

PROVINCE OF BRITISH COLUMBIA

Minister of Public Works

REPORT
FOR THE FISCAL YEAR
1962/63



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in right of the Province of British Columbia.

1964

PHYSICS OF BUBBLE FILMS

Ministry of Public Works

REPORT

FOR THE YEAR

1954

Published by the Ministry of Public Works, 1954

*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 31, 1963, 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 17, 1963.*

"When we mean to build,
We first survey the plot then draw the model;
And when we see the figure of the house,
Then must we rate the cost of the erection."

—Shakespeare, "Henry IV."

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As in previous years, this Report contains examples of work by artists and architects of the Department of Public Works.

“We believe that our Department can, and must, achieve something rather more difficult than a high standard of building. We must be an organization that can develop ideas, can investigate and experiment with new techniques. Above all, we must improve our own programmes by studying and analysing the needs of the people we serve. We must lead, not follow.”—
Public Works in British Columbia, 1961–62.

*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 31, 1963.

Elsewhere in this Report will be found those of the heads of Divisions. These set out work accomplished and planned, tenders let and accepted, and Departmental accounts.

The increased tempo of work referred to in last year's Report has continued. During the year and up to the time of preparing this Report, a new major building has been completed at the average rate of one every two weeks. This compares very favourably with the previous average of one every five weeks. It is apparent that this pace will continue throughout 1963.

The cost-of-construction index has climbed quite sharply in recent months. No one factor can be singled out as having peculiar significance as it is apparent that several factors contribute to the rise. The effect is being felt in private and Government building alike. Nevertheless, this Department is re-examining plans and specifications with a view to lessening the impact of the rise without affecting quality.

I am pleased to report that continuing efforts to raise the standard of designs, plans, and specifications are bearing fruit. Comments from contractors and other knowledgeable persons indicate an increasing respect for our workmanship.

Finally, Sir, I would report that Departmental productivity remains very high. The staff under your control have worked hard. Without their present high morale it would be difficult to achieve the volume of work with which we are confronted. It is a pleasure working with them, and I would like to record my personal thanks to them for their fine co-operation.

*A. E. WEBB,
Deputy Minister.*

SAFETY ENGINEERING

If engineering is defined as the art of converting the works of nature to the uses of man, then is there a place in the world where there is more evidence of this than in our own British Columbia?

Here one of the many tasks of the engineer is the harvesting of the vast resources granted us by a bountiful Providence.

He draws oil and gas from the earth and pours rivers and lakes into turbines, that we may have the raw materials to produce the heat, light, and power which form the very lifeblood of our towns and cities.

From the Peace River country, oil is sent streaming through hundreds of miles of large transmission piping down to the refineries, there to be processed into fuel for trains, ships, aircraft, and the thousands of automobiles on our streets and highways.

It generates steam to make pulp, paper, and plywood, for the retorts in our fish and fruit canneries, and the many processes in our factories.

Side by side with the oil transmission piping, gas, too, is sent hissing under high pressure to the outer limits of our towns and cities, where it is halted to be reduced in pressure and rendered serviceable before being directed into town mains to supply heat to hospitals, hotels, apartments, bakeries, industrial and domestic furnaces, as well as for the housewife's kitchen range.

The energy from the turbines spins the wheels of our factories, speeds us from one floor to another in our tall buildings, lights our streets and houses, and performs a score of services in our homes which we regard as a standard of living.

In their devious journeys toward their end use or service to us, the energy sources are not without their particular problems and even hazards. Just as fire is said to be a good servant but a bad master, so it is with oil, gas, or electricity. Some control is necessary if we are to enjoy them.

The oil-pipes and gas mains must be skilfully welded and designed to withstand high pressure; electric cables must be of a proper size and well armoured to prevent injury to those nearby.

It follows that special rules are to be observed for safety's sake in the design and use of electrical and gas equipment, steam-boilers, and pressure vessels.

The Department of Public Works has prepared such rules and employs a specialist group of engineers whose function is to ascertain the rules are observed in particular by manufacturers, contractors, and workmen engaged in these fields.

This group, now known as the Safety Engineering Services, is composed of three branches—Boiler and Pressure Vessels, Electrical Energy, and Gas Inspection.

The Chief Inspector of each branch is an active member of a national or international association, such as the American Society of Mechanical Engineers, the Canadian Standards Association, or the Canadian Gas Association, who meet annually and with the assistance of representatives of industry are able to devise appropriate rules or codes contributing to safety and adjusted to keep pace with advances and changes in equipment. These codes can be embraced by regulations and become a uniform standard throughout the land so that equipment manufactured under one jurisdiction is acceptable in another.

The large heavy vessels built in our shops for mills, refineries, refrigeration and heating plants are under the constant surveillance of our inspectors, as are installations of electrical equipment, gas, and oil fuel.

Moreover, all steam plants and the larger pressure vessels are inspected annually, that defects may be corrected, wear and tear noted, and to ascertain they are under competent operators.

In the case of the proprietary types of equipment, such as electric and gas ranges, water-heaters, and domestic appliances, all must bear an approval seal indicating they have survived the stringent tests of a C.S.A. or G.G.A. laboratory.

Another important factor in the codes involves the competence and responsibility of workmen and contractors; hence all stationary engineers, welders, gas-fitters, and electrical contractors are subject to written examinations, and gas and welding contractors are licensed before they may undertake work in their particular field.

Here education becomes a need. To this end the Safety Engineering Services assist the Department of Education in the preparation and establishment of suitable training courses either by correspondence or in our many vocational schools. In many instances, inspectors become instructors.

In this manner we are satisfied that the workman or contractor is equipped with a sound knowledge, not only of his craft, but of safe practice.

From this it is readily seen that the three branches of Boiler and Pressure Vessels, Electrical Energy, and Gas Inspection, working as a team, are directed toward the single purpose of enabling our citizens to enjoy in safety all the amenities of this modern age.

D. DENHAM, P.ENG.,
Chief Engineer.



Natural gas is replacing the smudge pot as a means of frost protection in Okanagan orchards.

REPORT OF THE INSPECTOR OF ELECTRICAL ENERGY

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 1, 1963: N. V. Beech, electrical contractor, representing the Vancouver Electrical Association; E. C. Moore, electrical contractor, representing the Associated Electrical Contractors of British Columbia; M. Andress, electrical inspector for the Municipality of Burnaby, 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. Eight meetings were held throughout the year.

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

Class A	212	Class PC	165
Class B	452	Class TB	1
Class C	553		
Class PA	48	Total	1,499
Class PB	68		

Two hundred and forty-two candidates for electrical contractor's certificates of competency were examined during the year, with the following results:—

Class	Number of Candidates Examined	Passed	Failed
A	33	19	14
B	84	34	50
C	125	58	67
Totals	242	111	131

PERMITS

The total number of permits issued during the year was as follows:—

April, 1962	3,163	November, 1962	3,681
May, 1962	3,788	December, 1962	2,583
June, 1962	3,845	January, 1963	3,203
July, 1962	4,037	February, 1963	2,649
August, 1962	4,120	March, 1963	3,295
September, 1962	3,632		
October, 1962	4,378	Total	42,374

DISTRICT OFFICES AND INSPECTIONS

Office Location	Inspections
Abbotsford	2,873
Alberni	2,381
Bridge River Valley (inspector from Richmond office)	77
Chilliwack	2,562
Courtenay	3,689
Cranbrook	2,099
Dawson Creek	2,208
Duncan	2,756

Office Location	Inspections
Fort St. John	1,998
Gulf Islands (inspector from Richmond office)	91
Kamloops	2,880
Kelowna (seven months only)	1,278
Langley, Delta, and White Rock	2,153
Nanaimo	2,623
Nelson	2,077
New Westminster (three inspectors)	5,126
Penticton	2,646
Powell River	1,712
Prince George (two inspectors)	4,860
Prince Rupert	2,234
Quesnel	2,120
Richmond (two inspectors)	2,810
Salmon Arm (five months only)	671
Trail	1,844
Vernon	2,407
Victoria (three inspectors)	7,671
Total	65,846

Due to increased construction activity in the Peace River area, a new inspector was appointed to the office at Fort St. John, effective June 1, 1962. This district includes Taylor, Fort St. John, and the Alaska Highway to the Yukon Border, including Fort Nelson. Inspections for this district were formerly undertaken by the inspector from Dawson Creek.

Effective August 27, 1962, the inspector from Salmon Arm office was transferred to Kelowna. The Kelowna district includes the area north of Penticton to Oyama. The Salmon Arm area was incorporated in the Vernon district.

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 carried the chairmanship of the Canadian Electrical Code, Part I, Committee, which Committee is responsible for the preparation and editing of the Canadian Electrical Code, Part I.

The two meetings of the Canadian Standards Association Approvals Council (Electrical) and of the Committee on the Canadian Electrical Code, Part I, the first in June at Victoria, B.C., and the second in November at Montreal, Que., were attended.

The eighth edition of the Canadian Electrical Code was published by the Canadian Standards Association in May of this year, and it is anticipated that we will be able to adopt this new edition, together with any supplementary information which may be deemed necessary, in the next few months. In this respect, meetings are being held with all segments of the electrical industry in order that we may have the benefit of considered opinion. I am happy to indicate that this Division enjoys a very harmonious working relationship with the electrical industry, and I anticipate that we will be in a position to make firm recommendations with the assurance that agreement in principle has been accomplished.

A study has been undertaken to determine what might be done to improve the facilities which may be offered to the public in the examination and possible acceptance on non-C.S.A.-approved electrical equipment. Routines have been established whereby policies have been clearly indicated. This is proving to be an acceptable service to all concerned. The need for such service is indicated in the fact that during the fiscal year the number of requests for local acceptance of electrical equipment which has not been officially certified was 243, an increase of 357 per cent over 1961/62, while the number of labels issued was 612, an increase of 238 per cent over 1961/62. It is anticipated that this service will continually increase as it is closely related with the demand for special electrical equipment for special processes or applications.

The work of keeping electrical regulations generally up to date in connection with new techniques, practices, and new materials is continuing.

EXAMINATION OF MOTION-PICTURE PROJECTIONISTS

The Division assisted the Provincial Fire Marshal in conducting four 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

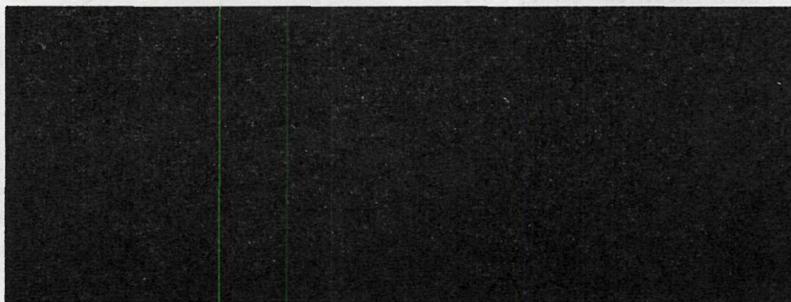
During the year the Division checked 919 applications for the erection of pole-lines on Crown lands or Provincial highways. Recommendations on each application were forwarded to the Regional Engineer of the Department of Highways.

ACCIDENTS

There were 23 accidents recorded during the year, and 8 of these were fatal.

May I again express my appreciation for the splendid co-operation and continued interest in our problems given by the Departmental staff.

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



"DID ANYONE PHONE ELECTRICAL ABOUT
THIS JOB?"

REPORT OF THE CHIEF GAS INSPECTOR

THE ACT

There were no amendments made to the Act or to the pursuant regulations during the past year.

THE DIVISION

The staff consists of the Chief Inspector, Assistant Chief Inspector, sixteen Gas Inspectors, one Senior Clerk (Office Manager), one Engineer's Aide—Grade 2, one Clerk—Grade 2, one Clerk—Grade 1, two Clerk-Stenographers—Grade 2, one Clerk-Typist—Grade 1, plus one Clerk-Typist—Grade 1 (part time) in our Abbotsford office, and one Clerk—Grade 2 (half time) in our Victoria office.

Night-school courses were conducted in Vancouver, Burnaby, and Victoria.

The acceptance of natural gas in the past year has maintained its momentum, as indicated in the summary of work. A new gas utility started operation in the Province—Columbia Natural Gas Limited—serving the Cities of Kimberley, Cranbrook, and Fernie and the Villages of Chapman Camp, Marysville, and Creston. The Village of Aennofield and communities of Rolla and Lac la Hache were serviced during the past year. All utilities made extensions to their mains and services.

ACCIDENTS

During the fiscal year there was one death in the City of Vancouver attributed to burns suffered as a result of a natural-gas explosion.

