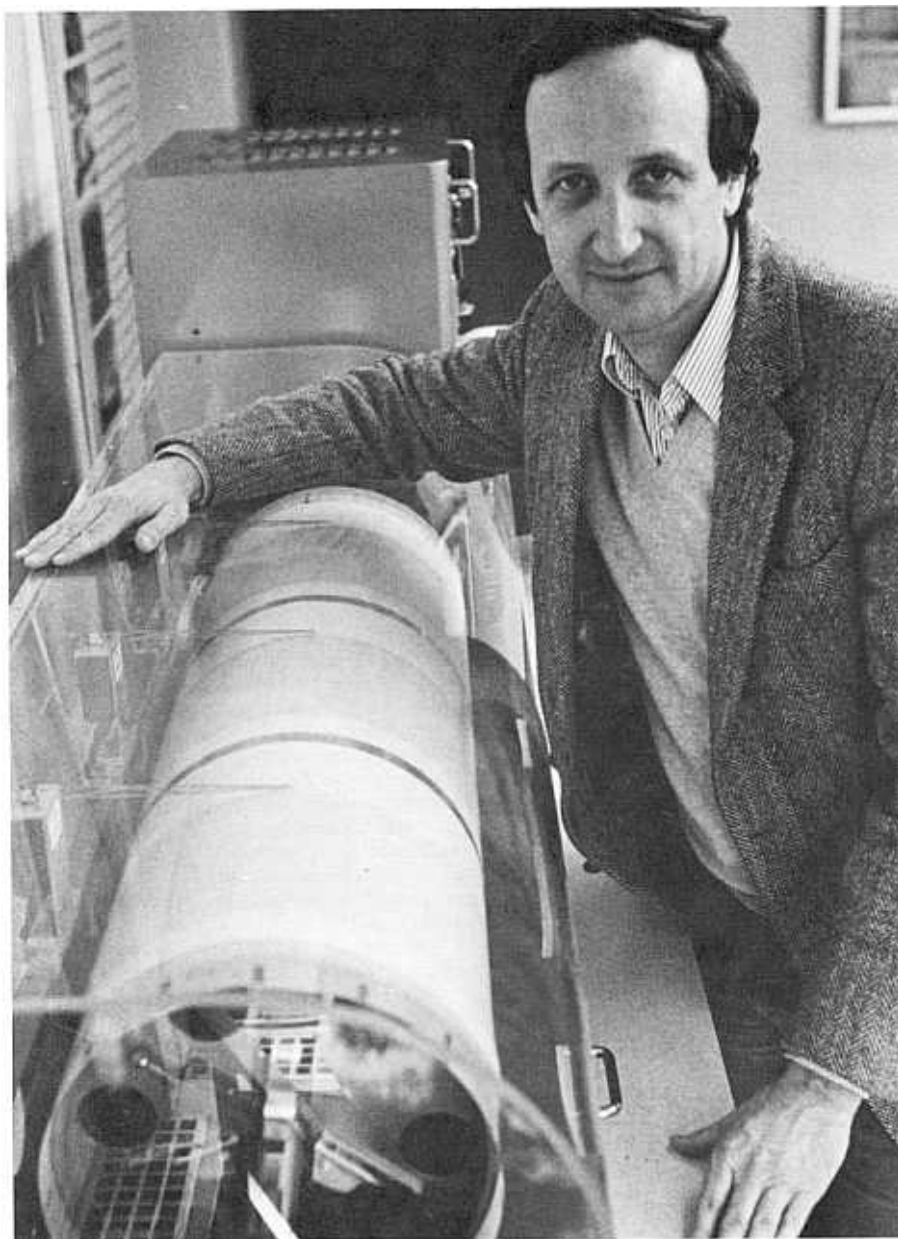
New clinical and associated research and academic facilities for the Faculty of Medicine were opened or initiated during the academic year. The UBC-Vancouver General Hospital Eye Centre opened in June of 1983 at the VGH. This facility, which houses the Department of Ophthalmology, provides a major base for teaching and research on problems related to the eye as well as handling a large number of patients on an out-patient basis.

In February, 1983, a sod-turning ceremony was held on the Shaughnessy Hospital site for the Shaughnessy/Grace/Children's research building, a 37,500-square foot structure that will provide space for faculty members from a number of disciplines to carry out adult- and child-related research. Research space in the Health Sciences Centre Hospital was completed in 1983, providing additional space for Department of Medicine laboratories. The faculty has moved two prefabricated structures to the Sunnyside Hospital site in eastern Vancouver and has located a number of members of the Departments of Paediatrics there. Negotiations are under way to establish an affiliation agreement with that hospital.

A notable research development within the faculty during the academic year was the initiation of an in vitro fertilization program designed to enable women whose fallopian tubes are blocked to become pregnant. Before the academic year ended, the medical team carrying out the program announced that it had achieved the first successful pregnancy in the program.

Space limitations do not permit me to list the many hundreds of grants received by faculty members in medicine for research projects. Illustrative of the medical emphasis on research have been the following.

Dr. Ryk Ward of the Department of Medica



Genetics received three awards totaling more than \$619,000 for research on rheumatic diseases among the Nootka Indians, a two-year project on the genetic epidemiology of precursors of hypertension and a third project entitled "Changing Morality Patterns in Migrant Groups in Canada." Grants of \$250,000 or more were received by faculty members in Psychiatry Biochemistry, Medicine, Pathology and Pharmacology for projects related to normal and pathological behaviour, membrane and kidney research, mineral metabolism and the neurobiology of epilepsy.

- Research in the Faculty of Pharmaceutical Sciences continues at a high level and covers a broad spectrum. In the Division of Pharmaceuticals and Biopharmaceutics, Dr. A. Mitchell and Dr. H. Burt are studying crystal formation for a better understanding of how drugs can be properly formulated. Drs. J. Axelson and J. Or

Prof. Robert Ellis heads a research group in geophysics which has set up a seismic array on the Lower Mainland to monitor earthquake hazards.

continue their work in pharmacokinetics, the study of drug movements in the body. A better understanding of such processes will improve therapy by increasing the accuracy of drug dosing.

In the Division of Medicinal Chemistry, Dr. Frank Abbott and Dr. Keith McErlane are studying improved methods of drug detection and analysis using the latest technological advances such as mass spectrometry. Dr. B. Roufagalis is involved in studies on the biochemical actions of drugs. In the Division of Clinical Pharmacy, Dr. J. Hylinka and Dr. R. Ensom are studying drug use in hospitals and are attempting to develop methods of improving rational clinical therapy. Dr. Marc Levine is studying drug interactions in patients, an area of great clinical importance.

In the Division of Pharmacology and Toxicology, researchers are studying how drugs are metabolized in the body and how this is affected by various endocrine disturbances (Dr. G. Bellward), the biochemistry of secretion and the problems involved in secretion in cystic fibrosis patients (Dr. S. Katz), the effects of drugs on smooth muscle such as blood vessels (Dr. J. Diamond), and the pathways involved in relaying pain impulses to the brain (Dr. J. Sinclair). Two scientists, Dr. J. McNeill and Dr. K. MacLeod, are involved in studies attempting to determine how drugs act on the heart to produce their effects. Both these investigators are also involved in studying how disease processes such as thyroid abnormalities and diabetes can affect the cardiovascular system.

• Research in the Faculty of Science, as one might expect, is characterized by a vast sweep of inquiry in both the basic and applied fields. Exploration in the field of computational vision was enhanced during the academic year through a major installation grant from the Natural Sciences and Engineering Council of Canada.

The Department of Geological Sciences has earned an international reputation for the excellence of its studies in the fields of geochemistry, petrology, isotope chemistry, hydrology and ore deposits. Prof. R.L. Chase was a participant with scientists from other Canadian universities and government in a project which predicted and then found hot springs (vents) on the floor of the Pacific Ocean using the submersible vessel *Piscis*.

An Astronomical Image Processing Laboratory has been established in the Department of Geophysics and Astronomy to enable researchers to obtain maximum information from digital images, many obtained from sophisticated electronic detectors developed at UBC. The Lower Mainland Seismic Array is now an operational network of sensitive seismometers to monitor earthquake hazards in the area.

The intense research activity of the Department of Mathematics includes the work of Prof. Colin Clark on the application of mathematical techniques to bio-economics and fisheries management. In the Department of Microbiology, Dr. Robert Hancock and his co-workers have made a major contribution to an understanding of how bacteria become resistant to antibiotics and how to overcome such resistance, and other members of the same department are involved in valuable work in the detec-

tion of early cancer and the immune response and growth regulation in body cells.

An exciting development in the Department of Oceanography has been the establishment, in collaboration with a Vancouver computing firm, of a satellite image-receiving and processing facility which is being used to study ocean surface temperatures and sea ice with the aim of understanding ocean climate to predict weather conditions. In the same department, the multidisciplinary approach of faculty members is making the Strait of Georgia well known for chemical-biological interactions in coastal waters, for fisheries resource data and for waste disposal studies. Marine mineral resources are also being studied.

Research in the Department of Physics is a mixture of pure and applied work. Many members are involved in nuclear physics studied in association with TRIUMF, the meson facility located on the south campus. Profs. W. Unruh and H. Gush continue to make important contributions to the field of cosmology, Drs. P. Gregory and W.H. McCutcheon are working in the area of radio astronomy, Profs. M. Bloom and G. Hoffman are active in biophysical studies and the plasma physics group includes Dr. A. Ng, who directs research in laser plasma fusion. Profs. W. Hardy, M. Berlinsky and M. Crooks continue to make important contributions to studies in low temperature physics. In the field of applied physics local manufacturing companies have been established as a result of the work of Prof. R. Haering on batteries, Prof. R. Parsons on heat mirrors and Prof. R. Nodwell on lightpipes.

The applied projects mentioned above as well as others at UBC are the result of a revised Patent and Licensing Policy. Many of the projects which have resulted in the issuance of licenses to spin-off companies have been brought to the commercial development stage through PRAI (Project Research Applicable in Industry) grants from the Natural Sciences and Engineering Council. This program has been particularly suited to the needs of UBC faculty members and the industry of the province. Of course, the two-way flow of flow of information and cooperation between industry and the university occurs through many channels. In the years to come substantial growth may be expected in the demand by industry, commerce and the professions for the expertise of faculty members in research.

Public Service

The public service activities of the faculty and students of the University are many and varied. They range from the provision of expertise to governments and private organizations through contributions to professional organizations to involvement with community groups that sponsor cultural and athletic activities. The very substantial contribution that faculty members make to public education is described at greater length under the section of this report on Continuing Education.

Space limitations make it impossible for me to mention all the public service activities of faculty members. What follows is a selection of material from the reports of the deans of faculties.

Under the heading of advisory services to government and private organizations, the following contributions are worth noting.

Dr. R.C. Lattimore of Agricultural Sciences advised the International Development Research Centre on the Korean Livestock Development Project and Prof. F.B. Holl of the same faculty was scientific advisor to the New Crops Development Fund of the B.C. Ministry of Agriculture and to the Richardson Seed Co. on a seed evaluation project. In Applied Science, Prof. Axel Meissen is co-ordinator of a collaborative project with Chulalongkorn University in Thailand for the development of petroleum and petrochemical expertise in that country, funded by the Canadian International Development Agency, and Prof. George Poling chaired an advisory committee to the Inspections and Engineering Branch of the B.C. Ministry of Energy, Mines and Petroleum Resources.

In the Faculty of Arts, Dr. Patricia Marchak of Anthropology and Sociology served as a consultant to Environment Canada and the Pacific region of the Canadian Forest Service in the design of a research project; Herbert Rosengarten was a member of the B.C. Ministry of Education's language arts advisory committee; members of the Department of Geography serve on a variety of provincial and federal government review panels and scientific advisory groups concerned with such matters as fish-forestry interaction (Michael Church), print materials for elementary social studies (Walter Hardwick), environmental aspects of developments in the Beaufort Sea (J. Ross Mackay and John Stager) and weather forecasting (D.G. Steyn); Charles Humphries of the Department of History is a member of the federal Historic Sites and Monuments Board of Canada; a member of the School of Librarianship, Lois Bewley, served as a consultant to the Corporation of Surrey on the creation of its new library system; Alan Cairns of Political Science is on leave to serve as research director of a federal Royal Commission of Canada's Economic Prospects; in the Department of Theatre, Norman Young is involved with granting agencies at the national level (the Canada Council) and chairs Vancouver's Civic Theatre Board and a committee of the Vancouver Centennial Commis-



sion; and in the School of Social Work, Ben Chud serves as a consultant to the provincial government on the hearing impaired and Richard Nann as an external consultant on social work education to the Hong Kong government.

The varied activities of faculty in Commerce and Business Administration include educational planning and policies of B.C. chartered and certified general accountants' associations, advice to North Vancouver Ratepayers groups on landfill and garbage disposal problems and to the British Columbia Institute of Technology on its transportation program. Prof. Michael Goldberg completed a one-man enquiry into the B.C. brewing industry for the provincial government.

In the Faculty of Education, Dr. Jack Kehoe of Social and Educational Studies was appointed project director to the Special Committee on Visible Minorities in Canadian Society of the House of Commons. Faculty members of the School of Physical Education and Recreation make significant contributions to community sports programs, performance assessments of elite athletes on Canadian national teams and the National Coaching Certification Program.

