

PROVINCE OF BRITISH COLUMBIA

Minister of Public Works

REPORT
FOR THE FISCAL YEAR
1961/62



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1963

PROCEEDINGS OF THE

A History of the Works

OF THE

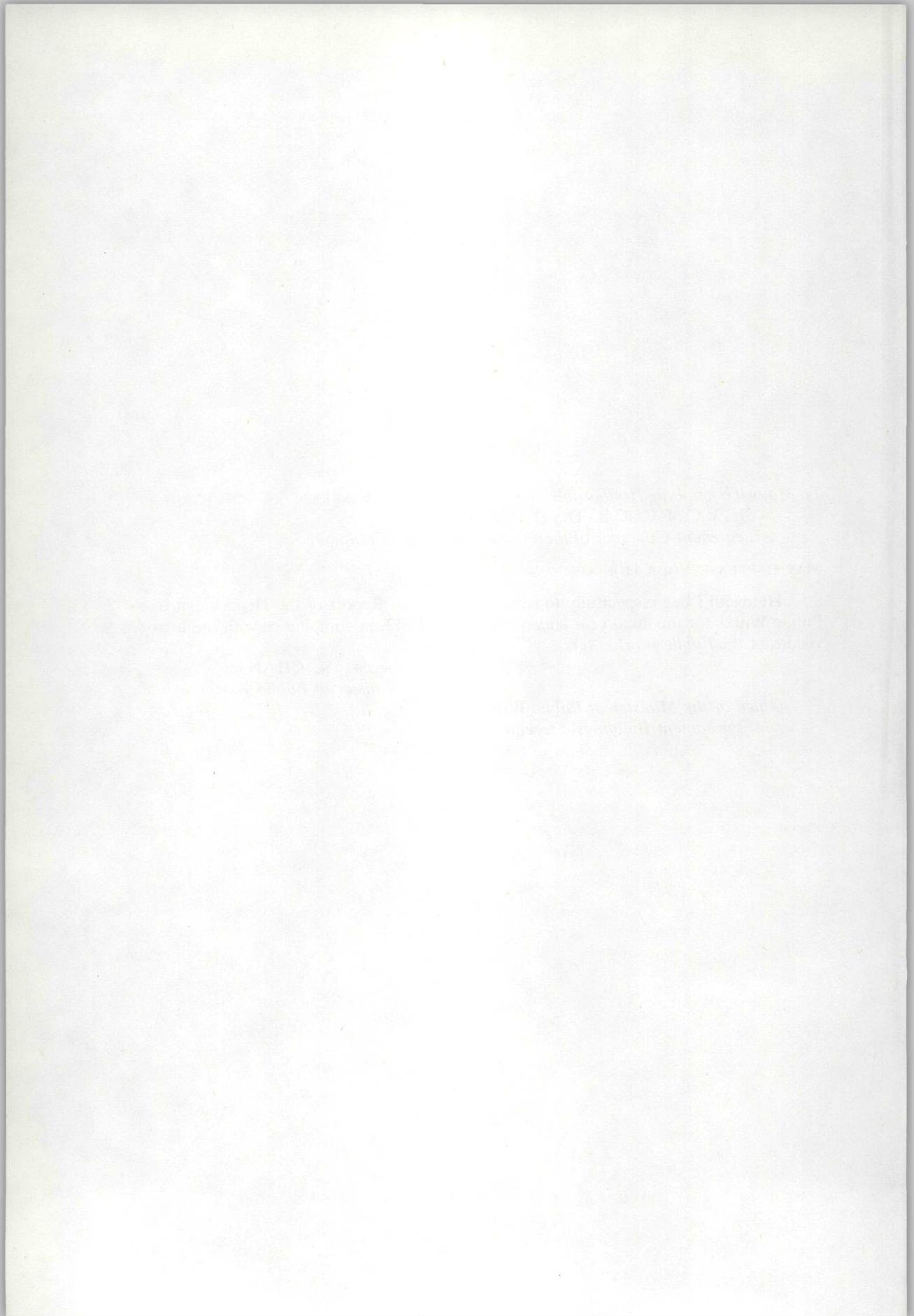
*To Major-General the Honourable GEORGE RANDOLPH PEARKES,
V.C., P.C., C.B., D.S.O., M.C.,
Lieutenant-Governor of the Province of British Columbia.*

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, 1962, 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, 1962.*



INDEX

	PAGE
Report of the Deputy Minister	7
Report of the Provincial Architect	8-10
Report of the Construction and Maintenance Architect	12-13
Lecture Block, College of Education, University of British Columbia	14
Report of the Civil and Structural Engineer	16
Report of the Mechanical Engineer	18-19
Notes on Helmcken House	20
Report of the Landscaping Architect	22-23
Report of the Architect-Planner	26-27
Report of the Personnel Officer	28-30
All-electric Buildings	31
On Government Architecture	33
Report of the Supervisor of Telephones	34
Report of the Chief Inspector of Boilers and Pressure Vessels	35-36
Report of the Inspector of Electrical Energy	38-40
Report of the Chief Gas Inspector	41
Report of the Comptroller of Expenditure	42-45
Tenders Received and Contracts Awarded	46-48

"Let ancient architecture be your tutor but not your model."—*John Ruskin.*

On the cover is the first architectural impression of a complex of buildings which could house the new Provincial Museum.

This sketch is purely to suggest possible mass and composition rather than specific architectural detail. Close harmony with the main building can only be effected when the accommodation programme has been drawn up and numerous design studies have been made.

INDEX

"You don't have to preach honesty to men with a creative purpose. Let a human being throw the energies of his soul into the making of something, and the instinct of workmanship will take care of his honesty."—*Walter Lippman*.

*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, 1962.

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 expectation expressed in last year's report that an upsurge of work would be experienced has proved to be true. Our Architectural, Mechanical, Structural, and Electrical Divisions have, between them, designed projects to the value of over \$16,000,000. This is almost double the previous record set in 1957. When it is remembered that this has been accomplished with staff and facilities geared to much lower production levels, the significance of this performance can be appreciated. It speaks volumes for the morale and team spirit of the staff.

Efforts to control capital costs, as reported previously, have now been realized and appear to have stabilized into a definite pattern. Several recent major projects have revealed that square and cubic footage costs are lower than those usually expected. This indicates a consciousness of the need for economical design and finishes. Extras remain consistently less than 2 per cent of contract price. This, coupled with close bidding and the observations of contracting firms, indicates a high standard of plans and specifications.

Consistency in itself, however, is no virtue. We should aim for still higher standards. This Department, as the one in a position to form a public image of Government architecture, should be regarded as a leader. This is the objective we have set for ourselves. With your approval we will introduce moderate, but effective, modifications to architectural design which will achieve this purpose.

In conclusion, Sir, I would report that Departmental efficiency and productivity is high. The staff, working under pressure, have demonstrated recognition of their responsibility and loyalty to you and to the public. I would like to record my personal thanks to them for their efforts.

*A. E. WEBB,
Deputy Minister.*

REPORT OF THE PROVINCIAL ARCHITECT

"We may live without architecture, and worship without her, but we cannot remember without her."—*John Ruskin* ("Seven Lamps of Architecture").

This review of the activities of the Architect's Branch is divided into two principal categories:—

- (1) Projects put out to tender during the fiscal year 1961/62; and
- (2) Projects in the planning stage during this period.

CATEGORY (1)—PROJECTS PUT OUT TO TENDER

Thirteen major contracts were put out to tender during the fiscal year, the majority of which were related to the growing vocational-school programme.

1. *British Columbia Vocational School, Burnaby*.—Phase 2: Foundations for two buildings were let as a prior contract as a time-saving measure.

2. Phase 2: On the foundations previously prepared, a plumbing, steam-fitting, and sheet-metal workshop and an electrical workshop were erected. These workshops became the first major additions to the vocational school since the four original workshops and four classrooms were erected in 1960.

3. Phase 3: Three classrooms were built to be used as required for teaching in connection with the various workshops.

4. Phase 4: Contracts were let for three additional buildings—an aeronautics workshop, a lath and plastering workshop, and a storage and paint shop.

5. *British Columbia Vocational School, Prince George*.—Phase 1 of this northern vocational school consisted of an automobile workshop and a heating plant.

6. *Oakalla Prison Farm*.—A contract was let for new primary service and underground electrical distribution. This work was designed partly from the aspect of renewal, partly to get lines underground, and also to obtain more favourable rates by going from 4,000 to 12,000 volts on the primary line.

7. *New Westminster—The Woodlands School*.—The remodelling of Nurses Home No. 2 was done to provide new medical facilities on the second floor and social services and administration offices on the ground floor.

8. *Essondale—Credit Union and Telephone Exchange Building*.—These two buildings, with an interconnected pergola entrance, were required variously to accommodate expanded credit union facilities and to permit the conversion of telephone services from manual to automatic.

9. *Essondale—Public Works Building*.—Foundations and the erection of a steel-frame building upon them were the subjects of a primary contract. This building was originally designed for the British Columbia International Trade Fair at the Exhibition Park in Vancouver. It was subsequently dismantled and transported to Essondale to be adapted as a Public Works stores and shops building.

10. *Essondale—Industrial Therapy Building*.—This building was designed to replace the old occupational therapy building destroyed by fire in 1955. The new building is of reinforced concrete.

11. *Essondale—Accounting Building*.—This one-story building was constructed for the accounting section of the Laundry and Stores Department, and is a self-contained unit immediately adjacent to the laundry building.

12. *Vancouver—College of Education, University of British Columbia*.—Phase 1: The central lecture-room block was the first contract let in the initial development of a complex of buildings which will include an office block, a classroom block, and a gymnasium.

13. *Victoria—Victoria College.*—Sciences Building: This building will be one of the first structures to be erected on the new Gordon Head campus. It will contain facilities for physics, chemistry, biology, and astronomy.

CATEGORY (2)—PROJECTS IN THE PLANNING STAGE

Approximately fifteen major projects were in the planning stage during this period, scheduled for tendering in 1962/63. A high proportion of planning time was again devoted to vocational-school work.

1. *British Columbia Vocational School, Burnaby.*—Phase 5: An administration building was planned as a separate entity. Until the present time, limited administrative facilities had been obtained in one of the Phase 1 classrooms. On completion of the new building, the former quarters will be changed back to classroom function.

2. *British Columbia Vocational School, Nanaimo.*—To provide much-needed accommodation and improved facilities, an administration and classroom building and a cafeteria were planned.

3. *British Columbia Vocational School, Prince George.*—In the development of Phase 2 of planning, an administration and classroom building and a welding and millwright workshop were designed.

4. *British Columbia Vocational School, Nelson.*—A crash programme was initiated to provide as many buildings for this new school as were required at one time. In this phase of activity the following buildings were planned: An administration and classroom building, an automotive and heavy-duty workshop, a welding and millwright workshop, and a boiler-house.

5. *British Columbia Vocational School, Kelowna.*—A similar speeded-up programme got under way to provide the majority of all buildings for this new vocational development. They comprised an auto-mechanics and heavy-duty workshop, a welding and auto-body workshop, a farm-machinery and building-construction workshop, an administration and classroom building, and a boiler-house. The three large workshops, separate from each other, are, however, all under one roof.

