PROVINCE OF BRITISH COLUMBIA

Minister of Public Works

REPORT

FOR THE FISCAL YEAR

1959/60

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1961

To Major-General the Honourable GEORGE RANDOLPH PEARKES,
V.C., P.C., C.B., D.S.O., M.C.,
Lieutenant-Governor of the Province of British Columbia.

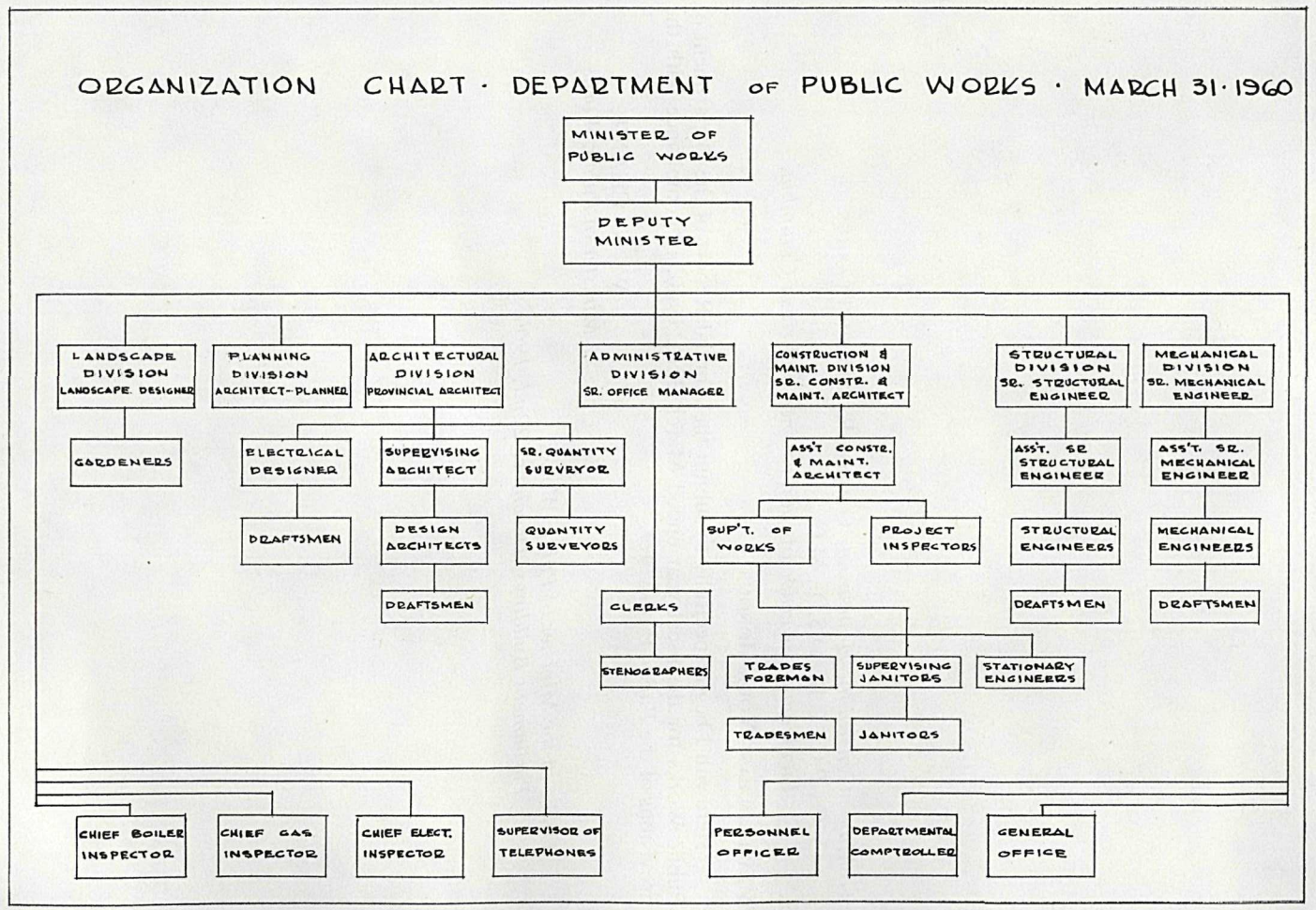
MAY IT PLEASE YOUR HONOUR:

Herewith I beg respectfully to submit the Annual Report of the Department of Public Works for the fiscal year ended March 31st, 1960, in compliance with the provisions of the *Public Works Act*.

W. N. CHANT,
Minister of Public Works.

Office of the Minister of Public Works,
Parliament Buildings, December 22nd, 1960.

ORGANIZATION CHART · DEPARTMENT OF PUBLIC WORKS · MARCH 31·1960



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(Perspective drawings on cover and page 11 done by J. C. S. Wilkinson, Department of Public Works.)

" What you cannot as you would achieve, you must perforce accomplish as you may."—*William Shakespeare, 1564–1616.*

The Honourable W. N. Chant,
Minister of Public Works,
Parliament Buildings, Victoria, B.C.

SIR,—*I have the honour to submit for your consideration the Annual Report for the fiscal year ended March 31st, 1960.*

In this Report will be found those of the heads of divisions. These set out in detail work accomplished and planned, tenders let and accepted, and Departmental accounts. My report to you will be confined to those objectives aimed at and presently pursued.

Foremost, attention has been given to securing the utmost value for public dollars expended, and I am gratified to report that substantial advances have been made. Full results can only be achieved by a combination of good administration and organization, complete planning, tight liaison between divisions, and full control over contractors and projects.

Space will not permit detailed explanation of the many measures taken to achieve the desired results. In brief, however, a simple but effective method of ascertaining total cost, including design, engineering, and supervision, has been put into effect. Staff meetings at which each project is examined and discussed have brought about much better planning before tender. This policy has resulted in a sharp decrease in " extras " to contracts, a great many of which can be eliminated by good design and planning. Strengthened field supervision by competent project inspectors has ensured that work carried out is of the highest standard and strictly according to specifications. Finally, each and every extra work order is fully scrutinized by myself personally, and a full explanation as to necessity and fair prices expected.

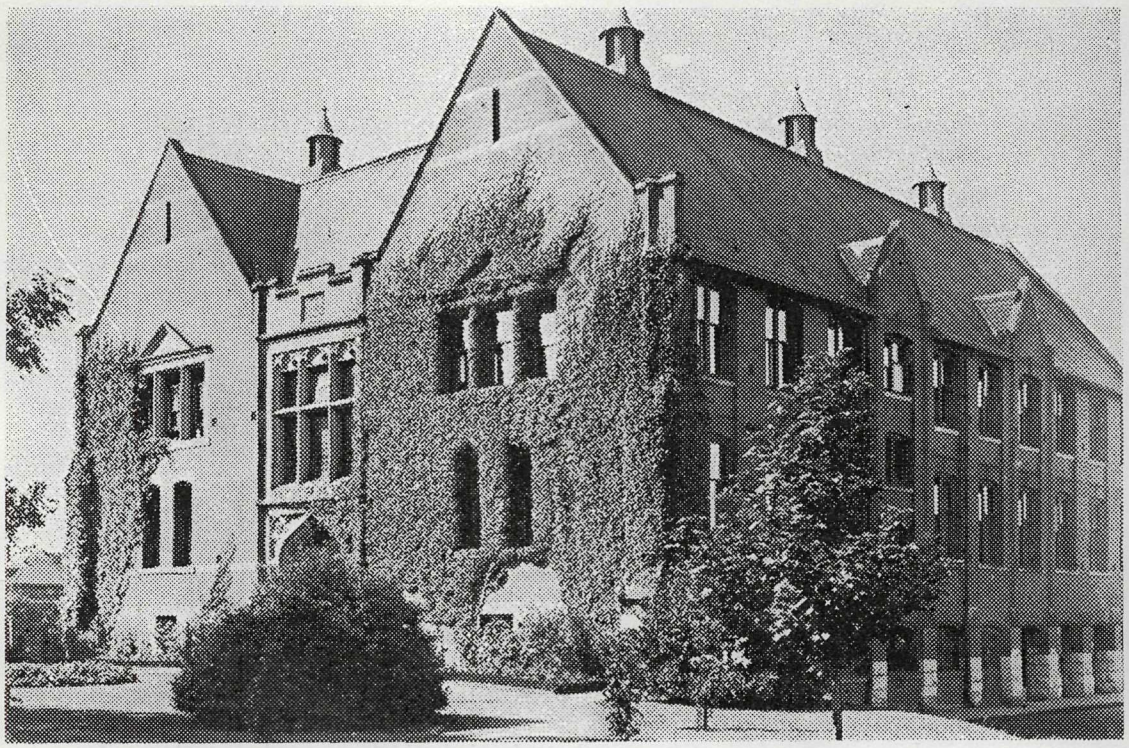
Extra building costs, which previously had been running to approximately 8 per cent of contract price, have now been halved. The full significance of this figure can only be grasped by remembering that it represents $40,000 on every million expended. Complete planning is essential. Not only does it eliminate needless costs, but it also secures better bids by reason of the fact that contractors can figure much more closely on complete plans.

The success of any policy depends upon personnel involved. Day-to-day attention to selection and effective use of man-power is regarded as of paramount importance in this Department. I am happy to report that morale and volume of work accomplished is rising.

The accelerated pace of modern living is bringing many changes in the field of construction. New materials and methods are being developed, all of which need careful and objective examination for their real worth. Almost all of them have strong appeal when first introduced, but, unfortunately, not all of them are satisfactory; in fact, some are worthless. On the other hand, some excellent innovations have appeared. This facet requires continuous concentration, and we are giving it such in an effort to keep abreast of worth-while ideas and developments.

In conclusion, Sir, it is our hope and our intention that this Department will set the standard of design, workmanship, and cost-control in the construction field. We have, I believe, the skill, ability, and " know-how " to achieve this end, and we will continue to work toward it.

A. E. WEBB,
Deputy Minister.



Victoria High School; East Building erected 1902, demolished 1953. Site of present Central Junior High School. Victoria College, 1903–08.

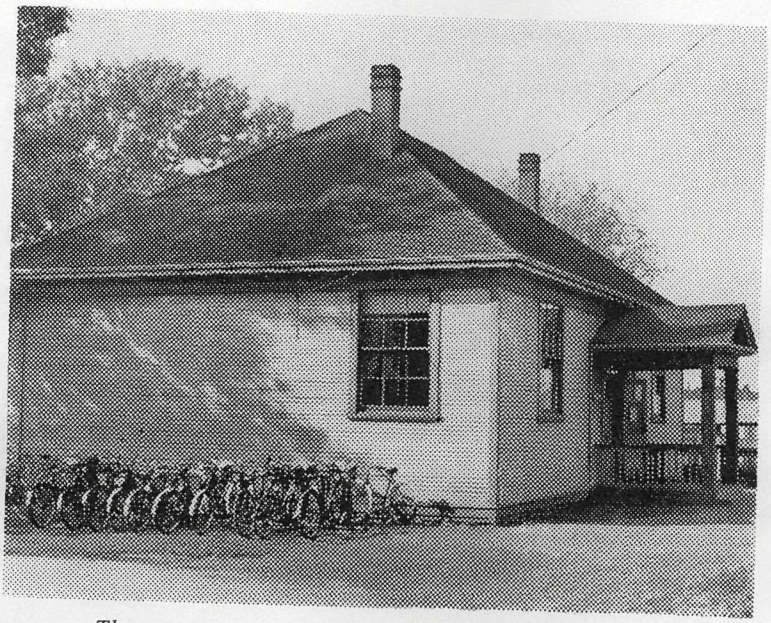
A SHORT HISTORY OF VICTORIA COLLEGE BUILDINGS

To those interested in higher education in this Province, it may be heartening to realize that only forty-five years after the Rev. R. J. Staines and his most competent wife opened their " teaching establishment " in the fort of Victoria, high schools of the Province were permitted, by Act of the Provincial Legislature in the year 1894, to affiliate with recognized Canadian universities in order to provide the first stages of higher education.

Eight years later, in 1902, Victoria High School applied for affiliation with McGill University, and in the fall of 1903 Victoria College opened as a separate institution to give the first year in arts and science under the ægis of McGill, thus laying claim to a bequest of $10,000 from the will of the Honourable B. W. Pearse, one of the conditions of payment calling for the college to be affiliated to an Eastern university. There were many persons at that time who would have wished incorporation under the title of " King's College," but it was deemed wiser to choose the name of this city.