SUMMARY OF WORK

	1962/63	1961/62	1960/61
New designs checked, industrial approval.....	765	547	601
Gas Codes distributed.....	590	444	2,182
Gas-fitters' licences issued.....	1,514	1,490	1,413
Gas contractors' licences issued.....	566	543	535
Provisional licences issued.....	621	631	862
Gas-fitters' examinations.....	210	134	184
Gas-fitters' re-examinations.....	48	42	71
Number of gas-fitters passed examination.....	158	98	239
Number of gas permits issued, municipalities.....	11,296	12,159	14,635
Number of gas permits issued by this Division.....	13,534	11,584	12,883
Permit application pads distributed.....	680	480	485

A. G. KANEEN, P.ENG.,
Chief Inspector.

REPORT OF THE CHIEF INSPECTOR OF BOILERS AND PRESSURE VESSELS

GENERAL

The new branch offices at Nelson and Prince George have met with appreciation by owners, engineers, and welders. Inspections are now arranged at a time more convenient to the owner, while engineers and welders can take their examinations with the minimum of lost working-hours. The inspector is available for assistance and advice on local plant problems, and violations are now rare.

In the North the continued and rapid growth of oil and gas fields and the expansion of towns are most demanding on the inspectors. In the Kootenays the Consolidated Mining and Smelting plants at Trail and Kimberley, the pulp-mill at Celgar, as well as the many towns in that area require and get attention which we were unable to give before.

The vocational school at Prince George now trains both engineers and welders. This has proved a boon, not only to the men themselves, but to local industry. It can be expected that the proposed vocational school for Nelson will be equally helpful to young men eager to enter local industries.

It is most gratifying to us as examiners to deal with candidates so well trained. The work of the examiner becomes easier, and it is a cause of satisfaction to us that the certificate we issue to a man is supported by sound basic knowledge acquired at the school.

The majority of our successful candidates have received supplementary training at one or other of our vocational schools.

The accelerated programme established in 1961 for the training of young men of Senior Matriculation calibre at Vancouver vocational school is more successful than we ever expected. The larger steam plants are particularly anxious to recruit from this category.

NEW CONSTRUCTION

During the year our workshops manufactured 28 steam-boilers, 80 hot-water boilers, and 1,291 pressure vessels. Continuous expansion of pulp-mills and the advent of new industrial plants, as well as renovations or relocation of old plants, accounted for 85 new high-pressure boiler installations, while 283 hot-water installations were made in new apartment blocks, hotels, schools, and motels.

Exported to other Provinces were 77 pressure vessels to refineries in Alberta and Saskatchewan.

REGULATIONS

A complete new edition of the Regulations Respecting Stationary Engineers is being prepared, in which emphasis is on education and sound practical training, essential for those required to operate our large complete steam plants.

ACCIDENTS AND REPAIRS

Four steam-boilers were damaged—three by overheating and one by a furnace explosion. No one was injured.

An engineer suffered eye injury when a water-gauge glass he had just renewed burst and scattered splintered glass.

A drain connection on a pressure vessel in a refrigeration plant broke, and the engineer suffered superficial burns from ammonia splashes.

Inspectors are emphasizing the importance of testing controls to all engineers, and this has resulted in fewer control failures this year. Recommendations were made in all accidents toward a prevention or reoccurrence.

SUMMARY OF WORK

	1962/63	1961/62	1960/61
Designs registered.....	782	763	718
Boilers built under inspection.....	108	101	93
Pressure vessels built under inspection.....	1,291	1,287	1,240
Total boilers inspected.....	4,582	3,911	3,771
Total pressure vessels inspected.....	2,203	2,511	2,138
New boiler installations.....	389	264	474
Engineers examined.....	544	554	580
Welders examined.....	1,427	1,145	1,624

ENGINEERS' EXAMINATIONS

Class	Number Examined	Passed	Failed
First, A.....	11	7	4
First, B.....	10	8	2
Second.....	30	23	7
Third.....	114	94	20
Fourth.....	274	224	50
Boiler operator, A.....	43	42	1
Boiler operator, L.P.B.....	52	43	9
Boiler operator, H.P.B.....	10	10	---
Totals.....	544	451	93

WELDER'S TESTS

Grade	Number Examined	Passed	Failed
A.S.M.E. arc.....	472	413	59
A.S.M.E. oxy-acetylene.....	87	68	19
Downhill.....	71	65	6
Provisional.....	310	301	9
Renewals.....	668	668	---
Totals.....	1,608	1,515	93

D. DENHAM, P.ENG.,
Chief Engineer, Safety Engineering Services.

REPORT OF THE PROVINCIAL ARCHITECT

"We require from buildings, as from men, two kinds of goodness; first, the doing their practical duty well; then that they be graceful and pleasing in doing it; which last is itself another form of duty."—*John Ruskin, "Stories of Venice."*

The space restriction of a report on 40 major projects tends to produce a prosaic recitation of facts. Statistics give little hint of the vast amount of research and planning required for the production of working drawings and specifications.

As is customary, the activities of the Capital Construction or Design Division are divided into two categories:—

- (1) Contracts let during the fiscal year.
- (2) Projects in the planning stage during the same period.

CATEGORY (1)

Sixteen major contracts were let, aggregating approximately \$13,000,000. This amount was in the ratio of 79 per cent for Vocational and Institute of Technology projects, 18 per cent for Victoria University and Jericho Hill School buildings, and 3 per cent for miscellaneous projects—truly an outstanding year of achievement at vocational, technological, and university level. Projects in Category (1) can be summarized in time sequential order thus:—

1. *Burnaby—British Columbia Institute of Technology.*—Supply and erection of structural steel for the main building (*see No. 5 later*).

2. *Kelowna—British Columbia Vocational School.*—Excavation, backfill, and pre-loading of site. Conditions showed a compressible soil which necessitated a four-month pre-loading with 6 to 8 feet of gravel to minimize future settlement.

3. *Victoria—University.*—A complex of facilities for the Faculty of Science comprising lecture theatres, seminar rooms, and laboratories for chemistry, biology, and physics on the Gordon Head campus. The gross floor area is 2.6 acres.

4. *Prince George—British Columbia Vocational School.*—Phase No. 2 consists of classroom and administration blocks, and welding and millwright shops. This work completes the project as currently programmed.

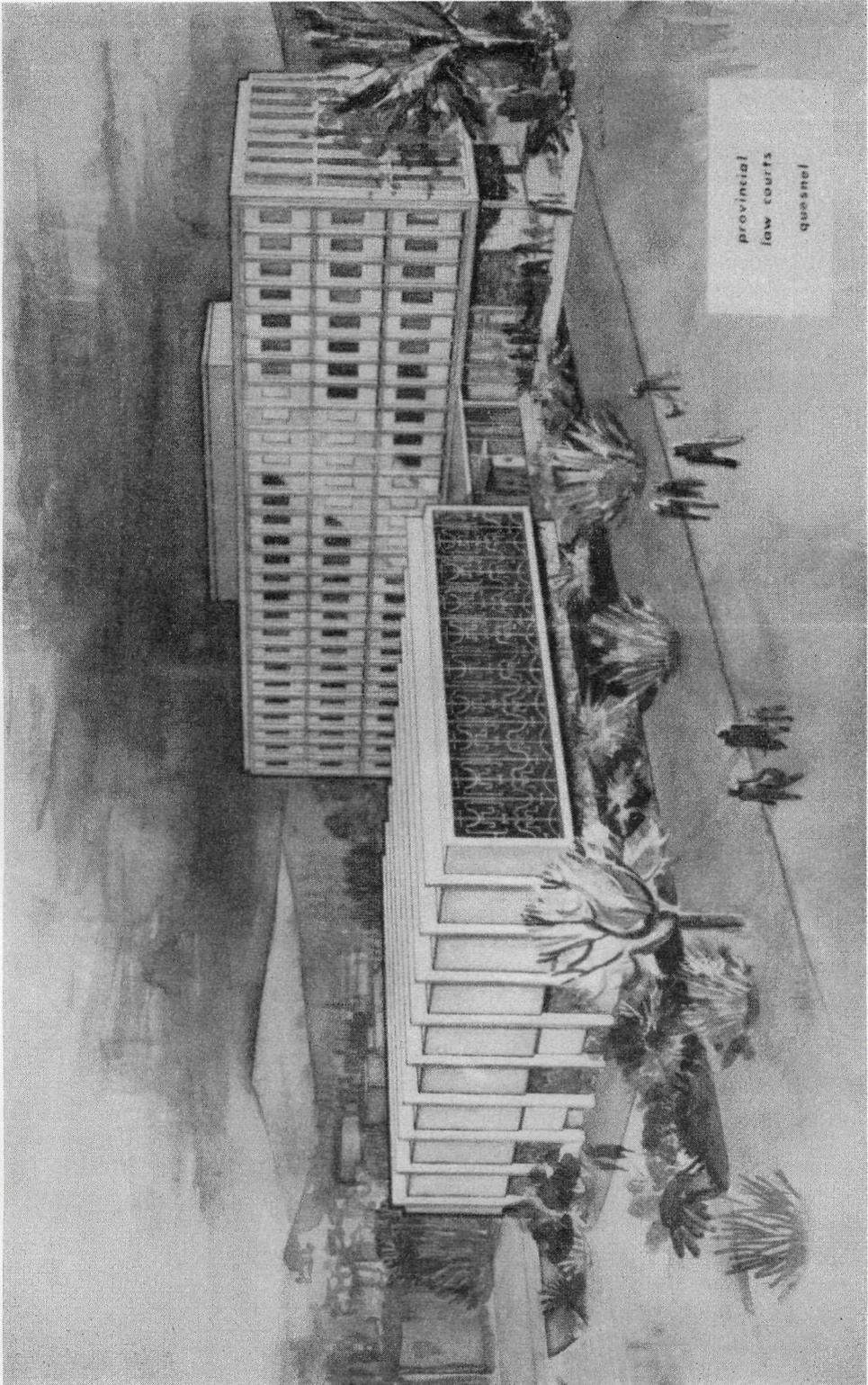
5. *Burnaby—British Columbia Institute of Technology.*—This contract called for the total completion of the building, for which a prior structural-steel contract was let. The Institute has a gross floor area of approximately 5¼ acres, and provides 17 or more diverse technological programmes. These range from broadcast communications, through hotel and restaurant administration, to mining technology.

6. *Nelson—British Columbia Vocational School.*—A one-phase project comprising an administration and classroom building, auditorium and heavy-duty workshop, welding and millwright workshops, and boiler-house.

7. *Kelowna—British Columbia Vocational School.*—Also a one-phase project providing auto mechanics and heavy-duty workshop, welding and auto-body workshop, farm machinery and building construction workshop, administration and classroom building, and boiler-house.

8. *Nanaimo—British Columbia Vocational School.*—This is a major addition to the existing school, comprising an administration and classroom building, and a cafeteria used in conjunction with the chef-training programme.

9. *Burnaby—British Columbia Vocational School.*—With the major development of the campus nearing completion, a separate and adequate administration building was considered mandatory.



provincial
law courts
quesnel

10. *Burnaby—British Columbia Institute of Technology.*—A boiler-house was designed to serve the Institute, plus the adjacent cafeteria building.

11. *Essondale—Valleyview Units Nos. 1, 2, and 3.*—General renovations to bring the buildings up to acceptable standards and to add 50 beds to the existing 100.

12. *Vancouver—Jericho Hill School.*—A new building to provide dormitory facilities for 60 intermediate and senior deaf boys.

13. *Burnaby—British Columbia Institute of Technology.*—A cafeteria with seating capacity of 461 to be used jointly by staff and students of the Institute and the Vocational School.

14 and 15. *Prince George—British Columbia Vocational School.*—Tenders were called for a lawn irrigation system and landscaping.

16. *Essondale—Colony Farm.*—Reconstruction in the first phase of distribution work was necessitated in part by damage caused by "Hurricane Freda."

CATEGORY (2)

Twenty-three major projects were in the planning stage in the fiscal year 1962/63, principally relating to institutional and educational work. These are referred to hereafter.

MENTAL INSTITUTIONS

1. *Essondale—West Lawn.*—Alterations and additions to the kitchens and dining-room to improve existing standards.

2. *Essondale—Center Lawn.*—New fire exits and staircases to comply with Fire Marshal's requirements.

3. *Essondale—Hillside Building.*—Designed to replace the old Boys' Industrial School (BISCO) demolished by fire. It would house patients and provide attractive dining, recreation, and dayroom facilities.

4. *Essondale—Public Works Building.*—A prefabricated structure with basement to provide workshops and storage amenities for Public Works maintenance throughout the institution.

5. *Essondale—Garbage-handling.*—The present inefficient methods are under study and will be reorganized on an efficient and hygienic basis. Each of the numerous garbage-collection points will be individually remodelled. The new incinerator is already in operation.

