The first regular meeting of the Senate of the University of British Columbia for the Session 1962-63 was held on Wednesday, September 5, 1962, at 8:00 p.m., in the Board and Senate Room, Administration Building.

Present: President J.B. Macdonald (in the Chair), Rev. J. Blewett, Mrs. T. R. Boggs, Mr. F. L. Burnham, Dean S.N.F. Chant, Dr. I. McT. Cowan, Dean G. F. Curtis, Mr. A. P. Dawe, Dean B. A. Eagles, Dr. G. R. Elliott, Mr. C. A. Emery, Dean W. H. Gage, Rev. E. Garvey, Dr. W. C. Gibson, Mr. C. C. Gourlay, Mr. W. E. Ireland, Dr. J.E.A. Kania, Mr. J. S. Keate, Dr. J. L. Keays, Mr. F. M. Knapp, Dean S. W. Leung, Mr. S. L. Lipson, Dean H. McCrae, Dean J. F. McCreary, Dr. J. R. McIntosh, Dr. A. D. McKenzie, Dean A. W. Matthews, Mr. D. F. Miller, Mr. F. A. Morrison, Dean D. M. Myers, Mr. N. T. Nemetz, Mr. E. P. Nicol, Mr. H. N. Parrott, Dean G. N. Perry, Dr. W. N. Sage, Dean N. V. Scarfe, Dr. R. F. Sharp, Dean F. H. Soward, Dr. G. M. Volkoff, Mr. A. A. Webster, Dean T. G. Wright, Dr. S. H. Zbarsky, Mr. J. F. McLean and Dr. J. Ranz.

Messages of regret for their inability to be present were received from Mrs. H. F. Angus, Mr. W. M. Armstrong, Dr. J. C. Berry, Mr. K. P. Caple, Mr. A.W.R. Carrothers, Mr. M. Collins, Dr. W. H. Hickman, Dr. R. D. James, Mr. L. J. Ladner, Dr. H. McLennan, Dean E. D. MacPhee, Dr. A. J. Renney, Mr. J. V. Rogers, The Honourable Mr. Justice D. R. Verchere, Dr. R. W. Wellwood and Mr. H. C. Wilkinson.

Welcome to New Members

President Macdonald introduced Dr. S. W. Leung, Dean of the new Faculty of Dentistry, and Mr. D. F. Miller, one of the representatives of the Board of Management of the Alumni Association, who were in attendance for the first time.

On behalf of Senate, he extended a welcome also to Dr. F. Noakes, who was to participate in presenting one item on the agenda.

Minutes of the Previous Meetings

Dr. Kania)
Dean Gage) That the minutes of the fifth regular meeting of Senate for the Session 1961-62, and of the special meeting held on August 8, 1962, having been circulated, be taken as read and adopted.

Carried.

Annual Financial Report of the University

A copy of the financial report of the University for the year April 1, 1961 to March 31, 1962, had been deposited with the Secretary to Senate following its approval by the Board of Governors, and might be examined at any time by members of Senate.

Appointment of Senate Committees, and Senate representatives on University committees

Dean Curtis)
Mr. Gourlay) That the Chairman of Senate, in consultation with the Registrar, the Deans and other appropriate members of Senate, be authorized

to select the members of Senate committees, and Senate representatives on University committees, for the Session 1962-63, and to report to Senate.

Carried.

From the Board of Governors

Approval of Recommendations of Senate

New Course

The Board of Governors, at its meeting on May 30, 1962, had approved the new course Political Science 304 as recommended by Senate, on the understanding that the cost of adding it to the present curriculum would be covered by a special grant to the University.

Offering of Credit Courses at Prince George, 1962-63

Also on May 30, 1962, the Board of Governors had approved the offering of credit courses in Prince George by a Resident Instructor during 1962-63. The Board had appointed Mr. Gordon Elliott, who would give the courses English 200, English 300 and History 313.

Grant Offered by British Columbia Teachers' Federation

The Board of Governors, at its meeting on June 26, 1962, had accepted, subject to approval of Senate, a grant of $10,000.00 offered by the British Columbia Teachers' Federation to enable an appropriate member of the Faculty and College of Education to undertake research during 1962-63 into "those aspects of teacher education which concern the

content of professional knowledge which every teacher should acquire". The Federation had stated that the staff member undertaking the project would be entirely free to pursue the research as he deemed best.