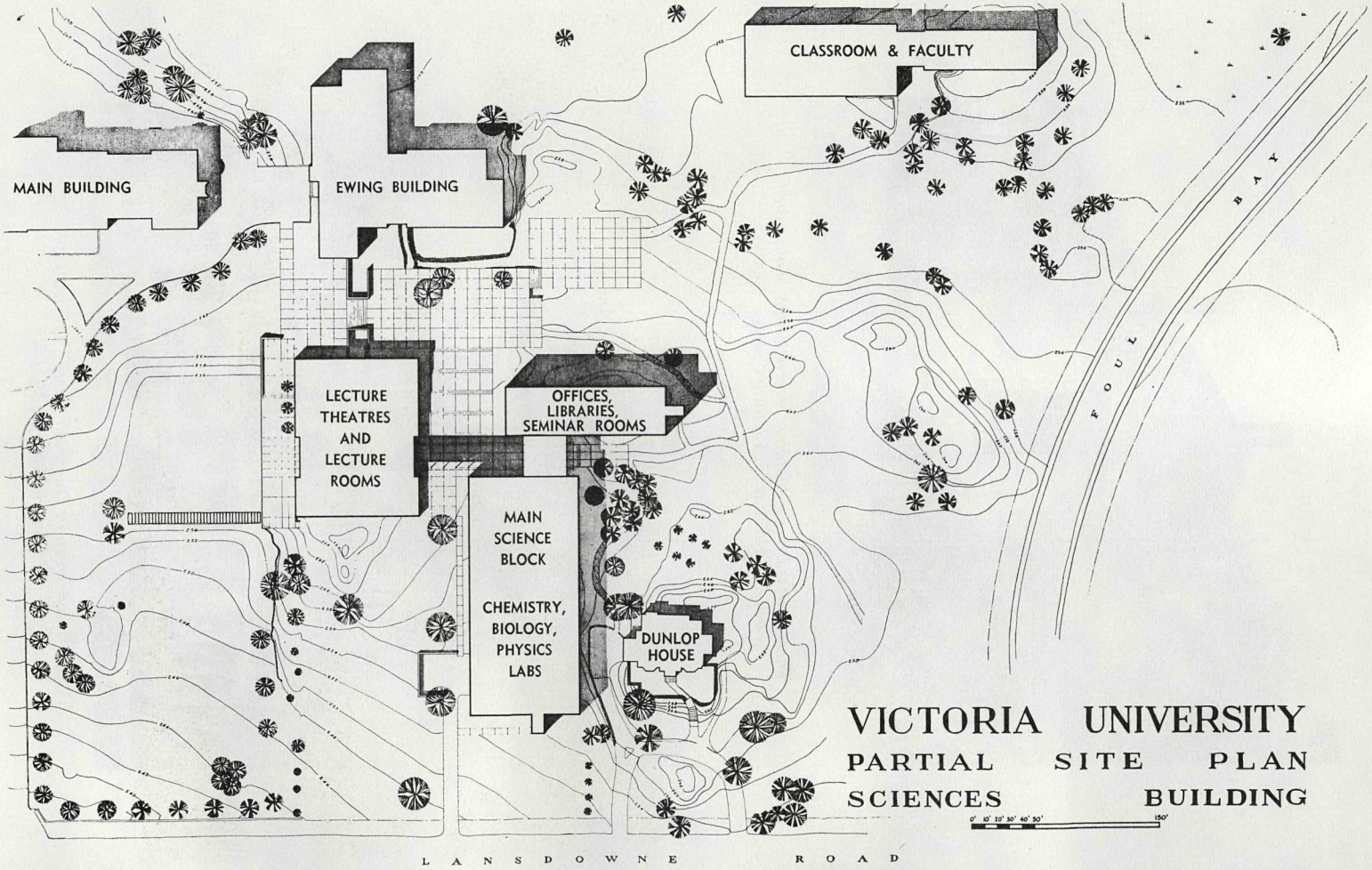
The architect for the building, which first housed college students, was F. M. Rattenbury; the cost was somewhat in excess of $40,000, the structure standing on the site now occupied by Central Junior High School. The principal of that time, E. B. Paul, M.A., described the building as " exceedingly pretty," and expressed the opinion that " when the ivy had grown over the walls and the glaring red of the bricks had been in a measure toned down, even those who now objected to its style would admit it highly artistic."

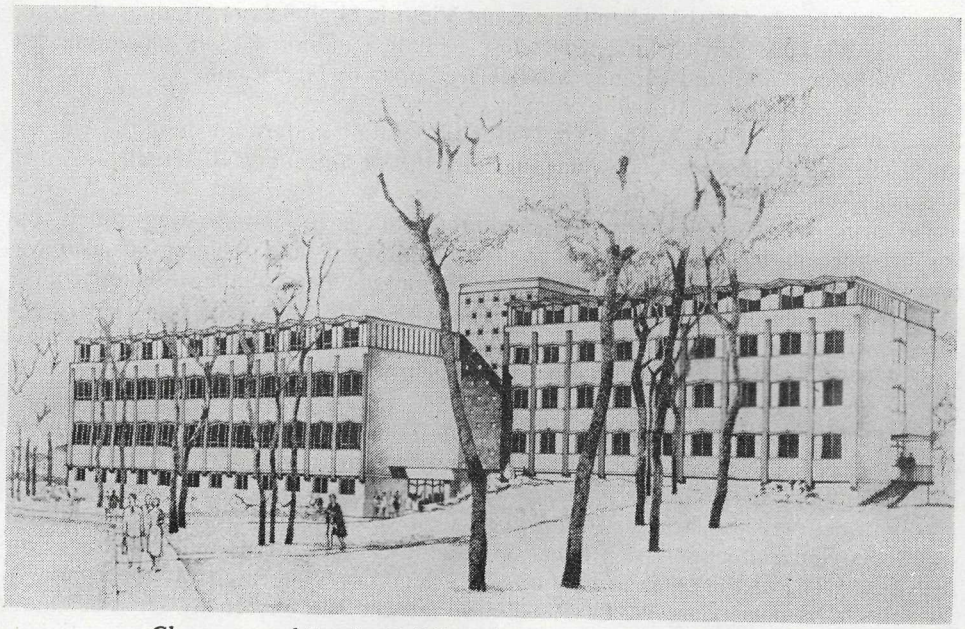
In 1907 the high school was crowded to full capacity, and the principal's office was used for the second year in arts. Accordingly, a separate frame building was constructed on the high-school grounds for college use.



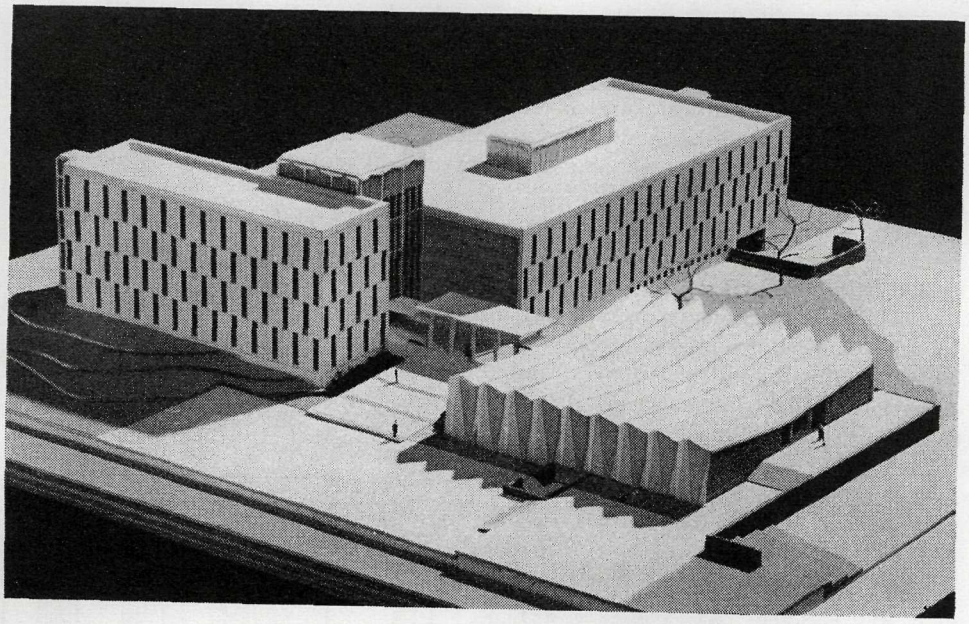
Three-roomed frame building; erected 1908, demolished during World War I. Victoria College, 1908–14.

Craigdarroch or Dunsmuir Castle; erected 1890. Victoria College, 1921–45.


CLASSROOM & FACULTY
MAIN BUILDING
EWING BUILDING
LECTURE THEATRES AND LECTURE ROOMS
OFFICES, LIBRARIES, SEMINAR ROOMS
MAIN SCIENCE BLOCK
CHEMISTRY, BIOLOGY, PHYSICS LABS
DUNLOP HOUSE
FOUL BAY
LANSDOWNE ROAD
VICTORIA UNIVERSITY
PARTIAL SITE PLAN
SCIENCES BUILDING
0' 10' 20' 30' 40' 50' 150'



Classroom and Faculty Building, showing four-story development.



Scale model of Sciences and Lecture Buildings.

Crowding became steadily worse as the years rolled by, but no changes took place until May 2nd, 1914, when the present Victoria High School building, designed by C. E. Watkins, and costing in all close to half a million dollars (including the price of the land and landscaping) was declared open by His Honour T. W. Paterson, Lieutenant-Governor of British Columbia.

But in 1908 an Act had been passed incorporating and establishing the University of British Columbia, and when in 1915 this institution was actually opened, Victoria College closed.

During the war the outcry for a separate college in Victoria was muted, but the struggle amongst the dedicated minority continued, and their enthusiasm was rewarded by the School Board reaffirming its endorsement of the affiliated college plan, and the appointment of Edward B. Paul, M.A., as principal.

For the first year of its rebirth the college held its classes again in the Victoria High School—on the third floor—an arrangement which benefited neither the college nor the high school.

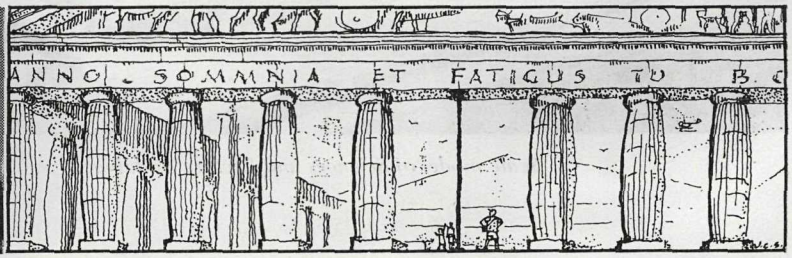
The following year, however, the School Trustees were able to rent Craigdarroch, formerly the residence of the Honourable Robert and Mrs. Dunsmuir, and here the college settled down to steady business for some twenty-five years.

Parallel with the struggle for Victoria College came a continuous pressure by successive Superintendents of Education for the creation of normal schools in the Province. The second such institution was opened in Victoria at Mount Tolmie in 1915, the architect being W. C. F. Gillam, and the site chosen by Dr. Alexander Robinson, Superintendent to the Honourable Dr. Henry Esson Young, then Minister of Education. Tuition and travelling expenses for the students were free until 1922.

Forty-five years ago the normal school was a building of considerable dimension, being 300 feet long and 73 feet in width. Built of red Nanaimo brick, which has weathered with the years, the sandstone, a headache to the Department for many years, was brought from Denman Island, while a Welsh quarry supplied the slate roofing material. Drainage and services proved an expensive item owing to the rocky nature of the site, and this also delayed the opening of the building. It is said that Dr. Robinson wanted the main driveway curved, but he did not get his own way in this as he did in bringing an abundance of topsoil from Oak Bay by horse and tumbril.

The normal school, after serving as a military hospital during World War II, entered a new phase when, in 1946, both student-teachers and college undergraduates shared its facilities.

The next stage came in 1956, when the normal school was incorporated into Victoria College as a part of the College of Education, which assumed the responsibility for the training of teachers, and this year has seen the granting of degree courses, with the graduation in 1961 of the first students of the University of Victoria, British Columbia.



J. C. S. Wilkinson,
Senior Draughtsman.

REPORT OF THE PERSONNEL OFFICER

In common with the policy followed over the past two years, this year's Report will introduce staff members of the Department of Public Works. Scattered throughout this Report will be found photographs of architects and draughtsmen of the Design Division, together with a small sample of artwork produced by them.

The modern concept of the personnel function emphasizes its role within an operating department rather than a control agency. Good personnel administration is a reality only to the extent that it is part of the everyday thought and action of line supervisors. The Personnel Office is primarily a staff service to the principal line officer, but it usually, of necessity, exercises some controls in his behalf over his subordinates in the organization. Its highest usefulness, however, is in facilitating effective personnel decisions by the operating line. The role of the Personnel Office is carried out through an overseeing of all functions that affect human relations, selection of personnel, and working terms and conditions. The following report describes part of the functions carried out by this office during the fiscal year 1959/60.

STATISTICS

Staff totals in the Department remained quite constant from the previous fiscal year. This was primarily due to:—

(*a*) The large design programme.
(*b*) Completion and staffing of new Government buildings.
(*c*) Increased emphasis being placed on maintenance of present Government buildings.
(*d*) Increased inspectional services.

APPOINTMENTS

Mr. A. C. D. Budd, formerly Foreman of Works, Vancouver, was selected for the position of Superintendent of Works, Victoria.

Mr. W. Tattrie, formerly carpenter, Vancouver, was selected for the position of Foreman of Works, Vancouver.

Mr. W. A. Fahlman, formerly electrician, Essondale, was selected for the position of Foreman Electrician, Essondale.

Mr. M. L. Murphy, of Kamloops, was selected for the position of Fire Chief at Tranquille.

ORGANIZATION

This year was spent planning for a major change in the Departmental organization which was approved and implemented April 1st, 1960. A full outline of this reorganization will be given in the report for the next fiscal year.

For the first time in the history of the Parliament Buildings, women cleaners were added to the janitorial staff. These new appointees were classified as " Cleaning Assistants " and work in co-operation with the male Building Service Workers. Their general duties are to undertake the lighter cleaning, with the males responsible for the heavier work.

The addition of females to an all-male staff was not accomplished without some problems arising; however, these problems have been resolved, and we are now assured that the standard of cleaning, work methods, and efficiency have improved considerably at the Buildings.

Female cleaners have also been added to the staff of the Kamloops Government buildings and Victoria College, and we feel a better standard of housekeeping has also resulted.

TRAINING

This year the first Superintendent of Works Workshop was held at Victoria, with all Superintendents of Works and their assistants attending. Each of the Superintendents acted as foreman for a certain section of the Workshop, with a division head leading the discussion. Several important decisions were reached, approved, and implemented with respect to maintenance, personnel administration, and financial control. This first Workshop proved to be an outstanding success and an invaluable aid to all headquarters divisions and field branches in the understanding and solving of each other's day-to-day work problems, as well as bringing out the fundamentals of good management.

Several officers of the Department are still attending the Provincial Government sponsored Executive Development Training Course, and their examination results have been excellent.