PENAL INSTITUTIONS

6. *Prince George—Addition to Men's Gaol.*—Extra cell blocks and ancillary facilities are being planned.

7. *Haney—Allco Institution.*—On the existing obsolescent infirmary site will be constructed a number of buildings to house and treat alcoholic patients. The first building planned is a 50-bed dormitory.

8. *Oakalla—Westgate Addition.*—A new building is planned to provide operational shops, and on completion the existing area presently occupied with shops will be replanned, providing cell accommodation for 80 additional prisoners.

EDUCATIONAL

9. *University of British Columbia—College of Education.*—Phase No. 2 was planned. It comprises multi-story blocks for offices and classrooms as the penultimate stage of development.

10. *University of British Columbia—College of Education.*—The final building to complete this project was planned—the gymnasium, forming an integral part of the teacher-training programme.

11. *Vancouver—Jericho Hill School.*—Planning was started for a main classroom building integrated with an industrial arts and home economics building.

12. *Prince George—British Columbia Vocational School.*—A storage building, primarily for vehicles, was planned.

MISCELLANEOUS

13. *Abbotsford—Animal Pathology Laboratory.*—A modern research laboratory building planned to replace inadequate hut facilities at the University of British Columbia.

14. *Kootenay Trout Hatchery, Bull River.*—The primary function of this project is to produce high-quality fish at low cost; the secondary aim is to make available in the hatchery adequate facilities for research by field biologists. With its indoor hatchery and aquaria, and the external landscaped areas with reflecting pools, this development will be an immense tourist attraction whether visitors are sport fishermen or not.

15. *Burnaby—British Columbia Vocational School.*—A large building was planned for centralized headquarters for Public Works maintenance, comprising shops and storage. It will be built partly by contract and largely by vocational-school students as a building project.

16. *Victoria—Government House.*—A new tea pavilion, planned primarily to serve the large garden functions.

17. *Oliver.*—New Government offices with Courtroom facilities.

18. *Fort Nelson.*—New Government offices with Courtroom facilities.

19. *Quesnel.*—New Government offices with Courtroom facilities.

Preliminary planning of these new Government offices was commenced.

20. *Kelowna—Courthouse.*—Pressure for additional departmental space activated planning for a new wing.

During the fiscal year 17 projects for senior citizens' housing were reviewed for the Provincial Secretary's Department, and recommendations made where necessary for modification of submitted plans and specifications.

In this same period an administration building and additions to a fraternity house on the University of British Columbia Endowment Lands were reviewed on behalf of the Lands Department.

The writer, together with the Senior Structural Engineer, acted as Public Works representatives of Working Group No. 5, Interdepartmental Emergency Planning Committee. During this period, plans submitted by the Municipalities of Hope, New Denver, Prince George, Saanich, Terrace, and White Rock received appropriate attention with regard to construction grants.

Appreciation is due to all members of the staff, with, perhaps, particular emphasis on those who worked indefatigably on the large vocational-school programme.

Excellent co-operation was received from all departments concerned with the various projects, and particular thanks are due to the Purchasing Commission for their unflinching co-operation.

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

Provincial Architect.

KOOTENAY FISH HATCHERY

The Kootenay trout hatchery presently under construction on Norbury Creek near Bull River in the East Kootenay will be the most up-to-date and flexible hatchery in North America when it is completed and in operation.

Not only will the new hatchery increase the number of game fish liberated annually from 6,000,000 to 15,000,000, but is also the only hatchery on the continent which has been planned so that the public can see, at close range, the entire operation without interfering with production operations. In addition, fully modern laboratory facilities will be provided for pure and applied research in fish culture.

The new hatchery will supply rainbow, Eastern brook trout, and Yellowstone cutthroat for liberation in the East and West Kootenays, but will also benefit the Okanagan area by relieving the Summerland hatchery of the Kootenay demand. Larger fish (up to 12 inches) will be transported in specially equipped tank-trucks to the liberation points, while smaller fish (2 to 3 inches in length) will be liberated from aircraft. The fish will be set free in lakes which do not at present support trout, perhaps due to an overabundance of coarse fish, and in lakes where the natural replacement rate is not sufficient because of angling pressure. In either case the new hatchery will provide for a large increase in angling as recreation, which is particularly valuable to residents and visitors, both materially and psychologically.

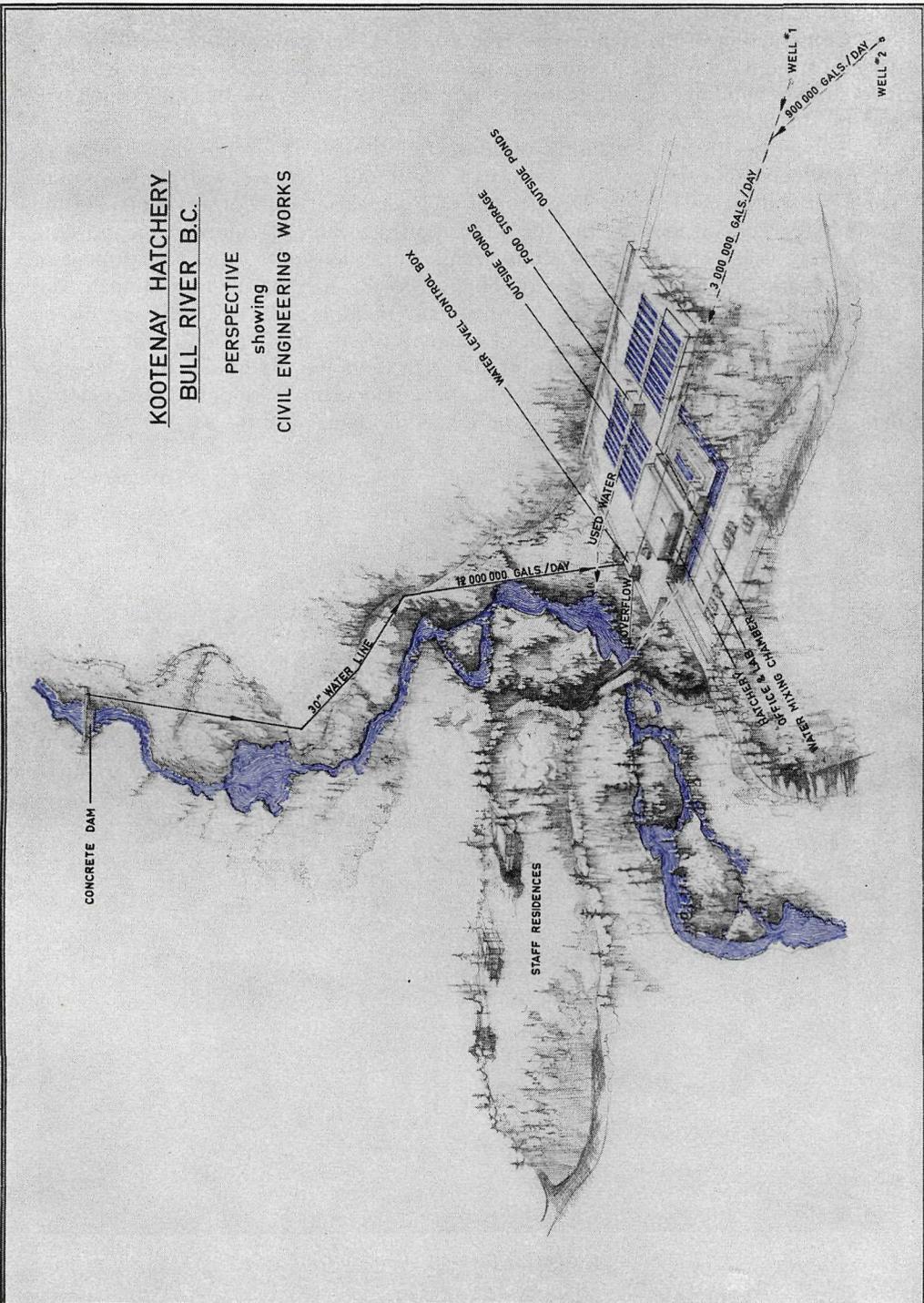
Basically a hatchery is simply a method of controlling the environment in which the trout eggs are hatched and in which the fish live and grow to a size suitable for liberation, and to reduce as much as possible the extremely high mortality rate of natural conditions. A pure and dependable water supply is an obvious first requirement, but also, to achieve a maximum growth rate, the temperature of the water must be controlled between 45° and 60° F.

Accordingly, the search for a site was narrowed down to those affording a clean year-round stream in an area where a large ground-water supply could probably be developed. The site at Norbury Creek seemed ideal because the creek itself has a particularly even flow, neither drying up during the summer or flooding over its banks in the spring. The terrain is attractive and seemed to indicate that large-capacity wells could be developed. A programme of testing the ground-water for quality and quantity was undertaken in the fall of 1962, and it was found that wells would produce up to 3.5 cubic feet per second (1,500 imperial gallons per minute) at a spacing of 500 feet. Two such wells were drilled in the spring of 1963, and have proved capable of 5.0 cubic feet per second or 1,900 gallons per minute. One will be used to its full capacity and the other at about half capacity at first, with provision made for increasing it to full capacity in the future. The ground-water, as well as being pure, is at a temperature of 45° F. at all times, and will be mixed with the creek water to produce hatchery water within the 45° to 60° F. range, cooling the creek water in the heat of the summer and warming it in the winter.

Meanwhile, topographical surveys and test drillings located a site for a diversion dam on the creek and a pipe-line from it to the hatchery. As well as diverting a large proportion of the creek flow into the pipe-line, this dam was required to act as a barrier to prevent coarse bottom-feeding fish from passing upstream into Norbury Lake. The lake and the creek will be poisoned to kill all fish before the

KOOTENAY HATCHERY
BULL RIVER B.C.

PERSPECTIVE
showing
CIVIL ENGINEERING WORKS

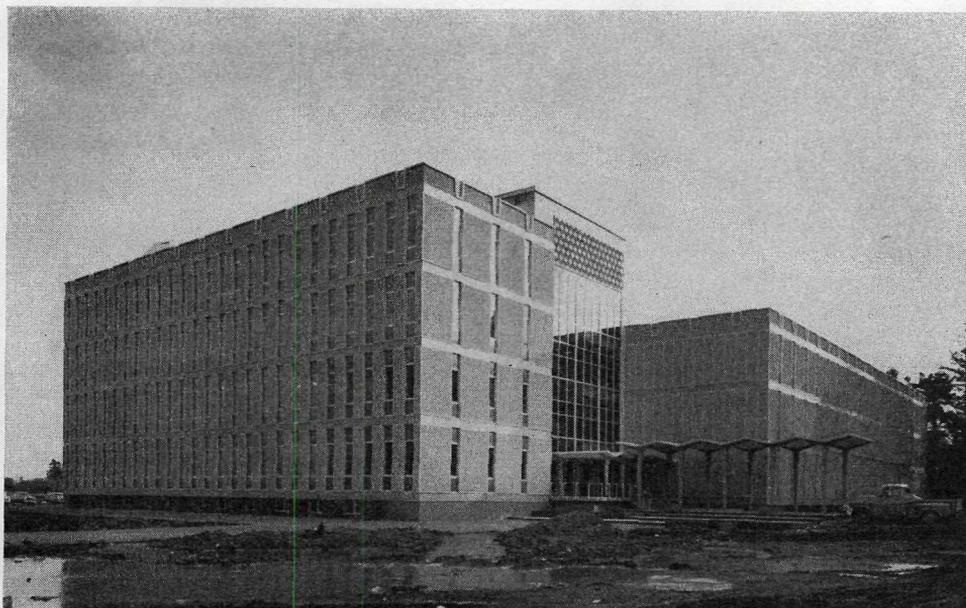


hatchery is put into operation and will be stocked with selected species as an adjunct to the hatchery research laboratory.

Construction of the civil engineering aspects of the project is proceeding, as is design of the hatchery itself and the necessary ancillary facilities, including a fish-food storage building, outside rearing ponds, and residences for the staff which will operate the facility.

This project is a fine example of co-operation between various departments of the Provincial Government to produce a result of which we will all be proud. The Fish and Game Branch, Department of Recreation and Conservation, did the preliminary work of locating the site and supplied technical requirements and data which were used by the structural and architectural divisions of the Department of Public Works. The Department of Highways, through its Testing Branch, did considerable test drilling at various dam and building sites. The Topographic Division, Lands Service, Department of Lands, Forests, and Water Resources, provided many fine topographic maps of the area, and the Hydraulic Investigations Division, Water Resources Service, of the same Department, supplied hydrometric data and valuable advice regarding the diversion dam.

STRUCTURAL ENGINEERING DIVISION.