Dean Scarfe stated that the proposed study had been discussed in detail by members of his Faculty and the Federation. Arrangements could be made within the Faculty for Dr. C. E. Smith to be released from some of his teaching duties in order to co-ordinate the study.

Dean Scarfe)
Mr. Parrott) That the Senate approve the study suggested by the British Columbia Teachers' Federation, to be financed by the Federation.

Carried.

From the Faculties and Schools

Recommendations that Certain Students be Required to Withdraw

A list was circulated at the meeting of students required to withdraw for at least a year from the Faculties in which they had been registered in 1961-62, on the basis of their academic standing and Calendar regulations approved by Senate for the respective Faculties.

Dean McCreary asked that two names be deleted from the list for First Year Medicine and one name added to the list for Second Year Medicine, following review of their cases by the Faculty of Medicine.

Dean Matthews asked that one name be deleted from the list for the Faculty of Pharmacy, and the student in question permitted to repeat his year.

Dean Gage)
Dean Eagles) That, subject to the amendments indicated, the students as recommended by their Faculties be required to withdraw from that Faculty for 1962-63.

Carried.

Authorization of Faculties To Require Students to Withdraw in Accordance with Calendar Regulations

The present Calendar regulations stated that students might, upon the recommendation of their Faculty, be required by Senate to withdraw from the Faculty on specified conditions with respect to academic standing. The President suggested that in routine cases, the authority to require students to withdraw should be delegated to the individual Faculties.

Dean Scarfe)
Dean McCreary) That Senate empower the various Faculties to require students to withdraw for unsatisfactory academic standing, as set forth in the Calendar regulations for each Faculty.

Carried.

The President stated that a recommendation would be submitted to Senate, along with Calendar changes for 1963-64, that the general statement with respect to withdrawals ("The Senate of the University may require a student to withdraw from the University at any time for unsatisfactory conduct, for failure to abide by regulations, or for unsatisfactory progress in his programme of studies or training") be expanded to include "or for any other reason which is deemed to show that withdrawal is in the interests of the student and/or the University".

Proposed Agreement between The University and the Institute of Chartered Accountants

For some time the Faculty of Commerce and Business Administration had been responsible for the first three years of a five-year programme of professional instruction designed to meet the academic requirements for the certificate of the Institute of Chartered Accountants of British Columbia. An outline of a proposal to extend the Faculty's responsibility to cover the full five years had been circulated.

Dean Perry stated that the Institute would provide funds to permit the appointment of Part-time Lecturers for 1962-63, and possibly for 1963-64 if members of the Faculty were still on leave to instruct at the University of Malaya. He hoped that by 1970, the Institute would require all its candidates to have a University degree, obviating the necessity for special evening instruction.

Without formal motion, since the proposal was merely an extension of a programme already approved, the Senate endorsed the offering by the Faculty of Commerce and Business Administration of the entire academic programme for the certificate of the Institute.

Reports of Committees

Prizes, Scholarships and Bursaries

Awards to Students

Copies of Lists Nos. 2 and 3, of awards based primarily on standing in the 1961-62 Session, were

circulated at the meeting.

Dean Gage)
Dean Soward) That students named on Lists Nos. 2 and 3 be granted the awards indicated.

Carried.

Postponement of Awards

Three students had requested postponement for one year of awards made to them at the conclusion of the 1961-62 Session, for illness or other circumstances approved by the Committee.

Dean Gage)
Mr. Knapp) That these students be granted postponement to 1963-64 of their awards.

Carried.

New Awards and Changes in Awards

A list of titles of new awards offered to the University since the previous meeting of Senate, and changes requested in established awards, had been circulated. Dean Gage recommended acceptance of these awards, on the understanding that details would be included in the minutes.

Dean Gage)
Dean Soward) That these new awards and changes in awards be accepted, subject to approval of the Board of Governors where that has not already been given, and that suitable letters of appreciation be sent to the donors.

Carried.