Campus Legal Aid Clinic provides a valuable service to the public and useful experience for UBC law students.

Summary of Revenue and Expenditure

(Excluding Capital Additions to Endowment, Student Loan and Capital Development Funds)
April 1, 1981 to March 31, 1982

	GENERAL FUNDS		TRUST FUNDS		TOTAL		1980-81	
		Per Cent	For Specific Purposes	Per Cent		Per Cent		Per Cent
REVENUE								
Province of British Columbia Grants	\$161,781,475	87.4	\$10,350,170	14.7	\$172,131,645	67.4	\$146,323,783	67.7
Canada — Museum of Anthropology Grant	200,000	0.1	—	—	200,000	0.1	200,000	0.1
Student Fees	16,363,215	8.9	160,090	0.2	16,523,305	6.5	14,498,655	6.7
Investment Income	6,456,187	3.5	5,385,518	7.7	11,841,705	4.6	8,549,420	3.9
Sponsored Research	—	—	41,861,299	59.6	41,861,299	16.4	36,250,506	16.8
Gifts, Grants and Bequests	—	—	12,464,156	17.8	12,464,156	4.9	10,145,030	4.7
Miscellaneous	201,560	0.1	—	—	201,560	0.1	205,957	0.1
	<u>\$185,002,437</u>	<u>100.0</u>	<u>\$70,221,233</u>	<u>100.0</u>	<u>\$255,223,670</u>	<u>100.0</u>	<u>\$216,173,351</u>	<u>100.0</u>
EXPENDITURE								
Academic	\$129,741,312	72.6	\$15,925,122	25.8	\$145,666,434	60.6	\$128,918,670	60.3
Libraries	14,310,964	8.0	866,754	1.4	15,177,718	6.3	14,294,501	6.7
Sponsored Research	—	—	41,084,074	66.6	41,084,074	17.1	33,836,465	15.8
Student Services	2,511,891	1.4	870,459	1.4	3,382,350	1.4	2,993,207	1.4
Scholarships & Bursaries	1,890,763	1.1	2,850,255	4.6	4,741,018	2.0	4,515,871	2.1
Administration	8,830,839	4.9	96,827	0.2	8,927,666	3.7	8,835,673	4.2
Plant Maintenance	20,729,438	11.6	—	—	20,729,438	8.6	19,709,323	9.2
General Expense	665,932	0.4	—	—	665,932	0.3	612,462	0.3
Ancillary Enterprises	17,271	—	—	—	17,271	—	86,697	—
	<u>\$178,698,410</u>	<u>100.0</u>	<u>\$61,693,491</u>	<u>100.0</u>	<u>\$240,391,901</u>	<u>100.0</u>	<u>\$213,802,869</u>	<u>100.0</u>
EXCESS OF REVENUE OVER EXPENDITURE								
— General Purposes	\$ 6,304,027		\$		\$ 6,304,027		\$(3,147,072)	
— Specific Purposes	—		8,527,742		8,527,742		5,517,554	
	<u>\$185,002,437</u>		<u>\$70,221,233</u>		<u>\$255,223,670</u>		<u>\$216,173,351</u>	

Certain 1980-81 figures have been restated in order to conform with the Financial Statement presentation adopted in 1981-82, with no resultant effect on the fund balances.

In the Faculty of Graduate Studies, members of UBC's teaching and research staff were involved with advisory committees on fisheries and oceans research and plans for an International Centre for Ocean Development, both federal projects (C.C. Lindsey); a study on profit and risk allowances in pricing crown timber in B.C. (Ilan Vertinsky in collaboration with William Stanbury, Commerce); the International Council for the Exploration of the Sea (Don Ludwig); federal committees on communications and physical disability and medical devices (Charles Laszlo); assisting residents of Texada Island to produce a water resources management plan (Anthony Dorcey); advising the Canadian delegation at meetings of the U.N. Commission on Human Settlements in Helsinki in the spring of 1983 (Peter Oberlander); and working with Transport Canada on possible revision in railway regulation (Trevor Heaver).

I trust that this abbreviated listing of the involvement of faculty members in government and community organizations is indicative of the very real concern they have for making their expertise available in the public interest.

I am always extremely impressed with the number of UBC faculty members who serve annually as the chair or the presidents or on the executives of professional organizations which sponsor annual meetings for the exchange of research information and, in many cases, serve as the body which certifies that its members are qualified in their respective fields of study.

The following list serves to indicate this kind of involvement in 1982-83. Dr. Warren Kitts, the dean of Agricultural Sciences was chairman of the Canadian Council on Animal Care; Dr. P.A. Murtha is chairman of the Canadian Advisory Committee on Remote Sensing; Dr. B.J. Skura is president of the Association of Faculties of Agriculture in Canada; Prof. Leonard Staley is president of the Canadian Society of Agricultural Engineering; Dr. John Zharadnik is the founding director and president of the National Aquaculture Producers' Association; Dr. J. Vanderstoep is president of the Canadian Institute of Food Science and Technology; Prof. C.O. Brawner serves as president of the International Mine Water Association; Dr. Marilyn Willman is chairman of the Nursing Education Council of B.C. and her colleague in Nursing, Gloria Joachim, is the president of the Vancouver chapter of the Canadian Foundation for

Ileitis and Colitis; Dr. John Chapman of Geography serves as chairman of the Board of Governors of the Pacific Marine Training Institute and Walter Hardwick of the same department is chairman of the Knowledge Network of the West Communications Authority; Prof. Michael Batts became the founding president of the Canadian Council of Teachers of German; Lois Bewley is president of the Canadian Library Association and her colleague, Prof. Sam Rothstein, is president of the Canadian Association of Library Schools; Glenn Drover, the new director of the School of Social Work, is president of the Canadian Association of Social Workers and his colleague, Roop Seebaran, heads the counterpart association in B.C.; Raymond Hall of the theatre department is head of the B.C. Film Industry Association; four members of the Faculty of Education served as presidents of organizations — Bob Tolsma and John Friesen as heads of the B.C. Psychological Association and the B.C. Council of the Family, respectively, Marvin Lazerson as head of the History of Education Society and Neil Sutherland as head of the Canadian History of Education Association; in Forestry, Prof. Oscar Sziklai is president of the National Junior Forest Wardens of Canada, Dr. Fred Bunnell is president of the northwest section of the Wildlife Society, and Dr. John McLean is president of the Entomological Society of B.C.; Prof. Frederick Wan is president of the Canadian Applied Mathematics Society; and Dr. C.A. Laszlo is chairman of the Canadian Hard-of-Hearing Association.

Far too numerous to mention are the faculty members who volunteer or are invited to take part in newspaper and television interviews, address service clubs or specialist groups throughout the province and give lectures arranged through the Centre for Continuing Education on topics arising out of their research or other special knowledge.

The students of the University also provide extensive services to the public, either formally as in the case of our dental clinic and the summer program of athletic activities, or informally as volunteers for community organizations that provide services to our citizens, young and old. As I said in my report to you last year, this section should be read in conjunction with the section on Continuing Education to gain a full appreciation of the range and variety of University services to the community.

Continuing Education

A continuing concern with lifelong learning should be thought of as a logical sequence to Andrew Carnegie's interest in public libraries as "the university of the people." Looking toward the next 20 years, it seems evident that a continuation of lifelong learning will be more important than ever, not solely on grounds of principle, but for the pragmatic reason that we are entering an era in which no individual can count on having completed his or her formal education. It should not come as a surprise, therefore, that during the past eight years I have actively encouraged and strongly supported the initiation of a considerable array of continuing education activities within the University.

Each year I refer to continuing education as an activity of the utmost importance to the University. I am pleased with the impressive record of success and progress that the University has accomplished in the past few years and believe that the review of continuing education activities performed in 1982-83 amply demonstrates the remarkable scope of achievement. I know that I will not be accused of making an invidious comparison if I draw attention to one individual. Jindra Kulich, the director of the Centre for Continuing Education, deserves much of the credit for the success of UBC's continuing education program. Much of the University's reputation as an effective, lifelong learning resource offering high-quality programs is due to the efforts of this one individual.

UBC sponsors and actively promotes one of the most extensive university continuing education programs anywhere in the world. This is in keeping with the Mission Statement of 1977, which listed among UBC's goals and objectives expansion of credit and non-credit programs for the general public and for professionals who need continuing access to the latest developments in their chosen fields of endeavor. Details of the University's programs in the field of continuing education are compiled annually for a report to Senate and the Board of Governors by Mr. Kulich. He has provided the following overview statement of activities in the 1982-83 academic year and the statistical summary of participation which appears on Page 28. It is important to note that this section of the report and the statistical summary do not reflect the many thousands who come to the campus annually for lectures, theatrical performances, art displays, film showings and other activities offered through the Museum of Anthropology, the Asian Centre, the Botanical Garden, the Department of Music and the Frederic Wood Theatre.

During 1982-83 the services provided by the University to non-metropolitan areas continued to grow, with most of the growth occurring in distance education rather than on-location courses in off-campus locations. The major vehicles for UBC distance education were the correspondence courses offered through Guided Independent Study and courses televised on the Knowledge Network. The Division of Continu-



ing Education in the Health Sciences offered 12 televised professional development courses in Dentistry, Medicine and Nursing, which attracted a total of 825 registrants. The Faculty of Education this year offered two credit courses on the Knowledge Network, and organized four tele-conferences for professional development. The Faculty of Forestry continued with credit and non-credit courses offered through Guided Independent Study. Continuing Education in Nutrition and Dietetics, in co-operation with Continuing Pharmacy Education, experimented this year with seminars which used audio tele-conferencing.

The overall economic situation in B.C. continued to have its adverse effects on participation in continuing education. This has hit particularly hard continuing education programs aimed at resource-based industries and the

Faculty members and students gave 177 public concerts in the 1982-83 academic year, some of them out of doors during the 1983 Summer Session.

THE UNIVERSITY OF BRITISH COLUMBIA STATISTICAL SUMMARY OF PARTICIPATION IN CONTINUING EDUCATION PROGRAMS 1982-83

	Credit Enrolment	Non-Credit Enrolment
Extra-Sessional Credit Programs	11,036	12
Centre for Continuing Education (including Guided Independent Study)	1,478	42,193
Division of Continuing Education in the Health Sciences		14,079
Professional Programs of the Faculty of Commerce and Business Administration		8,416
Professional Continuing Education Program of the School of Social Work		1,001
Professional Continuing Education Program of the Faculty of Agricultural Sciences	49	1,839
Professional Continuing Education Program of the Faculty of Education	1,259	3,270
School of Physical Education and Recreation Community Sports Services (Adult Program)		1,360
	13,822	72,170

**TOTAL PARTICIPATION IN
CONTINUING EDUCATION PROGRAMS
CREDIT AND NON-CREDIT**

85,992

public sector. Registration in professional continuing education offered through the Centre for Continuing Education dropped by 1,524 (12.44 per cent); this is due particularly to fall-off in registrations in Architecture, Engineering and Urban Planning. Continuing education programs in several professional faculties also are down: Commerce and Business Administration by 637 (13.15 per cent), Education down in part-time credit courses 499 (28.38 per cent) and in non-credit professional development 164 (4.78 per cent), while the Faculty of Forestry had to temporarily suspend all its professional development programs except for correspondence courses. In Health Sciences, professional development courses in Pharmacy were down 633 (23.62 per cent) and Rehabilitation Medicine was down 37 (29.84 per cent).

However, there were also some marked gains in some of the professional development program areas in 1982-83. In the Health Sciences, Continuing Dental Education was up 831 (19.56 per cent), Medical Education was up 90 (2.4 per

cent), Nursing held its own with an increase of five registrations, and Nutrition and Dietetics was up 74 (24.26 per cent). Continuing education in Social Work was up 103 (11.47 per cent) and in the Faculty of Agricultural Sciences was up 161 (9.77 per cent). In the Centre for Continuing Education, Computer Science, Communications and Instructor's Diploma Program all experienced increases in registrations.

The overall figures for UBC continuing education were 91,073 registrations in 1981-82 and 85,992 registrations in 1982-83, or a drop of 5,081 (5.58 per cent). Credit continuing education was down by 898 (6.1 per cent) and non-credit activities by 4,183 (5.48 per cent). Significantly, participation in non-credit general continuing education in the humanities, sciences and arts almost held its own in spite of the hard economic times with a decrease of only 2.24 per cent.

In addition to the official, University-sponsored activities, individual faculty members provide a considerable contribution to continu-

ing education in British Columbia through participation in continuing education programs of other institutions as well as through voluntary and professional associations.

In the balance of this section on continuing education, I have selected from Mr. Kulich's composite report items of an innovative nature and those which illustrate the University's public service involvement during the 1982-83 academic year.

EXTRA-SESSIONAL STUDIES. This office was established to expand the University's academic offerings for the growing number of students who wanted UBC credit courses but were unable to attend the daytime winter session.

In 1982, the departments of the Faculties of Arts and Sciences which offer 11 subject areas in a three year cycle of courses to enable students to complete a major for a degree began a second sequence of courses.