6. *British Columbia Institute of Technology, Burnaby.*—Two buildings being planned by this Department for the institute are the cafeteria and chef-training block, and the boiler-house and heat engine-machine shop.

7. *Vancouver—College of Education, University of British Columbia.*—Phase 2 comprised the planning of the office block, the classroom block, and the gymnasium. Completion of the first phase occurred in midsummer of 1962.

8. *Abbotsford—Animal Pathology Laboratory.*—This modern laboratory building was planned to replace the hut facilities at the University of British Columbia.

9. *Fort Nelson—New Government Offices.*—This building was planned principally for the Department of Finance, Forest Service, and the Department of Recreation and Conservation to remove existing Government departments from high-rental accommodation. A residence for the Government Sub-Agent has also been planned on the site.

10. *Tranquille—New Milking-parlour.*—Due to existing poor facilities, the labour required in connection with the dairy-herd operation resulted in far too high production costs. The new facility will streamline operations in a much more efficient manner.

11. *Essondale—Centre Lawn Building.*—New fire exits and stairs to comply with the latest Fire Marshal's requirements.

12. *Port Coquitlam—Valleyview Buildings Nos. 1, 2, and 3.*—General renovations to bring the buildings up to acceptable standards and to provide an additional 50 beds.

13. *Essondale.*—Alterations and additions to West Lawn kitchens and dining-room to improve the standard of existing facilities.

14. *Essondale—New Medical Clinic.*—The purpose of this building is to provide the most up-to-date medical and surgical treatment for the whole institution with extensive diagnostic and laboratory areas, and the facility for treating up to 100 out-patients a day.

15. *Vancouver—Jericho Hill School.*—Planning of three buildings commenced late in the fiscal year, comprising a dormitory building, a classroom building, and an industrial arts and home economics wing off the classroom building.

Perhaps the greatest single achievement in the fiscal year under review was the completion of the new Victoria Law Courts approximately five months ahead of schedule.

The first occupants of the building were the Royal Canadian Mounted Police, who moved into their new quarters on December 18, 1961.

The Law Courts were accepted as substantially complete from the contractors on February 1, 1962, and two weeks later occupancy got under way on the lower main floor with the Companies and Brokers Offices and the Official Committee moving in.

Prior moving of the vast amount of documents belonging to the Land Registry into the two large vault areas enabled the Registry to open its doors to the public on February 19, 1962. Only the officials of the Land Registry Office and the Department of Public Works can appreciate the organization that had to be achieved to move the tremendous quantity of material from Bastion Square to its designated areas in the new Courthouse.

On February 26th the Court Registry, the County and Supreme Courts were ready for their respective dealings with the public, and the first County Court sessions were held shortly thereafter.

During the fiscal year 1961/62 twenty-three projects for senior citizens' housing were reviewed for the Provincial Secretary's Department, and, where necessary, recommendations were suggested for amendments to the related drawings and specifications.

In this same period three projects—a church, a fraternity house, and a residence—were reviewed. These projects were for construction on University Endowment Land property at the University of British Columbia, and, as such, recommendations were made to the Department of Lands.

To cope with the stepped-up vocational-school programme, which alone necessitated the preparation of contract drawings for approximately eighteen major buildings, staff was augmented by a net increase of six.

Once again it is a pleasure to mention the loyalty and dependable efficiency of all staff.

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



British Columbia Vocational School, Kelowna. This photograph shows the levelled and pre-loaded site of the vocational school at Kelowna. It was presented by the City of Kelowna to the Province of British Columbia. Construction is now under way.



British Columbia Vocational School, Nelson. Officials of the City of Nelson and the Department of Public Works examine the site at Nelson. It is located among beautiful surroundings and was presented by the City of Nelson to the Province of British Columbia. Construction is under way.

REPORT OF THE CONSTRUCTION AND MAINTENANCE ARCHITECT

"The secret of happiness is not in doing what one likes, but in liking what one has to do."—*J. M. Barrie.*

This Division, in its second year of operation, has had immeasurable success in its dual role of supervision of new construction and maintenance of existing Government buildings.

Problems, of which there have been many, have been overcome and solved through the complete co-operation of all divisions concerned, and particularly through the efforts of our staff of project inspectors.

This fiscal year has proved to be a very busy one, and under the heading of "Construction," project inspectors have been appointed to and supervision given to the following capital construction projects designed by the Design Division of the Department of Public Works:—

- (1) Victoria Law Courts (Contract No. 3).
- (2) College of Education, University of British Columbia.
- (3) Burnaby Vocational School—Phases 2, 3, and 4.
- (4) Department of Highways laboratory, Burnaby.
- (5) Telephone Exchange and Credit Union Building, Essondale.
- (6) Underground electrical supply, Oakalla Prison Farm.
- (7) Phase 1, Prince George Vocational Training School.
- (8) Accounting Building, Essondale.
- (9) Public Works Building, Essondale.
- (10) Industrial Therapy Building, Essondale.

We anticipate this high rate of new construction will continue into the next fiscal year.

In addition to the above, this Division also prepared sketches, working drawings, and specifications for the following capital projects, which were subsequently supervised by this Division's personnel during construction:—

- (1) 800 Cassiar Street, conversion to offices of the old Girls' Industrial School for the Departments of Social Welfare and Agriculture.
- (2) Duplex accommodation for ferry personnel at Darrell Bay.
- (3) New Agency residence at Prince Rupert.
- (4) Renovations to Social Welfare offices at Dawson Creek.

The above projects have been carried through to completion, and the offices provided at 800 Cassiar Street have brought all divisions of the Department of Social Welfare in the Vancouver area into one building, thereby releasing office space on Burrard Street to other departments of the Government.

Frequent inspections have been made in the field, and as a result some 100 specifications have been written and contracts let for various types of maintenance work.

The standards which this Division attempts to maintain are quite difficult in the older buildings in the Province, and it is respectfully recommended that some consideration be given in the near future to the replacement of this type of building, particularly residences.

In various locations throughout the Province this Division maintains Government premises that are occupied by R.C.M.P. detachments, but gradually, as the Federal Government builds its own quarters, these are becoming fewer. Those detachment quarters under control of this Department have been visited and various

maintenance work carried out. Fullest co-operation has been received throughout the year from the Royal Canadian Mounted Police.

Another phase of maintenance now confronting this Division is in the deterioration of masonry-finished buildings, such as older Courthouses, due to age and the elements. As funds permit, a programme of masonry restoration and waterproofing is being effected. Buildings so restored are the Crease Clinic at Essondale and the Courthouses at Nelson and Grand Forks.

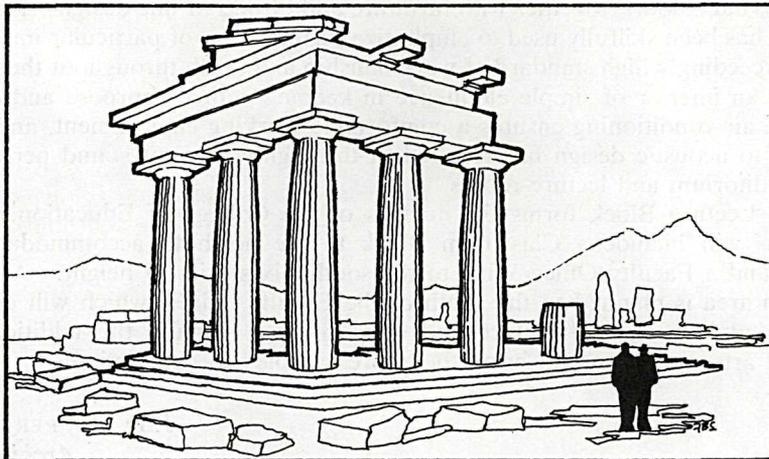
Overcrowding in Government buildings is becoming an ever-increasing problem for this Division, and through remodelling and alterations to existing buildings we have tried to alleviate these situations for the various departments of Government. Unfortunately it has now reached the point where little, or no more, space exists in the majority of Government buildings, and it appears some will need to be enlarged.

Once again a full programme of maintenance work has been carried out by the Superintendents of Works in their respective areas. Maintenance staffs have been used to their fullest, wherever possible, in carrying out alterations in existing buildings, and although this does save the Department time and funds, the volume of general maintenance work required limits the use of the staff in alterations of an extensive nature.

Throughout the year, close liaison with the Architectural Design, Structural, Mechanical, and Electrical Design Divisions has been maintained, and frequent conferences have proved invaluable to all concerned.

May I close this report by thanking all who, by their splendid co-operation, have helped to make this fiscal year the success it has been. More particularly, I would like to thank all Government Agents and Department of Highways officials who act on our behalf in so many locations throughout the Province.

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



"Maybe if we painted it."

LECTURE BLOCK, COLLEGE OF EDUCATION, U.B.C.

The Lecture Block of the College of Education, which was opened on October 4, 1962, by the Minister of Education, the Honourable Leslie Peterson, is but the first phase of a complex which will, upon completion, provide all the requirements for the Faculty of Education at the University of British Columbia.

The guiding thought in the design of the Lecture Block has been to create a building academic yet functional in spirit providing an atmosphere of spaciousness and grace in keeping with the vital influence that it will have upon the future of the Province. A reinforced-concrete frame clothed in light-grey glazed brick and blue porcelain enamel panels imparts a sparkling exterior which blends harmoniously with its surroundings, whilst at the same time proclaiming its own individuality and character.

The approach to the building is from the main mall across a paved and terraced piazza into which projects the simple outline of the auditorium, a strong emphasis of light-grey brickwork contrasting effectively with the more delicate treatment of the main building beyond. Large areas of planting and a simple but effective fountain give colour and movement to the paved forecourt, whilst pointing the way to the interior of the Lecture Block.

Basically T-shaped in plan at ground-floor level and rectangular above, the building is arranged on four floors, providing classroom and lecture space for more than 900 students. The ground floor contains a large student lounge, auditorium, and main concourse, together with administrative offices. In the basement a cheerful cafeteria is operated by the Canadian Institute for the Blind for the benefit of students. Lecture and class rooms account for the second floor, whilst the third accommodates a large library complete with study areas and reading-rooms. On this floor are gathered together copies of all the textbooks in use throughout the Province, besides a great deal of other resource material required in the training of future teachers.

Internally a sense of cheerfulness and light have been achieved by the use of clear and vital colours, together with furniture and fittings of fine design. Hardwood panelling has been skilfully used to emphasize certain areas of particular importance, and an exceedingly high standard of workmanship and finish throughout the building results in an interior of simple eloquence in keeping with its purpose and concept. Complete air-conditioning ensures a comfortable working environment, and careful attention to acoustic design has resulted in the highly efficient sound performance of the auditorium and lecture-rooms.

The Lecture Block forms the nucleus of the College of Education. Future extensions will include a Classroom Block to the north to accommodate 1,200 students and a Faculty Office Wing to the south, six stories in height. A physical education area is planned to the south of the Faculty offices, which will consist of gymnasia and specialized lecture and class rooms. Finally the addition of an industrial arts workshop will bring the entire complex to completion.

J. D. HOOPER,
Architect.



*(Upper) forecourt, fountain, and entrance and (lower) students' lounge,
College of Education, University of British Columbia.*

REPORT OF THE CIVIL AND STRUCTURAL ENGINEER

"An arch never sleeps."—*James Ferguson* ("History of Indian and Eastern Architecture").