The need for a more practical training of supervisory personnel at the foreman level has been recognized for some years; however, not until quite recently was a suitable course discovered. This is the Leadership Training Conferences given under the auspices of the Department of Technical and Vocational Education in Vancouver. The programme covers such subjects as communications, instruction, employee attitudes, job safety, human relations, work simplifications, cost, and quality control. Several of the Department's Superintendents and Foremen have attended, and we are pleased to report that in most cases these employees have come away with a greater understanding of the responsibility of the " middle management group."

The Personnel Office would like to acknowledge with thanks the co-operation of the other Departmental divisions and the courteous help given by the Civil Service Commission and the Superannuation Branch.

OBJECTIVES

1. To promote and encourage the development and use of improved methods and higher standards in personnel administration.

2. To keep Departmental executives fully informed on, and to recommend, programmes of personnel administration for the purpose of bettering the conditions and relations of employees in their occupations and increasing the effectiveness of administration.

3. To provide a medium of information to employees concerning conditions of employment.

W. R. HENDERSON,
Personnel Officer.

REPORT OF THE PROVINCIAL ARCHITECT

Elsewhere in this Report are listed projects completed, work under construction, and contracts awarded during the fiscal year 1959/60.

This report deals specifically with aspects of the internal operation of the Architectural Division (capital projects) of this Department.

Staff was maintained at a slightly higher numerical level than in the preceding fiscal year due to Departmental reorganization and pressure of work. Two members of the Division were transferred to the Maintenance and Construction Division.

The loan on a full-time basis of a staff member to the Construction Division of the British Columbia Hospital Insurance Service has proved of considerable value to that Department in the field of hospital-design research. As an example of the work being carried out, a questionnaire may be mentioned which was distributed to a group of selected hospitals. This was designed to obtain detailed information on the functioning of nursing units and other specialized areas, with a view to producing certain criteria to improve substantially what had been considered in the past acceptable unit plans.

This work is now being evaluated prior to the preparation of a lengthy thesis. This will not be in essence a directive, but a constructive report of value in the planning of future hospitals, both by independent and Government architects.

Another service rendered by the Architectural Division lies in the checking of plans and specifications relating to senior citizens' homes. These plans are prepared by various firms of architects throughout the Province for the different societies and organizations who put up a proportion of the funds required, with the Provincial Government contributing one-third of the cost.

In most cases these projects work to a tight budget, and the senior citizens' homes are kept to minimum habitable standards. It is necessary, therefore, for this Department to check carefully to prevent standards falling below desirable limits.

The largest contract let during the fiscal year under review was for the total completion of the eight prefabricated steel workshops and classrooms comprising Phase One of the British Columbia Vocational School at Burnaby. This project, for slightly under 1 million dollars, was officially opened by the Honourable the Premier of British Columbia at an impressive ceremony on June 29th, 1960.

Two particularly significant projects were inaugurated during the fiscal year 1959/60 by the letting of primary contracts. The first, in November, 1959, was for the excavation required for the basement of the new Victoria Law Courts. To give an impression of the volume of rock excavation required, approximately 22,000 cubic yards, one could place no less than 163 motor-coaches of transcontinental size in the excavated space!

Two contracts were let in February and March, 1960, for elevators and basement work respectively for the Victoria Law Courts.

The second noteworthy project, marking a new era in Victoria's educational facilities, was started by the letting of the first contract for Victoria University. This preparatory contract was for the clearing and excavation necessary for the Classroom and Faculty Building now under construction.

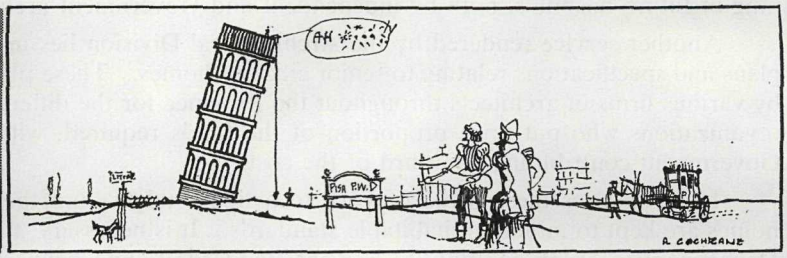
On March 30th, 1960, the sod-turning ceremony was held at Victoria University, at which time the Honourable the Minister of Public Works outlined in a speech the contemplated development of the university during the next five years.

Another important project, for which a contract was let in March, was the new Mission and District Government offices, required to meet the needs of the expanding economy of that area.

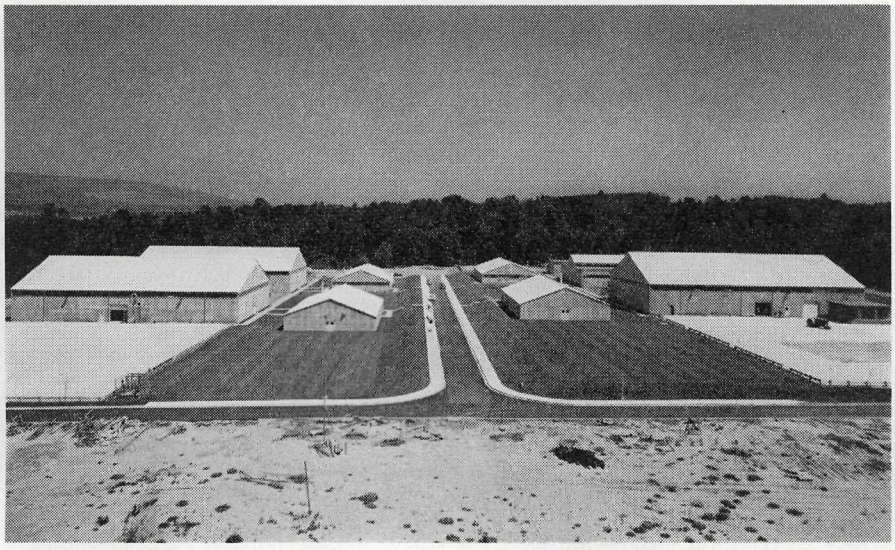
It might be appropriate here in mentioning the progressive efficiency of all members of the staff and at the same time one primary handicap. With the complexity of modern building techniques and the extremely frequent introduction of new materials, there is a great inadequacy in time for study and research with a numerically small staff. With the customary pressure to expedite a project to contract, an architect has little spare time in which to evaluate new products and to study new methods. The same applies to a great degree to the basic design of the building: the evolution of an æsthetically satisfying design can never be unduly hurried for there are no short cuts, and every new building has its own individual problems in the harmonious balance of function and appearance.

In order to assist in this problem there has been a comparatively recent trend in making scale models of buildings while yet in the design stage. The visual aid of a three-dimensional form cannot be overestimated in the field of design. One noteworthy model produced by a member of the staff was that of the new Victoria Law Courts, which, when displayed to the public, evoked considerable acclaim.

W. R. H. CURTIS, M.R.A.I.C., A.R.I.B.A., A.N.Z.I.A.,
Provincial Architect.



J. Andrew Cochrane,
Architect—Grade 2.



BRITISH COLUMBIA VOCATIONAL SCHOOL, BURNABY

The British Columbia Vocational School in Burnaby is located on Willingdon Avenue just south of Grandview Highway. It is administered by the Department of Education of British Columbia and is a joint project of the Provincial and Federal Governments.

On June 29th, 1960, following thirty-three months of intensive planning and construction, the school was officially opened by the Honourable W. A. C. Bennett, Premier of British Columbia. The first development consists of four large workshops for house-building; building trades, such as millwork, joinery, and boat-building; automotive engineering; and metal trades—welding and fabrication.

Contiguous with these workshops are four classrooms, one of which has been planned for temporary administrative purposes. At the present time, construction is under way on a large plumbing, steam-fitting, and sheet-metal workshop, and also a smaller electrical trades workshop. By the time these two buildings are completed there will be a gross total buildings area of 115,000 square feet, or well over 2¾ acres.

The present site on which this development is being carried out is approximately 22 acres, of which 12 acres are occupied by the buildings, which are separated widely enough to permit outdoor work to be carried on in fair weather. Available also for future expansion are 14 additional acres to the south.

Among buildings envisaged in the immediate future are an Aeronautics Workshop and the permanent Administration Building with cafeteria and ancillary facilities.

To date the complex of buildings has cost approximately 1½ million dollars, of which 50 per cent is recoverable from the Federal Government, with the exception of the sewage plant designed to serve jointly the near-by Girls' Industrial School and the Vocational School. In order to obtain the maximum economy in capital expenditure and erection time, all the buildings were constructed of prefabricated steel with concrete floor slabs and foundations, and with roof and wall cladding in asbestos-cement. When the extremely large workshop areas are considered in terms of heating, plumbing, ventilating, and the very extensive electrical services, the end figure of $13 per square foot justifies the practical economy of the selected construction methods.

The growing need for supplying young men entering the building and allied trades with comprehensive technical training would suggest that the demand for additional facilities will continue over the months ahead.

The Vocational School's motto well indicates the underlying philosophy—"Animo et Arte," freely interpreted as the " harnessing of the Provincial resources by brain-power and skill," and in this respect the Province stands second to none in vocational training.

—W. R. H. Curtis, M.R.A.I.C., A.R.I.B.A., A.N.Z.I.A., Provincial Architect.

REPORT OF THE CONSTRUCTION AND MAINTENANCE ARCHITECT

Economy in any maintenance department demands controls, measurement, isolating true maintenance charges, relating maintenance costs to total replacement cost of the building. It requires knowing what basic tools to use, and how to use them. Finally, reducing maintenance costs demands scientific organization of the Maintenance Division and integrating it with the function of other Government departments.

Renovations, remodelling, emergency and other repairs to buildings owned and leased by the Province was continued throughout the fiscal year 1959/60. In order to appreciate the scope of this Division's activities and the diversified nature of the buildings under its care, the main categories are quoted below:—

(1) Victoria College.
(2) Parliament Buildings, Victoria.
(3) Government House, Victoria.
(4) Forty-three Court-houses.
(5) Seven hospitals, clinics, and laboratories.
(6) Forty sundry buildings.
(7) Sixty-one residences.
(8) Twenty R.C.M.P. detachments.
(9) Various rented and leased premises.
(10) Twenty-five institutions (includes Essondale, Woodlands School, Terrace and Vernon Homes for the Aged, Tranquille, Kamloops, Oakalla Prison Farm, Haney Correctional Institution, and Prince George Gaol).

Although many of these are concentrated in large populated centres, this Division also has under its care buildings located as far north as Atlin, and throughout the remoter regions of the Province. This year, as in previous ones, a number of newly completed projects have been added to our care, and these entail further charges against funds available for maintenance purposes.

During the fiscal year, changes in the use and occupancy of accommodation, arising from implementation of new legislation and extension of services to the public, have caused remodelling or renovation to many of our buildings. This work has been instituted without detriment to the maintenance programme which provides for normal repair, redecoration, and making good the ravages of time and elements on a structure.

The Division continued in its consultant capacity to assess and advise on the suitability, or otherwise, of property to be acquired for specific Government purposes, prepared reports, and made recommendations on same. In this respect I would respectfully suggest property should not be acquired by other departments before this Department is consulted. Invariably heavy costs of conversion and adaptation have been encountered where no previous consultation was made prior to acquisition.

In response to requests from other departments for alterations or additions to their accommodation in buildings under the care of this Division, meetings and site inspection have been arranged in order to arrive at the best solution to their problems, and to determine the most efficient and economical manner in which to carry out the work.

In accordance with Government policy, all repairs, except for emergency work or maintenance carried out by this Division's staff, have been advertised and local contractors invited to bid. This procedure has entailed the preparation of over 100

specifications embracing many trades and all types of work, and has helped to ensure that all contractors bid on an equitable basis. Emphasis has been placed on letting contracts wherever possible to give winter employment.

This Division has concentrated on implementing recommendations contained in the Fire Marshal's reports on several of our larger institutional buildings. This work included the installation of sprinkler systems, fire and smoke stop doors, panic hardware, and fire-escapes. Attention has also been given, in co-operation with the Electrical Division, to the modernization of fire-alarm systems.

Inspections have been made of many of the older Government properties, and we anticipate further work to improve fire protection in those buildings.

Major projects planned, supervised, and constructed by this Division during this fiscal year include:—

(1) Addition to the Government Building at Terrace, which provided accommodation for a new County Court and associated facilities on the ground floor and offices above.

(2) Prince George Centennial Building—basement area was finished and subdivided to provide urgently needed office accommodation.

(3) Premises at Kitimat were remodelled to provide accommodation for departments operating in the area.

(4) Jericho Hill School was provided with a sprinkler system and new fire-mains, and this has ensured a greater measure of protection to the handicapped children who reside in this institution.

General maintenance and remodelling work have been continued in the Vancouver area, Essondale, Victoria, and Tranquille by the Superintendents of Works in these areas, and through their efforts and excellent co-operation a very high standard of workmanship has been maintained. Regular reports and more effective and quick communication have enabled information to be obtained and better liaison established. I would respectfully suggest that the density of buildings and property in the northern portion of this Province is rapidly approaching the stage where a Public Works representative will be required.

Throughout the year frequent conferences and active liaison were maintained with our Mechanical and Electrical Divisions, which ensured complete maintenance coverage of building services and the elimination of any dangerous conditions.

In conclusion, I would like to thank all Government Agents, District Engineers, and others, who have acted on our behalf in the Interior, for their splendid co-operation. This has materially assisted in the success of this past year's programme.

E. C. CLARKSON, M.R.A.I.C., A.I.A.A.,
Senior Construction and Maintenance Architect.

K. W. Brown,
Senior Technical
Draughtsman.

P. N. Cotton,
Architect—Grade 2.

Alf Glenne,
Architect—Grade 2.

THE EVOLUTION OF THE CHARTERED QUANTITY SURVEYOR

" The name of a Surveiour is a French name and is as moche to saye in Englysche as an Overseer. . . . It is necessary that every great estate should have a serveiour that can extende, but, and bounde, and value them. . . . He must know of Castels and other buyldynges, what the walls, the tymbre, the stone, the led, the slate, the tile and other of coverynges is worth, and by the yere, as well within the walles as withoute."
—Sir Anthony Fitzherbert, 1523.