CENTRE FOR CONTINUING EDUCATION. Despite restraint and an enrolment decline reflecting the difficult provincial economic picture, the centre continued to develop new courses and programs designed to meet the need for professional and non-credit education. These innovations included:

Development of three new courses leading to the diploma in adult education and two new Faculty of Forestry courses by the Guided Independent Study division;

Co-operation with the School of Physical Education in the organization of continuing education programs to be offered in the fall of 1983;

Redesigning of the centre's communications programs to expand this area of growing interest from nine offerings in 1982 to 36 courses in the autumn of 1983 to respond to professional and occupational needs in such areas as written and oral expression and applied technology;

Expansion of computer science programs through acquisition of a laboratory equipped with 25 microcomputers;

Planning for the implementation of television delivery of graduate-level credit courses offered in the Faculties of Applied Science and Graduate Studies;

Creation of manuals and textbooks for the use of students enrolled in the Instructor's Diploma Division, the Language Institute and Pre-Retirement Programs.

CONTINUING EDUCATION IN THE HEALTH SCIENCES. In the 1982-83 academic year Continuing Education in Audiology and Speech Sciences was added to the existing six divisions which provide on-going education to professionals in the fields of dentistry, human nutrition and dietetics, medicine, nursing, pharmacy and rehabilitation medicine. The new division also offered its first course during the year and attracted 83 participants.

This aspect of our continuing education program enjoyed an active and highly successful year in which a total of 311 learning events and activities provided educational opportunities and services for 14,079 participants compared to 13,442 in the previous year.

Innovations included implementation in the Okanagan by Continuing Nursing Education of a new model for delivery of a post-graduate program in critical care nursing which enrolled 24

nurses, introduction of a revised nursing program in long-term continuing care, implementation of a post-graduate program in clinical psychiatric nursing through independent study and a pilot project in audio-telephone conferencing jointly sponsored by the divisions of Continuing Education in Nutrition and Dietetics and Continuing Pharmacy Education.

SOCIAL WORK. The School of Social Work continues to expand its continuing education offerings both to serve the social work community throughout the province and to provide educational opportunities for those employed in social services who lack professional education. In 1982-83, course registration increased by 54 per cent to 791 persons.

AGRICULTURAL SCIENCES. The faculty expanded its non-metropolitan program of academic and professional development courses by appointing a part-time lecturer in the Okanagan region to complement full-time positions in the Cariboo and the Central Interior.

Four programs were offered for Native Indians during the year in co-operation with the Western Indian Agricultural Corporation. Three programs were held at the Cariboo Indian Education/Training Centre in Williams Lake and the fourth was held at Chilliwack in the Fraser Valley.

EDUCATION. The education faculty's Yukon Teacher Education program, initiated five years ago, broadened its scope in 1982-83 by offering courses leading to the degree of Bachelor of Arts. The Faculty of Education offers the first three years of its baccalaureate program in Whitehorse and the Faculty of Arts now offers the first two years of its degree program.

There was also a sharp increase during the year in requests for summer institutes directed toward specific target groups within the teaching profession and other social service employees. The eight summer institutes offered included courses on infant development, training for teachers of blind students and micro-computer applications in the classroom. A total of 322 persons were attracted to these institutes, which offered 18 credit courses at four different sites.

The faculty is planning to provide an increased number of courses by television between 1982 and 1986, providing funds become available. In the 1982-83 academic year, the faculty conducted four highly successful teleconferences involving a variety of universities, government agencies and organizations from the private sector. Ten non-credit activities involving pre-taped video material are in different stages of planning and production.

During the academic year, the faculty also engaged in an intensive period of planning to organize off-campus graduate programs, which will begin in the fall of 1983, providing there is sufficient enrolment.

I am always impressed by the wide range of cultural and sports programs sponsored by the University. These are activities which enable the University to demonstrate that its facilities are highly utilized on a day-long basis throughout the year.

The community sports adult program sponsored by the School of Physical Education and Recreation, for instance, offers high-quality instruction and facilities for the development of



A UBC Summer Session class takes advantage of sunny weather to meet outdoors.

skills in golf, ice hockey and tennis. In 1982-83, a total of 1,360 adults took advantage of these programs.

Our Museum of Anthropology, in addition to playing a major role in the academic life of the University as a teaching and research source, is a unique public resource which was visited by 133,634 people in 1982-83. The museum supplements its active program of lectures, seminars, conferences and performances with an active outreach program that includes travelling exhibits and a unique prison project for Native Indian inmates.

The Botanical Garden continues to attract an increasing number of visitors annually to its main garden development on the south campus and to the Nitobe Garden and the Rose Garden at the north end of the campus. Other public service activities of the garden during 1983 included participation in the Vancouver Home and Garden Show, guided tours of the garden given by the Friends of the Garden, co-hosting of a weekly gardening show on CBC television and continued operation of the horticultural advisory service called the Hortline, which answered 5,000 enquiries during the academic year. The staff of the garden also continued a close liaison with the B.C. Nursery Trades. The first two plant introductions of the garden's Plant Introduction Scheme were released to the trade during the year.

The intellectual resources of the University are made available to the on- and off-campus communities through hundreds of lectures given annually under the aegis of various faculties, the University Lectures Committee, the Cecil H. and Ida Green Visiting Professor

program and the Vancouver Institute.

I have been particularly impressed with the growing number of activities taking place in our new Asian Centre on campus. It has proved to be an ideal setting for lectures and seminars, exhibits, recitals and other kinds of performances organized by academic departments, student clubs and off-campus groups. In 1982-83, the centre, through the Institute of Asian Research, sponsored almost 50 events, including 21 seminars on "Canada and the Changing Economy of the Pacific Basin," a six-session seminar series on China and four film series related to Asian affairs. In addition, the centre was the site of nine displays of painting, ceramics and calligraphy during the year.

A gratifying feature of UBC life in these troubled times is the maintenance in full measure of traditional performing-arts activities. The overall response by the general public to this vital part of the life of the University is both encouraging and rewarding. UBC's contribution to the cultural life of the province during the last academic year included the following:

- 177 concerts and recitals by faculty members and students in the Department of Music;
- 12 theatrical productions in the Frederic Wood Theatre and Dorothy Somerset Studio attended by some 22,000 persons; and
- Six exhibits of art and photography in the Fine Arts Gallery, which continues to function in sadly inadequate quarters in the basement of the Main Library.

I am deeply indebted to the many individuals whose enthusiasm and professional skill has made all this possible. With this kind of commitment, I am certain the University will continue to be an important venue for a variety of cultural activities, with the accent on drama, music and art.

Not all speaking events involving our faculty take place on the campus. The UBC Alumni Association runs an active Speakers Bureau, utilizing the expertise of 239 faculty volunteers who are prepared to speak on some 850 topics. In 1982-83, the bureau filled more than 300 requests for speakers, who addressed audiences of more than 6,000 persons, who were members of senior citizens groups, service clubs and schools.

Finally, I offer my thanks and congratulations to the many people who contributed to the successful meetings of the Learned Societies of Canada, which met at UBC in the month of June, 1983. Some 70 societies in the fields of the humanities and social sciences attracted 5,500 delegates from universities and other organizations in Canada and the U.S. to the meetings, which were planned over a period of a year by a task force headed by Prof. James Russell of the Department of Classics. The success of the meetings is a lasting tribute to his skills, wisdom and concern for detail.

The Student Body

Record student enrolments were recorded by the University in both the 1982-83 fiscal and academic years. Fiscal-year enrolment totalled 35,164 students, an increase of 2.12 per cent over 1981-82, when 34,433 students were registered. Academic-year enrolment totalled 35,223, an increase of 2.08 per cent over the previous year, when 34,506 were enrolled.

The most significant increase in fiscal-year enrolment occurred in the numbers who registered for 1982-83 daytime winter session. Winter day registrations totalled 24,671, an increase of 3.32 per cent over the previous year. The only decline in enrolment during the fiscal and academic years was in the number who registered for the nighttime winter session, where an 11.79 per cent decrease was recorded from 1,315 students in 1981-82, to 1,160 in 1982-83. This decline is probably related to the economic recession currently being felt in the province, since most of the University's night winter students are individuals who also have daytime jobs.

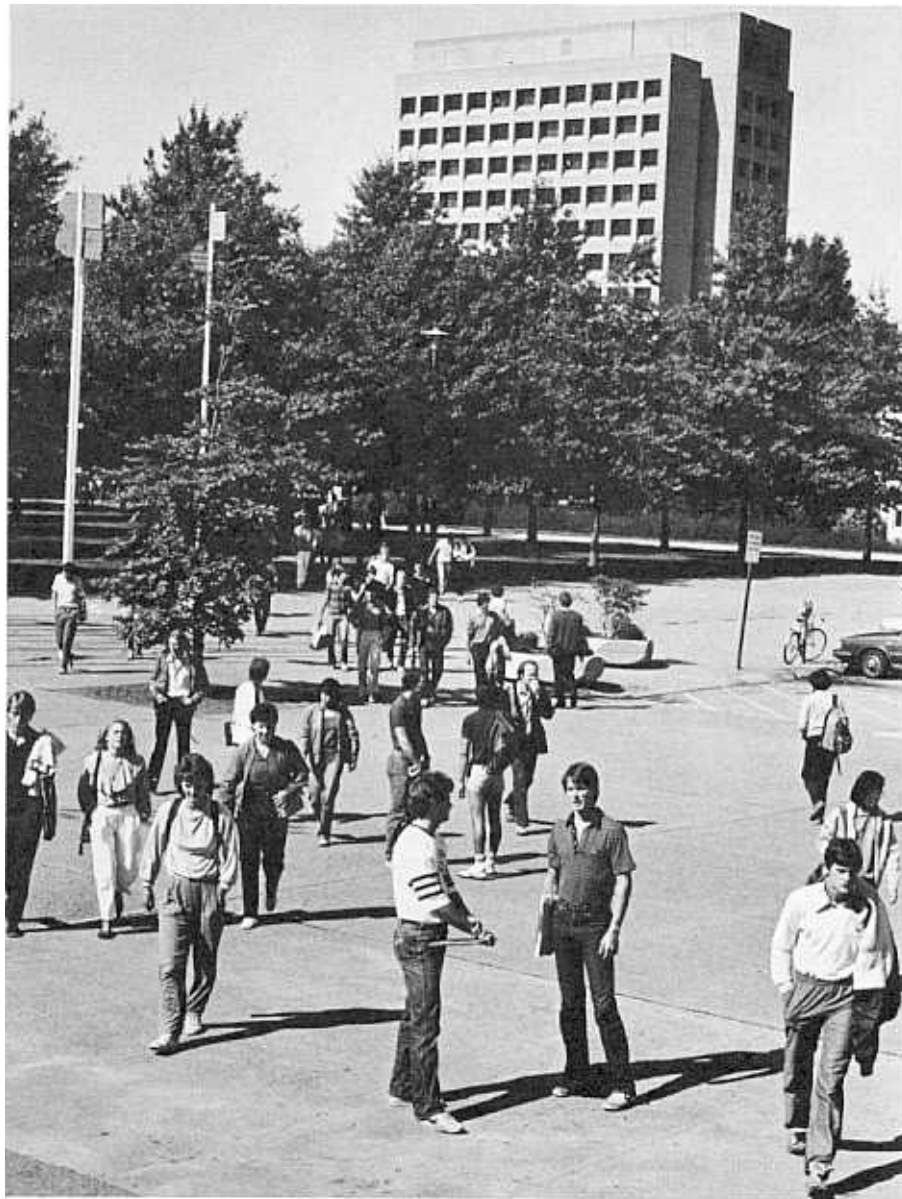
Fiscal-year enrolment, which is the basis for the University's submissions to the Universities Council for operating grants, is the sum of the following enrolments in the period April 1, 1982 to March 31, 1983 (comparable 1981-82 enrolment figures are in brackets): 1982 Spring Session — 3,600 (3,573); 1982 Summer Session — 4,255 (4,209); 1982-83 Winter Session — 24,671 (23,879); 1982-83 Winter Evening Session — 1,160 (1,315); Guided Independent Study — 1,478 (1,457). Total — 35,164 (34,433).

Our academic year enrolment in the period from Sept. 1, 1982 to Aug. 31, 1983 (the period covered in this report) is the sum of the following sessional enrolments: 1982-83 daytime Winter Session — 24,671 (23,879); Winter evening session — 1,160 (1,315); Guided Independent Study — 1,478 (1,457); 1983 Spring Session — 3,552 (3,600); 1983 Summer Session — 4,362 (4,255). Total — 35,223 (34,506).

The enrolment trends which I noted in my report to you for the last academic year continued in 1982-83. Enrolments in the engineering programs of the Faculty of Applied Science increased 10 per cent, in the general Arts programs by 5.8 per cent, in Science programs by 6.6 per cent and in Forestry by 5.2 per cent. Undergraduate enrolments were up 2 per cent and graduate enrolments by 6.1 per cent, 5.3 per cent at the master's level and 8.6 per cent at the doctoral level. As in the past, about 41 per cent of our total registration is made up of students who are enrolled on a part-time basis.

The balance of this section of my report summarizes the activities of various University administrative departments that provide services to students.

AWARDS AND FINANCIAL AID. The Office of Awards and Financial Aid co-ordinates the various student award programs on a campus-wide basis. Nearly one-third of all UBC students receive some form of support through this office.