The past year was, undoubtedly, the busiest that this Division has experienced. Our major work was on the design of vocational schools in Nelson, Kelowna, Prince George, Burnaby, and Nanaimo, followed by the Sciences Building at Victoria College.

Complex soil conditions on a few of our larger jobs made thorough studies essential. The Testing Division of the Department of Highways undertook much of this exploratory work, and our thanks go to it for the thorough and efficient manner in which this was done. The Sciences Building at Victoria College was founded for the most part on Franki-type piles. This pile is formed by driving a steel tube, open at the ends, and filled with a foot or so of gravel to act as a driving-shoe. The tube is driven down until it reaches acceptable bearing, determined by the number of blows and the set. Very dry concrete is then placed in the tube, compacted by the driving-hammer, and the tube slowly raised up. On completion, the pile consists of highly compacted dense concrete from the ground level down to solid bearing. This type of pile was also used on the Administration Building at the Nelson Vocational School.

The vocational-school site at Kelowna presented another type of soils problem—namely, the founding of buildings on a compressible soil with no solid bearing at an economic depth for the use of piles. The building is located in an alluvial area of an old stream-bed which has long since moved its location. In order to minimize settlement, the ground under all buildings was pre-loaded with approximately 6 to 8 feet of pit-run gravel. This pre-load remained undisturbed for approximately four months. Settlement readings were taken and the settlement plotted against time. The graphs indicated that most of the settlement had ceased and, subject to any radical change in ground-water conditions, settlement should be reduced to minimum.

The site at Nelson, in common with most of the city, has quite pronounced slopes, and a considerable amount of earthwork was required in order to fit large buildings on it. The site presents a commanding view of the city, and when completed the school should prove a credit to all who worked on its inception and planning.

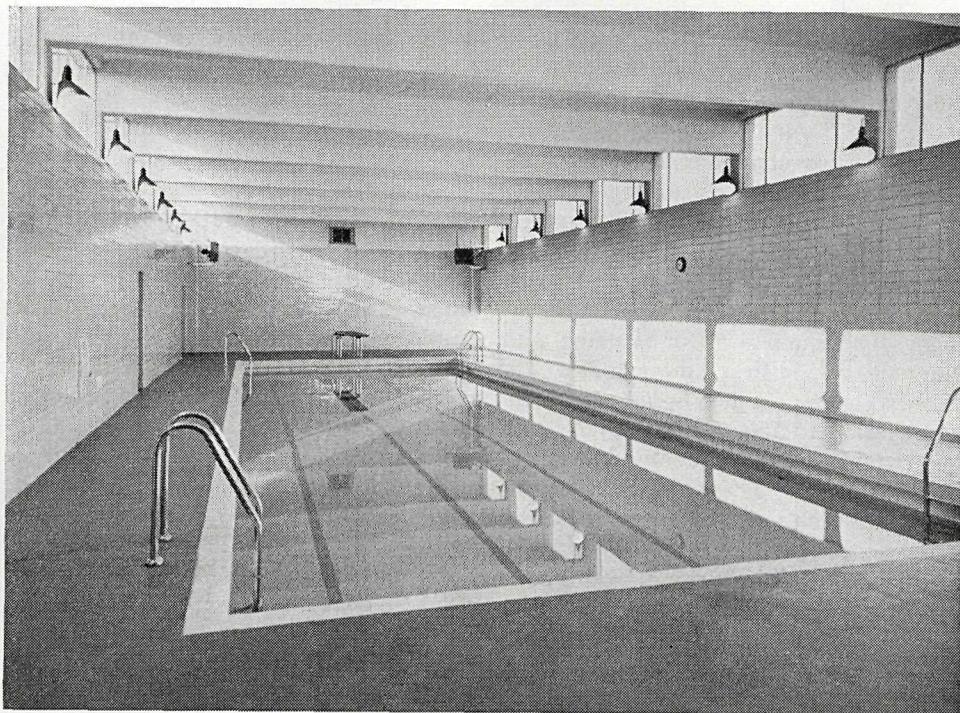
The photogrammetric mapping of the Provincial Mental Hospital, Essondale, was completed, and the Department now has a complete and up-to-date map of the entire complex for the first time. This is the first resurvey of the institution since 1933.

The Topographic Division of the Lands Service of the Department of Lands, Forests, and Water Resources compiled the map from aerial photos taken by the Air Division.

Mr. W. R. Meadows, B.C.L.S., P.Eng., Provincial Superintendent of Works, has searched the records of the Land Titles Office for the legal description of all properties in the complex, and the lot boundaries will be added to the topographical map by the Topographic Division. It is interesting to note that this search involved the examination of notes made by the Royal Engineers in 1876 during a survey required for a Crown grant of what is now Colony Farm to Mr. Ford, who was a son-in-law of Colonel Moody, R.E., after whom Port Moody is named.

This Division has been engaged on numerous problems connected with civil defence, mainly in connection with fallout protection. A survey has been made of all Government buildings, and the fallout protection, if any, tabulated, together with the approximate areas available. This service has been extended to certain municipalities at the request of the Provincial Civil Defence Co-ordinator.

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



Two views of the School for the Blind and the Deaf (Jericho Hill) show (upper) the Braille Unit, erected 1955, and (lower) the swimming-pool in the Recreation Unit. Two more major buildings—a dormitory block and a classroom block—are being currently planned.

REPORT OF THE MECHANICAL ENGINEER

“Men who love building are their own undoers and need no other enemies.”—*Plutarch* (“*Lives—Marcus Crassus*”).

The year's activity of this Division can be characterized by the number of interesting and diversified projects handled. Though we have participated in most of the capital projects handled by the Department and mentioned elsewhere in this year's Report, there are several that are outstanding and worthy of mention.

Incinerator, Provincial Mental Hospital, Essondale.—This project was handled directly by this Division. Located adjacent to the Colony Farm boiler-house, the incinerator is unique. It is provided with a travelling chain grate for burning all manner of garbage quickly, and it is coupled with a waste heat-boiler to provide steam for heating purposes to the Colony Farm. It is expected we shall be able to provide up to 75 per cent of the steam requirements of the Colony Farm from garbage. The variation in the percentage depends upon the moisture content of the refuse received, all of which will be reduced to clinker. This incinerator replaced an old and very inadequate hand-fired one which has been considered a health hazard and was very unsightly.

Ventilation of the China Bar Tunnel, Trans-Canada Highway.—This Division designed the ventilation for the 2,050-foot vehicular tunnel on the Trans-Canada Highway near Boston Bar. Designing the ventilation in this tunnel is unusual in that there was to be two-way traffic in the same bore at the same time. Little or no applicable data were available, so basic principles had to be applied.

The design is based upon a “chimney effect” for natural ventilation. However, there are two periods of the year—one during the spring and the other during the fall—in which natural ventilation would possibly fail on account of the air temperature being so close to that of the rock.

Since the duration of these periods is unpredictable, it was decided to put in four large propellor fans, each handling 75,000 cubic feet of air a minute. These fans are controlled by a sensing apparatus which starts them when the concentration of carbon monoxide exceeds 200 parts per million. They are cut off when the air in the tunnel is purer than this figure.

Vocational School, Burnaby.—The Burnaby Vocational School has, besides the usual classroom areas, a number of large open shop areas where the roof is quite high. These areas are for teaching, and extraneous noise would make talking difficult and also distract the pupils. The usual unit heaters having the necessary “throw” of warm air are noisy and tend to create draughts. A radiant floor panel was considered and, although much more expensive, would fulfil the necessary heating requirements. The Division then investigated the use of gas-fired infra-red heating-panels. These panels fulfil all the requirements and are very little more expensive than unit heaters. By judicious overhead spacing the whole of the shop floor is covered by infra-red heating. Infra-red heat rays do not heat the air. When they land on solid objects, they are converted to heat energy. The air is heated by the warm objects giving off their heat into rising convection currents. The warming sensation is pleasant, very similar to that of the sun.

MAINTENANCE OF MECHANICAL EQUIPMENT

Obsolescence of mechanical equipment and changes in building use have kept this part of the Division busy. Although we emphasize preventive maintenance, there comes a time when it is quite uneconomic to further repair equipment and

replace parts. It is actually cheaper to buy new equipment and divert man-hours of work to "middle life" equipment to get maximum use from it.

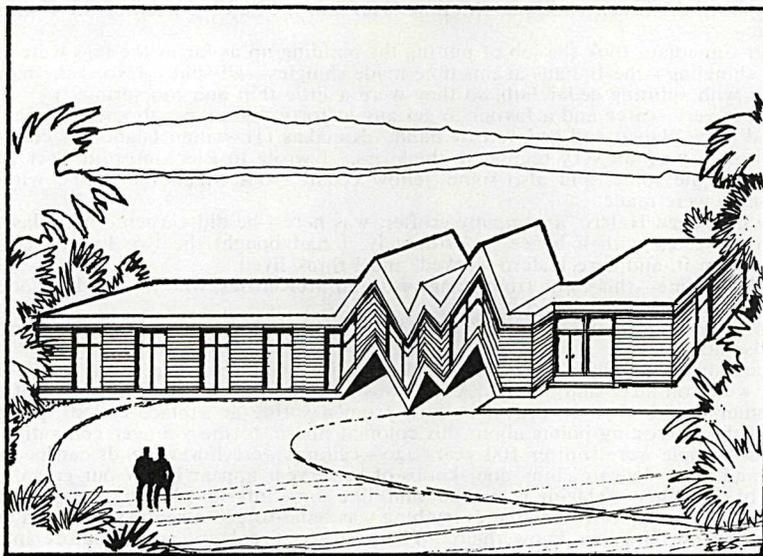
Operation of swimming-pools continue to take many maintenance man-hours to keep them clean and sanitary.

As noted in previous Reports, requests for summer cooling in buildings continue. Several installations were made this year—Land Registry Office at Kamloops, Health and Welfare Building at Kamloops, and among them the Courthouse at Lillooet.

Total maintenance money has been held at the same level for several years, although new buildings are being opened continuously. Every expenditure is carefully examined.

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

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



"I guess it was a wrinkle in the blue-print."

NOTES ON HELMCKEN HOUSE

"The people are the city."—*Coriolamis.*

With the indication of the exigency for considerable conservation work needed to Helmcken House, one of British Columbia's most valuable ancient monuments, it is of interest to recall some of the oft-repeated writings on the subject of this unique building.

Named after its owner, designer, and builder, Dr. J. S. Helmcken (or Helmiken, *vide* Reminiscences, Vol. 1, page 9), as far as is known the house is the oldest residence in the Province which has survived in anything like its original conception and contains a wealth of internal decor, furniture, and trappings used during a span of nearly seventy years in the one home. During later years other pioneer exhibits have been assembled to round out the total exhibit.

The original three-roomed home of the young doctor and his bride is the most easterly single-story section of the building. As was the fashion in those days, families grew as fast as the years, and the two additions, clearly marked in the building's outline, were added in quick succession, but unfortunately no firm records of dates have been discovered. A good record of the building of his log home in 1852 is to be found in Dr. Helmcken's Reminiscences (Vol. 3, page 55), which clearly indicates the conditions pertaining to the construction of a building during the early days of Fort Victoria:—

"Mr. Douglas gave me an acre of land, wanted me to live on it, there would be mutual aid in case of trouble at any time from Indians—besides there were no servants save Indians—and they never remained long and would not live in houses. I ought never to have built there, and soon found it very inconvenient away from my office in the fort. The piece of land was very rough and cost a good deal of time and money to clear, this being done by Indians from the North.