The Elliott (Sciences) Building, Victoria University.

WASTE TREATMENT, ABBOTSFORD ANIMAL PATHOLOGY LABORATORY

Unusual problems were encountered in the design of this disposal system, which is thought to be unique.

The building houses pathology rooms for major and minor domestic animals, mainly cattle, sheep, hogs, and poultry. It also houses laboratories where tissues of dead animals are examined. There is also, of course, the usual office space for personnel, conference rooms, storage space, lunchroom, and washrooms.

At first it was thought that all wastes could be conventionally treated in a septic tank and have the surplus liquid filtered through the usual agricultural-tile drainfield into the gravel sub-surface. Talks to the institution's future personnel, however, showed that chemicals and disinfectants used in laboratories would seriously impede and perhaps stop the digestion process in the septic tank. Further talks brought out the danger of spreading dangerous viruses, such as anthrax, by allowing infected waste liquid to percolate into the ground-water. The anthrax virus, which appears to be the most dangerous, cannot be held back by any filtering of conventional nature and cannot be safely killed by chemical means. It can only be safely disposed of by heating the wastes to 210° F. and holding it for 50 minutes at this temperature. A special gas-fired heater was devised, which is capable of handling 100 gallons of waste per hour.

As the flow of infectious waste to this treatment facility is intermittent, and depends on the actual work in the research area, a holding-tank of adequate capacity was placed in front of the treatment plant. A buzzer and an illuminated sign in the general office indicate when this tank is full, requiring the operator to fire up the treatment unit.

The heat-treated waste is inoffensive and can be discharged into a dual-compartmented septic tank. Sedimentation follows in this tank. The surplus liquid will then be percolated through a drainfield in the usual manner. Wastes containing disinfectants, chemicals, but otherwise generally low on organic content are led into a rock pit and by-pass all other facilities. These wastes are carefully separated from the infectious wastes.

The design allows for sewers of the municipality to serve this institution at a later date. No infectious waste will enter the municipal system without heat treatment. This is a necessary requirement in the predominantly agricultural area as effluents from the municipal sewage lagoon flow into ditches which are frequently used by grazing cattle for their drinking-water supply.

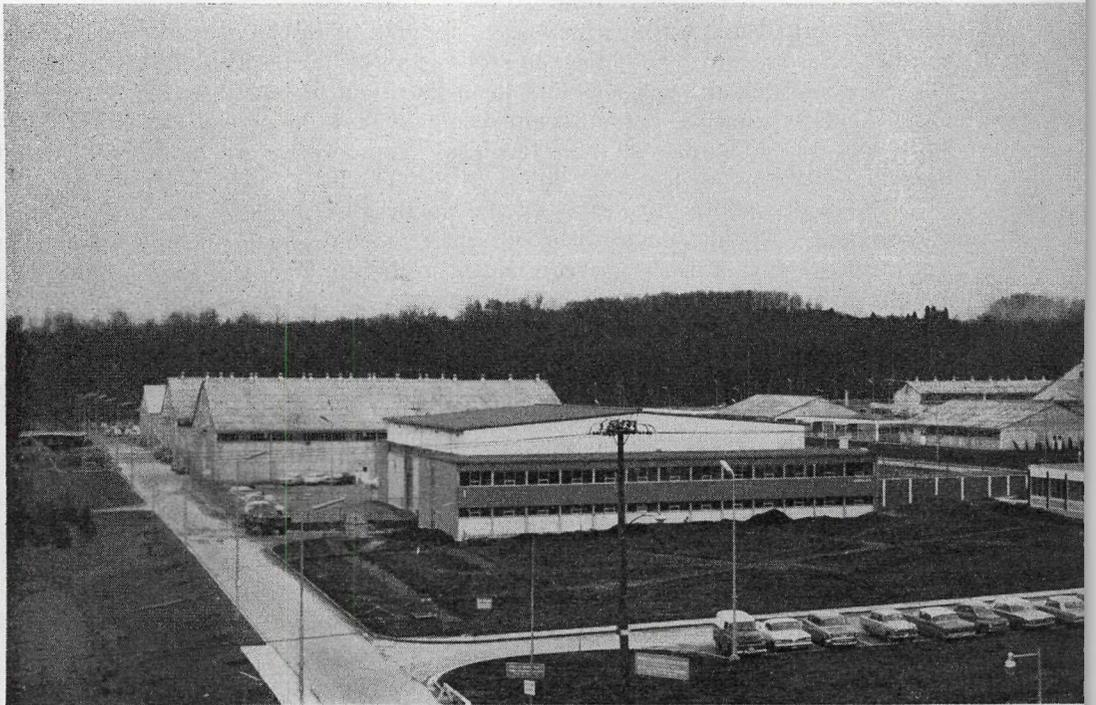
This design is a good example of today's efforts to combine the talents of scientific and technical staff in order to promote the agriculture of this great Province.

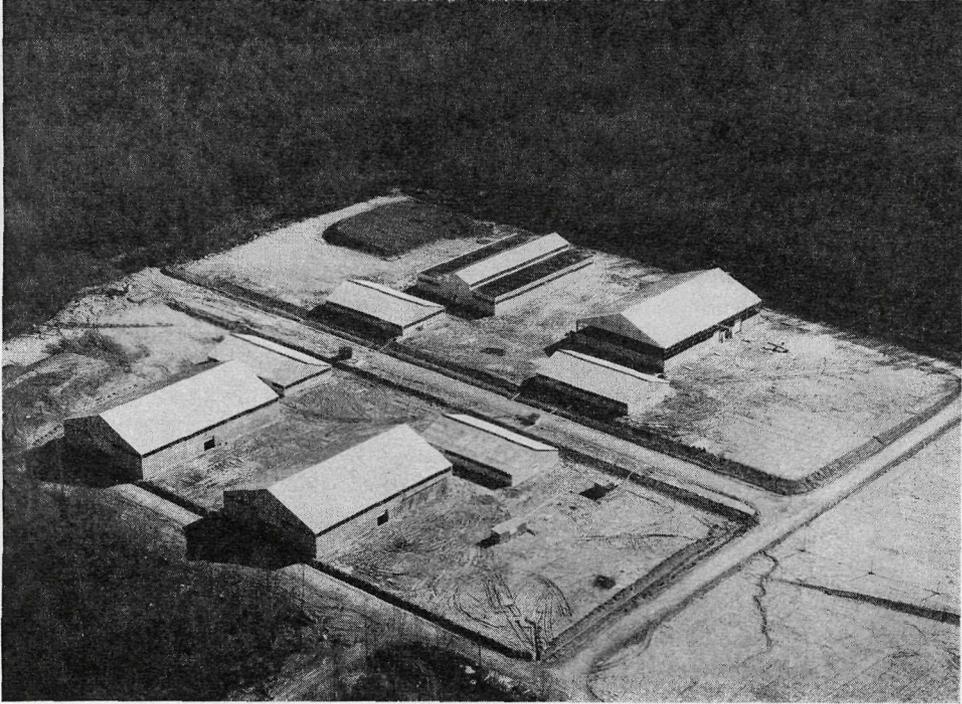
G. A. DERY, DIPL.ING., E.T.H., P.ENG.,
Structural Engineering Division.



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REPORT OF THE CONSTRUCTION AND MAINTENANCE ARCHITECT

MAINTENANCE AND BUILDING MANAGEMENT

This Division has, throughout the fiscal period under review, continued its task of endeavouring to provide suitable space for the many diversified requirements of Government by altering existing Government-owned premises and rented space. It has also carried out major and minor repair and redecoration work on many premises.

The problem of providing adequate accommodation has challenged the ingenuity of this Division, as better utilization of floor areas in many of our older structures can only be obtained by costly alterations. Considerable attention has been given to surveying existing accommodation to ascertain if consolidation of several separate operations would release usable space, thus eliminating the necessity for further rentals. In many instances, with the co-operation of other Government departments, we have been able to effect considerable economy in the use of space, and at the same time improve working conditions.

As space in the majority of our buildings is in short supply, record storage areas and unfinished basement space have been divided and finished for office and other purposes by this Division. Unless microfilming or some other method of reducing storage space required for records is enlarged in scope or adopted, it will be difficult to reduce these areas further.

In some buildings overcrowding is occurring. This condition could lower the efficiency of Government staff occupying the premises. In these instances it is our hope that new Government premises or rented accommodation may be made available in the not too distant future.

During the fiscal period, 80 sets of plans and specifications were prepared, to enable tenders to be obtained for maintenance, alterations, and minor new buildings throughout the Province.

The following list includes some of the larger contracts in this period:—

- (1) Haney Correctional Institution: Exterior painting and awnings.
- (2) Fort St. John, Government Agency Residence: New roof.
- (3) Charlie Lake, Pan-Abode Residence: New roof.
- (4) Cranbrook Courthouse: Renewal of flashings.
- (5) Burns Lake Courthouse: New roof and flashings.
- (6) Skeenaview Home for the Aged: New roof.
- (7) Chilliwack Courthouse: Caulking and waterproofing exterior.
- (8) Prince George Provincial Library: Interior and exterior decoration; new plumbing.
- (9) Fallout reporting posts were planned and construction supervised for the Federal Government on Provincial property at New Denver, Kaslo, Natal, Grand Forks, Creston, Nakusp, and Golden.
- (10) Liquor Control Board: Fire-escape stairs at warehouse, Victoria.
- (11) Interior and exterior redecoration for offices, Langley Street, Victoria.
- (12) Natal Police Detachment: Major redecoration and repairs.
- (13) Nelson Gaol Annex: Contract awarded and construction supervised by this Division's personnel.
- (14) Residences: Smithers, Burns Lake, Dawson Creek, Quesnel, and Fernie.
- (15) Chilliwack Courthouse: Major renovation to accommodation vacated by Health Department. Work carried out by Vancouver area works staff.

- (16) Grand Forks: Sketch-plans and working drawings for separate unit police accommodation.

This Division has a Superintendent of Works at Victoria, Vancouver, Essondale, and Kamloops, who, with their respective staffs, have continued to carry out a very full programme of maintenance and structural alterations to the buildings in their areas. The writer visited these areas and inspected many of the buildings being maintained.

While it is Department policy to let all possible work to contract, many works must, because of their nature, be carried out by our own forces. It is a matter of pride that this Division is repeatedly congratulated on the high standard of workmanship and economy achieved by Department staff. Very close liaison has been established with the field staff by standard means of communication and by regular reporting of work progress. This has enabled a very objective programme to be coordinated and carried out.

The writer would respectfully suggest that the density of buildings and property in the Kootenays indicates consideration should be given to the establishment of a new Superintendent of Works area. In support of this contention, completion of the Nelson Vocational School will add a further capital investment of approximately \$1,500,000 to the value of property in this area.

This Division's personnel made a number of site visits during the year to inspect work, obtain surveys of property, and advise and help other departments on work they had requested to improve their operations. Many reports were submitted relating to the condition of existing property, and corrective measures were taken to comply with the requirements of the *Fire Marshal Act* and other safety inspection divisions, or where conditions revealed possible danger to life or property. In this respect, frequent conferences and active liaison was maintained with the Structural, Mechanical, and Electrical Divisions, who aided us in eliminating hazardous conditions arising from deteriorated or defective services.

I would like to thank all Government Agents, highway engineers, and others, who have acted on our behalf in the Interior for the help and co-operation they have given us in carrying out a successful maintenance programme.

CONSTRUCTION

This year brought an unprecedented increase in the number of new buildings under construction. This heavy programme strained the Division's resources to the limit, but with excellent co-operation extended by all other Departmental divisions we were able to resolve all problems. One fact stands out above others: the policy of recruiting thoroughly experienced and competent project inspectors has proved to be a move of the utmost soundness. A total of eight are now engaged in this task. All of them are men of many years of practical experience in the business of construction, and their knowledge, coupled with continuous supervision, is resulting in the delivery of a standard of quality, workmanship, and economy higher than ever before.

The following new projects were under construction during this period:—

- (1) Victoria University—Sciences Building.
- (2) British Columbia Vocational School—Kelowna.
- (3) British Columbia Vocational School—Nelson.
- (4) British Columbia Vocational School—Nanaimo: Administration, classroom block, and cafeteria.
- (5) British Columbia Vocational School—Prince George: Phase 2.

- (6) British Columbia Vocational School—Burnaby: Administration building.
- (7) New Westminster—The Woodlands School: Nurses' Home No. 2.