In 1982-83, approximately 2,000 undergraduate students with outstanding academic records received scholarships and academic prizes totalling nearly \$1 million. While it is difficult to single out individuals, four winners deserve special mention. Guido Marziali (Science 1) entered UBC in September from Argyle Secondary School in North Vancouver. He was awarded the Bert Henry Memorial Scholarship of \$2,500. While in Grade XII, he wrote the Euclid Mathematics Contest and finished 12th in British Columbia and 45th in Canada. He plans to proceed to a degree in applied physics. Cynthia L. Southard (Education 4) was the winner of the Sherwood Lett Memorial Scholarship, the major UBC

UBC's fiscal- and academic-year enrolments were at an all-time high in 1982-83.



Winners of UBC's three top scholarships for 1982-83 were, left to right, Elaine Matheson, who was awarded the \$2,500 Amy E. Sauder Scholarship; Jason Gray, winner of the \$2,000 Harry Logan Memorial Scholarship; and Cynthia Southard, recipient of the \$3,000 Sherwood Lett Memorial Scholarship.

undergraduate award. She is a member of Big Sisters, and is actively involved with Delta Gamma Sorority and Panhellenic Women's Association. During the year, she was the External Affairs Officer of the Alma Mater Society. Winners of other major scholarships included Elaine Matheson (Commerce 4), recipient of the Amy Sauder Scholarship, and Jason Gray (Medicine 3) holder of the Harry Logan Memorial Scholarship.

The employment market in the summer of 1983, combined with the tuition fee increase, placed many students in a financial dilemma. To assist these students, the Board of Governors provided nearly \$1 million in additional funding for bursaries. In all, approximately 3,700 students received bursary funding totalling more than \$1.75 million.

In addition to the increase in bursary funding, the Board of Governors provided \$250,000 to allow expansion of the Work-Study Program which in previous years had been funded solely by the B.C. government. Work-study provided career-related working experience for approximately 400 students. Placements were available in almost every faculty and department. The bursaries and work-study funds supplemented the government-sponsored British Columbia Student Assistance Program, which provided UBC students with approximately \$21 million in loans and grants.

A substantial portion of the funding for scholarships and bursaries was made possible by the generosity of hundreds of individual donors. In addition, many students have been aided by benefactors who provided for perpetual student support through bequests. Private support continues to play a vital role in the recognition and support of deserving students.

CO-OPERATIVE EDUCATION/INTERNSHIP PROGRAMS. A total of 90 UBC engineering and forestry co-op students were placed with companies throughout Canada and abroad in the summer of 1983 as part of this program of providing industry-related ex-

perience. The experience proved to be of significant value to the students, who received very positive evaluations from their employers.

The number of students placed under this program represented 80 per cent of the total number of engineering and forestry students who expressed an interest in this form of summer work, a creditable record in the light of the difficult summer-employment situation resulting from the current recession.

Most students worked for private employers and 11 of them were employed outside of B.C. One student, Donna Chan, was accepted for civil-engineering work experience in Denmark by an international student exchange organization, as one of six UBC students. Two engineering students — Lisa Cox, civil engineering 2, and David Asano, electrical engineering 2 — were recipients of awards for outstanding technical reports written at the conclusion of their work experience from the UBC Co-op Employers' Advisory Council.

A new co-op program for students in the Faculty of Agricultural Sciences was initiated during the academic year and received favorable responses from potential employers. It is also anticipated that a year-round Co-op Program for engineers will be designed in response to employer's requests as the new four-year engineering program develops.

INTERNATIONAL HOUSE. Activities at International House continued to expand under the leadership of director Rorri McBlane. In addition to updating and enhancing existing, established services, the following new services were added. A 75-page information booklet for international students was produced, an information centre providing detailed information on specific topics of interest and use to international students was established, an international speakers' program made up of more than 100 volunteers willing to speak on their culture, country or area of research was initiated, and work was begun on reorganizing and updating a library of materials on work and study abroad, a resource centre of interest to Canadian citizens and permanent residents.

A major thrust of International House activities in the academic year was the broadening of its base of community involvement, support and activity. With the help of Mrs. Betsy Henderson, who was appointed co-ordinator of volunteers, more than 300 persons have become involved in activities ranging from translation and interpretation to editing material for distribution to international students. The House has also become involved in helping other institutions and organizations, the two most notable examples being the provision of advice and assistance to the University of Manitoba on establishing adequate services for international students, and contributing significantly to a *Guide to Resources and Services in B.C.*, a publication of the B.C. government's Office of the Cultural Heritage Advisor.

In conjunction with the education faculty's Department of Counselling Psychology, International House has helped to initiate and continues research on the subject of re-entry — strategies for helping international students deal with re-entering their own cultural and social milieu after a prolonged period of absence. A grant of \$6,000 from the Canadian Bureau for

International Education has permitted the preparation of a training film and an accompanying manual on the topic.

The following students were awarded International House Leadership Awards, each worth \$2,000, in 1983-84: Albert Loshier from Germany, a student in Oceanography; Veechibala Das, India, regional and urban planning; Kevin Shelly, Ireland, Chemistry; Eyob Goitam, Canada, Geography; and Jose Wolff, Brazil, Agricultural Sciences.

DEPARTMENT OF STUDENT HOUSING AND CONFERENCES. In 1982-83, this department continued the on-going renovations and asset-replacement program initiated in 1980. In September, 1982, basement renovations in the Gordon Shrum Common Block of Place Vanier Residence were completed to provide four new music practice rooms and a revitalized multi-purpose room for recreational purposes. Later in the academic year construction to renovate and refurbish Sherwood Lett and Kootenay Houses in Place Vanier Residence was completed in time for student occupancy in September, 1983.

In February, 1983, a Housing Planning and Development Committee, chaired by Dr. Neil Risebrough, the vice-provost for student affairs, began working on various proposals to increase the amount of accommodation for students on campus. A preliminary proposal to build an addition to the Walter Gage Residence was presented to the Board in May, 1983.

STUDENT COUNSELLING AND RESOURCES CENTRE. This centre continued its traditional functions of providing counselling services to high school students and others considering attending the University, as well as students currently enrolled at the University. In 1982-83, a total of 9,583 students, a slight increase over the previous year, made counselling appointments with the centre to discuss career and educational decision-making as well as personal problems which impinged upon their academic performance. Counsellors associated with the centre also visited schools and regional colleges in the Greater Vancouver Regional District and in other areas of the province to provide prospective students with academic information about the University.

Continued emphasis was placed on the resources section of the centre in providing a wide range of educational and vocational material. The centre also sponsors a series of workshops of interest to UBC students on such topics as study skills, career planning and time management.

Volunteer Connections, a volunteer and referral service for the UBC community was introduced in September, 1982 with financial assistance from the UBC Alumni Association. More than 150 students from most faculties of the University took advantage of this service, which matches up student skills with community organizations offering opportunities for volunteer service. The reason most often given for seeking volunteer experience was to obtain job-related experience. The demonstrated success of this project led to adoption of Volunteer Connections by the Alma Mater Society as a new student service organization.

Other valuable services provided by the centre included summer orientation programs



designed to contribute to students' adjustment to the University environment, individual and group testing to assist students in making education and career decisions and for evaluation of candidates applying for entry to various professional faculties.

The centre paid special attention in 1982-83 to the needs of physically disabled students. A member of the centre's staff provided special counselling services to a group of about 50 disabled students and special schedule planning and advance registration services were provided. During the summer, provincial Youth Employment Program funds were utilized for preparation of a "Physical Disability Resource Guide for Faculty and Staff."

WOMEN STUDENTS' OFFICE. This office continues its important work in assisting women students at the University to realize their optimum educational and career potentials by providing specialized services. In addition to continuing to provide counselling and other advisory services, innovations to the office's pro-

Running back Glenn Steele spearheaded the attack of the UBC Thunderbird football team that swept aside all Canadian opposition to win the Vanier Cup, emblematic of the Canadian intercollegiate football championship. UP Canada photo.

Medical student Martin Gleave was awarded the Bobby Gaul Trophy as UBC's top male athlete in 1982-83.



grams in 1982-83 included new workshops on decision-making, exam-writing and women in Canadian literature lasting from one day to six weeks; public forums on women involved in the political, cultural and environmental life of Vancouver; and special events on such matters as the implications for women students of the economic recession, women in China, and a professional development session for selected student service representatives on family violence and sexual abuse.

The office undertook research in two areas during the year. A survey of services for women at Canadian universities was initiated and information related to sexual harassment policies and procedures was obtained from Canadian universities and government agencies, which will serve as the basis for recommendations for policies and procedures at UBC.

STUDENT HEALTH SERVICE. Visits to UBC's Student Health Service, now located in the Acute Care Unit of the Health Sciences Centre Hospital, increased by more than 10 per cent in 1982-83 to almost 34,000. In addition to providing general medical services, specialized clinics are available for consultations in the fields of dermatology, orthopaedics and psychiatry. The service also continued to ex-

pand its outreach program in 1982-83 by discussing health-related subjects with students three days a week in the Student Union Building and through the participation of staff members in workshops on such topics as stress management and involvement in the sports medicine program developing on the campus.

The 1982-83 academic year proved to be one of the most successful in University history for athletic teams. The Thunderbird football team defeated the University of Western Ontario Mustangs 39-14 on Nov. 20 in Toronto to capture the Vanier Cup, emblematic of the Canadian Intercollegiate Athletic Union football championship. A week later, the Thunderbirds defeated Simon Fraser University in the annual Shrum Bowl at Empire Stadium to end a perfect 12-0 season. In the Canadian championship game, running back Glenn Steele was named most valuable player and linebacker Mike Emery was named the outstanding defensive player. Coach Frank Smith was named Coach of the Year.

In all, Thunderbird teams captured four Canadian titles (in football, field hockey, volleyball and gymnastics) as well as conference titles in women's curling, diving, rugby, men and women's skiing and men's track and field. The men's volleyball team, which went into the national championships as underdogs to top-ranked Manitoba, beat the visiting Bisons three games to one in the championship match, with UBC's Paul Thiessen designated as the tournament's most valuable player.

The women's gymnastics team, after three straight seasons of finishing in the runner-up position, captured the Canadian women's championship by narrowly edging the University of Alberta at the annual competition at York University in Toronto. UBC's Patti Sakaki successfully defended her individual gymnastics title for the third year in a row and first-year gymnast Anne Muscat captured the Canada West title.

At awards dinners at the conclusion of the year, Miss Sakaki and national team field hockey goalie Alison Palmer were named the joint winners of the Sparling Trophy as UBC's top female athletes, and Martin Gleave, a third-year medical student and winner of his second Canadian title in the field of wrestling, won the Bobby Gaul Trophy as UBC's top male athlete.

Many of our graduate and undergraduate students were also honored for their academic efforts in 1982-83 and I have chosen to provide details of these awards under the section of this report entitled Honors and Awards.

I know that the rest of the University community joins me in extending to all our students congratulations on their successes in 1982-83.



Gymnast Patti Sakaki, left, and field hockey goalie Alison Palmer shared the Sparling Trophy as UBC's top female athletes in 1982-83.

The University Library

It has been a year of uncertainty for the UBC Library, centering on concerns about funds available for the purchase of materials to strengthen the system and the status of the University's 1981 proposal for new central library space.

It is important to remember that during a period of protracted financial stringency, a major university can maintain its reputation of excellence only if it sustains its library's collection budget. Excellent library holdings constitute access to information, and quality faculty and talented students can never hope to attain a full measure of success unless they have access to the necessary library materials.

Cuts in the Library's collection budget would be counter-productive, for they would damage the University community as well as wider Canadian interests. What is perhaps not so well known is that our Library has, over the years, made available hundreds of thousands of Library items to the community beyond the

University. By any standard, our Library holdings are one of Canada's great research resources, serving the academic community as well as provincial and national interests.

However, maintaining and strengthening the quality of our Library holdings is becoming increasingly difficult in the face of inflation and inadequate government grants. While there is no easy solution to this problem, I remain confident that there is widespread consensus within the University that it is essential to protect, sustain and strengthen the collection budget of the Library. I remain convinced that our commitment to a quality Library should not be compromised or damaged by those who do not understand that high standards of scholarship are woven into our institutional fabric.

I refer elsewhere in this report to the uncertainty created by the Universities Council's failure to act on our valid request for new Library space. Stated plainly, the Library embodies the academic quality of the University.

We must provide the necessary space to enable faculty and students to carry forward their teaching and research. Serious academic damage is already resulting from the inaction of the Council, which has meant that many important Library initiatives are withering.

During the academic year, and despite the uncertainties outlined above, the library had its share of notable successes and disappointments, which are summarized in the following observations.

In terms of the usual measures of library activity, 1982-83 was a busy and productive year for the UBC Library system. Use of the collections increased: 2,255,632 items were borrowed compared with 2,181,794 in 1981-82. Reference staff responded to 339,317 enquiries, an increase of 5.2 per cent over the previous year. The catalogued collections grew by a net 91,654 volumes to an impressive total of 2,262,210 volumes. There were also substantial additions of other materials, particularly microforms and maps, in 1982-83.