"To build a house now is an easy matter—but very different then. How we studied over the design, i.e. interior divisions of the building 30' x 25'. There were no contractors, everything had to be done piecemeal. There being no lumber, it had to be built with logs squared on two sides and six inches thick. The sills and uprights were very heavy and morticed—the supports of the floors likewise—the logs had to be let into groves in the uprights.

"The timber had to be taken from the forest, squared there and brought down by water. When brought to the beach (this was the Inner Harbour), I had big oxen of the Company haul it to the site.

"Other Canadians took the job of putting the building up as far as the logs were concerned—then the shingling—the Indians at this time made shingles—all split. (Note, the natives were not familiar with splitting cedar lath, so they were a little thin and too springy.)

"Lumber very scarce and a favour to get any at forty dollars per thousand in the rough—so it all had to be planed and grooved by hand. Kanakas (Hawaiian Islanders) cut most of it in a saw pit so it was not very regular in thickness. I wrote to Blenkinsop at Fort Rupert for plank—he sent me some, and also some yellow cedar, from which the doors, windows and skirting boards were made.

"It so happened Halcro, a company crofter, was here—he did carpentering, plastering and everything connected with a house. Fortunately, I had bought the two lots next to mine—a house stood on it, and here Halcro worked, and I think lived.

Then to get lime—this came from Langfords and McKenzies, who burned lime occasionally for their own use.

"The expense and annoyance was very great, in fact the house cost more than treble of a good house now.

"Indians dug a couple of wells and lined one with boulders! The boulders left very little well—they were too large and heavy. A well was an important thing then. Most of the water in the summer time had to be drawn in carts from a spring at a place called Spring Ridge."

One of the interesting points about this colonial house, to the younger generations, should be the scale—people were shorter 100 years ago—ceilings were lower, heads can be cracked in doorways, and those delicate china door-knobs of yesteryear appear below our grasp.

Some of the window glazing is original and, like some inferior glass today, is not too clear. It must be remembered, however, that everything was hand-forged a century ago, and techniques were not so advanced as we know them. The cast-iron fireplaces are miniature in area and consumption; many a body must have huddled over these for warmth. There were no planing-machines in those days either, so that once the flooring was dowelled in position, each plank, being at least 8 inches in width, had to be levelled with those adjoining, so by modern machine standards the general effect is not very uniform.

One realizes how really good B.C. timber is when going through this "English cottage," and how thoroughly British the structure is, even down to the nails and tools that made it—everything was manufactured in the Old Country and shipped in by clipper via Cape Horn! Of course, there was no British Columbia in those days for Vancouver Island was a Crown Colony and the Mainland was known as New Caledonia. It was indeed a wise move on the part of the Government to buy the property after the decease of Dr. Helmcken's youngest daughter in 1939 and open the building as a colonial museum in the spring of 1941.

The raising and replacing of the structure on a non-corrosive base, in itself a very intricate and delicate twentieth-century operation, should ensure that the life of this remarkable example of a previous era will be preserved for many generations to come.

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



Helmcken House as it appeared during Dr. Hemcken's time.



Helmcken House as it appears today, 1962.

REPORT OF THE LANDSCAPE ARCHITECT

"Where site and structure meet we may well 'structure' the site and at the same time 'wash' the landscape over and into the structure."—*Hideo Sasaki*.

Art is the science of feeling, science is the art of knowing, we must know to be able to do, but we must feel to know what to do.

Designing is the culmination of thought and knowledge. It is a complex and intricate task. It comprises the integration of technological, social, and economic requirements. The designer must see the periphery as well as the core, the immediate and the ultimate. To these facts he must anchor his special job in a complex world. New vision has dissolved the ancient boundary between architecture and landscape architecture, and now the garden scope flows into and over the structure, through loggias and areas of clear glass and over roofs and canopied terraces. The building reaches out into the surrounding gardens with walls and terraced enclosures that continue its rhythms and share its grace.

Therefore, landscape architecture today is concerned with the problems of simple and appropriate forms which display design and spaciousness yet comply with the three great patterns which dominate the environment of man—the pattern of climate, the pattern of vegetation, and the pattern of soil.

On these we must lay a fourth pattern, that of human culture.

The general concept of work was developed in this vein is connection with the production of the entrance terrace to the College of Education at the University of British Columbia in Vancouver. On this project the *pièce de résistance* was a fountain in stone and tile with a bronze motif emblematic of the illuminating qualities of education.

This general grounds plan should, when completed, prove one of the outstanding Government works.

This Division during 1962 has been actively concerned with the ground planning of Provincial vocational schools throughout the Province. Detail drawings and specifications for the properties at Prince George and Nelson are well developed. Those dealing with Kelowna and Burnaby are well advanced.

The satisfactory completion of the Fountain Garden within the Legislative Precinct brought to a conclusion a year of intensive work by Public Works crews in charge of the construction of the motif.

The development of the east area of the grounds at Government House, Victoria, as the start of an arboretum for species of rhododendron and allied genera has been successfully accomplished. This work has two aims: first, to improve the grounds of this property, which has recently become a tourist attraction, and, secondly, to provide an instruction ground in ericaceous and allied genera.

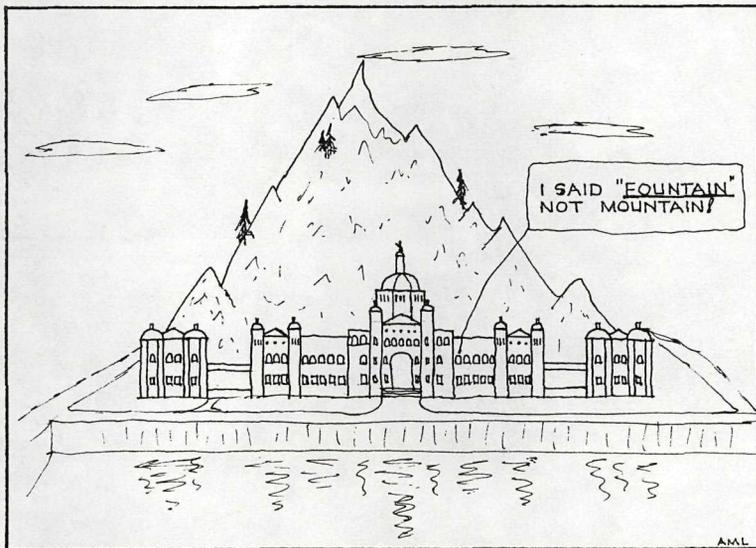
Remedial treatment and surgery have been required on many of the trees on our properties which are suffering from deterioration and age. This work has been successful in preserving some very good specimens. The fact that we have trained members of our staff to successfully handle all but the most difficult cases is of interest.

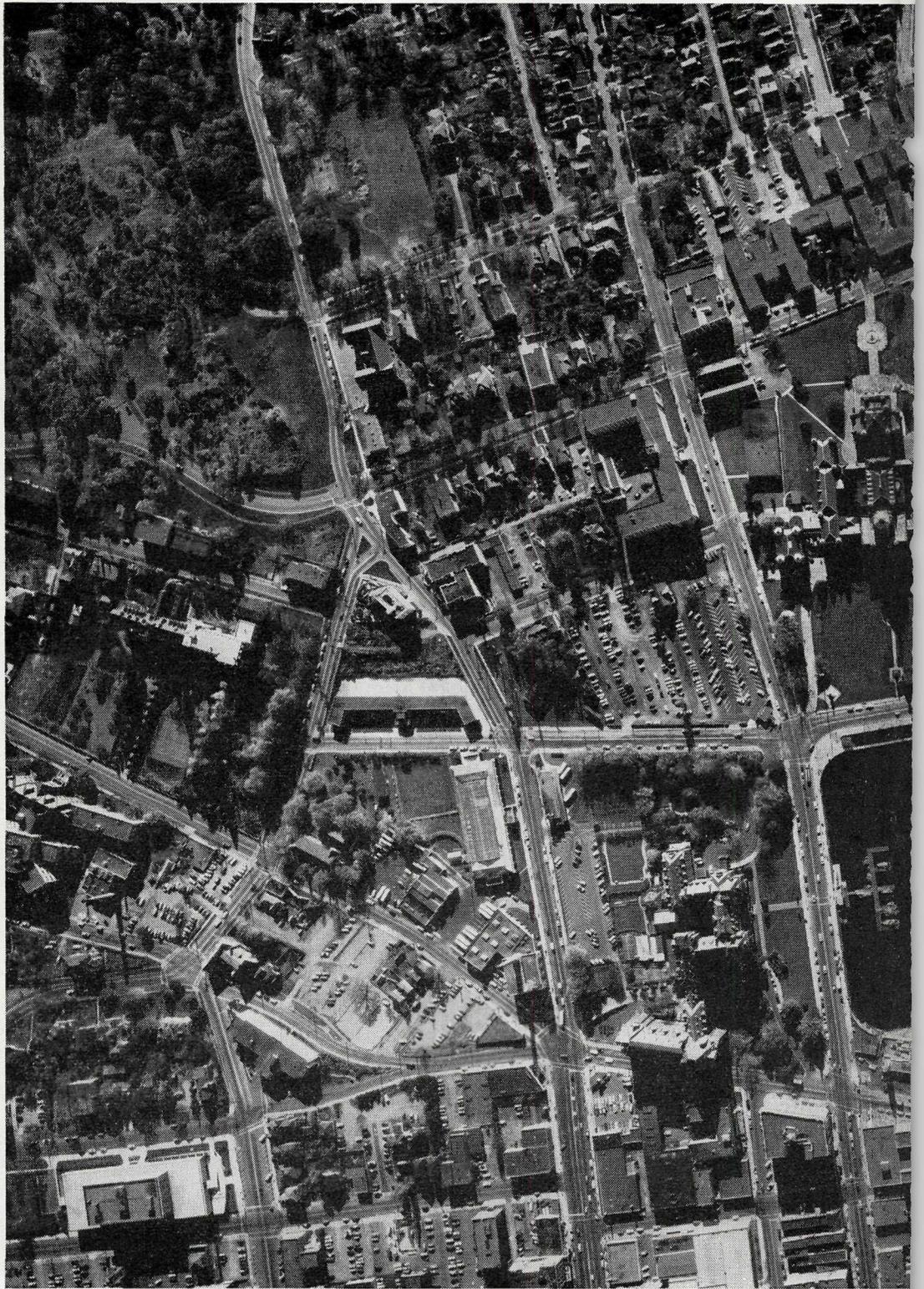
Our Grounds Superintendent, who is a competent horticulturist, has been responsible for a very noticeable improvement in both the management and appearance of the grounds generally, but especially the quality of our various lawn areas. He has, like many others in the West, been handicapped by the lack of trained personnel for both landscape development and maintenance problems. The training of personnel has not kept pace in past years with the growth of modern requirements.

The writer believes the answer to this problem is indicated in the establishment of a vocational training programme similar to that in Eastern Canada, to serve both governmental and commercial enterprise.