Personnel from this Division also made a final inspection and accepted on completion the following projects from the general contractors:—

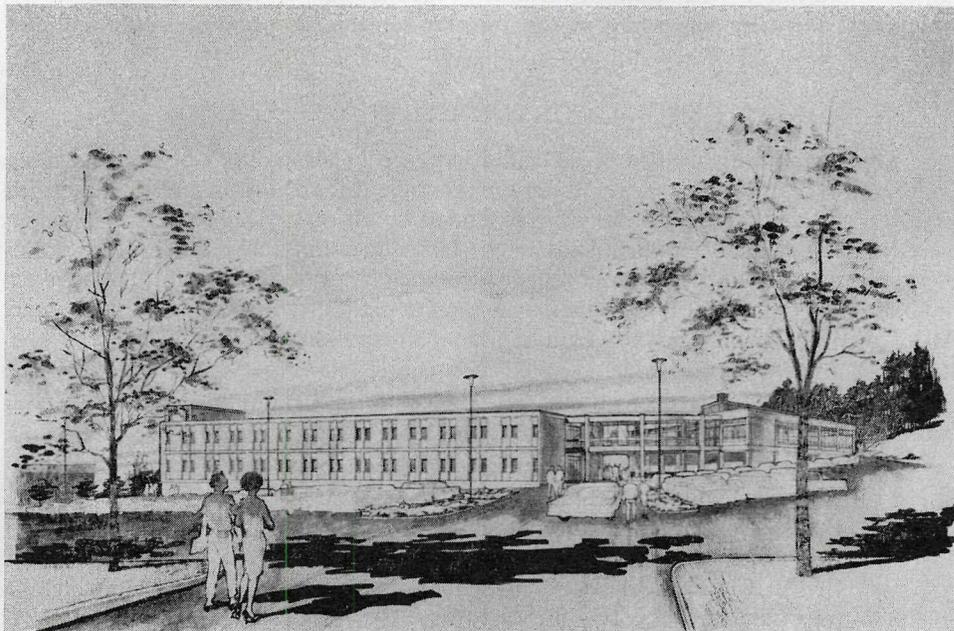
- (1) Prince George Vocational School: Phase 2.
- (2) The Woodlands School: Nurses' Home conversion.
- (3) Essondale: Credit Union and Telephone Exchange.
- (4) Essondale: Industrial Therapy Building.
- (5) Burnaby Vocational School: Phase 3.
- (6) University of British Columbia, Vancouver—College of Education: Phase 1.
- (7) Essondale: Accounting Building.

Arrangements were also made to assume responsibility for the continued maintenance and operation of the buildings and their services, thus enabling early occupancy by the Government departments.

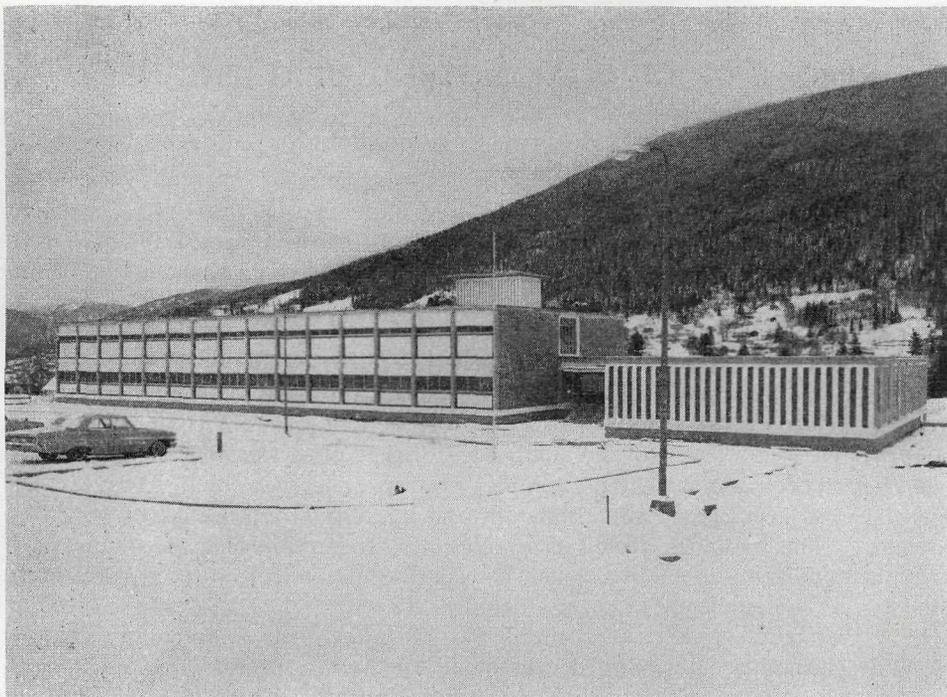
The past year proved to be the busiest this Division has experienced. The limited number of personnel in the headquarters component available to attend checking sessions in connection with new projects, and to deal with a large number of field inquiries with reference to construction matters, in addition to maintenance and operational duties, made the year's work a phenomenal task.

As this is my first annual report as Senior Construction and Maintenance Architect, I would like to record my thanks to my predecessor, who enabled the transfer of duties to be made without disruption to the continuity of this Division's work programme, and who also established a firm foundation upon which to build an efficient and economic operation.

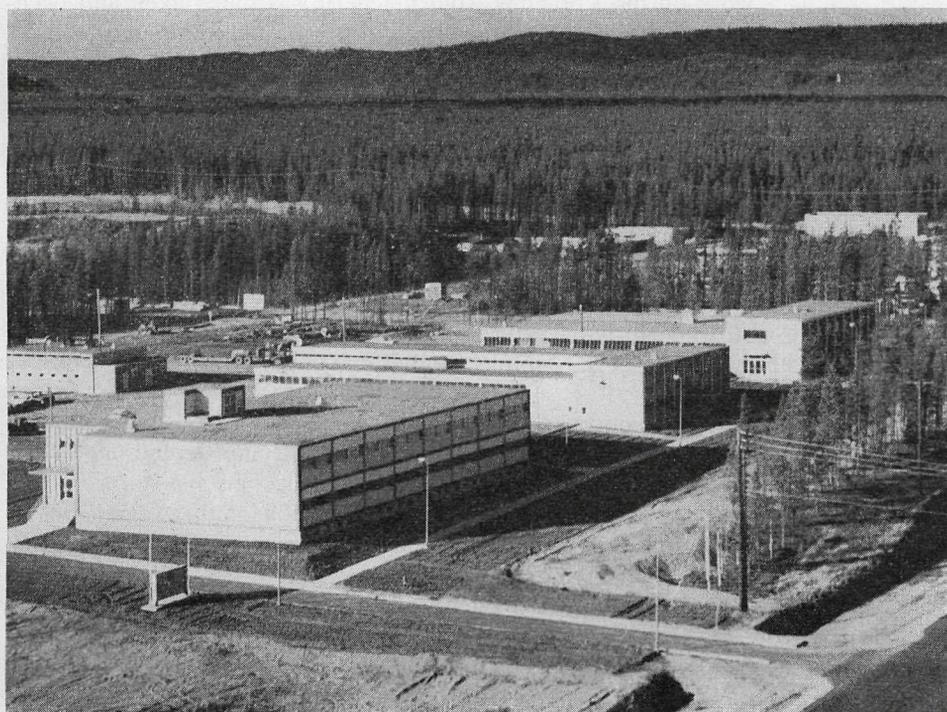
STANLEY LLOYD, M.R.A.I.C., A.R.I.B.A., DIP.PUB.ADMIN.,
Senior Construction and Maintenance Architect.



Classroom and Cafeteria Building, British Columbia Vocational School, Nanaimo.



Classroom and Administration Building, British Columbia Vocational School, Nelson.



British Columbia Vocational School, Prince George.

REPORT OF CIVIL AND STRUCTURAL ENGINEER

"Gravity is one of man's greatest enemies. It has shaped man himself, and put its stamp on his cities. He must live in the valley's bottom, or 'fight the slope' until his dying days."—*Grady Clay.*

The major part of our work for the year under review was directed to completing the present phase of the vocational-school programme. Buildings, most of them large ones, were added to Burnaby, Prince George, and Nanaimo, and complete new complexes were designed for Nelson and Kelowna Vocational Schools.

At the same time, other major projects were under way. Among them were two designed for purposes of higher education. Further wings are being added to the College of Education at the University of British Columbia, and the Sciences Building at the University of Victoria progresses rapidly toward completion.

From a point of view of the number and variety of services installed, the latter building has been one of the most complex projects undertaken by this Department. This fact has necessitated some different and interesting approaches to structural strengths. This building, erected on Franki-piles drive into plastic clays, must have extreme stability to enable many delicate instruments and pieces of equipment to function at high efficiency.

A feature of the Sciences Building is a folded-plate canopy at the front entrance. Another interesting development has been a decision by the Federal Government (Victoria Observatory) to install a seismograph to measure intensity of earthquake shocks in a building founded on clays. Another seismograph has been installed in the Victoria Law Courts to make similar measurements in a building founded on rock.

Preliminary work on the Kootenay trout hatchery was undertaken and occupied considerable time by senior staff members. A working committee, chaired by the Senior Structural Engineer and consisting of representatives of the Fish and Game Branch of the Department of Recreation and Conservation and the Architectural, Mechanical Engineering, and Structural Engineering Divisions of this Department, was activated, and a very large amount of preliminary data were gathered and studied. Test wells were installed, and the data obtained used to position two high-capacity wells for ground-water supply. These were the first permanent installations at the site, and a contract was let in October. Each well was found capable of delivering 5.0 cubic feet per second (1,900 imperial gallons per minute), and are believed to be two of the highest-capacity wells in the Kootenays. The ground-water, which is at a constant temperature of 45° F., will be used to cool the Norbury Creek water to 60° F. in the summer so that maximum growth rate of the fry can be achieved.

A little-known facet of our work is the constant checking of existing structures for structural safety. This problem can be acute in so-called temporary offices which were designed initially for light loading and then become file-storage areas. The problem can be solved in most cases by redistribution of the weight, but in instances structural strengthening is necessary, and in remote cases the area must be abandoned.

Our thanks go to the various departments who assisted us during the year, and I would single out the Lands Department for survey work and the Department of Highways for testing.

J. R. SIMPSON, B.Sc., A.M.I.C.E., P.ENG., DIP.PUB.ADMIN.

Senior Structural Engineer.

REPORT OF ARCHITECT-PLANNER

"Perfection of means, but confusion of ends, are the mark of our time."—*Einstein*.

A major portion of the year's effort has been apportioned to the preparation of the final report on conditions in the Legislative Precinct, together with development plans and land-acquisition schemes.

The master plan has now been completed in model form to indicate the third dimension. This is a major success for the Department, and particularly those who helped in achieving this end: 10 years ago such a project would have been termed impossible.

As distinct from the original Legislative Precinct plans, models, and report prepared single-handed 10 years ago, a Precinct Committee with wide terms of reference and powers to co-opt has enabled the work to be completed more expeditiously and with greater acumen. All those who helped to create the end product are to be congratulated on their capabilities.

Before any draughting of accurate master plans could be commenced, a survey plan of the designated area was co-ordinated and completed with the assistance of the Topographic Division of the Lands Department. This was presented in two plans—one indicating all overground development, and the other all underground development. The result is a technical masterpiece, and the instigation a first for the Department.

Following the coming into force of the *Municipalities Aid Act Amendment Act, 1963*, this Division, through use of records already being prepared, was enabled to lend factual assistance to the Assessment Commissioner in meeting his deadline. This work will be continuous as all changes, together with new work, have to be recorded.

Master plans have been prepared for all Crown lands at Burnaby, and those at Jericho Hill School and Oliver are in course of architectural progress.

With the continued help of the Lands Department, the second five-year plan of surveying and recording accurate information on large Crown Provincial holdings has commenced, for which the Division is much indebted to those concerned.

The Cathedral Hill Precinct has taken another step forward with the purchase of land and improvements in accordance with master plans already prepared. This will allow co-ordination of the Government's open space with that surrounding other buildings not in the planning stage.

The Department was represented at the International Planning Conference in Seattle, Washington State, and attendance was under the auspices of the American Society of Planning Officials.

It is gratifying to note that the Pilkington National Thesis Award was awarded this year to the U.B.C. student who was directed to this Division and was given the subject and the background material for the renewal of Bastion Square.

Confidential briefs and surveys have been prepared and submitted for policy decisions, with particular reference to siting of buildings in built-up areas and developments near smaller communities.

Plans have been drawn up and presented in regard to mental clinic units in urban areas, paying due regard to the Ross Report on Mental Health Needs and Resources of British Columbia.

Arising out of a brief to the Executive on the parking problem in the Legislative Precinct area, an interdepartmental committee was set up.

A referendum organized by the Employees' Association achieved an 86-per-cent vote in favour of paid parking.