During the year, adjustments were required to relationships with campus reading rooms following the dissolution of the Library's Reading Room Division in September, 1982. Funds to assist with the continued maintenance of reading room collections in 1983-84 were transferred to the faculties for reallocation. Arrangements were made for departments to order reading room books through the UBC Bookstore. For the present, at least, the Library will continue to handle the ordering and receipt of periodicals for those reading rooms that require the service. A detailed manual for reading room operation under the revised policy was prepared and distributed.

The Senate Library Committee met three times in the course of the year, reviewing policies for enforcement of loan regulations, the transfer of funds to support reading room collections, the 1983-84 interim collections budget, and the status of the 1981 proposal for new central library space. In 1983-84, the Committee will examine questions relating to the use of journals, their availability to users, and the effectiveness of present loan regulations as they affect access to journal literature.

The Library was fortunate in receiving generous outside funding for the development of certain areas of the collection. Approximately \$800,000 was provided from the estate of Dr. W.K. Burwell for the future purchase of library materials in the fields of sociology, anthropology and psychology. The Library also received grants from the Social Sciences and Humanities Research Council for the purchase of materials in Japanese economic history (\$22,000) and epigraphy (\$25,000) in 1982 and in 1983 will have \$50,000 to improve the collection of European newspapers. Special funding has also been made available from a grant to the Faculty of Arts by the Vancouver Foundation.

A major service development for the Library in the past year was the extension of library services to the major teaching hospitals, made possible through grant funding under the Medical Undergraduate Expansion program. On May 17, 1982 the Hamber Library, serving the Children's, Grace and Shaughnessy hospitals, was opened. At the same time, the health sciences network service, located in the Wood-

ward Library, began providing supporting materials from campus on a daily delivery schedule. On July 1, 1982 UBC assumed responsibility for the operation of the St. Paul's Hospital Library. Improvements were made as well in the supporting collection held by the Woodward Library. In its first year of operation, the network service delivered almost 25,000 items to users at locations within the system — 85 per cent were provided within 24 hours after the request was made. On-site collections at the hospitals were improved as well, and services normally provided in UBC branch libraries were introduced. This development appears to be successfully meeting a long-standing need for library service to UBC faculty and students as well as to professional staff in the teaching hospitals.

1982-83 saw some changes in the organization of campus library services as well. As a result of retrenchment, the Animal Resource Ecology library ceased operation as an official branch library in September, 1982. The UBC Film Library became part of the library system in 1982-83 and the Library also assumed responsibility for the audio-visual collection of the Centre for Human Settlements.

In co-operation with the libraries of the University of Victoria, Simon Fraser University, Vancouver Community College and the B.C. Institute of Technology, the UBC Library undertook as a pilot project the local implementation of an automated library support system developed by the Washington Library Network. The pilot study, referred to as the B.C. Library Network project will, by the end of August 1983, provide information on the cost and effectiveness of operating support systems for cataloguing, acquisitions and other library operations from a single site within the province. In recent years, B.C.'s college, institute and university libraries have had to purchase cataloguing support service from UTLAS in Ontario. Successful implementation of a local BCLN system will offer great potential for the development of on-line library services at UBC and other post-secondary institutions in the province.

Future priorities must include a thorough review of library space requirements and potential solutions. Library space will be exhausted before the end of this decade. Attention must also be given to the development of the B.C. Library Network, the delivery of materials and service to off-campus students, and the maintenance of stable collections funding at a level sufficient to cover increases for inflation.

Personnel changes within the Library system in the 1982-83 academic year included the following: Elsie de Bruijn was named associate head of the Woodward Biomedical Library and her place as head of the Marjorie Smith Library in the School of Social Work was taken by Judith Frye; Heather Keate, formerly of the Woodward Library, became assistant University librarian for public services (Branch Libraries); Ann Nelson was appointed head of the Hamber Library serving Shaughnessy, Children's and Grace Hospitals; Nick Omelusik, former head of the reading rooms division, became head of the catalogue products division; Jane Price was appointed Health Sciences Network Co-ordinator; Barbara Saint was named head of the St.

Paul's Hospital Library; and Bill Watson was appointed assistant University librarian for public service (Central Libraries).

In the field of public service, library personnel continue to make significant contributions to their profession as the following involvement indicates: Margaret Friessen, head of the inter-library loans division, served as president of the B.C. Library Association; Jack McIntosh, Slavic bibliographer and science reference librarian, was appointed by the provincial attorney-general to the Kootenay Committee on Intergroup

Relations, a committee which assists in resolving differences between the Doukhobor people and the government; Diana Kent, reference librarian in the Woodward Library, was awarded a certificate of recognition for her services to the UBC branch of the Sigma Xi Scientific Research Society; and University Librarian Douglas McInnes became a member of the board of directors of the Canadian Association of Research Libraries and has been appointed by the Association of Research Libraries to the advisory board for the Centre for Chinese Research Materials.

Governing Bodies

Early in 1983, the students of the University elected Miss Margaret Copping, an Arts student, and Mr. David Frank, a Science student, as their representatives on the Board for one year, commencing Feb. 1. They succeed Mr. David Dale, a student in the Faculty of Commerce and Business Administration, and Mr. Ronald Krause, a student in Medicine.

Early in November of 1982, Dr. Leslie Peterson, the chairman of the Board, announced that Dr. K.G. Pedersen, the then president of our sister institution, Simon Fraser University, would succeed me as president of UBC on July 1, 1983. A recommendation to appoint Dr. Pedersen was made to the Board by Chancellor J.V. Clyne, who chaired a broadly based University committee charged with advising the Board on suitable candidates for president. My successor is an able administrator and I know that the University community joins me in wishing him success in the exciting times that lie ahead.

Among the more important business carried out by the Board in the 1982-83 academic year were the following items.

At its October, 1982 meeting the Board approved administrative arrangements under which the University, in co-operation with the federal Department of Industry, Trade and Commerce, will foster research in the field of microelectronics and facilitate the transfer of technological information through an organization called the B.C. Microelectronics Society. The UBC research effort in this field will be facilitated by a federal grant totaling \$1 million over five years. This new development reflects the extensive scientific and technological expertise available within the University and will contribute to the improvement of innovation in Canadian industry.

At the same meeting the Board received a summary of priorities and long-range objectives of the Department of Student Housing and Conferences and approved a motion reiterating its goal of 1966 of providing on-campus accommodation for 25 per cent of single-student enrolment, subject to the availability of capital funding.

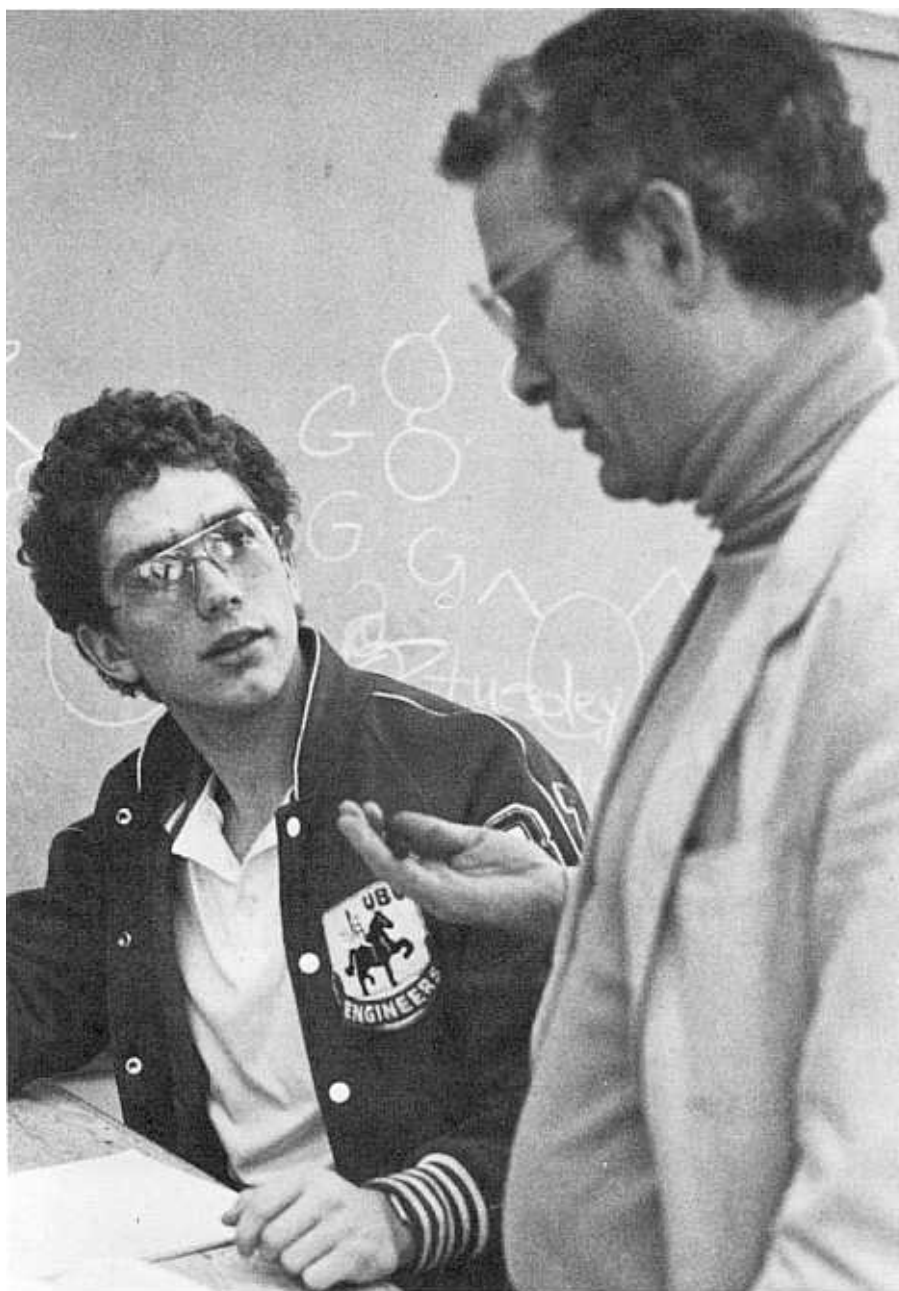
Yet another major development dealt with by the Board at its October meeting was the approval of an organizational structure for the Imaging Research Centre, a significant development in the UBC Health Sciences Centre.

At its November, 1982 meeting the Board approved in principle a campus development proposal, which is intended to form the basis for the future physical development of the campus. The study, prepared by the Department of Facilities Planning, describes a framework of planning principles and design guidelines which can accommodate changing circumstances and influences, as well as bring about a sense of order to the campus.

At its April, 1983, meeting, the Board learned that the provincial government had made \$360,000 available for the planning of a new \$6 million pulp and paper teaching centre, which will be constructed in the area occupied by the Faculty of Applied Science at the south end of the academic core. The Canadian pulp and paper industry has pledged itself to provide \$1 million a year for the operation of the building after it has been built and will also provide \$250,000 annually for fellowships for graduate students in the pulp and paper program. At this same meeting the Board was told that there was a strong possibility that a new \$13 million national research facility planned by the Canadian pulp and paper industry would be located at UBC in the area set aside as Discovery Park UBC. I am positive that these two developments will aid the advancement and practical application of science to industry. This two-way flow of information is to be encouraged between industry on the one hand and the University on the other.

At a special meeting held on May 12, 1983, the Board approved my recommendation that the appointment of Dr. Julius Kane as a member of the teaching staff of the University be terminated. My recommendation to the Board was based on the report of a hearing committee, provided for under the terms of the Agreement on Conditions of Appointment of Faculty. The committee, by a vote of two-to-one, held that one of the grounds on which I had proposed to base a recommendation for termination of appointment was substantiated and was serious enough to warrant termination.

At its June, 1983, meeting the Board approved a Reduced Workload/Appointment Responsibility Scheme, which provides for the reduction of a faculty member's salary and workload while maintaining full pension and other appropriate benefits entitlement. The scheme was discussed with the Faculty Association and had its sup-



Two important developments in 1982-83 that will affect students in engineering programs of the Faculty of Applied Science were an agreement with the federal government to foster research and the transfer of technological information in microelectronics and the forthcoming construction of a new pulp and paper teaching centre.

port. The purpose of the scheme is to assist faculty members in the transition to retirement, to effect on-going savings to the University and to introduce some flexibility into staffing.

Much of the work of the University Senate centres on its role as a watchdog on the curriculum, a function its delegates to the Curriculum Committee, which meets regularly to screen proposals which reach it from the 12 faculties of the University. This important Senate function is treated at greater length in this report under the section entitled Teaching and Curriculum.

Other important matters dealt with by Senate in the 1982-83 academic year are outlined below.

At its first meeting in September, 1982, the Senate approved a motion to establish an ad hoc

committee which was requested to "enquire into and draw up recommendations as to minimum breadth requirements in the pre-baccalaureate programs of the University." The committee, when it reported to Senate in March of 1983, said that reasonable breadth requires study in the humanities and arts, the social sciences, and science and technology. "These courses," the report said, "should include at least one that covers some aspect of a foreign culture, and one that has a historical orientation." Senate approved in principle the committee's initial recommendation: "That all students should receive a broad exposure to a variety of disciplines in addition to a specialized education in their chosen field of study before completing any baccalaureate degree," and then referred the report to the faculties for study and return to the Senate agenda in November of 1983.