During 1962 the development of mechanization has continued, and the Victoria area is well serviced with up-to-date motorized units highly suitable to the work required. We are able thereby to make more satisfactory use of such skilled men as are available and economically cope with the problems of an ever-expanding area of maintenance.

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





Aerial vie



...e Precinct.

REPORT OF THE ARCHITECT-PLANNER

"Make your year's plans in the spring, and your day's plans early in the morning."—*H. H. Hart (700 Chinese Proverbs, No. 87)*.

While analysis and rationalization of information will have long-term value, immediate interest in this work will be stimulated if it is related to visible results on the ground.

Work on Government properties' records is proceeding and has proven of value in assistance required following the Government assessments roll order coming into force in 1963.

Instituted by this Division three years ago, surveys of some twelve large properties have now been completed, including a monumental work of the Essondale mental institution and Colony Farm. This is a long and tedious programme, with much leeway to be made up.

Land-use assembly plans are proceeding on large Crown land holdings such as Burnaby.

Policy briefs have been prepared concerning urban planning, mental-hospital units, forward planning at Government House, surface parking and parking buildings, siting of Government buildings in regional planning, James Bay traffic problems.

A regional committee is considering and preparing a report on the "larger canvass" of planning implications in the Capital Region, embracing urban renewal, the Inner Harbour, Precinct areas, open spaces, traffic problems, and tourism.

Continuing projects are progressing at Jericho Hill School and at Oliver, where architectural plans are now under way. Through co-ordination with other departments, works are continuing at Essondale, public buildings in smaller communities, consolidation of properties in built-up areas, uniform traffic signs for Government properties throughout the Province.

The Department was represented at national and regional town planning conferences held during the year.

It can be argued that every major development by senior governments should be based on the highest regard for up-to-date and forward-looking planning principles. These latter are much in evidence with the completion and occupation of the Law Courts, the first section of the Cathedral Hill Precinct, an integrated land-assembly scheme of over 9 acres. Favourable comment from press, public, and pulpit bears witness to the factual sensibility of policy decisions made in the preceding years to construction, and is in sharp contrast to certain major works in the city area by other developers.

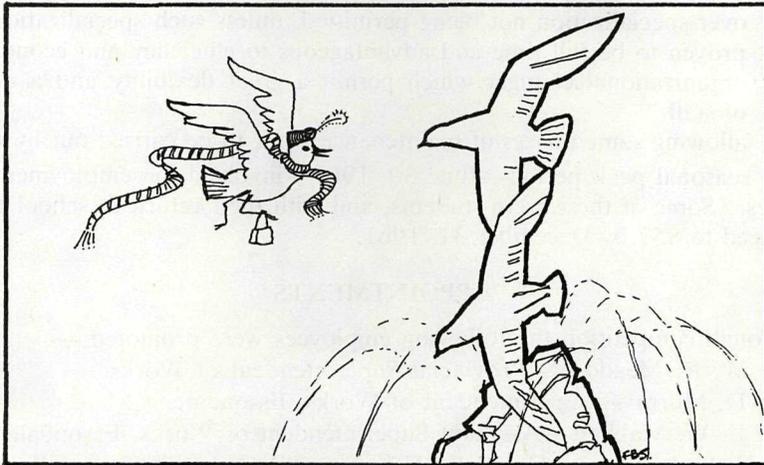
This formed a highlight in a year that has seen the momentum of large-scale development remain in top gear despite austerity budgeting. Vocational schools are proceeding at high speed, based on master plans produced in preceding years, with minor changes consequent upon more accurate information being available.

Following Cabinet decision being handed down with respect to the perimeter of the Legislative Precinct, and having due regard to the creation of the fine centennial fountain, the aesthetic value of the south aspect of the Connaught Library, and the growing interest in the "rear" of the Buildings, a land-development scheme was produced for the central third of the Precinct area, including tentative areas for a Provincial Museum and ancillaries, together with office wings and parking areas. This esquisse has been well received, and work continues, in the light of the foregoing, on adjacent areas forming the whole contemplated Precinct. An interdivisional Precinct Committee has now been appointed, with wide powers to co-opt and direct, where considered necessary, any help to forward the completion of this most

important work. This is a significant step in the direction of bringing an end to laissez-faire planning in the very heart of the Provincial capital. The vast majority of tourists see our area first and last; the impression they take away depends on how this Precinct appears, not only on paper, but also in actual fact. A topographic survey is now under way with the kind co-operation of the Lands Department, and will be completed early in the new year.

“City development, cannot be left forever to individual enterprise; it must be placed (as in Holland) under competent regional and local authorities, who are empowered to purchase land, to design and operate new communities—or who may delegate these functions to organizations that will work under their direction.”—*Lewis Mumford (T.P.I. gold medalist 1957, American Sociologist, Bernis Professor, M.I.T.).*

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



“Well, my dears, and how do you like Victoria?”

REPORT OF THE PERSONNEL OFFICER

In common with the policy followed over the past three years, this year's Report will introduce staff members of the Department of Public Works. On the opposite page will be found photographs of engineers and draughtsmen of the Mechanical Division.

During the past few years we have observed staff totals steadily increasing. This is due, primarily, to an increased architectural design programme, which has accounted for the design and construction of a large number of Government buildings. In the Vancouver area the number of Government buildings maintained in 1959 amounted to seventy-eight; today there are 136. At Victoria in 1959 there were fifty buildings; today we have eighty-three. The increase in Government buildings naturally does not apply only to the Vancouver-Victoria areas. It is common throughout the Province. The volume of work carried out by the Safety Inspection Divisions has also increased sharply. This is due largely to growing industrial development. It is worth emphasizing that although work load has increased over 25 per cent since 1959, staff totals have not increased accordingly. This is due largely to

- (a) constant checks being carried out to determine the absolute necessity of additional staff;
- (b) over-specialization not being permitted, unless such specialization can be proven to be full time and advantageous to efficiency and economy;
- (c) organizational changes which permit a great flexibility and a utilization of staff;
- (d) allowing some phases of maintenance work to be carried out by contract.

The seasonal peak period—June 30, 1961—involved the employment of 901 employees. Some of these were students, and with their return to school this total was reduced to 857 by December 31, 1961.

APPOINTMENTS

Through competition the following employees were promoted:—

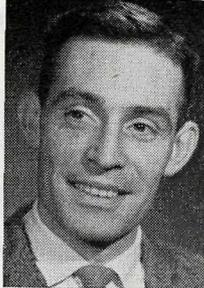
- (1) W. R. Meadows—Provincial Superintendent of Works.
- (2) D. Murray—Superintendent of Works, Essondale.
- (3) E. W. Mabbett—Assistant Superintendent of Works, Essondale.
- (4) J. L. Jamieson—Carpenter Foreman and Overseer, Tranquille.
- (5) J. F. Gillis—Assistant Chief Engineer, The Woodlands School.
- (6) G. M. Anderson—Mechanical Maintenance Foreman, Essondale.
- (7) R. W. Morgan—Assistant Chief Engineer, Boys' Industrial School, Brannen Lake.
- (8) In addition there were other promotions too numerous to mention in the space allotted.

ORGANIZATION

The major organizational change during this year was the transferring and centralizing of The Woodlands School maintenance staff to Essondale. It has been the Department's contention that a highly mobilized maintenance staff centred at one



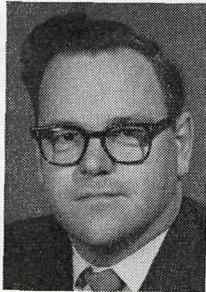
G. S. Birks,
Draughtsman.



H. B. C. Jobsis,
Draughtsman.



D. G. Strang, B.A.Sc.,
Mechanical Engineer.



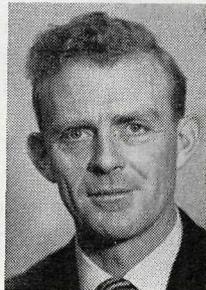
J. Low, P.Eng., B.A.Sc.,
Mechanical Engineer.



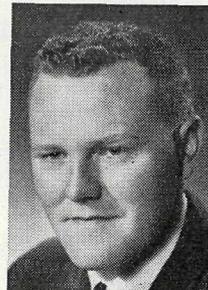
R. S. Palm,
Draughtsman.



P. J. Hart,
Draughtsman.



H. F. Kent,
Draughtsman.



E. I. Mackie, B.A.Sc.,
Mechanical Engineer.

location is more effective and economical than smaller groups of tradesmen stationed at individual buildings. The combining of the Essondale and Woodlands School maintenance staff was achieved with a minimum of criticism and unrest. Now that conditions have been settled and understood, a faster and better standard of maintenance work is taking place.

TRAINING

The second Maintenance and Operations Conference of this Department was held at Parksville on April 5, 6, and 7, 1961. This informal assembly brought together many of the Department's officials with various skills, responsibilities, and spheres of influence. The pooling of problems, solutions, procedures, and methods helped to establish a clear, concise line of communication. Most of those present contributed and gained considerably from this workshop-type meeting, and it proved there is no better method than direct discussion to provide clear understanding. These conferences add considerably to morale and provide the basis for teamwork within the Department.

This Department has been following a plan of sending its superintendents, supervisors, and foremen to the Management Training Course being offered by the British Columbia Department of Education. These conference programmes provide a practical application of administrative fundamentals and techniques and give a fuller meaning of responsibility to those in the middle strata of management.

In one of the previous Annual Reports some historical data were provided on the evolution of personnel administration within departments, and it is not out of place to again include this information on what we consider a most important phase of administration.

SOME HISTORICAL DATA

The evolution of personnel administration has had its impact on the Department, gradually strengthening and being useful to all employees from the top executive to the junior staff member. In 1947 the stage was set for advancement in this field by the preparation and publication of the Report on Outside Service. This pioneering in job descriptions and analysis was prepared in conjunction with the Civil Service Commission and senior staff officials of the Department. It laid the groundwork for gradual refinement of line authority, carefully described in detail by job descriptions available to all members of the staff. We can recall the rather confused approach employees had to the Personnel Office at this time. Personnel administration was supervised by the Accounting Branch, and because it was not possible to specialize, it took a rather nebulous form. Through a gradual process, by trial and error, by technical advice from the Civil Service Commission, and the decision in 1959 to have a separate Personnel Branch, we have proceeded to a dynamic, factual approach to our problems. The Executive is now provided with correct technical information, and the Personnel Office is always available to any employee who wishes to discuss problems of employment as they affect her or him.

This office gratefully acknowledges the help, co-operation, and courtesy given by the other divisions of this Department, Civil Service Commission, and the Superannuation Branch.

W. R. HENDERSON,
Personnel Officer.

ALL-ELECTRIC BUILDINGS

The very large hydro-electric power potential of British Columbia and the developments presently under way provoke thoughts of low-cost electric power being available in this Province.

The all-electric building, recently considered but an interesting possibility, now appears on the verge of becoming economical fact. The Department of Public Works believes it to be so and is actively studying, with the help of British Columbia Hydro and Power Authority engineers, the mechanics of making the theory become fact.

What is meant by an all-electric building is one in which electrical energy is used for heating, air-conditioning, ventilation, lighting, and, of course, other power needs. While most of these needs have been met already by electricity, the principle of using it for full-scale heating is a new departure.