In the short space of two months, under the Chairmanship of the Deputy Minister of Public Works, plans, specifications, and contracts for work on parking-lots were carried out. Parking-spaces were allocated on a points system based on years of service, and the plan went into operation in November of this year. Moneys so collected will be used to improve existing facilities and to augment areas already in use. There should finally be little excuse for any Civil Service on-street parking.

Planning objectives and methods themselves are undergoing considerable revision. Master plans that attempt to visualize exactly what a city or region should be like in the future are attempting the impossible in a rapidly changing urban environment. The hope of planning lies in stripping it of pretentiousness, recognizing its limitations, yet granting the essential role it must play as an official exercise of community foresight.

"Those who do not remember the past are condemned to repeat it."—*Santayana's Law.*

W. D. LOUGHER-GOODEY, M.T.P.I., M.T.P.I.C.,
F.I.L.A., A.I.STRUCT.E., M.A.S.P.O.,
Architect-Planner.

REPORT OF THE LANDSCAPE ARCHITECT

"Landscape is an art—it can provide those places where our souls may catch up with our bodies."

The world is richer for those memorable places where man has planned his life and his structures in full accord with Nature's forms and forces. Design in this field predominantly involves the use of space, and the Landscape Architect, more than any other, is engaged in the beautiful and serious game of space—space for living, space for pleasure, and space for recreation, and space for viewing in, around, and environmental to buildings.

Current tendencies in landscape design are notable by their "architectonic" qualities. We consider the unity of design, the proper arrangement of the elements, and the good proportions of the whole, and of the details, as most essential for good work. All these factors are dependent for their success on an inspired understanding of the use of space to its fullest value. Recently much thought has been given to the most advantageous use of space around our buildings so as to obtain as much breadth and freedom as possible commensurate with economy of maintenance.

Whatever the Landscape Architect's purpose, or style of design to be adopted, there are very many considerations, both of a local and practical nature, to influence him. Thus he finds his designs must be inspired by the conditions of each project, and he must recognize not only the special and peculiar requirements of the client, but also the natural contour of the land and the characteristics of the landscape. Upon a proper appreciation of these first considerations depends the result of the general design scheme.

During this year we have arranged a design pattern to enable us to obtain the most æsthetic value from our building environment in a similar form as that which has found so much favour in Europe.



—The High Hills, by R. H. Savery.

We have therefore developed a system of masonry courts and entrances to our recent buildings. This forms a pleasing transition between the environs of the structure and the wide surrounding space. It also agrees with the views of that most discerning landscape architect, Mr. Thomas Mawson, who wrote, "the only way to give a proper connection between the building and surrounding grounds is by some formal arrangement immediately around the structure."

The administration building at the Vocational School, Burnaby; the cafeteria at the Institute of Technology, Burnaby; the administration area at the Kelowna Vocational School; the Courthouse at Oliver; and the Courthouse at Quesnel are examples which will be found to conform to the concept outlined above.

Work at Nelson Vocational School, at present well on the way to completion, shows a union of the formalized entrance with a broad open treatment of grass areas with specimens or groups of selected trees. This treatment is ultimately very effective, as has been shown by the mature stands of oaks, beech, or ash at some old university establishments.

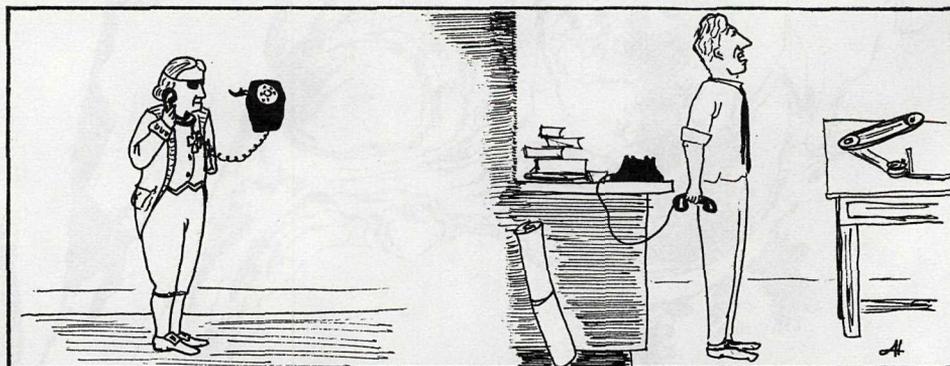
Maintenance of grounds has become a factor of increasing importance in view of the expansion of significant properties recently added.

Much thought has been given to increased mechanization in the face of having to cope effectively and economically with the increase in work. Lack of skilled labour is still, and will be in the foreseeable future, a limiting factor to complete efficiency. The praiseworthy implementation of training courses in horticulture under the vocational training scheme will unfortunately only scratch the surface in the plot of improvement.

Horticulture is a complicated and difficult science. It takes time to train men, even given the right material. Unfortunately, owing to forces too varied to mention, there is a dearth of these even in the established communities of Europe.

We have, it must be admitted, almost a complete lack of knowledgeable people in the field of estate and nursery-park care from the highest echelons downwards. This dearth complicates the successful project planning in most areas of horticultural endeavour.

R. H. SAVERY, M.A.I.L.A.,
Landscape Architect.



"SOMEbody HERE TAKE A CALL FROM NELSON?"

REPORT OF THE MECHANICAL ENGINEER

"Every man first oils his own spinning wheel."—*Unknown Bengali poet.*

CAPITAL PROJECTS

Over 50 per cent of the capital funds issued to the Department were spent upon vocational and technical schools this year. Design of these schools included more than the usual percentage of services and mechanical equipment; consequently, the Division experienced a very busy year. Reports from principals and others indicate they feel a very good job has been done.

With the reactivation of the institution at Tranquille under Mental Health Services, we have found it necessary to modernize the boiler plant. This was started some four years ago. This year the old timber framing over the pumproom, which had succumbed to dry rot, was replaced with structural steel and concrete. Piping was simplified and rearranged in preparation for the replacement of obsolete pumps. This programme of modernization is planned in several gradual stages so as not to interrupt the service from the plant.

Additional boiler controls and renewal of underground piping at the Kamloops central heating plant was planned and executed by our own forces. Although this work took longer to get finished because of the plant staff's other duties, it was done considerably cheaper than if let out to contract. Much of this work was intimately associated with the plant operation and had to be carried out at off-peak periods. This necessity would have made the contract method extremely expensive.

The garbage incinerator at the Colony Farm, Essondale, has been in operation for about a year. We are pleased to report that it is now destructing and disinfecting garbage very satisfactorily. There is no odour or fly ash from the installation. Garbage is burned during the day-shift. During this time the waste-heat boiler attached to the incinerator produces enough steam to satisfy the needs of the Colony Farm.

Steam requirements for the rest of the day are generated by burning natural gas in the incinerator.

MAINTENANCE OF MECHANICAL EQUIPMENT

The level of maintenance and repair work done in maintaining mechanical equipment in the Government buildings has been the same as in previous years. However, a note of caution must be introduced. Over the past few years many more buildings have been added to the building roster, and it must be realized that total costs of maintenance rise with each added building.

Hurricane "Freda" ripped through the Lower Mainland area during the fall. Electric power was off at the Mental Hospital, Essondale, for some 16 hours. The heating plant was affected by the power outage. The engineers carried on hand-firing the boilers to try to provide some comfort to the patients. They are to be highly commended the way they "turned to" in this emergency.

To prevent this type of failure again curtailing service, auxiliary steam-turbine drives have been added to two of the four boilers.

We would like to take this opportunity to thank Superintendents, Chief Engineers, and their staffs for excellent work and co-operation with this Division during the year.

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

HISTORICAL NOTES ON THE ROTUNDA, PARLIAMENT BUILDINGS, VICTORIA, B.C.

The main feature of F. M. Rattenbury's Parliament Buildings is an imposing central copper-coated dome 44 feet in diameter at the springing, surmounted by the freshly gilded statue of Capt. George Vancouver of the Royal Navy.

Directly below this dome, and competing in general æsthetic interest is the Rotunda, which is a feature at all floor levels, and from which the corridors of each story lead to the wings of the Buildings.

As far as materials are concerned, it is interesting to note that the walls and the central balustrading are constructed of Tennessee marble, while all the millwork is of Empire woods. The floor patterns described in some reports as "tasselated pavement" is not, in the true sense, but rather a marble mosaic of different colours.

The murals in the Lower Rotunda were commissioned by the Honourable S. L. Howe, Provincial Secretary, in 1932 and given by him to the Province. Depicted are scenes symbolic of the four qualities necessary for the establishment and maintenance of civilization.

Courage to initiate new ventures is exemplified by the meeting of the great British navigator Capt. George Vancouver with the Spaniard Bodega y Quadra at Nootka Sound in 1792, thereby forcing the Spaniards to withdraw from the Coast after nearly 40 years' occupancy.

Enterprise in organizing is illustrated by the landing of James Douglas, of the Hudson's Bay Company, on Vancouver Island (at Clover Point) in 1842, when he selected the site for the future Fort Victoria.

Industry to transform dreams into reality is represented by a scene during the building of Fort Victoria in 1843 (not Fort Langley as some contemporary reports contend). The observer should note the co-operation between the native people and the white men.

Justice to maintain a way of life is typified by a Court scene at Clinton during the hectic years of the Cariboo gold-rush in the 1860's, with Chief Justice Matthew Bailie Begbie presiding in the settlement of a dispute between two Indians. The maintenance of law and order and the establishment of British justice were outstanding accomplishments.

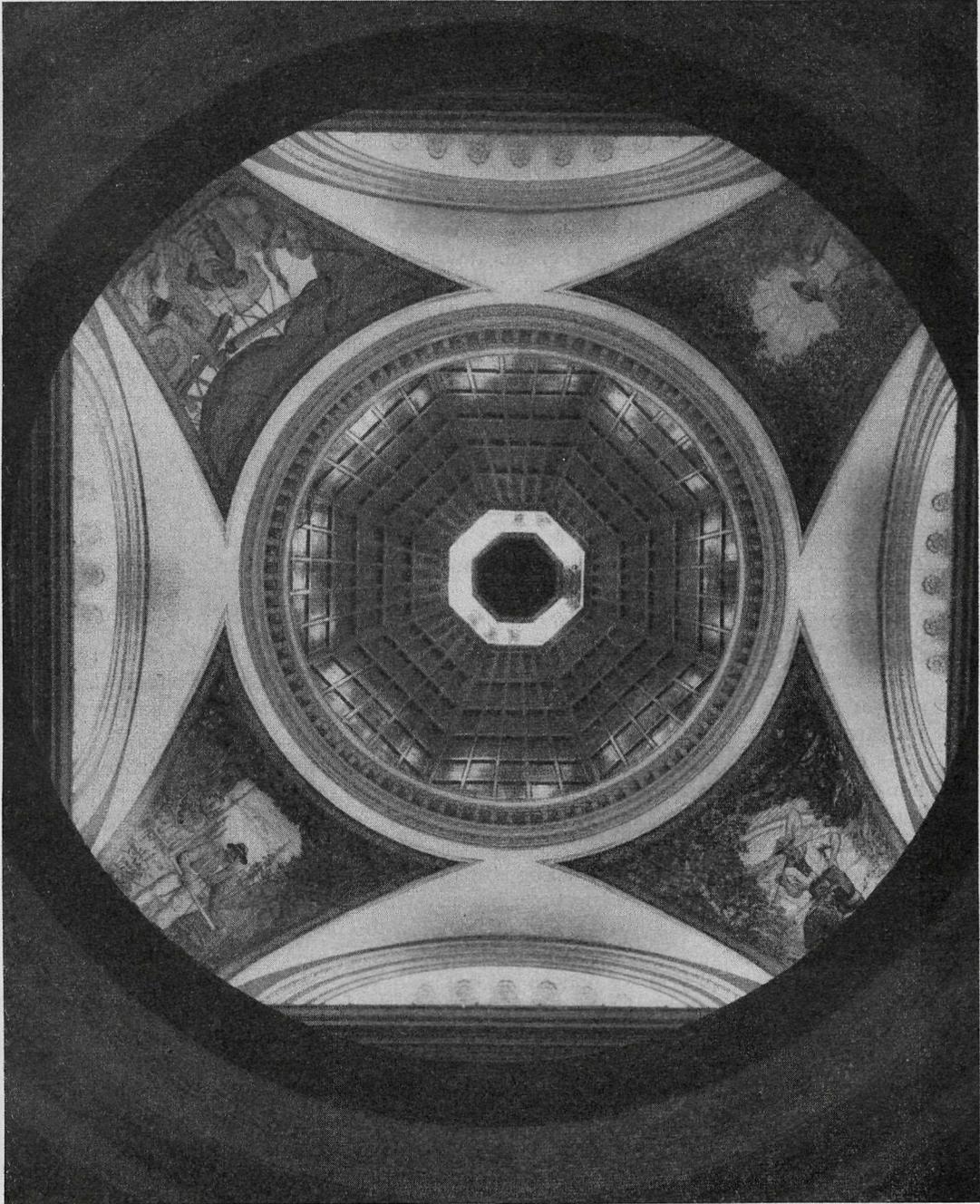
In the Rotunda at ceremonial-entrance level are bronze memorials to the members of local regiments and the Provincial Civil Servants who paid the supreme sacrifice in both world wars. A reliquary cabinet containing the roll of honour stands to one side of the ceremonial entrance.