A thirteenth-century Statute refers to " Les veors des overaignes de rey " (the surveyors of the king's works). In 1794 the first association of surveyors was founded by members mostly architects and surveyors.

Building surveyors, their professional descendants, were concerned with the structure, decoration, and sanitation of buildings. Some were architects, and some quantity surveyors. For a time " building and quantity surveyor " meant either, and often both. Increasing specialization gradually underlined the distinction between these two branches, and the Royal Institution of Chartered Surveyors was founded in 1868.

Previously each contractor had employed his own quantity surveyor; this was wasteful and added unnecessarily to building costs. In time the schedule of quantities was prepared by an independent surveyor working with the architect, and copies were sent to each bidding contractor. Thus quantity surveying emerged as a profession.

The quantity surveyor, equipped with historical cost information, can produce approximate estimates to show the owner and the architect a provisional cost figure. Cost planning within this figure assists the architect in evaluating the financial effects of different design solutions.

Specifications, schedules of quantities, and other contract documents produced by the quantity surveyor present the extent and quality of the project, the responsibilities of the contractor and sub-contractors, and achieve the co-ordination of the drawings, other contract documents, the work of various trades, and the whole of the building project.

The quantity surveyor can make valuations of the works for periodic payments, for variations, and for final accounts. He may be asked to arbitrate in disputes, to prepare reports, to supervise works, and to appraise existing property.

In Canada a similar evolution is apparent, resulting in the founding of the Canadian Institute of Quantity Surveyors to further these practices.

" . . . in every branch of the profession there is that happy combination of theory and practise. . . . Here is a scheme of existence which combines variety of experience with a sense of design and responsibility. Here is wide scope for initiative and for trained expert opinion. Here is also thoroughness, care and exactitude. Above all, there is a strong element of creativeness. . . . Public improvements of every kind come into being as the consequence of the Surveyor's work."—The Right Honourable Sir Winston Churchill, K.G., O.M., C.H., M.P., in his Foreword to " The Chartered Surveyor, His Training and His Work," 1932.

S. E. Edgcombe,
A.R.I.C.S., F.C.I.Q.S.,
Senior Quantity
Surveyor.

K. F. Collier,
A.R.I.C.S., A.C.I.Q.S.,
Quantity Surveyor.

G.M. Hardie,
A.R.I.C.S., A.C.I.Q.S.,
Quantity Surveyor.

REPORT OF THE ARCHITECT-PLANNER

> "Make no little plans. They have no magic to stir men's blood and probably themselves will not be realized. Make big plans. Aim high in hope and work, remembering that a noble logical diagram once recorded will never die, but long after we are gone will be a living thing asserting itself with ever-growing insistency . . . remember that our sons and grandsons are going to do things that would stagger us. Let our watchword be order and your beacon beauty."—*Daniel Burnham, American Landscape Architect, 1846–1912.*

This year has seen the culmination and fruition of seeds of ideas, sown many years previously, which have been assiduously and constantly plied in committee and in day-to-day contacts. Planning can be a slow and tedious process, but when results come quickly and are supported in strength, the end result can be most gratifying.

Excellent co-operation and backing from other divisions in the Department have been experienced, together with support from the right quarter in other departments of the Civil Service.

The Department had stands at the Junior Chamber of Commerce Fair in Victoria and the Pacific National Exhibition in Vancouver. An exhibit sent to British Columbia House received approbation and a request for further material. An inter-departmental exhibition in the rotunda during the session of the Legislature proved most popular, and was another first in public relations for the Department.

Master plans have been completed for the Victoria University campus, the Deaf and the Blind School, Vancouver, and the Vocational School at Prince George. In all instances, buildings have been designed and are due for construction, or are already being erected.

Continuing schemes are the Legislative Precinct, the Civic Centre, Civil Service Parking, Provincial Museum, and Lower Town Development, all in Victoria; a Federal-Provincial scheme at Oliver; Court-houses in various communities; and surveys of Government properties. This last bears special mention, for it is again an excellent example of first-class work and co-operation between departments after much persuasion in promoting the scheme. Land is a precious resource, not a commodity to be wasted by short-sighted haphazard development.

W. D. LOUGHER-GOODEY,
Architect-Planner.

PARLIAMENT BUILDINGS

On June 16th, 1893, a notice was published throughout the Dominion and the United States inviting architects to submit competitive plans and estimates of cost for the construction of Provincial Government Buildings.

Intending competitors were furnished with a printed list of departments, giving the approximate number of rooms required in each, and also with particulars of the competition, which included the stipulation that five designs would be selected for a final competition, and that the amount proposed to be expended on the centre buildings should not exceed one-half million dollars. Competitors numbered sixty-two in all.

In the report of the adjudicators it is noted that the competitors chosen to enter the second phase were selected because they most nearly fulfilled the conditions and requirements of the competition. The report goes on: " We regret that we were obliged to reject several designs of great merit on the ground that the expense of carrying them out would grossly exceed the limit of cost stated in the conditions of competition. None of the designs submitted were entirely suitable on the internal arrangements of the several departments, owing, we think, in a great measure to the inadequacy of the information furnished to the competitors. We would respectfully suggest that as full information as possible of the requirements as to space, and the internal working of the several departments, be furnished to the competitors in the second competition."

The final competition of the five architects—three Canadian, two American—who were selected to prepare and submit a second set of designs for the buildings resulted in the adoption of the plans of Mr. F. M. Rattenbury, who used the *nom de plume* of "A B.C. Architect."

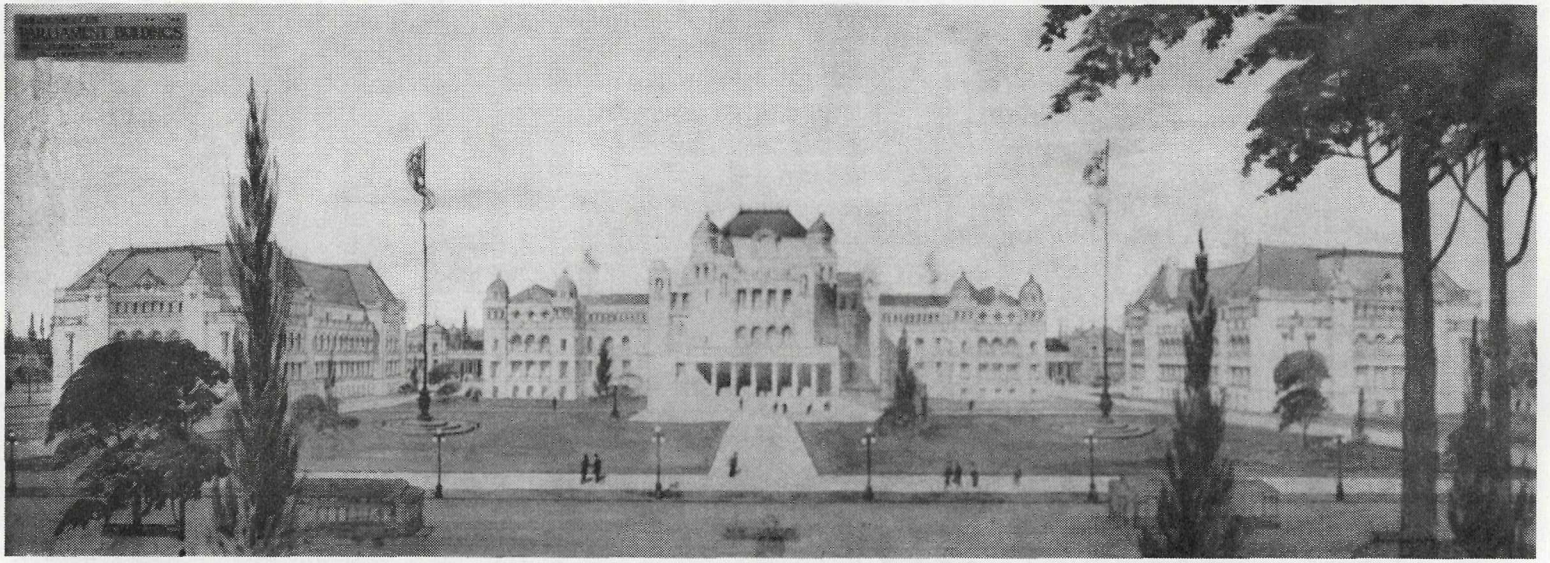
The chosen design provided for a group of three buildings, the central block containing the several departments and the Legislative Hall with its offices, the two side ones being respectively the Land Registry Office on the east and the Printing Office on the west. A colonade, or covered way, on either side connected these two detached buildings to the main structure, and served also as a portico to the various departments on the ground floor; æsthetically these features also bound the three buildings together in an effective manner.

The exterior design is a free rendering of Classic, many Romanesque features being introduced. Bold outlines and careful grouping have been considered more than small and costly detail, which would be unsuitable for the stone from the quarries of the Province. The Public Works Report of 1894 on the winner's design goes on to point out [*sic*]:—

" In the construction of the building every means has been adopted to render the work as perfect and as durable as it is possible. No wood enters into the construction work at all, except the floor joists to some of the rooms.

" The internal door and window lintels are made of a specially prepared fire-resisting concrete, the same material being employed for the corridor floors throughout, and also to encase all steel work, both beams and columns. Thus, there is no possibility of any shrinkage or decay affecting the durability of the building.

" The wide steps leading up the main entrance and the external foundation walls are of granite from Nelson Island, in Malaspina Strait, while the internal foundation walls are of brick, all rising from solid concrete footings ranging from 18 inches to 30 inches in thickness, laid in trenches excavated into hard-pan. The walls are laid up with machine-made mortar of superior quality, composed of Saanich graystone lime, gritty sand, engine ashes, and hard-burned broken brick ground together in a mortar mill.



Artist's impression of southern prospect, circa 1911.

" In almost every case the brick walls are carried from the basement to the roof, and in the few instances where they are carried on steel beams, the beams have been protected with concrete as described. The staircases are all of solid wrought stone, whilst the plastering is all laid on to iron metal lathing."

From the architect's description we read:—

" The exterior face of the building is to be of stone, the north elevation being from Haddington Island, selected for its light color (little sun coming on this part of the building), and also for its superior qualities of moulding and dressing. The south elevation is of stone from the Koksilah quarries, a stone very suitable for the class of rock-faced work adopted here. (*Vide* Report of Select Committee, New Parliament Buildings, Contracts 1895. After the first load had been delivered, the Government condemned the stone and put an end to the contract. The ostensible reason was that the stone was defective and not up to sample: it appears, however, that the architect found he had made a grave mistake from the æsthetic point of view, the Koksilah stone being a darker shade of grey than the Haddington, and inharmonious. The Koksilah Quarry Company sued the Queen, and was awarded damages of $12,412.90 by Mr. Justice Walkem.)

" The bricks are all made in the Province, as well as the lime used for the walling and plastering.

" The woods found in this Province, namely cedar and maple, have been chiefly adapted for the interior joiner's work, and a special effort is being made to select only the choicest specimens to be an example of their qualities.

" The constructive carpenter's work is made of Douglas fir, whilst the roof is to be covered with slates from Jervis Inlet.

" The decoration of the interior is confined principally to the most prominent places, such as the entrance hall, dome, and Legislative Hall. The form and shape of the corridors has, however, been thought out to obtain the most effect, the light and shade being carefully arranged.

" In arranging the building upon the site it was thought desirable to excavate only for the trenches in place of sinking the basement into the ground. A terrace has thus been formed, which will add to the apparent height of the building."

The architect was most fortunate to have his quantity surveyor, Edwin C. Howell, act as superintendent of works, and Victor Moretti as interior decorator and collaborator, for the contract was to prove no small headache, conditions being very reminiscent of the present day. Mention is made in reports of strikes, foreign labour, Labour Bills and Councils of Conciliation, disputes between contractor and architect, Government and architect, unduly optimistic finishing dates not accomplished, overexpenditure, with charges and countercharges of inaccuracies and intemperate language in correspondence.

It is little wonder that the Parliament Buildings were completed some two years later than was hoped, and at the expense of some $423,882.30 more than was anticipated. However, when finally the buildings were officially opened by His Honour Lieutenant-Governor Thomas R. MacInnes on February 10th, 1898, everyone was present except the architect—he had left two weeks previously to arrange for a ferry service to the Klondike!

There were some who had opposed the building of such an opulent and ambitious programme, among whom the Commissioner of Lands and Works is reported as saying that the Government would not have enough employees in 500 years to fill the vast space. He and others were poor prophets, for in less than fifteen years the departments had again outgrown the accommodation provided.

In spite of previous dissensions, Rattenbury was called upon to design the additions in similar materials. The architect's plans called for the addition of three

wings to the original competition drawings, and his perspective is reproduced in this text. He failed to convince the Government of the time of the necessity to plan ahead, with the result that only the Connaught Library and Provincial Archives were constructed. (After World War I, economic crises and steep rises in building costs foreclosed any hope of the conclusion of what was really an excellent and wisely planned layout. To-day we have, spotted on all sides, an abominable architectural atomy in the guise of the Queen's Printer, the Douglas Building, and the so-called temporary buildings.)

Rattenbury lavished as much care and thought on these additions as in his original thesis, with the result that there is no " rear elevation "; in fact, there are those who consider the south aspect as superior to that from the north, particularly now that some serious thought is being given to landscaping in a manner sympathetic to the general character and importance of the Provincial Legislative Buildings, and in accordance with the Precinctual Plan for the area.

The floor area of the original scheme called for 58,475 square feet, and the additions were almost equal to this amount (53,937 to be exact). While the total moneys expended on the first contract is reported as being $923,882.30, including purchase of land, furnishings, removal of old buildings, and general landscaping, the second contract amounted to $1,168,138.16, a rise of some 25 to 30 per cent.

The architect considered that the Province had full value for its money, and that the original structure, erected during the depression of the nineties, was " phenomenally cheap."