AWARDS APPROVED BY THE BOARD OF GOVERNORS

The Charlie Kent Scholarship

A scholarship of $100.00, the gift of Mr. Charlie Kent of Aero Garments Limited, through the Chinese Overseas Students Association, is offered in

competition to Chinese students born in Canada or from overseas who have completed at least one year at the University of British Columbia. The award will be made on the basis of academic standing to a student proceeding to a degree in any field. In deciding between candidates of equal merit, financial circumstances may be a deciding factor.

The Bick R. Lee Scholarship in Engineering

A scholarship of $100.00, the gift of Mr. Bick R. Lee of Foo Hung Company Ltd., through the Chinese Overseas Students Association, is offered in competition to Chinese students born in Canada or from overseas who have completed at least one year at the University of British Columbia. The award will be made on the basis of academic standing to a student proceeding to a degree in Engineering. In deciding between candidates of equal merit financial circumstances may be a deciding factor.

The Friends of Chamber Music Scholarship

A scholarship of $50.00, gift of the Friends of Chamber Music, is offered to a student proceeding to a degree in Music. The award will be made to a promising student for performance and study of one of the orchestral instruments.

The N.A.M. MacKenzie Alumni Scholarship in Physical Education

A scholarship of $150.00, established in honour of Dr. N.A.M. MacKenzie, is offered through the U.B.C. Alumni Annual Giving Programme. It will be awarded to a student completing the Final Year of the B.P.E. programme who is proceeding either to the Teacher Training Course for Graduates or to a Master's degree at this University in the field of Physical Education. The winner will be selected on the basis of sound academic standing, demonstrated ability and high proficiency in activity courses, and participation and leadership in community activities in the field of physical education.

Vancouver Fire Fighters' Union Local No. 18 Bursary

A bursary of $200.00, gift of the Vancouver Fire Fighters' Union Local No. 18, provides a bursary

for a student beginning or continuing studies at the University. The award will be made to a physically handicapped student who needs financial assistance and is worthy and deserving of support.

The Poultry Industries Fund

This fund, established by the Trustees of the Poultry Blood Testing Fund, provides an annual bursary, ranging from $100.00 to $250.00, depending upon the financial circumstances of the recipient. It will be awarded, on the recommendation of the Chairman of the Department of Poultry Science, to a student, graduate or undergraduate, who has a good academic record, shows promise in the field of poultry science, and needs financial assistance.

The David E. Little Memorial Scholarship

This scholarship of $100.00, a memorial to David Edmund Little, B.Sc., M.A., whose graduate work in Physics was taken at the University of British Columbia, is offered annually by his wife. It will be awarded to a student graduating in Physics and continuing to a Master's degree in that field at the University. The award will be made to a student on the basis of academic proficiency and promise in research.

Westminster County Real Estate Board Scholarship

A scholarship of $250.00 annually, the gift of the Westminster County Real Estate Board, is offered to a student in Commerce and Business Administration who is taking the Estate Management programme, has high academic standing and is deserving of assistance to further his education. The award will be made on the recommendation of the Faculty.

The Amy Woodland Scholarships

One or more scholarships of at least $100.00 each have been provided by a bequest from the late Archibald Raworth. They will be awarded annually to students who are academically worthy and deserving and who are beginning or continuing studies at the University of British Columbia. In so far as is practicable, the awards will be made to students who have for at least two years during school studies, attended the Amy Woodland School or the Central School at

Cranbrook, B. C. Consideration will be given by the University to students recommended by the Board of School Trustees of School District No. 2, Cranbrook, B. C.

The Archibald Raworth Scholarships

One or more scholarships of at least $100.00 each have been provided by a bequest from the late Archibald Raworth. The scholarships will be awarded annually to academically worthy and deserving students beginning or continuing studies at the University of British Columbia. In so far as is practicable, the awards will be made to students who have for at least two years of school studies, attended a school in Cranbrook, B. C. Consideration will be given to candidates recommended by the Board of School Trustees of School District No. 2, Cranbrook, B. C.

The Pharmaceutical Association of the Province of British Columbia Entrance Bursary

A bursary of $100.00, the gift of the Pharmaceutical Association of the Province of British Columbia, will be available annually to a student entering the First Year of the Pharmacy course, who has good scholastic standing and is in need of financial assistance.