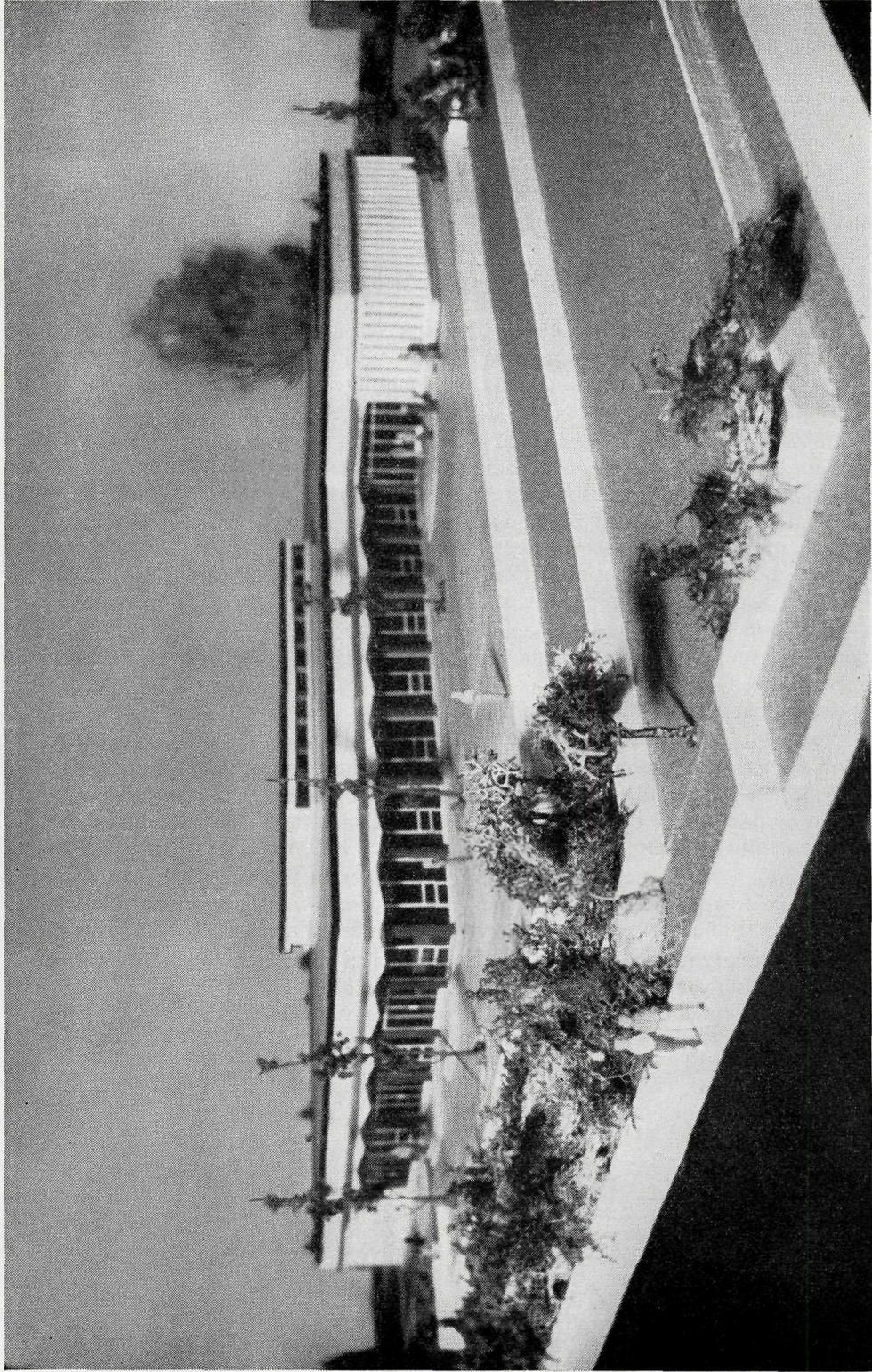
Heating by electrical energy has many advantages over other means. Capital costs for installation of wiring and radiation are lower than those for extensive steam or hot-water pipes. Installation is easier. It is much more flexible in that individual areas, or zones, can be adjusted to suit the requirements of those persons using them. It is very clean, safe, easy to control, and convenient. It can be made, by means of timing and sensing devices, as fully automatic as any form of fuel is ever likely to be. It requires very little attention, and maintenance costs are low.

While it has many basic principles in common with orthodox fuels, there are some important differences. When heat energy is delivered by wire, no combustion process is necessary. The heat output of an electric source is constant and unaffected by the temperature of the surrounding air.

All heat is a form of energy. Other fuels hold stored energy in chemical form which is released by combustion, and not all of the heat can be delivered to the place where it is needed. Electrical energy is converted to heat at the place where it is needed by passing the current through a resistive material. One hundred per cent of the energy applied to the resistor is transformed into heat.

There are other means of using electric power to supply heat. For example, an electric furnace which heats a standard form of hot-water heat distribution. The engineering studies presently under way will include all means.

In summary it may be said that the advantages of electric heating heavily outweigh the disadvantages, if there are any. The big question is: Can power be delivered at a price comparable with the other convenience fuels?



Model of Cafeteria Building, British Columbia Institute of Technology.

ON GOVERNMENT ARCHITECTURE

"Each building should have three virtues. Commodity, firmness and delight."—*Classic dictum of Vitruvius.*

All too frequently it has been said, quite often with justice, that government architecture lacks imagination and contributes little to the architectural harmony of its surroundings. Statements of this kind are frequently followed by assertions that this is because of a low standard of architectural ability on the part of government architects. At this point, objectivity and fairness break down.

The architect employed by government is subjected to influences and pressures not experienced to the same extent by the private architect. While much could be written on this aspect, for the purposes of this article we can isolate and consider one main factor. It is to what extent are the taxpayers prepared to subscribe to, and pay for, the last of Vitruvius dicta—"delight"?

In the Department of Public Works of this Province we believe that the taxpayer is prepared to pay providing he is convinced that reasonable and sensible practices are being followed. The interpretation of "reasonable and sensible" is naturally open to a wide range of personal opinion, and it is here that extreme care must be exercised.

Specifically our buildings should stand in the community as a symbol of the legislative authority. As such they should have a dignity suitable to their position, but this dignity should not be confused with the neo-classicism which has tended to become the standard for government buildings. We believe that a government building, as any other, should reflect the technology, the freedom, and the spirit of this age. They should incorporate some of the work of our sculptors and artists; they should be cleverly landscaped.

Our buildings will be affected by many factors, all of which will be reflected in their design. Victoria, with its mild climate and its character, requires different treatment to, say, the mountainous, lumbered regions of the Kootenays with their great range of temperature and humidity. No rigid standard is thus possible, nor is it desirable.

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.

This can be stated as our goal!

In commenting on the work of the architect's department of the London County Council, J. M. Richards (author, *Introduction to Modern Architecture*) says:—

"They have shown how sensitively the new and economical materials can be handled, they have led the way in design, they have been pioneers in all matters of policy ranging from the profound social analysis that has preceded housing enterprises to the patronage of the fine arts and in commissioning sculpture and wall paintings for public places. In fact they have provided a patch of light in the gloom of contemporary mediocrity."

Perhaps we could take this as our credo and aim—"to lead, and provide a patch of light in the gloom of contemporary mediocrity."

Could we have a finer aim?

REPORT OF THE SUPERVISOR OF TELEPHONES

During the year every phase of telephone work exceeded expectations. Telephone traffic both in and from Government has increased. This is due to use of voice communication to transact business in the initial stages instead of writing letters. It is more economical to discuss difficult or troublesome problems by telephone and confirm with one letter than to write several at \$2 or more each.

In keeping with the effort by telephone companies to develop improved services, designed to meet the varied and exacting requirements of their customers, we have found it advisable to order surveys on our existing equipment and service. These have shown a need for modern methods whereby we can increase efficiency, restrict movement of personnel (which is a time-loss factor), and cut costs. We have now completed several major changes, supplying Government offices with the most efficient means of communication at the least possible cost.

Our modern installation located at the British Columbia Vocational School, Burnaby, is second to none. The problems of providing communication for such a large and complex group of buildings was a challenge. Drastically different noise levels were a complicating factor. With the advice and co-operation of British Columbia Telephone Company technicians we now have a paging system combined with a public address cut-in feature operating through a fully automatic switchboard. This allows instant contact at the flick of a switch, most important in emergencies. The principal at his desk has contact, either privately or by loudspeaker, with every area. Students have conveniently located pay-stations for their private purposes.

The Victoria Law Courts, completed this year, has the latest and the best in communications for a building of its kind. To meet the need for flexibility, efficiency, and economy, we provided centralized answering, two-way area communication in the spacious Land Registry vaults, interoffice communication, and other specialized equipment. This project, the result of many months of planning, was completed with a minimum of difficulty, a lot of hard exacting work on the part of the installation crews, and not more than seconds interruption of service for any office connected with the move. As a result of good planning, not only is the present service efficient, but economical future expansion at minimum cost has been assured.

The consolidation of all Government telephone accounts to the care of this Department is now proving its worth. The accounts, which include business lines, switchboards, foreign exchange services, leases for radio and private services, also all special services for Government offices within the Province, are now carefully scrutinized, checked, and vouchered from this Division. The take-over has been successfully accomplished, and a share of the credit must be given to the excellent accounts clerk, who now has the history of every account at her fingertips.

We compliment our excellent switchboard operators throughout the Province for a job well done. Of special mention are the operators who worked far into the night and week-ends when our Forest Service needed them to maintain service during high fire-hazard periods.

In closing we extend our thanks to the operating telephone companies and their employees for their courtesy, co-operation, and technical advice, without which our work would have been most difficult.

(MISS) RUTH E. THOMPSON,
Supervisor of Telephones.

REPORT OF THE CHIEF INSPECTOR OF BOILERS AND PRESSURE VESSELS

In accordance with the provisions of the *Boiler and Pressure-vessel Act*, I have the honour to submit the sixtieth annual report of the Boilers and Pressure Vessels Inspection Division for the fiscal year ended March 31, 1962.

GENERAL

On July 3, 1961, we opened a branch office in Nelson, with a resident inspector assigned to the East and West Kootenay inspection districts.

The plant-owners in that area are particularly pleased with this arrangement. The fact that the services of an inspector are available to them at reasonably short notice saves them time and expense. A similar office was opened in Prince George in June, 1962.

In co-operation with the Department of Mines and Petroleum Resources, our Prince George inspector now makes an annual winter patrol through the oil-drilling area in the north. These visits to the oil rigs have proved valuable in enabling us to correct violations and ascertain that boilers were properly maintained and operated.

Ten inspectors obtained National Board commissions in the examinations held in December, 1961, and March, 1962. A commission is a measure of an inspector's knowledge of design and construction and is of value when they supervise construction of boilers and pressure vessels designed in the United States and built in British Columbia.

Training of steam engineers in the use of natural gas as a boiler fuel was provided during the fall and spring periods at Vancouver Vocational Institute. Examinations at the end of the courses were conducted by us. There were thirty-four successful students.