During the course of the academic year a number of committees were established to consider and make recommendations on possible changes to the University Act, the provincial legislation that governs the makeup and powers of governing bodies at B.C.'s public universities. One report on possible changes, based on conversations between a member of the Universities Council and the presidents of the three public universities, had already gone forward to the Minister of Universities, Science and Communications. However, when it became apparent that changes of more than a cosmetic nature were being contemplated in Victoria, I felt it necessary to establish a presidential advisory committee under Dean of Law Peter Burns, and the Senate, at its December, 1982 meeting approved establishment of yet another committee on the act. At its March meeting, Senate requested me to write to Victoria asking that no changes in the act be introduced until such time as Senate and all interested parties had had an opportunity to complete consideration of proposed amendments. In May, the Senate committee submitted a 52-page report to Senate for consideration, including 12 recommendations for amendments. These suggested changes were not of a radical nature, the committee being convinced that the basic structure of the act was sound. Senate amended only one recommendation made by the committee and approved its report in an omnibus motion.

In February, 1983, Senate slightly modified admission requirements to the University to give students planning to enter the University from B.C. secondary schools a wider choice of courses in grades 11 and 12. Although secondary-school graduation with a C+ average is still mandatory, the University will require six, instead of seven, additional courses from a prescribed list of academic subjects. Even with this change, UBC admission requirements are still among the most demanding in Canada. The changes approved by the UBC Senate were a response to changes introduced into the secondary-school curriculum by the provincial ministry of education.

At its May meeting, the final one of the 1982-83 academic year, Senate received and approved recommendations contained in a report from its Academic Building Needs Committee. Senate voted to reaffirm academic building priorities established in 1981 and asked that a plan to expand the UBC Library system

be identified as an "urgent, special need." While buildings may not be springing out of the ground at the University in future, the needs of the Library must be classed as a crucial capital project. Unfortunately, the Universities Council has failed to respond to this academic priority. The University can feel deeply aggrieved about

this inaction, which frankly puzzles and worries me.

Senate also voted to add the School of Physical Education and Recreation to the 1981 priorities list. The Senate recommendations were endorsed by the Board of Governors at its June meeting and forwarded to the Universities Council.

Awards and Honors

The many honors and awards which are conferred each year on faculty members at UBC are indicative of the high quality of teaching and research which had made the University one of the leading institutions of higher education in Canada. The quality of the students whom we attract to the campus is also reflected in the number of prizes, scholarships and fellowships which they receive each year in competition with students at other North American universities. I know the University community joins me in congratulating those names below for their dedication to the highest standards of teaching and scholarship.

FACULTY OF AGRICULTURAL SCIENCES. Prof. Michael Shaw, who was appointed University Professor during the academic year in the Departments of Plant Science and Botany was the first recipient of the gold medal of the Biological Council of Canada for "outstanding service to biology in Canada." Other members of this faculty honored in 1982-83 were: Dr. R.L. Taylor, who received the Mary E. Elliott Service Award of the Canadian Botanical Association; Dr. P.A. Murtha, recipient of the Puget Sound Meritorious Award of the American Society of Photogrammetry; Larry Diamond, who received an award from the Canadian Institute of Planners for the best resource planning project and best overall exhibition; P.A. Miller, winner of a citation award in the research category from the Canadian Society of Landscape Architects; and student Michael Jang, who won the 1983 undergraduate student paper contest of the Canadian Institute of Food Science and Technology.

FACULTY OF APPLIED SCIENCE. Prof. J.R. Grace, who heads Chemical Engineering, received the ERCO award of the Canadian Society for Chemical Engineering, awarded annually to an individual who has made an outstanding contribution to the discipline while under the age of 40; Dr. D.R. Piteau of geological engineering was the recipient of the Birwell Award of the Geological Society of America for contributions to engineering geology; in Metallurgical Engineering, Prof. Keith Brimacombe and Dr. I.S. Samarasekera were jointly awarded the Robert W. Hunt Medal of the Iron and Steel Society of the American Institute of Mining and Metallurgy and the Williams Prize of the Metals Society of London, England; in Mining and Mineral Process Engineering, Prof. Jan Leja received the Walter Gage Teaching Award in engineering, Prof. A.L. Mular received a publication award from the American Institute of Mining and Metallurgy, Prof. George Polling was named a

Distinguished Lecturer by the Canadian Institute of Mining and Metallurgy and Prof. C.O. Brawner received the Publications Board Award of the American Institute of Mining Engineering; and in the School of Nursing, Associate Professor Emerita Margaret Street was inducted into the Order of Canada and Professor Emerita Beth McCann was made an honorary life member of the Registered Nurses' Association of B.C.

Prof. Douglas Shadbolt, who heads the School of Architecture in the applied science faculty, was awarded the honorary degree of Doctor of Engineering from Carleton University in November, 1982.

Applied Science students who received recognition were: Craig Roberts, of Mining and Mineral Process Engineering, winner of the Canadian Institute of Mining and Metallurgy's award for the best essay on coal; Clive Brerton, a graduate student in Chemical Engineering, first prize winner in the student paper competition at the annual Canadian Chemical Engineering Conference. For the fourth year in a row, the UBC student chapter of the American Institute of Chemical Engineers was selected as an Outstanding Student Chapter for its program of activities.

FACULTY OF ARTS. Faculty members honored in 1982-83 were: Dr. Harry B. Hawthorn and his wife, Audrey, the first director and curator, respectively, of UBC's Museum of Anthropology, received the first Distinguished Service Award of the B.C. Museums Association for the influential role they played in museum development in the province; Prof. A.D. Scott of Economics gave the invited Innis Lecture at meetings of the Canadian Economics Association and was made an Officer of the Order of Canada; Frank Hamlin of the French department was honored by a French society and received the Prix Albert Dauzat for his research on the study of place names in France; J. Ross Mackay of Geography was the first recipient of the G.K. Gilbert Medal of the Association of American Geographers for his work in the field of geomorphology; Anne Piternick of the School of Librarianship was elected a fellow of Great Britain's Library Association and her colleague Shiela Egoft, who retires this year, was the recipient of no less than three awards for service to the profession — the Canadian Library Association's Outstanding Service to Librarianship Award, the Elliot Landau Award, conferred jointly by the University of Utah and the Salt Lake County Library System and the Claude Aubry Award of the Canadian division of the International Board on Books for Youth; Alan



Prof. Michael Shaw was appointed University Professor in Plant Science and Botany and was named the first recipient of the gold medal of the Biological Council of Canada for service to his discipline.



Political scientist Prof. Alan Cairns, above, was awarded a Molson Prize for his contributions to Canadian society and culture. Prof. George Tomkins of Education, below, was the recipient of an honorary degree from McGill University for his contributions to Canadian curriculum studies.



Cairns of Political Science was invited to Harvard University as the Mackenzie King Visiting Professor of Canadian Studies and was the recipient of one of four Molson Prizes for his contributions to Canadian society and culture; Daniel Kahneman of Psychology was named as one of the recipients of the Distinguished Scientific Contribution Award of the American Psychological Association and his colleague, William Iacono, was the recipient of the Young Investigator Award of the Society for Psychophysiological Research.

Arts students who distinguished themselves in the past year included the following: Brian Burke and Derek Clinton Carter, the editor-in-chief and artist, respectively, associated with the University's creative writing magazine, *Prism International*, who won the Bomac Batten Award at the National Magazine Awards; Erin Moure, winner of the du Maurier Award for poetry in the competition mentioned above; Diedre Lynch, of English, the only UBC student to be named a winner of the first Mellon Scholarships in the Humanities to be awarded, for graduate work at Stanford University; and three students in the film program of the Department of Theatre — Eileen Hoeter, Sandra Mayo and John Penhall, each of whom won awards in student film festivals held in B.C., the Pacific Northwest and Hiroshima in Japan.

Two recent graduates of the Department of Music distinguished themselves in the annual talent competition of the Canadian Broadcasting Corporation. Jackie Parker won the \$2,500 first prize in piano and was overall winner of a \$5,000 prize, scholarship and trophy, and Debra Parker won the \$2,500 first prize in voice as well as a scholarship to the Banff Centre of Fine Arts.

FACULTY OF COMMERCE AND BUSINESS ADMINISTRATION. Prof. Maurice Levi was appointed to the Bank of Montreal Chair of International Finance in the faculty; Steve Alisharan won the Commerce Undergraduate Society's annual Teaching Excellence Award; Gordon Walter and co-author Steve Marks of Education were the recipients of the Best Guidance and Counselling Book Award of the Canadian Guidance and Counselling Association; Peter Frost received the Commerce Alumni Association's 1983 Talking Stick Award for pedagogical course development; Mark Thompson was elected to the National Academy of Arbitrators; and Dennis Capozza was the recipient of a Morgard Literary Award for an article that will appear in the *Education Quarterly*.

Three doctoral students in Commerce were awarded distinctions in 1982-83: Michael Stein received the Deloitte, Haskins and Sells doctoral fellowship in accounting, the third time in a row that this distinguished international award has been made to a UBC student; and Bruce Dietrich-Campbell and Michel Gendron were the recipients of awards at the 1983 conference of the Administrative Sciences Association of Canada. Mr. Dietrich-Campbell for the best doctoral student paper and Mr. Gendron as an honorable mention winner in the same competition. A Commerce graduate who distinguished herself was Jennifer Bettiol, winner of the Governor-General's Gold Medal for the highest

marks in Canada on the uniform final examinations of the Institutes of Chartered Accountants in Canada.

FACULTY OF DENTISTRY. Dr. Marcia Boyd was elected a fellow of the International Academy of Dentistry; Dr. Lance Rucker was awarded life membership in the REACH Community Centre Association in recognition of services to the REACH health centre; Dr. Colin Price was elected a fellow of the Royal College of Dentists; and Dr. A.A. Lowe was named the Grieve Memorial Lecturer of the Canadian Dental Association.

FACULTY OF EDUCATION. Dr. John Allan of Counselling Psychology and former graduate student Judith Nairne received the 1983 award of the Canadian Guidance and Counselling Association for "best professional article," which dealt with racial prejudice in the classroom; Dr. John Andrews, the former dean of Education was named Distinguished Visiting Professor at the University of Alberta; Dr. Verna Kirkness, director of Native Indian Studies and the NITEP program, was honored by having her name attached to the Kirkness Adult Learning Centre in Winnipeg, where both Indians and non-Indians can upgrade their skills through the use of computers; Dr. George Tomkins was awarded the honorary degree of Doctor of Laws by McGill University for his contributions over many years to Canadian curriculum studies; Dr. Ron MacGregor, head of Visual and Performing Arts in Education was the first Canadian to be invited to give the keynote address to the National Arts Education Association; and Alena Branda of the School of Physical Education and Recreation was named Coach of the Year in women's gymnastics by the Canadian Intercollegiate Athletic Union.

FACULTY OF FORESTRY. Dr. Robert Woodham was invited to present a paper at an international symposium on Biological and Physical Processing of Images sponsored by the Royal Society in London, England.

FACULTY OF GRADUATE STUDIES. Prof. Fred Wan of the Institute of Applied Mathematics and Statistics was elected a fellow of the American Academy of Mechanics; Dean Peter Larkin of the Institute of Animal Resource Ecology received the Award of Excellence of the American Fisheries Society and his colleague, Dr. T.G. Northcote was invited as a representative of Canada to the 50th anniversary celebrations of the Institute of Freshwater Research in Sweden; Knute Buttedahl of the Centre for Human Settlements was the recipient of the Outstanding Adult Educator Award of the Pacific Association for Continuing Education; Prof. W.D. Liam Finn of the Soil Dynamics Group was elected a fellow of Churchill College at Cambridge University in England and was a state-of-the-art or keynote speaker at six international conferences on geomechanics, earthquake engineering and soil engineering in centres in the United States and Europe; and Prof. L. Young of the Microelectronics Centre was the recipient of the Callinan Award of the Dielectrics and Insulation division of the Electrochemical Society.

FACULTY OF MEDICINE. Dr. Patrick Dennis of Biochemistry received the Alumni Distinguished Service Award from the University

of Wisconsin; Dr. Joachim Burhenne, head of Diagnostic Radiology, was the recipient of the Walter C. Cannon Medal of the International Society of Radiologists; Dr. Victor Gomel was invited to give the keynote lecture at the 10th World Congress on Obstetrics and Gynaecology; Drs. Anne Junker and D. Pritchard, both of the paediatrics department, were the recipients of the two McLoughlin fellowships for 1983-84 awarded in Canada; Dr. D.H. Copp of Physiology received the William F. Newman Award of the American Society for Bone and Mineral Research; and Dr. T.Y. Lin of Psychiatry was awarded the Distinguished Achievement Award of the Pacific Rim College of Psychiatrists, was named honorary life president of the World Federation for Mental Health and was appointed advisor on mental health to the People's Republic of China's ministry of public health.

Medical students who won distinction in 1982-83 were: Martin Gleave, winner of the Bobby Gaul Memorial Trophy as outstanding male athlete for his activities as a wrestler; Dr. David Hsu, recipient of the Robert Wood Johnson Award as the top student in health services planning; Dr. Robert Kraus of Psychiatry, named Laughlin Fellow of the American College of Psychiatry; and Richard Steeves of Physiology, who was awarded a fellowship for advanced research at Cambridge University in England.