The Pharmaceutical Association of the Province of British Columbia Scholarship

A scholarship of $250.00, the gift of the Pharmaceutical Association of the Province of British Columbia, will be awarded annually to the student obtaining the highest standing in the examinations of Third Year Pharmacy and proceeding to the Fourth Year.

The Guenther Felix Sanders Scholarships

These scholarships, provided by the income on a bequest from the late Guenther Felix Sanders, are available to students at the University of British Columbia, with preference being given to those who are honouring or majoring in Mathematics or Applied Science and who are also the sons or daughters of members of the Knights of Pythias residing in British Columbia. In the event that suitably qualified students from the preferred group are unavailable, other

students may be considered. Students must apply by May 15th on the appropriate scholarship form obtainable from the Dean of Inter-Faculty Affairs, University of British Columbia. Basis of selection will be academic standing, but financial need may be a factor. Awards will be made on the recommendation of the University, in consultation with the Royal Lodge No. 6, Knights of Pythias, to the Trustees, whose approval is necessary and who are empowered to determine from time to time the amounts and conditions of these awards.

Prince George and District Dental Society Bursary (to be included among "Awards made by other Institutions")

The Prince George and District Dental Society offers a bursary of $200.00 to a graduate of the Prince George High School, who has begun his first year of training in an accredited dental school. Application may be made to the Prince George and District Dental Society and the recipient of this bursary will be judged primarily on his or her financial need and scholastic standing.

The Vancouver Island Recreation Scholarship

A scholarship of $150.00, the gift of the Vancouver Island Council of the British Columbia Recreation Association, will be awarded to a student in the degree programme in Recreation at the University. The scholarship is financed by participation of Vancouver Island Recreation Commissions. The award will be made on the basis of academic standing, leadership qualities, activity in student affairs, participation in Community activities, personal qualities, and financial need. To be eligible a candidate must have an overall average of at least 65% in the final written examinations conducted in June by the Department of Education, or for students in the University, in the final sessional examinations. The scholarship will be awarded to a student in the First Year from Vancouver Island. If there is no suitably qualified candidate in this category, preference will be given to a Vancouver Island candidate in the Second, Third, or Fourth Year in that order, and then to a First Year student from some other area of the Province. Applicants must apply by letter, to be received by Dean Walter H. Gage, University of British Columbia, Vancouver 8, B. C., not later than August 31st.*

(*After 1962 the date for submitting applications will be May 1st.)

The letter must contain full details covering the factors on which the award is based.

(Applicants will be screened by Professor R. Osborne, and Dr. R. L. Ramsay, University of British Columbia, or their successors. Final selection will be submitted to Vancouver Island Council Scholarship Committee. Award will be made by cheque payable to the University of British Columbia, and issued directly through the University. The name of the winner will be included in the official lists of the University of British Columbia.)

The Canadian Society of Exploration Geophysicists Scholarship in Education (revised Calendar statement)

The Canadian Society of Exploration Geophysicists Scholarship in Education of $350.00 is offered annually to a male student entering the fourth or fifth year of the five year course in Education, Secondary teaching field, with a major or honours in Mathematics or the Physical Sciences, or entering the teacher training course for Secondary teaching after attaining a Bachelor's degree in Mathematics or the Physical Sciences.

B. C. Electric Veterans' Association Bursaries - change of title to B. C. Hydro Veterans' Association Bursaries

University Women's Club of White Rock Bursary - increase in value from $100.00 to $200.00 annually

Vancouver Secondary Women Teachers Association Scholarship Fund - change of title to Marion Langridge Scholarship Fund

P.E.O. Sisterhood Chapter A.M. Bursary - change of title to Chapter A.M. Memorial Bursary

The Victoria Home Economics and Dietetics Association Bursary - increase in value from $100.00 to $150.00

AWARDS NOT YET SUBMITTED TO THE BOARD OF GOVERNORS

Chadwick, Potts & Company Scholarship

A scholarship of $100.00, the gift of Chadwick, Potts & Company, Chartered Accountants, is awarded annually to the student in the combined programme for C.A. and degree of B.Com. who obtains the highest general academic standing in the nine units of University subjects for the year.