At one time in the past the Rotunda contained a famous "ghost" photograph. A picture of the 11 members of the Legislative Council of British Columbia (*circa* 1865) grouped on the stairway of their small wooden building includes a bearded face which, shadowed but easily discernable, seems to rise from the pages of a book held in the hand of one of the members. This record may now be seen in the Archives.

In the Upper Rotunda, where the public are no longer allowed access, large murals depict the four basic industries of the Province — agriculture, fisheries, forestry, and mining. Painted in 1935, but not placed in the dome itself until 1952 for want of the necessary scaffolding (*vide* *Colonist* 1-6-35 and *Times* 18-1-52).

All murals are the work of George Southwell (1865-1961).

REPORT OF THE SUPERVISOR OF TELEPHONES



The Rotunda and Murals of Dome, Parliament Buildings.

of the dome and the murals of the dome, which are in the center of the dome. The dome is a large, circular structure with a central octagonal opening. The walls of the dome are decorated with murals, which are visible in the triangular sections between the rings. The overall effect is one of a grand, symmetrical architectural space.

REPORT OF THE SUPERVISOR OF TELEPHONES

In the ever-changing world of communications, it has become necessary to modernize telephone equipment in Government offices throughout the Province. This not only applies to small offices, which, although scattered, require the same attention as the larger offices, which are served by central switchboard.

The Government now has 56 switchboard positions in service. The major installation of the year was the conversion of a three-position manual to a three-position semi-automatic located at the Provincial Mental Hospital, Essondale. The system services a population of approximately 6,000 over a 1,300-acre area.

This Division worked in close collaboration with the hospital and the telephone company to plan the most modern and efficient communication system within the means of our budget.

The new P.A.B.X. automatic switching equipment has facilities to serve 420 local telephone-lines initially. Additional equipment can be readily installed at any time to meet future expansion. The most important feature of the new system is that the operators now handle only incoming calls. All local calls between some 72 buildings within the hospital grounds are dialled direct. There are circuits to New Westminster, Lakeview Exchange, for all outgoing calls. This allows the operators to give their undivided attention to incoming and emergency calls.

Special features allow for separate fire and ward emergency alarms. The ward emergency alarms can be activated from any one of approximately 50 locations within the hospital area.

Operators also have direct control of some 60 manual telephones, which are for restricted use. The board is staffed 24 hours a day.

New cables and wires were installed in many buildings. A 1,200-circuit cable weaves throughout the grounds, and a separate 9,500-foot extension cable serves the farm area.

The Architect's Division of our Department designed a separate building to house the automatic equipment and operators. This is of the latest design, and certainly has increased the morale of the operators and the efficiency of the entire operation.

It is hoped that in time we shall be able to convert several of our larger switchboards throughout the Province in the same manner. By doing so, modern service may be extended to other Government offices. In the interest of efficiency, this is most necessary.

During the fiscal year we had occasion to move the headquarters of the Fish and Game Branch from Vancouver to Victoria; the office of the Official Committee, in its entirety, from Victoria to Vancouver; installed a modern automatic switchboard to include a house telephone system at Terrace for the Home for the Aged and automatic key equipment in health units.

All surveys for vocational schools in Nanaimo, Kelowna, and Prince George and the new Institute of Technology have been completed in this fiscal year. Surveys for a separate Motor-vehicle and Motor Carrier switchboard have been completed, to lessen the traffic loads on the Vancouver Courthouse.

Conversion surveys for the Nelson Courthouse, Pearson Tuberculosis and Polio Hospital, Oakalla Prison Farm, addition of a mental health centre to Central Vancouver Island, and many other smaller projects are in the process of being completed.

A complete survey of Government communication, tolls, and billing procedures is now in progress.

The unprecedented increase in telephone service, equipment, and costs have been dealt with as effectively as possible by this Division. In this regard we extend our sincere thanks to all Government departments. Without the co-operation of all offices, this would have been an insurmountable problem.

(Miss) R. E. THOMPSON,
Supervisor of Telephones.

REPORT OF THE COMPTROLLER OF EXPENDITURE

The following pages present in detail the expenditures relating to the construction, alteration, and repairs on the various Government buildings and institutions, etc., coming under the management, charge, and direction of the Minister of Public Works.

It will be noted that further consolidation of votes has been effected in this current year and the separate appropriation for maintenance of Government House has been eliminated and provision is now made in the general maintenance vote for other Government buildings. In addition, one consolidated vote for Safety Inspection Division, Vancouver, replaces the three individual votes previously provided for the separate services—Gas Inspection, Steam Boiler Inspection, and Electrical Energy Inspection.

A. E. RHODES,
Comptroller of Expenditure.

STATEMENT OF EXPENDITURES, FISCAL YEAR 1962/63

ADMINISTRATION AND MAINTENANCE VOTES

(For details see Public Accounts.)

Vote 295—Minister's Office	\$20,310.07
Vote 296—General Administration	180,492.69
Vote 297—Government Buildings (Maintenance)	4,714,374.08
Vote 299—Rentals	507,116.55
Vote 300—Safety Inspection (includes Gas, Steam Boiler, and Electrical Energy Inspection Branches)	643,564.41
	<u>\$6,065,857.80</u>
Less credits—	
Rentals and recoverable items, Government buildings	171,927.50
Repayable by commissions, boards, etc., Rental Vote	41,292.98
	<u>\$5,852,637.32</u>

CAPITAL

Vote 298—Construction of Provincial Buildings (see expenditure by building listed below)	\$8,693,829.45
Less Federal Government contributions—	
Project No. 401-B—Burnaby Institute of Technology	\$747,576.78
Project No. 299-B—Burnaby Vocational School	739,781.80
Project No. 412-B—Kelowna Vocational School	211,195.72
Project No. 231-B-4—Nanaimo Vocational School	162,040.63
Project No. 429-B—Nelson Vocational School	299,664.32
Project No. 312-B—Prince George Vocational School	616,948.46
Project No. 425-B—Vancouver Vocational School	1,239,280.91
	<u>4,016,488.62</u>
	<u>\$4,677,340.83</u>

SUMMARY

Net expenditure, Department of Public Works—	
Administration and maintenance	\$5,852,637.32
Capital	4,677,340.83
	<u>\$10,529,978.15</u>

VOTE 298—CONSTRUCTION OF PROVINCIAL BUILDINGS

Project No.	Description	Expenditure
407-B	Alberni Courthouse	\$125.00
422-B	Alert Bay—renovation of R.C.M.P. headquarters	9,277.00
421-B	Bull River Fish Hatchery	22,965.39
443-B	Borstal School, Burnaby—conversion to natural gas	6,347.50
328-B	Burnaby—Materials Testing Laboratory	932.38
423-B	Chilliwack Courthouse—renovations	5,500.00
	Colony Farm—	
6-B-29	Flood repairs	4,799.44
6-B-32	Repairs to Colony Farm Annex	18,000.00
6-B-33	Power-line (Colony Farm to Essondale)	324.77
6-B-34	Repairs to piggery	520.64
	Essondale—	
5-B-2	Accounting Building	1,676.74
5-B-8	Credit Union and Telephone Exchange Building	18,497.58
5-B-34	Renovations to butcher-shop	1,593.59
5-B-41	Sewage-disposal system	868.72
5-B-97	Fire-escape, Valleyview Units 1, 2, and 3	345.47
5-B-102	Alterations and renovations to kitchen and staff changing-rooms	13,510.77
5-B-116	Landscaping roads, parking, etc.	33,084.77
5-B-117	Underground steam and condensate piping to North Lawn Building	184.05
5-B-119	Garbage-handling incinerator	34,924.25
5-B-120	Industrial Therapy Building	501,605.95

VOTE 298—CONSTRUCTION OF PROVINCIAL BUILDINGS—Continued

Project No.	Description	Expenditure
Essondale—Continued		
5-B-121	Structural alterations	\$65,591.41
5-B-122	Storm sewers, Valleyview	3,500.00
5-B-123	Renovations, Valleyview, Units 1, 2, and 3	26,961.95
5-B-125	Installation of new telephone equipment	30,666.47
5-B-127	Bathing facilities, Ward F 1	1,000.00
5-B-129	Toilet facilities	3,000.00
5-B-131	Laundry equipment	3,637.50
5-B-350	Public Works Building	58,136.30
289-B	General expenses	215,716.17
384-B	Various Government buildings—ground improvements	23,673.87
290-B-1	Government House—surface-water drains	4,480.84
123-B-5	Haney—development of grounds and irrigation system	10,000.00
399-B	Helmcken House—renovations	26,038.57
79-B-10	Jericho Hill School—dormitory unit	49,361.48
430-B	Kamloops Central Heating Station—boiler controls and ductwork	15,488.26
424-B	Kamloops Home for Aged—cemetery	6,999.09
442-B	Marpole Infirmary—heating-boiler	8,086.00
426-B	Nelson Gaol—annex	31,166.44
Oakalla—		
39-B-18	Security fence	4,545.63
39-B-55	Conversion of supply circuits	40,564.13
39-B-61	Renovations to Young Offenders' Unit Building	54,080.80
39-B-62	Roads	16,640.73
39-B-63	Additional gaol facilities	3,461.75
Parliament Buildings—		
292-B	Structural alterations	49,854.82
353-B-1	Connaught Fountain	46,743.35
385-B	Parking facilities	*7,625.92
410-B	Conversion of direct-current elevators	8,735.00
434-B	Fountain flag-poles	2,446.13
440-B	Members' dining-room—renovations	5,563.46
Pearson Tuberculosis Hospital—		
31-B-7	Fire Marshal's recommendations	4,905.41
31-B-8	Stand-by electric power	6,286.40
439-B	Quesnel—Government Agent's residence	14,527.35
435-B	Skeenaview Hospital, Terrace—fire-alarm system	3,780.00
Tranquille—		
10-B-12	Water-supply and sewage-disposal system	18,174.98
10-B-40	Houses	991.75
10-B-41	Alterations, Main Building	36,999.50
10-B-44	Renovations to boiler-house	72,317.96
10-B-45	Fire protection	4,000.00
Vancouver area—		
391-B	Street-lighting, 59th Ave.	1,826.08
408-B	Structural alterations	56,821.48
397-B	Vancouver Courthouse—renovations	9,867.32
446-B	Vernon—purchase of property	2,000.00
339-B	Victoria Law Courts	142,440.56
Woodlands School—		
7-B-40	Landscaping, fencing, paving, etc.	23,119.32
7-B-44	Conversion of Nurses Home No. 2 to offices	69,862.33
7-B-45	Water supply	6,903.50
7-B-46	Structural alterations	14,155.48
374-B	Victoria University—Science Building (Credit)	1,779.37
Vocational—		
401-B	Burnaby Institute of Technology	1,407,005.54
299-B	Burnaby Vocational School	1,012,769.15
412-B	Kelowna Vocational School	543,459.75
231-B-3	Nanaimo Vocational School—engine-exhaust ventilating system	4,057.00
231-B-4	Nanaimo Vocational School	337,439.96
429-B	Nelson Vocational School	600,957.85
312-B	Prince George Vocational School	878,593.68
425-B	Vancouver Vocational Institute, School District No. 39 (Vancouver)	1,836,109.22

* This represents net expenditure as credits for parking space were applied directly to the project in 1962/63.

VOTE 298—CONSTRUCTION OF PROVINCIAL BUILDINGS—Continued

Project No.	Description	Expenditure
	Department of Highways garages, etc.—	
415-B	Albert Canyon—equipment storage and shelter (Revelstoke)	\$23,979.13
416-B	Castlegar—equipment-shed and oil-shed (Rossland-Trail)	30,000.00
444-B	Courtenay—wiring, Department of Highways garage (Comox) ..	3,528.50
445-B	Cranbrook—water supply, Department of Highways garage (Cranbrook)	4,650.00
441-B	Fort Nelson—garage (North Peace River)	7,500.00
417-B	Golden—equipment-shed doors and heating (Columbia)	5,719.54
367-B	Kimberley—three-bay equipment-shed (Cranbrook)	3,000.00
325-B	Nelson—additional garage facilities (Nelson-Creston)	8,000.00
400-B	Port Clements—foreman's residence (Prince Rupert)	1,000.00
		<u>\$8,693,829.45</u>



"BETTER WATCH HER ED---SHE'S BEEN TAKING NITROGLYCERIN PILLS!"