FACULTY OF PHARMACEUTICAL SCIENCES. Dr. John McNeill was the recipient of two awards in 1982-83 — the McNeil Award, which carries a cash prize of \$1,000, and the Upjohn Award of the Pharmacological Society of Canada.

FACULTY OF SCIENCE. Dr. Edwin Perkins of the Department of Mathematics was the recipient of the Rollo Davidson Prize in Probability from the University of Cambridge in England;

Dr. Julia Levy of Microbiology was awarded the gold medal of the B.C. Science Council for her work on cancer detection; Prof. William Unruh of Physics was awarded the 1983 Herzberg Medal of the Canadian Association of Physicists and an Isaak Walton Killam Memorial Senior Fellowship; Prof. Erich Vogt, director of the TRIUMF Project and a professor of Physics, was awarded an honorary degree by the University of Manitoba.

Graduate student Andre Van Schyndel was the recipient of the Marconi International Fellowship Young Scientist Award, which was presented by Governor-General Edward Schreyer at a ceremony in Ottawa. The Canadian Association of Physicists has also recognized him as an innovative young physicist.

Two members of the Department of Chemistry were awarded fellowships by the John Simon Guggenheim Memorial Foundation of New York. These prestigious awards are made on the basis of demonstrated accomplishments and strong promise for the future. The winners were Prof. Donald G. Fleming, who will undertake studies in nuclear chemistry, and Prof. Brian R. James, who will investigate the mechanism of homogeneous catalytic reactions.

UBC faculty members were this year elected to all three of the academies which make up the Royal Society of Canada, this country's most prestigious academic organization. Elected to membership in Academy I (*Lettres et sciences humaines*) was Prof. Bernard Saint-Jacques of the Department of Linguistics. Elected to Academy II (Humanities and Social Sciences) was Prof. Kalevi J. Holsti, who heads the Department of Political Science. New UBC members of Academy III (Sciences) are Prof. Peter Hochachka of the Department of Zoology and Prof. Donald Ludwig of the Department of Mathematics.



Dr. John McNeill of Pharmaceutical Sciences was the recipient of two awards in 1982-83.

Appointments, Resignations and Retirements

Significant changes in the University's administrative, teaching and research staff listed below are based on the reports of the deans of UBC's 12 faculties.

AGRICULTURAL SCIENCES. Dr. John D. Graham was appointed head of the Department of Agricultural Economics and Douglas T. Paterson was named director of the program leading to the Bachelor of Landscape Architecture.

APPLIED SCIENCE. Dr. K.D. Srivastava was appointed head of the Department of Electrical Engineering from Sept. 1, 1983. In the Department of Chemical Engineering, two appointments were made in connection with the construction of a new Pulp and Paper Centre and the introduction of a new Master of Engineering program in pulp and paper engineering. Dr. R.J. Kerekes, an honorary professor in the chemical engineering department and a staff member of the Pulp and Paper Research Institute of Canada, was appointed director of the centre, which will be housed in a new \$6 million building now in the archi-

tectural-design stage, and Prof. K.L. Pinder, a long-time member of the UBC faculty, was named program co-ordinator for the degree program, which has been approved by the Universities Council of B.C. and which will be operated jointly by the University and the Institute.

ARTS. Prof. Glenn Drover, former director of the School of Social Work at Carleton University, was named head of UBC's School of Social Work and Dr. David Perlman, formerly of the Department of Psychology at the University of Manitoba, joined the staff of the School of Home Economics to direct the new graduate program in family sciences.

COMMERCE AND BUSINESS ADMINISTRATION. Divisional appointments within the faculty during the academic year were Michael Gibbins as chairman of Accounting and Management Systems, Maurice Levi as acting chairman of Finance, Peter Frost as chairman of Industrial Relations Management, A.E. Boardman as chairman of Policy and Dennis Capozza as chairman of Urban Land Eco-



Prof. Trevor Heaver, above, became director of the Centre for Transportation Studies and Prof. Robert Kennedy, below, took up duties as dean of the Faculty of Forestry during the 1982-83 academic year.



nomics. On July 1, 1983, Trevor Heaver took up duties as director of the Centre for Transportation Studies.

EDUCATION. New department heads appointed during the year in Education were: Dr. Lorne Downey as head of the Department of Administrative, Adult and Higher Education, and Dr. Bill Bogen as head of the Department of Counselling Psychology. Dr. Todd Rogers was named associate dean of the faculty with responsibility for graduate programs and research, succeeding Dr. LeRoi Daniels, who became director of the Centre for the Study of Curriculum and Instruction. Dr. Murray Elliott was appointed associate dean with responsibility for undergraduate programs; Dr. Ian Housego became director of the Centre for the Study of Teacher Education; and Dr. Verna Kirkness took up duties as director of Native Indian Studies.

FORESTRY. The new dean of the Faculty of Forestry who assumed office on July 1, 1983, is Prof. Robert Kennedy, a UBC graduate who has had experience in both the industrial and the academic worlds. He has been a professor in the UBC faculty since 1979 and before that was associated with the Forintek Corporation, which has its research headquarters on the campus.

PHARMACEUTICAL SCIENCES. Three new associate dean appointments were made in 1982-83, as follows: Dr. T.H. Brown, undergraduate programs; Dr. J.N. Hlynka, clinical programs; and Dr. J.H. McNeill, graduate studies and research. Dr. R. Ensom became chairman of the faculty's Division of Clinical Pharmacy, and Dr. D. Fielding is now chairman of the Division of Pharmacy Administration.

A total of 25 members of UBC's teaching and research staff reached the age of retirement during the 1982-83 academic year. I know that the University community joins me in expressing thanks to those retiring for their many years of dedicated service to the University. In some cases, these retiring members of the faculty will continue to carry out duties at the University.

Those who retired after more than 30 years of service are:

Prof. J.J.R. Campbell, a member of the UBC faculty for 37 years, initially in the Faculty of Agricultural Sciences (1946-1965) and laterally as head of the Department of Microbiology in the Faculty of Science, and the recipient of a large number of prizes and honors, including the award for distinguished achievement of the Canadian Society of Microbiologists and the Harrison Award of the Royal Society of Canada;

Prof. Moses W. Steinberg, a member of the Department of English for 37 years, winner of UBC's Master Teacher Award in 1972 and widely known for his teaching and research on British writers H.G. Wells, Thomas Hardy and George Bernard Shaw;

Prof. J. Lewis Robinson, another 37-year member of the UBC faculty, head of the Department of Geography for 22 years until 1968, winner of UBC's Master Teacher Award in 1976 and the recipient of numerous professional awards, including the Massey Medal of the Royal Canadian Geographical Society and the Distinguished Teaching Award of the National Council for Geographic Education;

Agnes G. Savery, a lecturer and senior in-

structor in the Department of English since 1948;

Prof. Finlay Morrison, associate dean of the Faculty of Pharmaceutical Sciences, who joined the UBC faculty in 1948 and who was closely associated with the professional pharmaceutical community as president of the College of Pharmacists of B.C. and the Pharmacy Examining Board of Canada;

Prof. Cyril Reid, a member of the Department of Chemistry since 1948;

Jan de Bruyn, a 32-year member of the Department of English, founder of the University's creative writing journal entitled *Prism International*, and a specialist in 17th-century English literature; and

Dr. H. Clyde Slade, who joined the UBC medical school's teaching staff in 1952 as a clinical instructor and who set up the first family-practice teaching unit in the faculty.

Faculty members who reached retirement age after more than 20 years of University service were:

Prof. Charles McDowell, the very distinguished head of the Department of Chemistry from 1955 until 1981, when he was appointed University Professor, and the recipient of numerous awards from professional organizations in recognition of his distinguished contributions to his discipline and to the University and the scientific community in Canada;

Prof. Arthur Beedle, for 27 years a member of the Faculty of Commerce and Business Administration and the leader of a team of UBC academics which established academic programs at the University of Malaya in the 1960s and 1970s, for which he was awarded the honorary degree of Doctor of Letters in 1978;

Dr. John Dean, a teaching fellow and member of the Department of Paediatrics in the Faculty of Medicine for 27 years and director of the B.C. Poison Control Centre from 1957 to 1967;

Joseph C. Lawrence, a teacher in UBC's Department of History for 27 years and a specialist in the history of the North American west;

Prof. Roy Nodwell, a member of the Department of Physics for 24 years and head of that department from 1977 to 1982, and the leader of a research team that developed the Vortek Lamp, an innovative high-intensity arc lamp which is now in commercial production;

Dr. Libuse Tyhurst, for 24 years a part- and full-time member of the Department of Psychiatry, who specialized in studies dealing with migration and social change and audio-visual teaching systems in university settings;

Dr. Frank E. Gamble, a music-education specialist who taught in UBC's Faculty of Education for 23 years; and

Prof. Sheila Egoff, a dedicated teacher and researcher in the School of Librarianship for 21 years and the recipient of numerous awards for her internationally recognized work in the field of children's literature.

Others who reached retirement age in 1982-83 were:

Paul Sykes, a member of the Department of Physics for 19 years and a specialist in nuclear physics;

Prof. Norman Paddock, a 19-year member of the Department of Chemistry and a specialist in

inorganic chemistry;

Prof. George Piternick, a cataloguing expert who taught in the School of Librarianship for 18 years;

Sol Kort, a member of the programming staff in the Centre for Continuing Education for 17 years, where he directed the humanities and sciences programs;

Prof. Jan Leja, for 17 years a member of the Department of Mining and Mineral Process Engineering, where he was honored in 1983 as the recipient of the Walter Gage Teaching Award and where he carried out research on the extraction of metals by the flotation process;

Hazel M. Southard, a teacher in the School of Rehabilitation Medicine in the Faculty of Medicine for 16 years;

Michael Bullock, a member of the Department of Creative Writing for 14 years who, in addition to publishing a number of volumes of original poetry, was a specialist in the translation of fiction, poetry and drama and the recipient of the Canada Council Prize for Translation in 1978;

Prof. J.E.L. Peck, a member of the UBC faculty for 14 years and the first full-time head of the Department of Computer Science from 1969 to 1976; and

Prof. Karl Ruppenthal, a member of the Faculty of Commerce and Business Administration for 12 years and the first director of the Centre for Transportation Studies, established shortly after his appointment to UBC.



Two long-time UBC faculty members who reached retirement age in the academic year were: Prof. J.J.R. Campbell, left, a teacher and researcher at UBC for 37 years; and Prof. Finlay Morrison, right, of Pharmaceutical Sciences, a faculty member for 35 years.