The Jack Aron Memorial Bursary

A bursary of $50.00, given by Mrs. Jack Aron as a memorial to her husband, is offered to undergraduates in the Faculty of Medicine. It will be awarded to a student with a good academic record who shows promise in the field of Medicine and has need of financial assistance.

For information of Senate, the Board of Governors had reported its approval of the Graduating Class of Agriculture Student Aid Fund, initiated by a donation from the Graduating Class of Agriculture 1962.

Honorary Degrees

For information of Senate, Dean Soward reported that Dr. Bissell had accepted the offer of an honorary degree at the forthcoming Congregation; Lord James of Rusholme and Sir Charles Dodds had declined with regret in view of prior commitments. In accordance with authorization at the previous meeting of Senate, the Committee had invited Sir Ronald Gould and Dr. Michael Lerner to receive honorary degrees on October 26th.

Professors Emeriti

Dr. Sage presented the following recommendations of the Committee on Professors Emeriti:

1. That emeritus status be granted as follows:

Dr. Alexander Hrennikoff	- Professor Emeritus of Civil Engineering
Dr. J. Gordon Andison	- Professor Emeritus of French
Mr. Hunter C. Lewis	- Professor Emeritus of English.

2. That Senate clarify the terms of reference of the Committee on Professors Emeriti, in particular make clear whether all recommendations to Senate for emeritus status should stem from this Committee, including deans, presidents and chancellors.

Dr. Sage)
Dr. Kania) That emeritus status be conferred upon Dr. Hrennikoff, Dr. Andison and Mr. Lewis as recommended, and that the Committee on Professors Emeriti be designated as the recommending body to Senate for emeritus status in all categories.

Carried.

Circulated Reports

The report of the Office of Personnel and Student Services for the period June 1, 1961 to May 31, 1962, and a report of the Director of Housing on Residence Activities in the Session 1961-62, had been circulated.

Dean Chant)
Dean Myers) That these reports be received, and that letters of appreciation be sent to the compilers.

Carried.

It was noted that these reports might be returned to the agenda at any time when related topics were under discussion.

Autumn Congregations

Members of Senate were reminded that Congregation ceremonies would be held on Thursday, October 25th for the installation of President Macdonald, and Friday, October 26th, for the conferring of degrees.

Health Centre for Children

Since Mr. Hyland had resigned from the Senate, it was necessary to appoint a representative to the Board of Directors of the Health Centre for Children to complete his term (to April, 1963).

Dean McCreary)
Dean Scarfe) That Mrs. Angus be asked to represent Senate on the Board of Directors of the Health Centre for Children for the balance of the current term.

Dean Gage)
Dr. Cowan) That nominations close.
Carried.

Mrs. Angus was declared the appointee of the Senate to the Board of the Health Centre.

The Impact of Science on Engineering Education

In introducing this topic, the President stated his belief that Senate should have an opportunity to debate important academic issues. To facilitate this, members of Senate were urged to give careful study to documents circulated prior to the meeting dealing with recommendations to be presented to Senate, in order to reduce to a minimum the time spent on discussion of routine business.

The President had asked Dean Myers and Dr. Noakes to speak on the impact of science on engineering education, as one of the significant topics in higher education.

Dean Myers suggested that the topic might have been modified to "the influence of science and engineering

on scientific and engineering education", since science and engineering had similar objectives although their methods differed. Those concerned with engineering education were faced with two rather basic problems in common with other educators: the increased pace of scientific and engineering discovery, which affected also the scientists; and the impossibility of proving whether the educational methods selected were right or wrong - a problem shared with all educators, since the methods were obsolete by the time long-term results proved their effectiveness.

Early in the 19th century, James Treadgold had defined engineering as the art of directing the great sources of power in nature for the use and convenience of man. The definition was still acceptable, despite man's far greater knowledge now of the sources of power in nature.