As a committee member, the Chief Inspector attended the Canadian Standards meeting in Victoria in September, where, with the Chief Inspectors of the other Provinces, uniformity of regulations was discussed. The outcome of this continuous work in interprovincial standardization of codes is that our boiler-shops continued to receive orders for pressure vessels destined for the refineries, oilfields, and petrochemical plants in Alberta and Saskatchewan.

Rapid advances in the art of welding and its applications in all phases of pressure-vessel engineering made it necessary to produce a separate set of regulations in this regard. On September 6, 1961, the Regulations Governing Welding and the Qualification of Welders was passed by Order in Council No. 2265. These rules embrace standards which are accepted throughout the continent. Our industries welcomed them as another contribution to interprovincial uniformity.

NEW CONSTRUCTION AND INSTALLATION

During the year our workshops manufactured twenty-eight steam-boilers, seventy-three hot-water boilers, and 1,287 pressure vessels. Large expansion programmes are under way in our pulp and paper industry; this, together with new utility plants and oil-refineries under construction in Alberta, has kept our design office extremely busy.

ACCIDENTS AND REPAIRS

Three steam-boilers were damaged by low-water conditions and two by furnace explosions. Defective float controls in automatic plants are the prime cause of low-water damage. Inspectors are emphasizing the need for regular cleaning and servicing of these controls to owners and engineers.

A derrick scow exploded in New Westminster when the accumulated gasoline fumes in the double bottom were ignited by sparks from a welding operation on deck. Two workmen were killed and a third badly injured. Although this vessel was outside the scope of our regulations and the *Canada Shipping Act*, we volunteered our services to the Workmen's Compensation Board in the matter of investigation and report. The inspector assigned to this task also acted as expert witness at the inquest. The Coroner expressed appreciation of his work and the information he supplied.

There were three accidents to propane-tanks. In one case a propane-tank in a house trailer exploded; two men were injured at the time and one died later in hospital. This tank was imported and defective in construction.

Another tank exploded when exposed to the flame of a burner, and another on a trailer exploded due to overcharging.

New regulations are being prepared with respect to propane under the *Fire Marshal Act*; it will therefore be necessary to prepare complementary rules under the *Boiler and Pressure Vessel Act*.

The increase in the use of propane over the years and the accidents resulting from carelessness and unskilled personnel in filling plants indicate a need for tighter control.

SUMMARY OF WORK

	1961/62	1960/61	1959/60
Designs registered.....	763	718	560
Boilers built under inspection.....	101	93	115
Pressure vessels built under inspection.....	1,287	1,240	1,245
Total boilers inspected.....	3,911	3,771	4,371
Total pressure vessels inspected.....	2,511	2,138	2,226
New boiler installations.....	264	474	740
Engineers examined.....	554	580	555
Welders examined.....	1,145	1,624	1,828

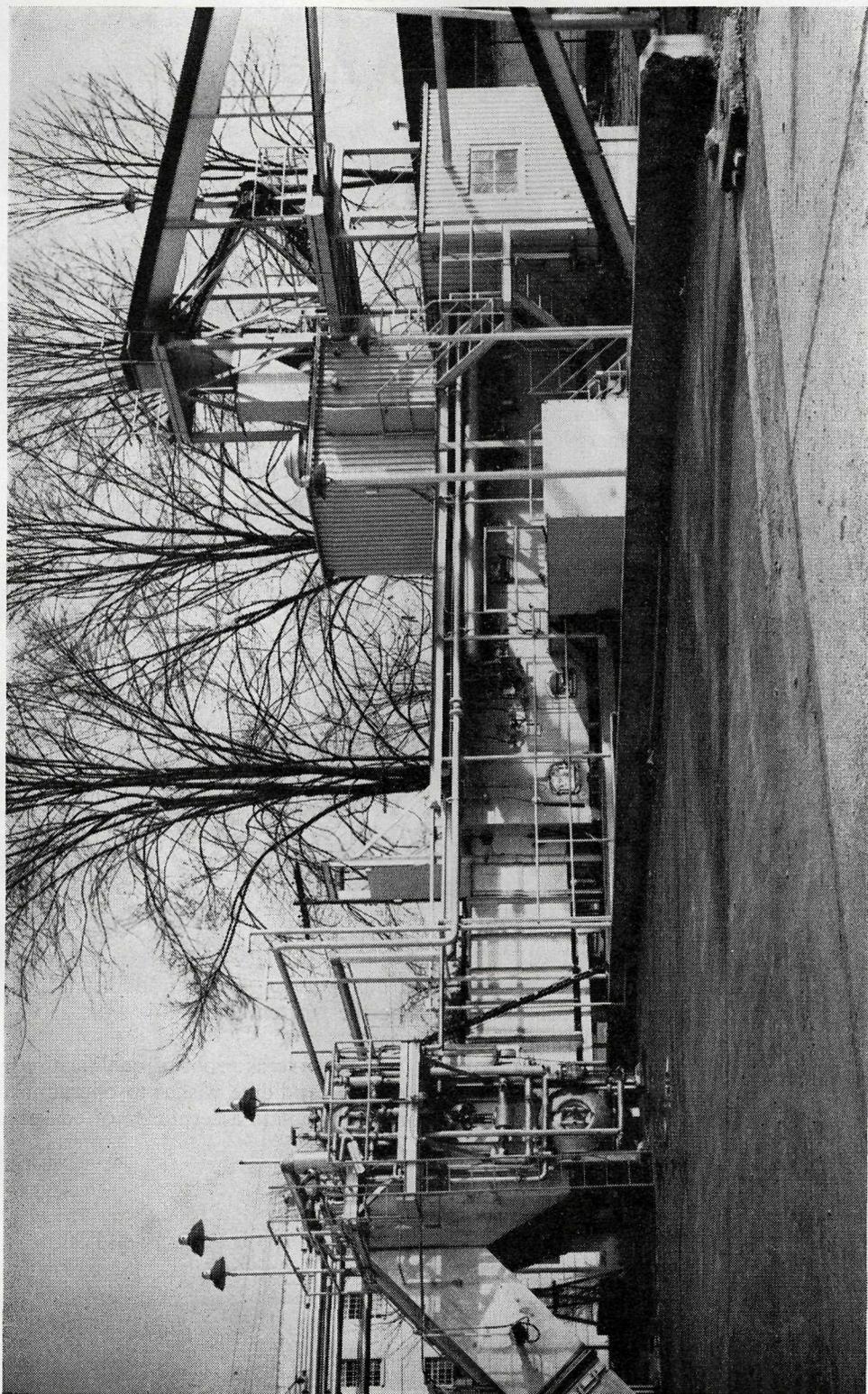
ENGINEERS' EXAMINATIONS

Class	Number Examined	Passed	Failed
First, A.....	6	6	-----
First, B.....	6	5	1
Second.....	32	27	5
Third.....	112	89	23
Fourth.....	184	141	43
Boiler operator, A.....	54	49	5
Boiler operator, L.P.B.....	108	96	12
Boiler operator, H.P.B.....	52	42	10
Totals.....	554	455	99

WELDERS' TESTS

Grade	Number Examined	Passed	Failed
A.....	771	663	108
B.....	82	68	14
C.....	21	21	-----
D.....	102	94	8
Oxy-acetylene.....	21	19	2
Special.....	-----	-----	-----
Provisional.....	148	148	-----
Totals.....	1,145	1,013	132

D. DENHAM, P.ENG.,
Chief Inspector.



Incinerator, Provincial Mental Hospital, Essondale.

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 31, 1962.

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, 1962: D. C. Carter, electrical contractor, representing the Associated Electrical Contractors of British Columbia; N. V. Beech, electrical contractor, representing the Vancouver Electrical Association; and R. Matthew, electrical inspector for the City of New Westminster, 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. Seven meetings were held throughout the year.

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

Class A	207	Class PC	148
Class B	439	Class TC	1
Class C	585		
Class PA	51	Total	1,530
Class PB	99		

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

Class	Number of Candidates Examined	Passed	Failed
A	34	17	17
B	109	45	64
C	119	48	71
Totals	262	110	152

CERTIFICATES OF QUALIFICATION

Effective January 1, 1962, certificates of qualification were introduced, which are issued to all candidates successfully passing the written examination for a certificate of competency as an electrical contractor.

The new certificates are issued without fee and serve as proof of qualifications of a successful candidate. However, if a successful candidate wishes to operate as an electrical contractor, it is still necessary for him to obtain a certificate of competency and pay the annual fee.

PERMITS

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

April, 1961	3,098	November, 1961	4,052
May, 1961	3,678	December, 1961	2,615
June, 1961	3,802	January, 1962	2,787
July, 1961	3,374	February, 1962	2,613
August, 1961	3,873	March, 1962	2,835
September, 1961	3,752		
October, 1961	4,151	Total	40,630

DISTRICT OFFICES AND INSPECTIONS

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

Office Location	Inspections
Abbotsford	2,922
Alberni	2,289
Bridge River Valley (inspector from Richmond office)	27
Chilliwack	2,315
Courtenay	3,553
Cranbrook	2,162
Dawson Creek	1,329
Duncan	2,820
Fort St. John	1,451
Gulf Islands (inspector from Richmond office)	62
Kamloops	2,542
Langley, Delta, and White Rock	2,383
Nanaimo	2,778
Nelson	2,134
New Westminster (three inspectors)	5,334
Penticton	2,411
Powell River	1,839
Prince George (two inspectors)	4,849
Prince Rupert	1,898
Quesnel	2,081
Richmond (two inspectors)	3,061
Salmon Arm	1,401
Trail	1,848
Vancouver (West Coast, Gulf Islands, and Lillooet)	454
Vernon	2,325
Victoria (three inspectors)	7,885
Total	64,153

Effective October 1, 1961, the inspector from Vancouver office was transferred to Alberni, and areas of the West Coast district were incorporated in the districts of six inspectors.

Effective August 15, 1961, inspections for The Corporation of the City of Kelowna were undertaken by this Division. The City of Kelowna was incorporated with the district area, which was being inspected from the Vernon office.

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.

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 June in Halifax and the second during November in Toronto. Upon the conclusion of these meetings, all material which had been processed as interim revisions to the Canadian Electrical Code, Part I, was authorized to be included in the forthcoming eighth edition of the Canadian Electrical Code, Part I. It is anti-

pated that a complete newly edited revised code will be available for adoption early in 1962. These revisions will incorporate changing techniques and new methods and materials which have become available since the issuance of the seventh edition of Canadian Electrical Code, Part I, in 1958. The proposal to adopt manufacturer certification for equipment which is beyond the scope of the testing facilities at the Canadian Standards Association laboratory is being continued. It is anticipated that this programme will be in effect in 1962. To this end, the definition of the term "approval" was amended by Order in Council in May, 1961, so as to make possible the acceptance of the certification programme.

This Division is being faced with an ever-increasing number of requests for local acceptance of electrical equipment which has not been officially certified by the Canadian Standards Association. It is anticipated that it will be necessary to expand our services in order to handle this volume of work in order to facilitate the use of electrical equipment in industry and for domestic or commercial purposes. Studies are being undertaken in order to determine what recommendations should be made in this regard.

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 three examinations for projectionists. The regulations covering such examination 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 822 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 five accidents recorded during the year, and two of these 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 GAS INSPECTOR

THE ACT

The Regulations Respecting Gas-fitters, Contractors, and Dealers were amended by Order in Council No. 2552, approved October 11, 1961. None of the other regulations were amended during the fiscal year ended March 31, 1962.