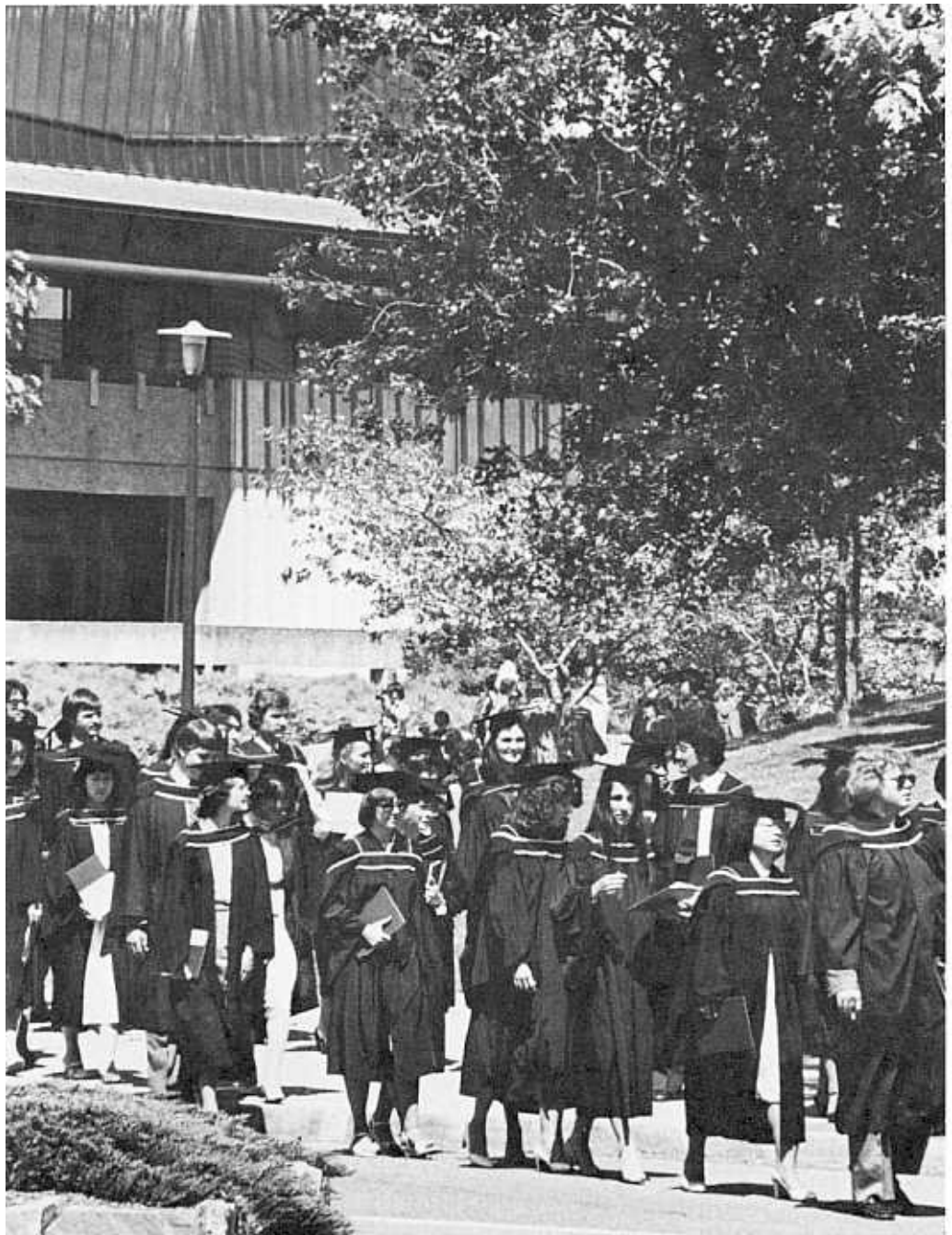
Congregation

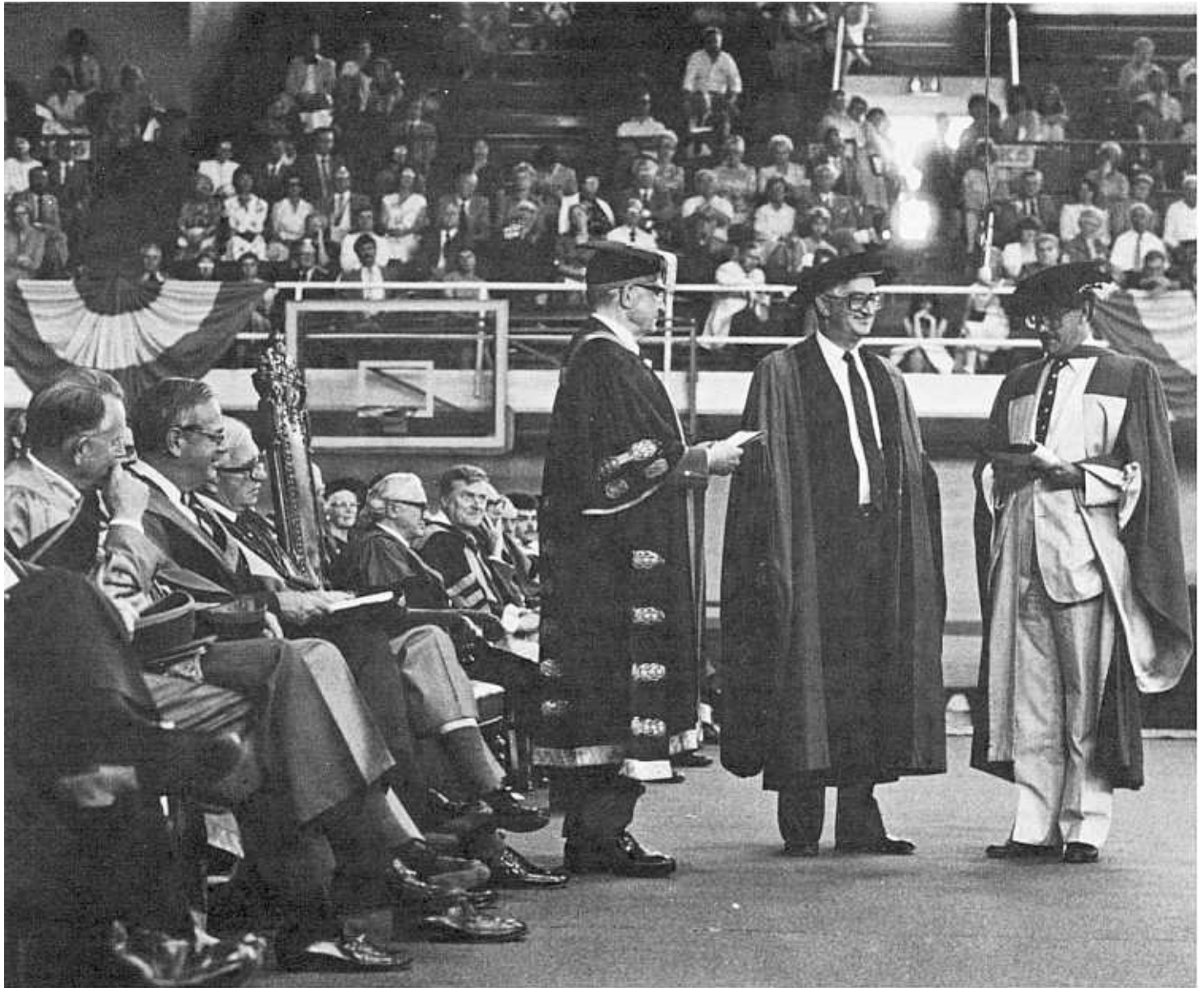
The University's annual Congregation for the conferring of academic and honorary degrees approved by the Senate was held on May 25, 26 and 27 in the War Memorial Gymnasium.

In the 1982-83 academic year, the University awarded a total of 4,589 academic degrees, 956 in the fall of 1982 and 3,633 in the spring of 1983. In addition, six honorary degrees were approved by Senate.

On the first day of the ceremony, the degree of Doctor of Letters was conferred on Robertson Davies, who is a distinguished journalist, author and educator. The same day, the honorary degree of Doctor of Laws was conferred on Professor Emeritus of Classics Malcolm McGregor, a well-known UBC personality whose activities as a teacher, scholar and administrator made him a familiar campus figure for four decades.

UBC awarded 4,589 academic degrees and six honorary degrees in 1982-83.





On May 26, honorary Doctor of Laws degrees were conferred on Mrs. Annie Margaret Angus for her long involvement in community and University affairs, on Mr. George Manuel, one of the pioneering figures in the North American Indian movement, and on Dr. John B. Warren, a long-time member of the UBC faculty who is regarded as the father of nuclear physics research in Western Canada. A moving moment during the ceremony occurred when Mr. Manuel's son, George Jr., came to the platform to receive the hood and diploma for the honorary degree which had been conferred on his father, who was unable to attend the ceremony because of illness.

I wish to take this opportunity to thank the Senate of the University for awarding me the honorary degree of Doctor of Laws on May 27, the final day of the 1983 Congregation.

One of the highlights of the Congregation ceremony is the opportunity to congratulate the

outstanding students who each year head their respective graduating classes. Those who received honors in the spring of 1983 are listed below. I know the University community joins me in congratulating them on their achievements.

Association of Professional Engineers Proficiency Award, \$500 (most outstanding record in the graduating class of Applied Science, B.A.Sc. degree): Gane Ka-Shu Wong.

Helen L. Balfour Prize, \$650 (Head of the Graduating Class in Nursing, B.S.N. degree): Linda Joyce Wilson.

British Columbia Recreation Association, Professional Development Branch Prize (Head of the Graduating Class in Recreation, B.R.E. degree): Richard William Crone.

Dr. Maxwell A. Cameron Memorial Medal and Prize (Head of the Graduating Class in Education, Elementary Teaching field, B.Ed. degree): Heather Anne Clark.

Dr. Maxwell A. Cameron Memorial Medal and

Prof. Michael Shaw, right, reads the citation for the honorary degree to be conferred on Douglas T. Kenny, who stepped down as UBC's seventh president on June 30, 1983. The degree was conferred by Chancellor J.V. Clyne, left.

Prize (Head of the Graduating Class in Education, Secondary Teaching field, B.Ed. degree): Sebastian Coelho Ribeiro.

Ruth Cameron Medal for Librarianship (Head of the Graduating Class in Librarianship, M.L.S. degree): Cynthia Aileen John.

College of Dental Surgeons of British Columbia Gold Medal (Head of the Graduating Class in Dentistry, D.M.D. degree): Patricia Ann Hunter.

College of Dental Surgeons of British Columbia Gold Medal in Dental Hygiene (leading student in the Dental Hygiene Program): Karen Gwen Henderson.

Dr. Brock Fahrni Prize (Head of the Graduating Class in Rehabilitation Medicine, B.S.R. degree): Kathryn Heather Thom.

Governor-General's Gold Medal (Head of the Graduating Classes in the Faculties of Arts and Science, B.A. and B.Sc. degrees): Edmond Dean Chow (Faculty of Science).

Hamber Medal (Head of the Graduating Class in Medicine, M.D. degree, best cumulative record in all years of course): Nicholas John Carr.

Horner Prize and Medal for Pharmaceutical Sciences, \$200 (Head of the Graduating Class in Pharmaceutical Sciences, B.Sc. Pharm. degree): Stephanie Soon.

Kiwanis Club Medal (Head of the Graduating Class in Commerce and Business Administration, B.Comm. degree): Carolyn Jane Clark.

Law Society Gold Medal and Prize (call and admission fee) (Head of the Graduating Class in

Law, LL.B. degree): Angela Elizabeth Thiele.

H.R. MacMillan Prize in Forestry, \$300 (Head of the Graduating Class in Forestry, B.S.F. degree): Barbara Jane Hawkins.

Physical Education and Recreation Faculty Prize in Physical Education, \$100 (Head of the Graduating Class in Physical Education, B.P.E. degree): Charles Herbert Curtis.

Royal Architectural Institute of Canada Medal (graduating student with the highest standing in the School of Architecture): Russell Boyd Meiklejohn.

Wilfrid Sadler Memorial Gold Medal (Head of the Graduating Class in Agricultural Sciences, B.Sc. (Agr.) degree): Beena Maria Makhijani.

Special University Prize, \$200 (Head of the Graduating Class in Special Education, B.Ed. degree): Linda Joan Emigh.

Special University Prize, \$200 (Head of the Graduating Class in Fine Arts, B.F.A. degree): Theodore John Bergen.

Special University Prize, \$200 (Head of the Graduating Class in Home Economics, B.H.E. degree): Wendy Bartholomew.

Special University Prize, \$200 (Head of the Graduating Class in Licentiate in Accounting): Earl Brock Bykeman.

Special University Prize, \$200 (Head of the Graduating Class in Music, B.Mus. degree): Islay-May Audrey Gordon.

University Medal for Arts and Science (proficiency in the graduating classes in the Faculties of Arts and Science, B.A. and B.Sc. degrees): Iain David Arthy. (Faculty of Arts).



Touching moment during UBC's 1983 Congregation ceremony was the acceptance by seven-year-old George Manuel, Jr., of the honorary Doctor of Laws degree conferred on his father, a leading spokesman on behalf of native Indians for more than 40 years, who was unable to attend the ceremony because of illness. President Douglas Kenny escorts the young Manuel off the platform following the conferring of the degree by Chancellor J. V. Clyne.

Deaths

It is with deep regret that I record the names of active and retired members of the UBC faculty who died during the 1982-83 academic year. Active members of the faculty who died were:

Prof. Stuart D. Cavers, a UBC graduate and member of the Department of Chemical Engineering in the Faculty of Applied Science since 1955, on May 27, 1983;

Mr. Jack Douglas, a senior instructor in the Department of Electrical Engineering since 1963, on Dec. 19, 1982;

Mr. Robert E. Mills, a lecturer in the Faculty of Forestry since 1980, on July 25, 1983;

Mr. John O. Piercey, the University's associate registrar, on Oct. 31, 1982;

Gerald N. "Gerry" Savory, director of Public Affairs Programs in the Centre for Continuing Education and a member of the centre's staff since 1964, on Oct. 6, 1982.

Retired members of the faculty who died were:

Dr. John Dean, who was associated with the Department of Paediatrics of the Faculty of Medicine on a part- and full-time basis from 1956 until his retirement on June 30, 1983, on July 22, 1983;

Professor Emeritus of Civil Engineering Sybren H. de Jong, who carried out much of the original mapping of the Canadian Northwest Territories and a UBC faculty member from 1945 until 1975, in March, 1983;

Professor Emeritus H.M. "Harry" King, who

began his association with UBC as a member of the Faculty of Agricultural Sciences in 1918 and who pioneered UBC extension services to the agricultural community during an academic and teaching career that spanned 36 years until his retirement in 1954, on Jan. 5, 1983;

Professor Emeritus of Biology and Botany T.M.C. "Tommy" Taylor, a 1926 graduate of UBC who returned to his alma mater in 1946 and was later named head of the Department of Biology and Botany, a post he held until 1963, on Aug. 6, 1983; and

Dean Emeritus of Commerce and Business Administration Earle Douglas MacPhee, who joined the UBC faculty in 1950 after a successful teaching and business career in Canada and England and later became the first dean of Commerce and Business Administration, on Sept. 25, 1982.

It is with deep personal sorrow that I record the death on Dec. 8, 1982, of Dr. Allan M. McGavin, chancellor of the University from 1969 to 1972 and a member of the Board of Governors from 1966 until 1974. Dr. McGavin was co-chairman of the 3-Universities Capital Fund, which raised \$21 million for capital construction at the three public universities and remain closely associated with UBC following his retirement from the Board as a member of the Health Sciences Centre Management Committee. He was a loyal supporter of the University and will be greatly missed.