One of the most interesting features of the second scheme is the imitation marble work in the Legislative Library. Rattenbury had originally planned for Italian marble columns, monolithic in construction, weighing 300 tons each, and costing in all some $55,000. Lieut.-Col. Richard Angus suggested the use of scagliolo pillars, and had a sample made up, which Rattenbury pronounced as marvellous as it was cheap, being amazed that such excellent specialist work could be done in a local workshop. The contract was let at one-fifth the original estimate, and the weight was minimized as the columns are hollow. The work is an imitation of ornamental stone consisting of a substratum of finely ground gypsum mixed with glue, variegated on its surface while soft with marble, spar, or granite dust, and then polished. The inside base is formed from a layer of concrete on a steel frame.

The Department of Public Works has recently redecorated the Provincial Library and the Archives, and next year it is planned to turn its attention to the Legislative Chambers. This latter is much the same as it was in Rattenbury's day, except that microphones and modern equipment have replaced the salmon netting and the steel wires which were used in a vain attempt to improve acoustics.

Since 1916, when the second contract was completed, Government departments have continued to grow with the Provincial development, and have overflowed into down-town office buildings, converted residences in James Bay, and warehousing in the Greater Victoria vicinity; office space still remains one of the most pressing administrative problems. Although the æsthetics of the Parliament Buildings may be subject to differences in debate, and although some of its inhabitants may fault its workability under twentieth-century standards, it is remarkable, nevertheless, that in a Province barely fifty years old the people should have established, so early, such a spacious and splendid parliament house and offices in their capital city. Many still have the feeling that the over-all picture provided British Columbia with a very fine Parliament Building, second only to the Federal Buildings at Ottawa.

W. D. LOUGHER-GOODEY,
Architect-Planner.

REPORT OF THE STRUCTURAL ENGINEER

The Structural and Civil Engineering Division worked to capacity during the year. In line with Departmental policy, a considerable number of smaller projects, set aside during the period of intensified heavy construction, were undertaken. These were varied and interesting, but will not be detailed here because of considerations of space. They are, in any case, listed elsewhere.

The largest project undertaken was the Victoria Law Courts, being constructed in three stages. The first stage consisted of clearing the site and excavating for the basement and services. This was a large excavation job for a building, containing 22,600 cubic yards of rock and 10,500 cubic yards of earth. Separate tenders for component parts of a building usually entail more work in the drawing office, but in this case the extra work was well justified. As the excavation work was large and only one trade involved, very competitive bids were obtained.

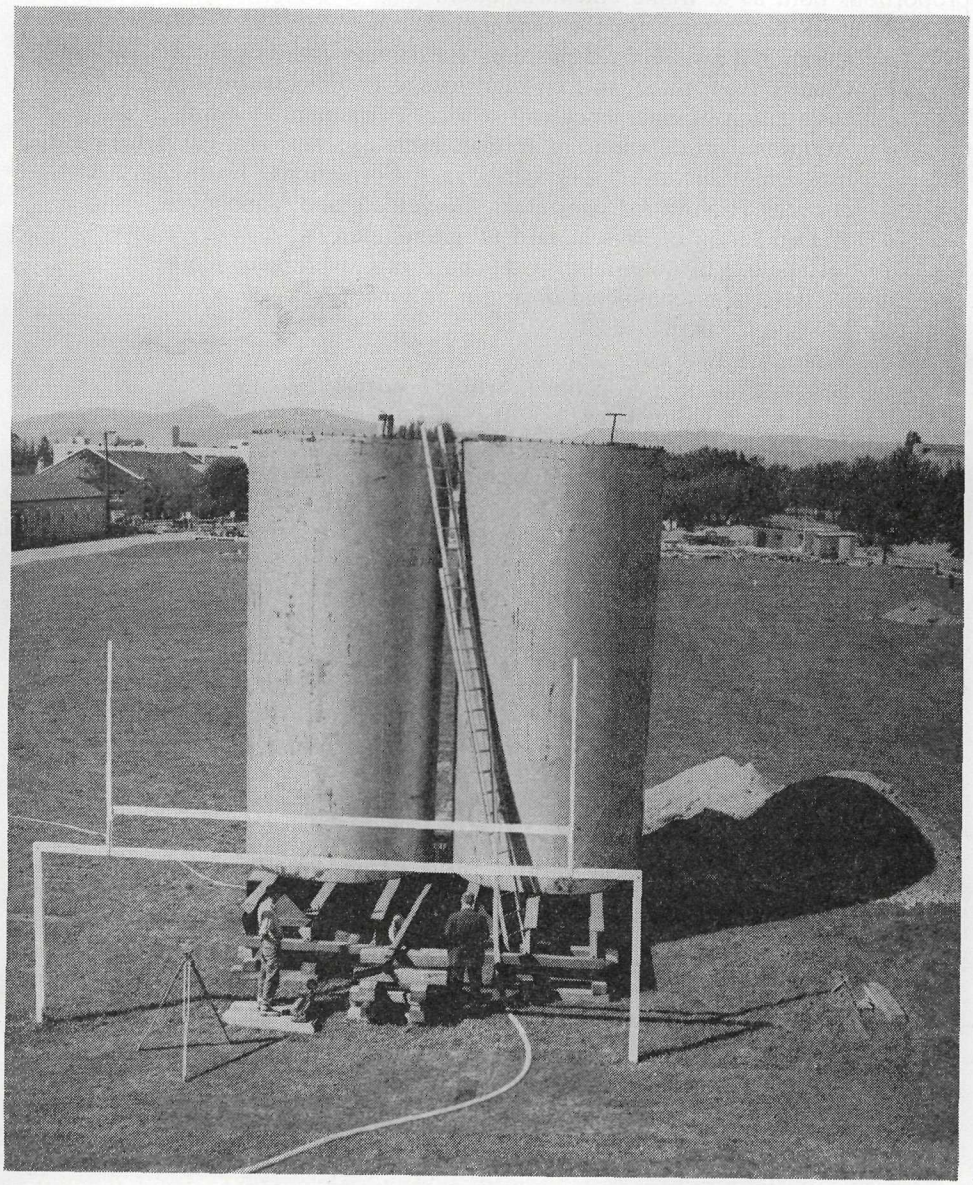
The second stage consisted of constructing footings, basement walls, and slabs, and involved only reinforced concrete. This, again, proved economical due to the large amount of repetition of beams and slabs. Considerable savings can be made by planning a structure to use standard sizes of plywood and sawn lumber. It is easy to see the economy of planning concrete slabs and beams in multiples of plywood dimensions. Carpentry costs are lowered and material can be used many times over. Formwork is the largest single cost involved in reinforced-concrete construction, and any economies in this sphere can materially affect total cost.

Other buildings designed during the year were the Mission Government Office Building, University of Victoria Classroom and Faculty Block, Burnaby Vocational School, and the Sally Port at Haney. This Division also prepared plumbing drawings for these projects.

This Division is looking carefully into the use of light-weight aggregates now being manufactured in British Columbia. This component is produced by subjecting shale to high temperatures in rotary kilns. Expansion produces a hard puffed-up aggregate which weighs approximately two-thirds of conventional concrete and has generally the same structural strength and quality. Formwork costs being the same, any savings are reflected in less reinforcing-steel and a reduction in dead weight. The latter saving is most apparent in long-span roof structures where dead-weight load is the largest load to be carried. The use of light-weight structural concrete is increasing throughout the world in purely concrete buildings and in structural-steel buildings with concrete components.

Considerable progress has been made throughout this year in the matter of obtaining surveys of our properties. Up-to-date contour surveys are essential in order to plan future additions to buildings or services with any degree of accuracy. The Department of Lands and Forests has done the bulk of this work, and we are indebted to it for the accurate and detailed plans it has produced. Aerial surveys have been used for some of this work and have proved their worth both as to cost and accuracy. Some of the plans completed are Government House, Victoria; Oakalla Prison Farm; Victoria University; with Tranquille Sanatorium and the Provincial Mental Hospital, Essondale, in course of preparation. When these plans are completed, services such as sewer, water, drainage, steam, and electrical will be added to make them complete.

J. R. SIMPSON, P.ENG.,
Senior Structural Engineer.



College of Education site, University of British Columbia. Load test.

REPORT OF THE SUPERVISOR OF TELEPHONES

Telephone communication within the Government service has reached record proportions both as to traffic and installation.

The work programme for the year included:—

(*a*) Additional switchboard position, Parliament Buildings.
(*b*) Change from three- to four-digit locals, Parliament Buildings.
(*c*) Installation of emergency call service, Parliament Buildings.
(*d*) Additional installations of foreign exchange between Parliament Buildings and Vancouver; between Haney Correctional Institution and Vancouver; Highways Department, Cloverdale and Vancouver.
(*e*) Reinstallation of switchboard at Tranquille.
(*f*) Installation of automatic switchboard at Government House.

Surveys have been completed or are in progress for:—

(*a*) Mission Court-house.
(*b*) Victoria Law Courts.
(*c*) British Columbia Vocational School, Burnaby.
(*d*) Abbotsford Court-house.
(*e*) Essondale conversion to automatic.
(*f*) Relocation of switchboard facilities, Woodlands School.
(*g*) Several large installations for health units.
(*h*) Additional facilities, Parliament Buildings.

The Government House installation proved to be the most interesting project of the year. At the time of installation it was the most up-to-date telephone system in Canada. Planned to meet the communication needs of house and grounds for every conceivable occasion, including Royal visits, the system features an entirely new telephone exchange of Canadian design and manufacture. It was the first of its type off the production-line. Extensive use was made of coloured sets to blend with wall colours and decorous furnishings in public rooms, residential and guest suites.

The Parliament Building changes, although not as interesting a project, was a culmination of two years' planning.

Due to an increase in local stations at the Parliament Buildings, it was necessary to provide four-digit dialing, with all work to be completed without interruption to service.

From March to June, 1959, telephone installers spent approximately 2,016 man-hours making the changes.

It is of interest that work performed during this time included installation of 200 line plus 200 connector terminals, 8 foreign exchange circuits, 1 position of switchboard. Nine hundred locals were rearranged, plus a 900 line load cut. This meant rehooking approximately 7,000 wires. In addition to this, all working selectors had to be replaced with digit absorbing switches to take the fourth digit. A new bank of second selectors was added, opening up the 3,000 group. Changes in the trunking of new selectors made it necessary to rewire the incoming end of all the connectors.

The first common emergency telephone reporting system in British Columbia went into service at the Parliament Buildings on January 15th, 1960.

Persons wishing to report any type of emergency from any of the forty-six buildings, 900 locals and approximately 600 extensions, dial 111 on the nearest telephone. This causes a series of red lamps both on and above the main switchboard. As an additional precaution, chimes also sound the alarm.

The switchboard operators receive and extend all emergency calls. In order to assure a minimum of error, all calls are recorded by means of an electronic secretary, " recording unit." If a message is garbled or not understood, it may be played back immediately. Special arrangements have been made, using the same electronic secretary, to announce police and fire telephone numbers when the switchboard is closed.

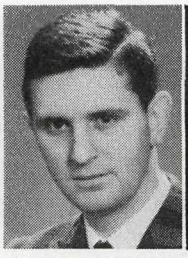
The service known as " foreign exchange " has resulted in manual traffic increase of approximately 12,000 calls per month on the Parliament Buildings switchboard. From reports received, this service has greatly increased office efficiency and public relations between our offices in Victoria and Vancouver. Where perhaps three or four letters went back and forth in explanation of a difficult matter, we now telephone. In a matter of two or three minutes of personal conversation the whole matter is finalized and a confirmatory letter covers the entire transaction.

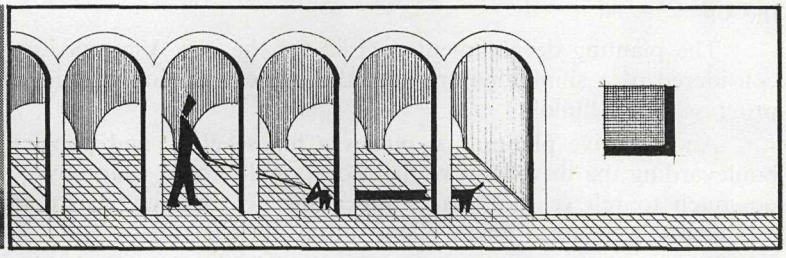
It is interesting to note that cost per call at the " in service " date was $2.16 for 2,363 calls. At the end of the fiscal year, reports showed an average of 43 cents for 12,357 calls, the average call being two to four minutes.

In the new fiscal year 1960/61 this Division assumes much wider responsibilities covering the use of Government telephones. It is planned to embark on a progressive programme of examination of existing installations with a view to establishing the degree of necessity. Every possible economy consistent with adequate service will be effected.

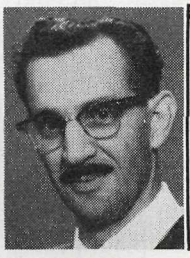
All switchboards throughout the Province continued to operate smoothly without any major disruption in service, for which we congratulate the operating telephone companies and our own Provincial Government switchbard operators.

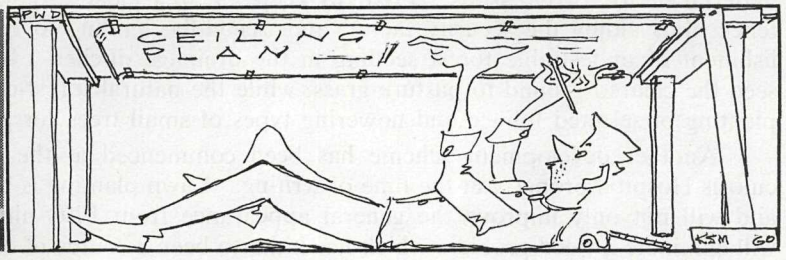
(Miss) Ruth E. Thompson,
Supervisor of Telephones.





Alan J. Hodgson,
Architect—Grade 2.