The earliest recorded ideas on engineering education were those of Vetruvius, architect in the time of the emperor Augustus. Many of his ideas were still accepted today - for instance, the inclusion of philosophy and music among the suitable subjects for an architect. For many centuries, military engineering was the only type studied. Within the past two centuries, civil, mechanical, electrical, and other forms of engineering had been developed. With more specialized knowledge, radial development had taken place within these branches of engineering, each new area tending to draw away from others. Students had followed specific courses of study for each separate branch.

In the past twentyfive years, new scientific discoveries had led to study of inter-disciplinary areas - between civil and electrical engineering, for instance, or between metallurgy and chemistry. Methods of training and education had been brought closer together.

Dean Myers felt specialized education would continue, however, since engineers would not be qualified to practise in either conventional or more modern fields unless they had studied some discipline in great depth, in addition to acquiring a certain amount of breadth.

With reference to the relation between science and engineering, Dr. Gordon Brown of the Massachusetts Institute of Technology had stated that an engineer's function was, first, to be a scientist, but second, to add economic value to his science. The engineer was concerned not with the reason things happen, but with making them happen. The engineer was now starting to enter the field of the biological sciences, and would probably shortly join the biologist, medical practitioner and physicist in the study of molecular biology.

Turning to the question of where engineering education should head in order to meet the challenges of the modern, rapid pace of material progress, Dean Myers stated it was no longer sufficient to train students to leave the University prepared to deal with the problems of current engineering; these students must be equipped to deal with the problems facing them fifteen or twenty years

later when they were in positions of responsibility. Mutual understanding among the engineer, the physicist and the chemist would be essential to deal with the inter-disciplinary areas where major advances were most likely to occur.

Those engaged in training engineers felt no marked changes could be made in engineering education, since it remained essential to have a foundation of science, a general education in the fundamentals of many branches of engineering, and a more specialized treatment of one particular area. However, in so far as possible, methods should be adapted to meet the needs of students with varying capabilities, and more flexibility should be introduced into the course, particularly in the early years. Postgraduate training, which had been increasing in recent years, should be developed even further. More basic science should be introduced into the courses of students who would enter scientific fields, but engineering subjects should be stressed for those students selecting the traditional fields of engineering.

Dr. Noakes reminded the Senate that a university was a community devoted first to learning, and second to education. The large sums raised by Faculty members at the University of British Columbia to support research projects were evidence of the prime importance placed on the learning aspect of university life. The education imparted to

undergraduate students would be determined in the main by the learning of those engaged in research.

Dr. Noakes felt the University should no longer differentiate between undergraduate and graduate programmes.

Dr. Keays commented on inadequate ability to communicate, which was often found in engineers and applied researchers - both with respect to disseminating knowledge and with respect to passing on knowledge to those charged with making decisions. He suggested also that the University should attempt to find a solution to obsolescence of knowledge among engineers and research workers, by developing a programme of refresher courses.

Dean Myers, in acknowledging the reference to the problem of communications, stated that there was as yet no reliable evidence that courses in the humanities were effective in improving the situation. The minimum requirements of an engineering course were so exacting that the student's ability to absorb other disciplines at the same time was very limited.

In answer to a query from Dr. Gibson on the percentage of students in engineering who were engaged in research, undergraduate or graduate, and the effect on industry of the establishment of graduate schools, Dr. Noakes stated that in Electrical Engineering at this University there were about 60 students in the final undergraduate year, 30 students in graduate work. In

general, it had been found that where there were strong graduate schools in an area, there was a development of secondary industry. If facilities for graduate study were not available in the community, a large number of students who should continue to further study did not do so. The universities of Canada were not producing enough people to staff the universities, or to staff government laboratories, even without regard to the needs of industry.

The President thanked Dean Myers and Dr. Noakes for initiating a most interesting and stimulating discussion.

Other Business

Parking Arrangements

An area immediately north of the Administration Building would be reserved for members of Senate to park their cars during Senate meetings.

Death of Dr. Steacie

Dean Soward referred to the recent death of Dr. E.W.R. Steacie, President of the National Research Council and holder of an honorary D.Sc. from the University of British Columbia.

Dean Soward)
Dr. Cowan) That a letter of sympathy be sent to Mrs. Steacie, expressing appreciation of the work of her late husband and regret at his death.

Carried.

The meeting adjourned at 10:10 p.m.

Secretary.

Chairman.