TENDERS RECEIVED AND CONTRACTS AWARDED

Description of Work and Names of Tenderers	Amount	Remarks
<i>Supply and Erection of Structural Steel, British Columbia Institute of Technology:</i>		
Western Bridge Division, Canada Iron Foundries Ltd. per lb.	\$0.1985	
Dominion Bridge Co. Ltd.2161	
A.I.M. Steel Ltd.1967	Awarded.
<i>Excavation, Backfill, and Pre-loading of Site, Kelowna Vocational School:</i>		
Serwa Bulldozing Ltd.	40,585.00	Awarded.
J. W. Bedford Ltd.	44,550.00	
McPhail's Construction Co. Ltd.	48,773.50	
Mid-Valley Construction Co. Ltd.	57,622.65	
<i>Tender for Property, Fort St. John:</i>		
Town of Fort St. John	1.00	
W. Yakimetz, J. Yaciuk, and J. Berezon	60,000.00	
Bank of Montreal	59,250.00	
<i>Janitorial Service, Burnaby Vocational School:</i>		
Modern Building Cleaning Service, Vancouver	21,744.00	
National Building Maintenance Ltd., Vancouver	17,280.00	Awarded.
American Building Maintenance Co., Vancouver	17,272.80	
John's Window Cleaning Services and Building Maintenance	13,344.00	
Excelsior Building Maintenance Ltd., Vancouver	17,880.00	
Best Cleaners & Contractors, Vancouver	18,720.00	
<i>Janitorial Services, Provincial Government Buildings, Vancouver Area:</i>		
Best Cleaners & Contractors, Vancouver	92,856.00	
Excelsior Building Maintenance Ltd., Vancouver	96,504.00	Awarded.
American Building Maintenance Co., Vancouver	94,470.96	
National Building Maintenance Ltd., Vancouver	101,000.00	
Modern Building Cleaning Services, Vancouver	101,500.00	
<i>Prisoner Accommodation, Nelson:</i>		
Lawrence Simpson, Nelson	29,000.00	
Willisroft Construction Ltd., Nelson	27,340.00	
Louis D. Maglio, Nelson	26,266.00	Awarded.
South-West Construction Co. Ltd., Trail	26,560.00	
<i>Prince George Vocational School, Phase 2:</i>		
Narod Construction Ltd., Vancouver	863,126.00	
C. J. Oliver Ltd., Vancouver	854,500.00	Awarded.
Burns & Dutton Concrete & Construction Co. Ltd., Richmond	859,000.00	
Anglin-Norcross Western Ltd., Vancouver	880,767.00	
<i>British Columbia Institute of Technology, Burnaby:</i>		
Beaver Construction Co. Ltd., Vancouver	3,013,468.00 A	
	2,983,468.00 B	
A. R. Grimwood Ltd., Vancouver	3,050,000.00 A	
	3,035,000.00 B	
John Laing & Son (Canada) Ltd., New Westminster	2,969,094.00 A	
	2,958,900.00 B	
Smith Bros. & Wilson Ltd., Vancouver	3,014,500.00 A	
	3,014,500.00 B	
Commonwealth Construction Co. Ltd., Vancouver	2,987,502.00 A	
	2,987,502.00 B	
Burns & Dutton Concrete & Construction Co. Ltd., Richmond	2,949,000.00 A	Awarded.
	2,939,000.00 B	
Bennett & White Construction Co. Ltd., Burnaby	3,017,527.00 A	
	2,999,527.00 B	
<i>Residence, Department of Highways, Burns Lake:</i>		
Dezell Construction Co. Ltd., Prince George	26,640.00	
Crown Construction Co. Ltd., North Vancouver	22,107.00	
M. & G. Construction Ltd., Victoria	22,900.00	
Thompson Construction Co. Ltd., Prince George	22,810.00	
<i>Residence, Department of Mines, Fernie:</i>		
Biem Builders	23,525.00	
Cranbrook Home Improvement and Geo. Quail Builders' Supplies, Fernie	22,000.00	
Crown Construction Co., New Westminster	22,957.00	
<i>Residence for Government Agent, Quesnel:</i>		
H. Dyck Construction Ltd., Richmond	19,250.00	
E. & M. Construction, Quesnel	19,746.62	
Thompson Construction, Prince George	19,855.00	
<i>New Agency Residence, Smithers:</i>		
Dezell Construction Co. Ltd., Prince George	26,940.00	
Crown Construction Co. Ltd., North Vancouver	22,403.00	
<i>Tender for Property, 636 Burrard St., Vancouver:</i>		
J. H. Whitton & Co. Ltd. for Boulton, Sweet & Co. Ltd.	155,500.00	
<i>Nelson Vocational School:</i>		
Bennett & White Construction Co. Ltd., Vancouver	1,879,452.00	Awarded.
Dawson & Hall Ltd., Vancouver	1,889,567.00	
Narod Construction Ltd., Vancouver	1,996,640.00	

TENDERS RECEIVED AND CONTRACTS AWARDED—Continued

Description of Work and Names of Tenderers	Amount	Remarks
<i>Kelowna Vocational School:</i>		
Smith Bros. & Wilson Ltd., Vancouver	\$1,550,000.00	Awarded.
Beaver Construction Co. Ltd., Vancouver	1,711,333.00	
Kenyon & Co. Ltd., Penticton	1,678,760.00	
Bedford Construction Co. Ltd., Richmond	1,570,300.00	
Bennett & White Construction Co. Ltd., Burnaby	1,621,370.00	
Burns & Dutton Concrete & Construction Co. Ltd., Richmond	1,612,000.00	
Commonwealth Construction Co. Ltd., Vancouver	1,625,053.00	
Sorenson Construction Co. Ltd., Vancouver	1,679,000.00	
<i>Nanaimo Vocational School:</i>		
Bedford Construction Co. Ltd., Richmond	821,300.00	
Smith Bros. & Wilson Ltd., Vancouver	844,000.00	
C. J. Oliver Ltd., Vancouver	825,000.00	
D. Robinson Construction (1952) Ltd., Nanaimo	871,759.00	
Burns & Dutton Concrete & Construction Co. Ltd., Richmond	802,500.00	Awarded.
G. H. Wheaton Ltd., Victoria	844,735.00	
E. J. Hunter & Sons, Victoria	825,596.00	
Farmer Construction (V.I.) Ltd., Victoria	818,746.00	
Bennett & White Construction Co. Ltd., Burnaby	876,054.00	
E. H. Shockley & Son Ltd., Vancouver	819,566.00	
<i>Administration Building, Burnaby Vocational School:</i>		
Brockbank & Hemmingway Ltd., Vancouver	389,000.00	
Narod Construction Ltd., Vancouver	368,700.00	
Burns & Dutton Concrete & Construction Co. Ltd., Richmond	369,500.00	
Alexander Browning Ltd. and D. L. Howden Ltd., North Vancouver	371,054.00	
Kennett Construction Ltd., Vancouver	379,880.00	
Bedford Construction Co. Ltd., Richmond	387,930.00	
Beaver Construction Co. Ltd., Vancouver	364,685.00	
E. H. Shockley & Son Ltd., Vancouver	370,809.00	
Manson Bros. Ltd., Burnaby	369,018.00	
Thomas F. Hall Ltd., North Vancouver	372,747.00	
H. J. Henington & Sons Ltd., New Westminster	377,418.00	
Bennett & White Construction Co. Ltd., Burnaby	362,516.00	Awarded.
<i>Renovations to Mechanical Equipment, Boiler Plant, Tranquille:</i>		
Fred Welsh & Son Ltd., Vancouver	47,317.00	Awarded.
Whitticks' Mechanical Contractors Ltd., Vancouver	72,300.00	
McKinnon Plumbing & Heating Ltd., Kamloops	61,849.00	
Argus Installations Ltd., Coquitlam, New Westminster	54,499.00	
Mechanical Installations Co. Ltd., North Surrey	65,163.00	
Mathias & Nicol Installations Ltd., Vancouver	72,839.50	
<i>Boiler-house, British Columbia Institute of Technology:</i>		
C. J. Oliver Ltd., Vancouver	669,757.00	
E. H. Shockley & Son Ltd., Vancouver	654,275.00	Awarded.
Beaver Construction Co. Ltd., Vancouver	668,788.00	
Cloverdale Construction Co. Ltd., New Westminster	683,000.00	
Burns & Dutton Concrete & Construction Co. Ltd., Richmond	658,000.00	
Bennett & White Construction Co. Ltd., Burnaby	673,639.00	
<i>Renovations, Valleyview Units 1, 2, and 3, Essondale Mental Hospital:</i>		
Alex. Park & Son Ltd., Vancouver	308,696.00	
Thomas F. Hall Ltd.	275,681.00	Awarded.
Leckley-Johnson-Palmer Construction Ltd., Vancouver	293,711.00	
Beaver Construction Co. Ltd., Vancouver	286,120.00	
Sorenson Construction Co. Ltd., Vancouver	299,423.00	
<i>Dormitory Block, Jericho Hill School, Vancouver:</i>		
Klassen Construction Ltd., Vancouver	638,128.00	
Frank Stanzl Construction Ltd., Vancouver	606,866.00	
John Laing & Son (Canada) Ltd., New Westminster	611,248.00	
Commonwealth Construction Co. Ltd., Vancouver	616,917.00	
Grimwood Construction Co. Ltd., Vancouver	595,300.00	
Narod Construction Ltd., Vancouver	577,968.00	Awarded.
Dawson & Hall Ltd., Vancouver	595,950.00	
Manson Bros. Ltd., Burnaby	591,257.00	
C. J. Oliver Ltd., Vancouver	598,000.00	
Beaver Construction Co. Ltd., Vancouver	596,326.00	
Bennett & White Construction Co. Ltd., Burnaby	604,975.00	
Marpole Construction Co. Ltd., Vancouver	642,000.00	
E. H. Shockley & Son Ltd., Vancouver	603,592.00	
Biely Construction Co. Ltd., Vancouver	632,150.00	
<i>Landscape Development of Grounds, Prince George Vocational School:</i>		
Ben Ginter Construction Co., Prince George	51,982.90	
Conniston Construction Co. Ltd., Vancouver	23,230.00	Awarded.
West Pro Landscape Services, New Westminster	18,900.00	
Holland Landscapers Ltd., Vancouver	37,840.00	

TENDERS RECEIVED AND CONTRACTS AWARDED—Continued

Description of Work and Names of Tenderers	Amount	Remarks	
<i>Installation of Lawn Sprinkler System, Prince George Vocational School:</i>			
Pacific Lawn Sprinklers Ltd., Vancouver.....	\$9,894.04	Awarded.	
Holland Landscapers Ltd., Vancouver.....	11,557.00		
Mechanical Installations Co. Ltd., North Surrey.....	12,639.00		
Conniston Construction Co. Ltd., Vancouver.....	12,300.00		
Fred Welsh & Sons Ltd., Vancouver.....	12,310.00		
Terra Irrigation Ltd., Burnaby.....	6,526.00		
<i>Cafeteria Building, British Columbia Institute of Technology:</i>			
Beaver Construction Co. Ltd., Vancouver.....	641,487.00	Awarded.	
E. H. Shockley & Son Ltd., Vancouver.....	657,000.00		
Smith Bros. & Wilson Ltd., Vancouver.....	676,000.00		
Greenall Bros., Burnaby.....	690,980.00		
Klassen Construction, Vancouver.....	690,584.00		
Burns & Dutton Concrete Construction Ltd., Richmond.....	673,500.00		
Biely Construction Co. Ltd., Vancouver.....	688,990.00		
C. J. Oliver Ltd., Vancouver.....	673,000.00		
Narod Construction Ltd., Vancouver.....	678,214.00		
Frank Stanzl Construction Co. Ltd., Vancouver.....	688,263.00		
<i>Reconstruction of Pole-line, Colony Farm, Essondale Mental Hospital:</i>			
Peterson Electrical Construction Co. Ltd., Vancouver.....	20,713.05	Awarded.	
R. B. McCulloch Electric, Haney.....	19,330.00		
The J. H. McRae Co. Ltd., Vancouver.....	22,768.00		
Hume & Rumble Ltd., Vancouver.....	18,886.00		
Western Electric Construction Co. Ltd., New Westminster.....	14,690.00		
Trans-Power Construction Ltd., Vancouver.....	15,450.00		
<i>New Residence, Department of Mines, Fernie:</i>			
Reliable Homes Ltd., Cranbrook.....	19,523.00		

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