I. P. Ollivotto,
Draughtsman—
Grade 2.

REPORT OF THE LANDSCAPE DIVISION

Designing is a complex and intricate task. It is the integration of technological, social, and economic requirements, including biological necessities and the psycho-physical effects of shape, colour, volume, and space.

Gardens, like buildings, are built of space. In fact, gardens are fragments of space set aside by the planes of terraces, walls, and disciplined foliage.

We develop land and buildings as space for living people. Thereafter, all our decisions as to physical realities are activated by our own approach to development. We find that certain aspects of landscape design are susceptible to wide and flexible manipulation of the health and comfort potentials which are closely integrated with æsthetic effects, all of which have been scarcely tapped by contemporary design and so often disregarded in the past.

Until recently we have defined too nicely the differences between space which is roofed and within the building and that which is left outside and around the building. This has been unfortunate, for we are always subject to spatial and æsthetic sensations on the one hand and economic evaluations on the other, and we are always in close association with both in all our activities. Therefore, we must postulate that adequate and well-ordered design of the areas around our buildings are an asset from the aspect of function and appearance, worthy of the prestige of an advancing population, but equally of economic value in enriching and preserving the property worth of the Provincial holdings.

The work of this Division has, in the past year, been directed toward meeting these requirements with, it is hoped, increasing and expanding effect in the future.

In the field of æsthetics we would draw attention to the development of a garden scheme leading to the beautiful facade of the Connaught Library wing of the Legislative Buildings. This development repairs damage to the grounds of the area caused by the fire and destruction of the historic first Legislative Building on the site.

The planting development devised for the new Victoria Law Courts may be considered of a similar nature, and the implementation of this scheme awaits the progress of the building.

An extensive planting of planes, Chinese elms, and poplars was completed, boulevarding the driveways at the Vocational School, Burnaby. This project will do much to relieve the barren appearance of the site, where the lawns, having established well, form an excellent setting for the trees.

In the field of functional projects the Division implemented extensive work in clearing the perimeter of the Girls' Industrial School at Burnaby. This project was undertaken for two reasons: First, to keep an area clear around the boundary fence, thus aiding the security factor, and, secondly, tending to reduce the establishment of undesirable forest seeding in the drainage ditches. It is proposed to seed the cleared ground to pasture grass, while the natural forest-cover will have a planting of selected foliage and flowering types of small trees for general effect.

Another development scheme has been commenced at the Pearson Tuberculosis Hospital property at the time of writing. Lawn planting is being completed, and will not only improve the general appearance from Fifty-ninth Avenue, but will eliminate a weed problem which has hitherto been a source of complaint, carrying a high yearly cost to control. This valuable property has been much enhanced by this work.

Plans were devised at this time to establish a nursery area at the Pearson property to aid in the maintenance of material on the grounds of Provincial buildings and to supply sufficient bedding material for all properties in the Vancouver area. This work entailed the provision of a 3-acre stretch of highly cultivated ground suitable to intensive production of evergreen and shrub material. Such a propagating plant, using at the start lining-out stock and ultimately material in quantity from cuttings raised at the nursery, will constitute a major saving in present expenditure for plant maintenance. The old greenhouse at the Public Works establishment had to be replaced, and it was found to be more economical to erect a maintenance-free metal house with first-class facilities on the new site where there would be adjacent areas for the development of material to usable size.

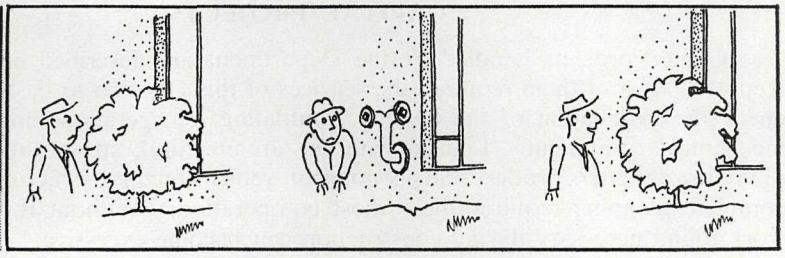
An additional advantage to this work which is not obvious at first, but which, from the view-point of the Department of Health, is very real, is its therapeutic value. Officials of the hospital welcome the establishment of the nursery as it provides a means of giving patients a healthful, relaxing outdoor occupation of a constructive and profitable nature. This was a prime consideration in making the decision to place the greenhouse and nursery on the hospital grounds. This project is continuing.

A further innovation has been put in force by the Division in the field of maintenance, a contract being let to cut, water, fertilize, and eradicate weeds on all lawn areas of Provincial properties in the Vancouver area. In this move we have carried out the work at less cost than with small groups of employees, and have also obtained a great improvement in condition of the grass by unified fertilizing and maintenance methods. One more full year will be required to obtain full advantage from the change.

Work chiefly of a maintenance nature has been progressing at various other properties throughout the Province.

Problems connected with lawn watering will be a subject of thought and planning for the immediate future. This is an urgent matter, with the extension of holdings on one hand and the rising costs of manual operation on the other. Some relief must be sought in the mechanical field to provide an economical distribution of water that is adequate to preserve the best conditions on these important properties.

R. H. SAVERY,
Landscape Designer.



Colin Crump,
Architect—Grade 3.

REPORT OF THE MECHANICAL ENGINEER

GENERAL

The modern package boiler comes close to fulfilling the definition of automation.

These boilers have become popular because they can be delivered fully equipped ready to connect to electric-power lines, fuel-lines, water-lines, and chimney. They take up a minimum of space, and because the various designs are well standardized, they are economical to buy.

There is always some hazard in operating boilers. This cannot be entirely eliminated, perhaps due to the human element. During thirty years of development of the package boiler, hazards have been greatly reduced by better " know-how " in the production of boilers and controls, and a greater awareness of the necessity of proper care and maintenance. Hazards such as tube and gasket failures, bulging plates and tubes, corrosion, and furnace explosions can be minimized by placing someone in charge of the boiler who understands the functions of its various parts. The controls, which bring the package boiler close to automation, are both sensitive and delicate. They should not be tampered with. Experience indicates that the two main hazards of automatically fired boilers are low water conditions and furnace explosions, both of which can be greatly reduced by proper testing and maintenance of the appliances provided for the prevention of such occurrences.

The package boiler may, while in operation, answer the definition of automation. It fails to answer it when it comes to maintaining the boiler and controls so that they can be depended upon to function as and when required.

This feature of the package boiler is often overlooked or ignored by those people unfamiliar with the operation of machinery. In fact, the popular connotation of the word " automatic," which is often applied to package boilers, presupposes that once the piece of machinery is built and set into operation that it functions indefinitely without human aid. This, of course, is obviously not so.

The Provincial Government is using a number of package boilers for heating purposes. They are particularly suitable for this service by providing a maximum of comfort in the buildings with minimum attendance.

It is interesting to note the Provincial Government fuel bill for heating purposes. The fuels used are summarized as follows:—

Coal	$430,000
Fuel oil	460,000
Natural gas	78,000
Total	$968,000

CAPITAL PROJECTS

Capital projects handled by the Department are described elsewhere in this Report. Most of them required the services of this Division to design, specify, and check the installation of the heating, ventilating, refrigeration, and miscellaneous mechanical equipment. Liaison with the architectural, structural, electrical, and plumbing designers produces an economical, yet satisfactory, structure. Careful and complete planning requires the utmost co-operation. Without it, costs for extra work found necessary during construction can become excessive.

The demand for air-cooling the Government buildings in the Interior of the Province continues. This year summer cooling was installed in the Forestry Building, Kamloops, and the Court-house at Lillooet.

At the Provincial Mental Hospital, Essondale, which is the size of a small city, the medical and health authorities became concerned over the antiquated methods of

handling garbage and waste. Their concern is based upon the possibilities of contagious-disease epidemics arising out of contaminated garbage. The problem is a complex one involving the sanitary collection from the wards, destroying the wastes, and disposal of the ash. A study of this problem has been completed. The prime requirement is a modern garbage destructor which will both destroy and disinfect all garbage and waste. Planning is under way.

MAINTENANCE

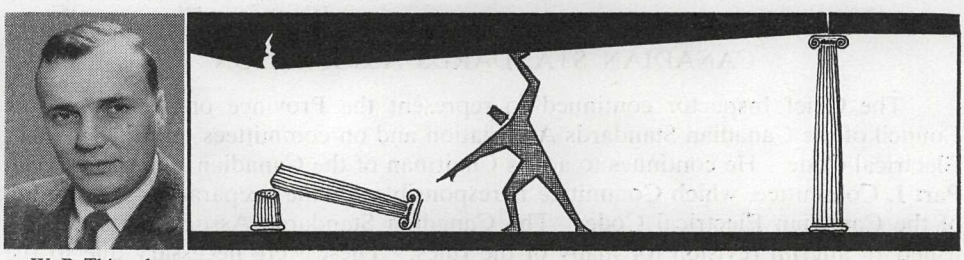
Although prime maintenance has continued with no cutting of service, economic conditions have demanded that each expenditure be judged on immediate necessity. For some time now this Division has been catching up on " preventive " maintenance. By this is meant regular examinations to determine maintenance measures that should be undertaken to minimize deterioration. This cannot be classed as urgent work, but, nevertheless, is good practice, and is important. With rapid growth in the number of buildings and the difficulty of recruiting qualified staff, it has not been possible to do as much as would have been liked. Efforts will continue, however, to bring it about.

SUPERVISION OF PLANT OPERATION AND OPERATING PERSONNEL

The chief engineers operating the various heating plants are responsible people interested in operating their plants continuously at the highest efficiency possible with the equipment available. However, problems do arise, both technical and procedural. Numerous field trips were made by the Division to attempt to solve these problems, and in many cases to prevent them arising.

I wish to close this report with a word of thanks to both the staffs of the Mechanical Branch and heating plants for their co-operation and loyalty to the Department.

W. E. MILLS, B.A.SC., P.ENG., DIP.P.ADMIN.,
Senior Mechanical Engineer.



W. B. Thiersch,
Architect—Grade 1.

REPORT OF THE INSPECTOR OF ELECTRICAL ENERGY

In accordance with the *Electrical Energy Inspection Act,* I have the honour to submit my annual report for the fiscal year ended March 31st, 1960.

BOARD OF EXAMINERS FOR ELECTRICAL CONTRACTORS

The Honourable Minister of Public Works has been pleased to appoint the following members to the Board, effective January 1st, 1960: K. McRae, electrical contractor, representing the Associated Electrical Contractors of British Columbia; R. Beaumont, electrical contractor, representing the Vancouver Electrical Association; M. Schwartz, electrical inspector for the City of Victoria, representing cities and municipalities. Other members of the Board are L. Robson (Chairman), Chief Inspector of Electrical Energy, and G. A. Harrower, Assistant Inspector of Electrical Energy. (Mr. Harrower replaced Mr. L. Handy, who retired from the service May 31st, 1959.) Eight meetings were held throughout the year.

The total number of certificates of competency in effect during the year was as follows:—

Class A	214	Class PB	177
Class B	411	Class PC	300
Class C	599		
Class PA	66	Total	1,767

No temporary certificates were issued during the year.

Three hundred and eighty-one candidates for electrical contractors' certificates of competency were examined during the year, with the following results:—

Class	Number of Candidates Examined	Passed	Failed
A	42	24	18
B	137	68	69
C	202	102	100
Totals	381	194	187

CANADIAN STANDARDS ASSOCIATION

The Chief Inspector continued to represent the Province on the Approvals Council of the Canadian Standards Association and on committees on the Canadian Electrical Code. He continues to act as Chairman of the Canadian Electrical Code, Part I, Committee, which Committee is responsible for the preparation and editing of the Canadian Electrical Code. The Canadian Standards Association has published an interim revision for many of the rules. These were necessary due to the advent of new materials and practices since the seventh edition of the Code was published in 1958. It is anticipated that a recommendation may be made to the Minister for adoption of these interim revisions, pending the publication of a completely revised Code.

Two meetings of the Canadian Standards Association Approvals Council (Electrical) and of the Committee on the Canadian Electrical Code, Part I, were attended, the first during May in Calgary and the second during September in Montreal.

PROSECUTIONS

Six prosecutions were initiated during the year, and convictions were obtained in each case.

DISTRICT OFFICES AND INSPECTIONS

The following is a record of inspections undertaken during the year:—

Office Location	Inspections		
	1959/60	1958/59	1957/58
Abbotsford	3,753	3,548	2,950
Alberni	2,213	2,865	2,903
Chilliwack	2,601	2,995	2,493
Courtenay	3,317	2,825	2,470
Cranbrook	2,229	2,149	2,576
Dawson Creek	1,657	1,440	2,110
Duncan	3,230	2,946	2,885
Fort St. John	1,080	1,317	1,855
Kamloops	2,929	2,859	2,145
Langley, Delta, and White Rock	2,520	3,013	2,695
Nanaimo	2,868	2,255	2,245
Nelson	2,123	1,969	2,329
New Westminster (three inspectors)	8,056	6,107	2,849
Penticton	2,214	2,362	2,304
Powell River	1,951	2,205	2,584
Prince George (two inspectors)	5,470	5,251	5,190
Prince Rupert	1,852	1,746	2,096
Quesnel	1,933	1,491	1,748
Richmond (two inspectors)	6,130	6,109	2,921
Salmon Arm	579	.....	.....
Trail	2,203	1,712	.....
Vancouver	1,394	1,105	1,079
Vernon	2,727	2,824	2,489
Victoria (three inspectors)	8,622	8,231	7,193
Totals	73,651	69,324	60,109

The total number of inspections completed during the year represents an increase of 4,327 or 6 per cent over the preceding year.

A new office was opened at Salmon Arm, effective November 6th, 1958. An Inspector was transferred from Richmond office to Salmon Arm, and a new Inspector was appointed to Richmond.

Effective June 1st, 1959, inspections for The Corporation of the District of Kitimat were undertaken by this Division. This area was incorporated with the district inspected from the Prince Rupert office.

EXAMINATION OF MOTION-PICTURE PROJECTIONISTS

The Division assisted the Provincial Fire Marshal in conducting ten examinations for projectionists. The regulations covering such examinations provide that the Inspector of Electrical Energy be a member of this Examining Board in company with the Fire Marshal. In this connection, all fees arising from these examinations accrue to the credit of the Fire Marshal's department.

POLE-LINE PERMITS

During the year the Division checked 755 applications for the erection of pole-lines on Crown lands or Provincial highways. Recommendations on each application were forwarded to the Regional Engineer of the Department of Highways.

ACCIDENTS

There were seventeen accidents recorded during the year, which is a decrease of two in the number of accidents reported for the previous year. Seven of the accidents reported were fatal.

May I again express my appreciation for your splendid co-operation and continued interest in our problems and to your Departmental staff for valuable assistance rendered during the year.

L. ROBSON, P.ENG.,
Inspector of Electrical Energy.

REPORT OF THE CHIEF INSPECTOR OF BOILERS AND MACHINERY

In accordance with the provisions of the *Boiler and Pressure Vessel Act,* I have the honour to submit the fifty-eighth annual report of the Boilers and Machinery Inspection Division for the fiscal year ended March 31st, 1960.

GENERAL

In December, 1958, a branch office with one Inspector was established in the Court-house at New Westminster. This has proved an efficient arrangement in dealing with the growing industrial development in the City of New Westminster and the Fraser Valley areas.

The work load has increased in Victoria to the point where we sent an Inspector to conduct engineers' examinations, and thus relieve our Victoria Inspector that he may attend to inspection work.

Several departments of the Government of Canada have contracted with us to make annual inspection of their steam plants.

We have been actively engaged in assisting the principal of the Vancouver Vocational School to prepare an advanced training programme which is intended to attract eligible young high-school graduates to stationary engineering, and thus meet future demands for young engineers of high calibre for our large modern steam plants.

Close co-operation has been established with the Burnaby Vocational School in the training of welders and the testing of welding coupons submitted by manufacturers.

Assistance has been given to the Department of Education in its preparation of correspondence courses for stationary engineers.

As a committee member the Chief Inspector attended Canadian Standards meetings at Saskatchewan and Toronto on Boilers and Pressure Vessels and on Refrigeration respectively.

In May of 1960 the Chief Inspector was elected for a two-year term as Canadian representative on the National Board of Boiler and Pressure Vessel Inspectors of the United States.

REGULATIONS

The Regulations Respecting Stationary Engineers were amended by Order in Council to provide more equitable fees for temporary engineers' certificates, and to specify educational credits for attendance at Vancouver Vocational Institute.

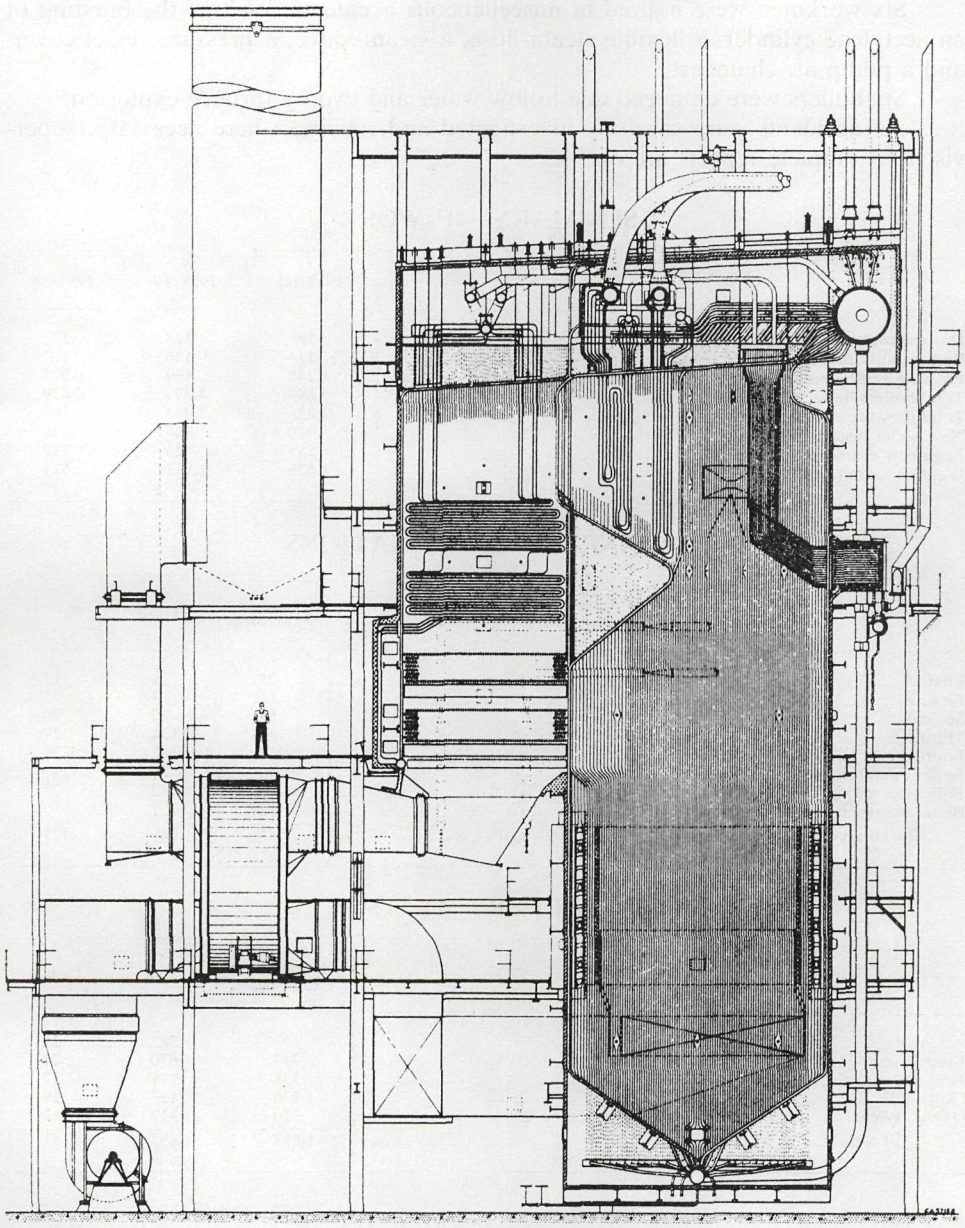
In accord with our project of complete revision of all our regulations, the Regulations Governing the Design and Inspection of Boilers and Pressure Vessels and the Regulations Governing Low-pressure Heating Plants were redrawn and approved by Orders in Council Nos. 2984/59 and 2983/59 respectively, and will be known as Part I and Part IV.

Work has now begun on Part II, Regulations Governing Welding and the Qualification of Welders.

NEW CONSTRUCTION AND INSTALLATIONS

In British Columbia workshops thirty-one high-pressure and sixteen low-pressure steam and sixty-eight hot-water heating boilers were built, besides 1,225 pressure vessels.

There were 121 new steam-boilers and 532 new hot-water boilers installed.



Cross-section of one of six steam generators for Burrard Thermal Station. 1,050,000 pounds of steam per hour, 2,100 p.s.i. (design), 1,850 (operating).

ACCIDENTS AND REPAIRS

There was one fatality due to the bursting of a defective fly-wheel which had just been installed without inspection.

Six workmen were injured in miscellaneous accidents, such as the bursting of an acetylene cylinder, a flexible steam-hose, a steam-valve, a pressure-vessel cover, and a pump air-chamber.

Six boilers were damaged due to low water and two by furnace explosion.

All accidents were carefully investigated and repairs, where necessary, supervised. Complete reports are on file.

SUMMARY OF WORK

	1959/60	1958/59	1957/58
Designs registered	560	528	877
Boilers built under inspection	115	126	107
Pressure vessels built under inspection	1,245	869	975
Total boilers inspected	3,899	4,371	4,479
Total pressure vessels inspected	2,226	2,043	1,765
New boiler installations	740	408	236
Engineers examined	555	623	719
Welders examined	1,828	1,923	2,611

ENGINEERS' EXAMINATIONS

Class	Number Examined	Passed	Failed
First, A	21	9	12
First, B	12	9	3
Second	57	37	20
Third	133	104	29
Fourth	219	143	76
Boiler operator, A	40	29	11
Boiler operator, L.P.B.	63	42	21
Boiler operator, H.P.B.	10	7	3
Totals	555	380	175

WELDERS' TESTS

Grade	Number Examined	Passed	Failed
A.S.M.E.	297	282	15
Electric	747	670	77
Acetylene	328	291	37
Down-hill	136	117	19
Oxy-acetylene	320	317	3
Totals	1,828	1,677	151

D. DENHAM,
Chief Inspector of Boilers.

REPORT OF THE GAS INSPECTION DIVISION

In accordance with the provisions of the *Gas Act*, I have the honour to submit the sixth annual report of the operation of the Gas Inspection Division for the fiscal year ended March 31st, 1960.

THE ACT

The *Gas Act* was amended during the 1960 Spring Session of the Legislature. The amendment, being chapter 17 of the Statutes of 1960, defines more clearly the authority of the Inspector and Local Inspector.

THE DIVISION

At present the staff consists of the Chief Inspector, Assistant Chief Inspector, sixteen Gas Inspectors, one Senior Clerk (Office Manager), one Clerk-Stenographer —Grade 2, one Clerk-Typist—Grade 2, and three Clerk-Typists—Grade 1, plus one Clerk-Typist—Grade 1 (part time) in Abbotsford office and one Clerk-Typist—Grade 1 (half time) in Victoria office.

Night-school courses were once again conducted in Vancouver, Burnaby, Victoria, Nanaimo, Abbotsford, Vernon, Trail, Nelson, Kamloops, and Prince George. These classes were conducted jointly by this Division, the gas utility, and the School Boards. In the over-all picture, more than 1,120 persons attended these courses.

Natural gas was not distributed to any new areas during the year. The utilities continued to expand their distribution systems relative to areas presently serviced. The volume of natural gas used in the past year resulted in an increase of 160 per cent over the previous year.

Special permission to Vancouver Island Gas Company and B.C. Electric Company was granted for limited use of plastic mains and services in certain rural areas.

ACCIDENTS

During the fiscal year there were two explosions. One was in the City of Dawson Creek, where two children were burned to death in the ensuing fire. It is believed that the explosion was caused by the children playing with the gas range. The other was in the Village of Mission City, where one man was slightly burned by a furnace explosion.

SUMMARY OF WORK

	1959/60	1958/59	1957/58
New designs checked, industrial approval	639	411	203
Gas Codes distributed	574	811	1,835
Gas-fitters' licences issued	1,002	1,137	1,118
Gas contractors' licences issued	553	568	593
Provisional licences issued	1,190	1,281	1,639
Gas-fitters' examinations	303	264	971
Gas-fitters' re-examinations	123	137	------
Number of gas-fitters passed examination	343	277	493
Number of gas permits issued, municipalities	19,624	17,428	15,793
Number of gas permits issued by this Division	17,328	16,230	11,667
Permit application pads distributed	662	------	------

A. G. KANEEN,
Chief Gas Inspector.

REPORT OF THE DEPARTMENTAL COMPTROLLER

The following pages present the financial report of the Department of Public Works. In accordance with Departmental policy of maintaining existing buildings in a fine state of repair, additional sums were expended on maintenance during the past year, and this fact is reflected in the summary of expenditures. In comparison with the previous fiscal year, it will be noted that the net expenditure for maintenance has increased by $400,000, even though the total net expenditure for the year is slightly decreased as a result of a reduced expenditure in capital construction.

STATEMENT OF EXPENDITURES, FISCAL YEAR 1959/60

ADMINISTRATION AND MAINTENANCE VOTES

(For details *see* Public Accounts.)

Vote 287.	Minister's Office	$20,313.30	
Vote 288.	General Administration	156,438.48	
Vote 289.	Parliament Buildings (Maintenance)	751,298.16	
Vote 290.	Government House (Maintenance)	78,739.19	
Vote 291.	Government Buildings (Maintenance)	2,580,787.75	
Vote 292.	Rentals	412,993.20	
Vote 293.	Gas Division	155,386.24	
Vote 294.	Steam-boiler Inspection	129,557.82	
Vote 295.	Electrical Energy Inspection	302,319.40	
			$4,587,833.54
Less credits—			
	Rentals, etc., Government buildings		*139,734.18*
	Repayable items, Rental Vote		*1,500.00*
	Recoverable items, Electrical Energy		*26,900.00*
			$4,419,699.36

CAPITAL

Vote 339.	Construction of Provincial buildings (*see* expenditures by buildings listed below)		$2,833,718.88
Less	Federal contributions		*551,473.73*
			$2,282,245.15

SUMMARY

Net expenditure, Department of Public Works—		
	Administration and maintenance	$4,419,699.36
	Capital	2,282,245.15
		$6,701,944.51

VOTE 339—CONSTRUCTION OF PROVINCIAL BUILDINGS, FISCAL YEAR 1959/60

Project No.	Description	Expenditure
242-B-2	Random Sample Poultry Testing Station, Abbotsford	$65.57
332-B	Renovation to Allco Infirmary	
347-B	Light Plant, Atlin Court-house	5,500.00
30-B-1	Partitioning of present security unit into single rooms, Brannen Lake Boys' School	10,793.00
299-B	Burnaby Vocational School (50–50 basis with Federal Government)	1,024,867.89
33-B	Operation Centre and Core Storage Site, Charlie Lake (acquisition and development of property)	125,206.69

STATEMENT OF EXPENDITURES—*Continued*

VOTE 339—CONSTRUCTION OF PROVINCIAL BUILDINGS, FISCAL YEAR 1959/60—*Continued*

Project No.	Description	Expenditure
334-B	Living accommodation, Chetwynd Siding	$31,397.85
6-B-31	Replacement of Wilson Ranch barn	
353-B	Connaught Fountain Garden, Superior Street, Victoria	1,191.95
235-B	Dawson Creek Library alterations	11,366.13
297-B-1	Purchase of equipment, Douglas Building Cafeteria	567.00
	Essondale—	
5-B-21	100-bed nurses' home and training centre	9,456.02
5-B-53	Port Coquitlam 300-bed unit	84,712.87
5-B-65	Addition to boiler-house	52,170.22
5-B-82	Water-distribution mains	737.44
5-B-97	Fire-escapes for Home for Aged, Building No. 1	16,500.00
5-B-101	New substation and overhead lines	31,952.32
5-B-102	Alterations and renovations to kitchen, storage and staff changing room	23,421.66
5-B-112	Ventilation, West Lawn Building	4,295.97
5-B-115	New cemetery	4,372.05
5-B-116	Landscaping, roads, parking, etc.	3,447.48
5-B-119	Garbage-handling and incinerators	9,851.94
5-B-124	Fire-escapes, East Lawn Building	20,083.60
5-B-125	Installation of new telephone equipment	
5-B-126	Sterile supply centre, East Lawn Building	246.88
5-B-127	Installation of bathing facilities, Ward F-1	52.26
5-B-128	Construction of Occupational Therapy Department	871.73
5-B-129	Toilet partitions	87.20
159-B-1	Installation of concrete floor, etc., in equipment-shed at Fort. St. John	9,998.00
289-B	General expenses, surveys, supplies, etc.	135,318.59
208-B	Furnishings and ground improvements, Burnaby Girls' Industrial School	47,303.89
290-B	New Government House	513,802.12
	Haney—	
123-B-5	Development of grounds and irrigation system	12,054.86
123-B-6	Concrete footings for perimeter fence	14,204.76
123-B-13	Sally port	5,244.15
123-B-14	Water-supply	11,907.16
295-B	Living-quarters, water-supply, heating, and completion of equipment-shed at Honeymoon Creek	39,959.72
79-B-6	Purchase of new dish-washing unit, Jericho Hill School	3,951.15
79-B-7	Clearing of brush surrounding school, Jericho Hill School	3,536.82
329-B	Little Prairie equipment-shed and oil-house	45,095.24
341-B	To provide accommodation for additional equipment, Motor-vehicle Branch	11,270.37
346-B	Provincial Government Buildings, Mission and District	10.08
231-B	Fencing, Nanaimo Vocational School	6,766.00
338-B	Change over to an a.c. system for the elevator, New Westminster Court-house	2,555.00
	Oakalla—	
39-B-18	Security fence, South Wing fence continuing down Royal Oak Avenue around property	15,765.10
39-B-31	Stand-by electrical service	9,607.29
39-B-41	New kitchen, Young Offenders' unit	4,221.86
39-B-42	Renovations to old chapel	237.60
39-B-51	Fire Marshal's recommendations	22,627.12
39-B-53	Remodel basement area into intake and reception area	670.21
39-B-54	Ventilation, shop facilities, West Gate	3,865.00
39-B-55	Conversion supply circuits	
39-B-56	Additional boiler capacity	8,710.72
39-B-57	Additional steam capacity	19,014.78

STATEMENT OF EXPENDITURES—*Continued*

VOTE 339—CONSTRUCTION OF PROVINCIAL BUILDINGS, FISCAL YEAR 1959/60—*Continued*

Project No.	Description	Expenditure
	Oakalla—*Continued*	
39-B-58	Main kitchen ventilation	
39-B-59	Ventilation, South, West, and East Wings	
39-B-60	Replace ventilating-fan, main part of building	
39-B-61	Renovating of hospital operating-room and hospital	
39-B-62	Roads	$193.37
292-B	Structural changes, Parliament Buildings, Victoria	29,063.55
351-B	Water-main extension, Interurban Road, Saanich	
201-B-1	Civil Defence, Prince George Government Building	
331-B	Additions to Terrace Court-house	36,877.18
340-B	Alterations to Topaz Avenue Storage Vault	
10-B-37	Installation of showers, Tranquille Sanatorium	1,672.05
10-B-38	Purchase of an aerial-ladder truck, Tranquille Sanatorium	
10-B-39	Renewal of steam-lines, Tranquille Sanatorium	810.08
150-B-1	Storage space, Polio Pavilion, Vancouver	6,934.78
330-B	Purchase of 97.69 acres of land in the Vernon area	45,000.00
25-B-9	Air-cooling unit in two dormitories and kitchen, Home for Aged, Vernon	1,760.00
25-B-10	Sprinkler system at Home for Aged, Vernon	3,158.45
321-B	Renovations, Court-house, Vernon	3,548.66
339-B	New Victoria Court-house	116,010.49
345-B	Street-lighting, Heather Street, Vancouver	
89-B-1	Completion of seventh floor, Provincial Health Building, Vancouver	8,799.70
89-B-2	Black-topping driveway, Provincial Health Building, Vancouver	2,766.72
279-B-4	Alterations to switchboard, Victoria	85.00
178-B-1	Victoria College alterations	34,551.01
178-B-3	Addition to Ewing Building, Victoria College	9,752.16
	Woodlands School—	
7-B-37	Electrical distribution and rebuild vault	4,679.41
7-B-38	Furnishings and equipment, Rehabilitation Centre	884.22
7-B-40	Landscaping, fencing, paving, airing-court fences	4,862.00
7-B-41	Alterations to kitchen	65,596.74
343-B	Purchase of a residence at Williams Lake for Government Agent	14,000.00
344-B	Purchase of a house for District Superintendent, Department of Highways, Terrace	18,800.00
31-B-5	Fire-alarm system, TB. Hospital, Tenth and Willow, Vancouver	3,000.00
		$2,833,718.88

FEDERAL GOVERNMENT CREDITS

299-B	Burnaby Vocational School	$416,790.02
5-B-53	Home for Aged, Port Coquitlam	134,683.71
		$551,473.73

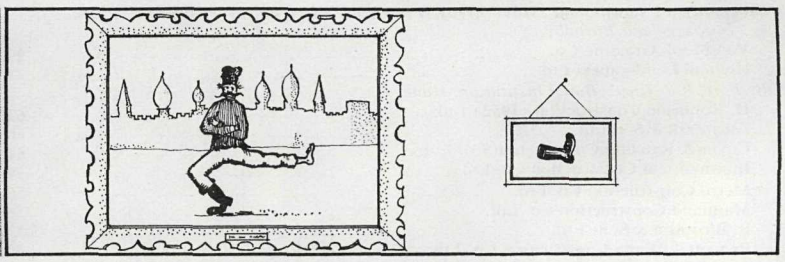
A. E. RHODES,
Departmental Comptroller.

TENDERS RECEIVED AND CONTRACTS AWARDED

Description of Work and Names of Tenderers	Amount	Remarks
Vocational Training School, Burnaby:		
Narod Construction Co. Ltd.	$985,158.00	
Burns & Dutton Concrete & Construction Co. Ltd.	1,018,000.00	
D. Robinson Construction Co. Ltd.	993,988.00	
Beaver Construction Co. Ltd.	965,734.00	Awarded.
Klassen Construction Co. Ltd.	1,049,888.00	
Piping for One Gas-fired 19,400-lb. Boiler, Oakalla Prison Farm:		
The Bay Co. (B.C.) Ltd.	7,983.00	
Vancouver Pipe & Engine Works	9,757.22	
Whitticks Mechanical Contractors	12,930.00	
Hodgson Ltd.	7,928.00	
Lockerbie & Hole (Western) Ltd.	13,284.00	
Ben's Heating & Sheet Metal Ltd.	9,783.00	
Flanders Installations Ltd.	7,641.00	Awarded.
Alterations, Dawson Creek Library:		
Dyke Construction Ltd.	9,896.00	Awarded.
Addition, Terrace Government Building:		
Northwest Construction Ltd.	34,759.00	Awarded.
Barton Construction Co. Ltd.	37,047.00	
Quast & Walmsley Construction Co. Ltd.	38,654.00	
D. Robinson Construction Co. Ltd.	51,723.00	
Stange Construction Co. Ltd.	45,389.00	
Excavation, New Court-house, Victoria:		
D. Robinson Construction Ltd.	115,115.00	
Wakeman & Trimble Contractors Ltd.	127,702.00	
Midland Construction Co. Ltd.	142,088.00	
Commonwealth Construction Co.	92,665.00	Awarded.
Nanaimo Bulldozing Co.	98,800.00	
Incinerator, Provincial Mental Hospital, Essondale:		
Francis, Hankin & Co. Ltd.	71,400.00	
Plibrico (Canada) Ltd.	68,516.00	
Railway & Power Engineering Corporation	69,926.23	
Cal-Van Construction & Engineering	82,422.00	
Vanco Products Ltd.	43,025.00	Awarded.
Two Fire-stairs, Two Bridges, and Four Additional Exits, East Lawn Building, Essondale:		
Coyne & Ratcliffe Construction Co. Ltd.	78,190.00	
Lickley Construction Co. Ltd.	73,456.00	
Gilmour Construction & Engineering Co.	79,774.00	
Mutual Mechanical Installations	74,999.00	
D. Robinson Construction	73,394.00	Awarded.
Jarvis Construction Co. Ltd.	78,508.00	
Completion of Seventh Floor, Provincial Health Building, Tenth Avenue, Vancouver:		
D. Robinson Construction Co. Ltd.	62,245.00	
Howe Construction Co. Ltd.	50,990.00	Awarded.
Kennett Construction Co. Ltd.	61,594.00	
Beaver Construction Co. Ltd.	53,450.00	
Burns & Dutton Concrete & Construction Co. Ltd.	57,900.00	
Bennett & White Construction Co. Ltd.	52,503.00	
C. J. Oliver Ltd.	58,524.00	
Lickley Construction Co. Ltd.	54,705.00	
Gilmour Construction & Engineering Co. Ltd.	57,880.00	
Frank Stanzl Construction Ltd.	56,085.00	
Alex Park & Son Ltd.	56,086.00	
Maintenance of Lawns and Grass Areas, Provincial Government Properties, Vancouver and Burnaby:		
Van Mook Grassing Co.	29,909.60	
Holland Landscapers Ltd.	27,915.00	Awarded.
Sally Port, B.C. Correctional Institution, Haney:		
D. Robinson Construction (1952) Ltd.	62,926.00	
Alex Park & Son Ltd.	60,755.00	
Coyne & Ratcliffe Construction Co. Ltd.	61,250.00	
International Construction Co. Ltd.	59,278.00	
Metro Construction Co. Ltd.	56,900.00	Awarded.
Mainland Construction Co. Ltd.	56,869.00	
B. Bjornson & Sons Ltd.	57,356.00	
Bennett & White Construction Co. Ltd.	60,026.00	
C. J. Oliver Ltd.	58,500.00	

TENDERS RECEIVED AND CONTRACTS AWARDED—*Continued*

Description of Work and Names of Tenderers	Amount	Remarks
Replacement of Wilson Ranch Barn, Colony Farm, Essondale:		
Parr of Canada Ltd.	$37,542.00	
B. Bjornson & Sons Ltd.	36,581.00	
Kennett Construction Ltd.	42,270.00	
Metro Construction Co. Ltd.	35,220.00	
Halse-Martin Construction Co. Ltd.	38,590.00	
Gilmour Construction & Engineering Co. Ltd.	38,861.00	
Lickley Construction Co. Ltd.	34,647.00	Awarded.
Howe Construction Co. Ltd.	41,937.00	
Greenall Bros. Ltd.	36,543.00	
D. Robinson Construction (1952) Ltd.	37,994.00	
Coyne & Ratcliffe Construction Co. Ltd.	35,240.00	
Ward & Son Ltd.	35,900.00	
Random Sample Poultry Testing Station and Garage, Abbotsford:		
R. A. Adair Construction Ltd.	45,610.00	
B. Bjornson & Sons Ltd.	45,156.00	Awarded.
Lickley Construction Co. Ltd.	50,426.00	
J. Olund Construction Ltd.	53,639.00	
D.L.P. Construction Co. Ltd.	49,645.69	
Howe Construction Co. Ltd.	53,513.00	
E. S. Henriksen	55,312.00	
A. W. Dietcher Construction	47,420.00	
Knutson Construction	47,215.36	
Provincial Government Offices, Mission and District:		
J. Olund	146,600.00	
Howe Construction Co. Ltd.	151,180.00	
Bennett & White Construction Co. Ltd.	144,000.00	
Jarvis Construction Co. Ltd.	147,059.00	
International Construction	142,111.00	Awarded.
Coyne & Ratcliffe Construction Co. Ltd.	139,292.00	
Lickley Construction Co. Ltd.	147,885.00	
Burns & Dutton Concrete & Construction Co. Ltd.	151,572.00	
E. H. Shockley & Sons Ltd.	150,386.00	
C. J. Oliver Ltd.	143,000.00	
Mainland Construction Co. Ltd.	147,693.00	
Deithers Construction Co.	147,000.00	
Cloverdale Construction Co. Ltd.	143,841.00	
Commonwealth Construction Co.	148,514.00	
Geo. Born Construction Ltd.	153,391.00	
Contract No. 2, Law Courts, Victoria:		
C. J. Oliver (V.I.) Ltd.	143,911.00	
John Laing & Son Ltd.	168,250.00	
G. H. Wheaton Ltd.	165,285.00	
Luney Bros. & Hamilton Ltd.	132,115.00	Awarded.
Commonwealth Construction Co. Ltd.	144,899.00	
Farmer Construction Ltd.	144,515.00	
Contract No. 1 (Clearing and Excavating for Classroom and Faculty Building), Victoria University:		
Chew Excavating Ltd.	13,656.14	
Luney Bros. & Hamilton Ltd.	13,206.25	
Wakeman & Trimble	12,932.50	
Farmer Construction Ltd.	12,182.00	Awarded.
Bud's Cartage & Contracting Co. Ltd.	17,662.00	



J. D. Hooper,
Architect—Grade 1.

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