THE DIVISION

The staff consists of the Chief Inspector, Assistant Chief Inspector, sixteen Gas Inspectors, one Senior Clerk (Office Manager), 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 1 (half time) in our Victoria office.

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

A new gas-fitter's course was established at the Provincial Vocational Institute, Burnaby, to upgrade the gas-fitters and to assist them in procuring their Grade II gas-fitter's licence.

The acceptance of natural gas in industry has maintained its momentum. Of the many large boilers that were converted or were newly installed to use natural gas, perhaps the largest single unit, was the No. 3 boiler of the British Columbia Hydro and Power Authority's Burrard thermal plant, which was activated in February, 1962. The input to this boiler is 1,200,000,000 B.t.u. per hour.

ACCIDENTS

During the fiscal year there were three deaths in the City of Vancouver and one death in the City of Victoria which were attributed to monoxide poisoning.

SUMMARY OF WORK

	1961/62	1960/61	1959/60
New designs checked, industrial approval	547	601	639
Gas codes distributed	444	2,182	574
Gas-fitters' licences issued	1,492	1,413	1,002
Gas contractors' licences issued	543	535	553
Provisional licences issued	631	862	1,190
Gas-fitters' examinations	134	184	303
Gas-fitters' re-examinations	42	71	123
Number of gas-fitters passed examination	98	239	343
Number of gas permits issued, municipalities	12,159	14,635	19,624
Number of gas permits issued by this Division	11,584	12,883	17,328
Permit application pads distributed	480	485	662

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

REPORT OF THE COMPTROLLER OF EXPENDITURE

The following pages show 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. During the period under review there were no major changes in accounting methods that would result in revised presentation of financial reports; however, it will be noted that the separate appropriation for maintenance of the Parliament Buildings has been eliminated and provision is now made in the general maintenance vote for other Government buildings.

A. E. RHODES,
Comptroller of Expenditure.

STATEMENT OF EXPENDITURES, FISCAL YEAR 1961/62

ADMINISTRATION AND MAINTENANCE VOTES

(For details see Public Accounts.)

Vote 302—Minister's Office	\$21,139.73
Vote 303—Administration	179,648.57
Vote 304—Government House (Maintenance)	81,921.91
Vote 305—Government Buildings (Maintenance)	4,332,289.09
Vote 307—Rentals	467,391.04
Vote 308—Gas Inspection Division	166,967.05
Vote 309—Steam-boiler Inspection Division	148,002.82
Vote 310—Electrical Energy Inspection Division	312,431.66
	<hr/>
	\$5,709,791.87
Less credits—	
Rentals, etc., Government buildings	273,831.89
Repayable items, Rental Vote	240.00
	<hr/>
	\$5,435,719.98

CAPITAL

Vote 306—Construction of Provincial Buildings (see expenditures by buildings listed below)	\$3,572,091.50
Less Federal Government contributions	377,396.33
	<hr/>
	\$3,194,695.17

SUMMARY

Net expenditure, Department of Public Works—	
Administration and maintenance	\$5,435,719.98
Capital	3,194,695.17
	<hr/>
	\$8,630,415.15

VOTE 306—CONSTRUCTION OF PROVINCIAL BUILDINGS

Project No.	Description	Expenditure
401-B	Institute of Technology, Burnaby	\$2,755.81
328-B	Highways Laboratory Building, Burnaby	99,262.60
299-B	Burnaby Vocational School	257,283.47
6-B-29	Flood repairs, Colony Farm	15,001.90
6-B-32	Repairs, Colony Farm Annex	15,740.80
353-B	Connaught Fountain Garden, Superior Street	204.64
353-B-1	Connaught Fountain, Parliament Buildings	13,508.14
373-B	Accommodation for ferry personnel, Darrell Bay (Britannia Beach)	18,804.61
394-B	Renovations, Pan-abode buildings, Health and Welfare, Dawson Creek	2,451.72
355-B	Purchase of equipment, Douglas Building and Michigan Street cafeterias	729.48
	Essondale—	
5-B-2	Accounting Building	33,908.92
5-B-8	Credit Union and Telephone Exchange Building	47,857.77
5-B-34	Renovations to butcher-shop	8,000.00
5-B-41	Sewage-disposal	4,297.90
5-B-53	300-bed unit, Valleyview (Home for the Aged)	2,000.00
5-B-82	Water distribution system	4,561.24
5-B-87	Laundry equipment	12,351.13
5-B-97	Fire-escapes, Valleyview (Home for the Aged), Nos. 1, 2, and 3	3,500.00
5-B-102	Alterations and renovations to kitchen and staff changing-rooms	19,900.38
5-B-114	Waterproofing, Crease Clinic	58,317.95
5-B-115	New cemetery	3,635.69
5-B-116	Landscaping, roads, and parking	14,925.87
5-B-117	Underground steam and condensate piping to North Lawn Building	2,413.54
5-B-119	Garbage-handling and incinerators (piping, instruments, and electrical work) (includes miscellaneous steelwork and waste heat-boiler)	158,951.88
5-B-120	Industrial Therapy Building	62,689.51
5-B-121	Structural alterations	12,392.66
5-B-122	Storm-sewers, Valleyview (Home for the Aged, Coquitlam)	2,724.50

VOTE 306—CONSTRUCTION OF PROVINCIAL BUILDINGS—*Continued*

Project No.	Description	Expenditure
Essondale— <i>Continued</i>		
5-B-125	Installation of new telephone equipment	\$36.58
5-B-127	Bathing facilities, Ward F 1	4,468.80
5-B-129	Toilet facilities	5,921.96
5-B-350	Public Works Building	51,410.40
350-B	Construction of a prefabricated building at Exhibition Park, Vancouver (later to be moved to Essondale to be used as a Public Works storage and workshop building)	30,069.32
395-B	Mines department, residence and rescue-station, Fernie	350.00
390-B	Flag-poles for Government buildings	3,992.00
289-B	General expenses, surveys, supplies, etc.	121,152.27
384-B	Ground improvements, various Government buildings	18,761.29
383-B	Automatic lawn sprinkler system, Government House, Victoria	21,715.41
290-B-1	Surface-water drains, Government House	6,782.14
Haney Correctional Institution—		
123-B-2	Awning, administration buildings	3,195.00
123-B-5	Development of grounds and irrigation system	1,370.69
123-B-10	Incinerator	9,889.02
123-B-11	Alteration to main electrical switchboard	2,424.24
399-B	Renovations, Helmcken House	2,774.81
388-B	Purchase of property, 785 Hornby Street, Vancouver	145,812.42
79-B-9	Refrigeration, Jericho Hill School	1,969.01
319-B	Additions to Kamloops Health and Welfare Building	15,361.78
307-B	Air-cooling, Land Registry Office, Kamloops	11,028.60
406-B	Purchase of property, Kingston Street, Victoria	30,005.00
396-B	Renovations, Lillooet Courthouse	4,435.00
389-B	Red Cross outpost hospital, Masset	1,102.50
346-B	Provincial Government offices, Mission and District	9,142.25
Oakalla—		
39-B-18	Security fence, South Wing and Royal Oak Avenue	11,458.84
39-B-51	Fire Marshal's recommendations	1,743.00
39-B-52	Ventilation system, licence-plate shop	9,118.00
39-B-55	Conversion of supply circuits	22,086.75
39-B-61	Renovation of Young Offenders' Unit building to hospital	30,973.24
39-B-62	Roads	8,715.27
311-B	Remodelling old Girls' Industrial School, Cassiar Street	207,678.12
292-B	Structural alterations, Parliament Buildings	67,605.18
368-B	Renewal of steam-lines, Parliament Buildings	487.84
385-B	Parking facilities (grading), Parliament Buildings	2,032.99
312-B	Prince George Vocational School	301,618.73
313-B	Government Agent's residence, Prince Rupert	19,527.01
386-B	Foundations to foremen's residences, Terrace (Department of High- ways)	8,851.55
31-B-3	Landscaping, Pearson TB. Hospital	35,721.29
Tranquille School—		
10-B-12	Water-supply and sewage-disposal	5,802.08
10-B-37	Installation of showers	4,977.11
10-B-41	Alterations, main buildings	19,519.66
10-B-40	Houses	15,493.13
10-B-42	Boiler No. 1	4.67
10-B-43	Renewal of steam-lines to residences	24,000.00
10-B-44	Renovations to boiler-house	21,449.91
10-B-45	Fire protection	6,000.00
409-B	Alterations, Temple Building, Victoria	7,999.60
408-B	Structural alterations, Vancouver area	20,056.13
397-B	Renovations, Vancouver Courthouse	3,402.35
369-B	College of Education, University of British Columbia (Vancouver)	2,838.33
345-B	Street-lighting, Heather Street, Vancouver	912.67
Victoria College—		
178-B-6	Automatic lawn sprinkler system	17,498.55
352-B	Contract No. 1, clearing and excavation for Classroom and Fac- ulty Block, and Contract No. 2, Classroom and Faculty Block	70,031.28
374-B	Sciences Building	236.83
339-B	Victoria Law Courts	1,219,396.26

VOTE 306—CONSTRUCTION OF PROVINCIAL BUILDINGS—*Continued*

Project No.	Description	Expenditure
	The Woodlands School—	
7-B-37	Electrical distribution and rebuild vault	\$912.10
7-B-40	Landscaping, fencing, and paving	15,000.00
7-B-42	Toilet facilities, playing area	13,753.45
7-B-43	Sewer-line	4,500.00
7-B-44	Renovations, Nurses' Home No. 2	183.80
	Department of Highways—	
392-B	Building, Good Hope Lake	7,500.00
324-B	Three-bay equipment-shed, Hope	10,000.00
378-B	Dry storage shed, Houston	1,000.00
367-B	Equipment-shed, Kimberley	6,538.86
403-B	Completion of equipment-shed, Mayne Island	2,496.02
364-B	Four-bay equipment-shed, McBride (yard-site)	6,000.00
325-B	Additional garage facilities, Nelson	70,390.86
400-B	Foremen's residence, Port Clements	8,500.00
323-B	Addition to main garage, Prince George	7,000.00
404-B	Completion of equipment-shed, Sayward	2,500.00
362-B	Dry storage shed, Smithers	1,300.00
375-B	Ferryman's accommodation, Soda Creek	6,000.00
		<u>\$3,572,091.50</u>

TENDERS RECEIVED AND CONTRACTS AWARDED

Description of Work and Names of Tenderers	Amount	Remarks
<i>Waterproofing, Crease Clinic, Essondale:</i>		
Dobson & Alexander, North Burnaby	\$45,871.00	
Burkheimer Tuckpointing, Victoria	54,485.00	Awarded.
C. H. Brown & Son Ltd., Vancouver	63,966.00	
<i>British Columbia Vocational School, Burnaby—Phase 2 (Foundations and Footings):</i>		
Mainland Installations Ltd., Burnaby	19,207.00	
Burns & Dutton Concrete & Construction Ltd., Richmond	18,750.00	
Klassen Construction Ltd., Vancouver	15,600.00	Awarded.
Service Construction Ltd., Vancouver	25,547.00	
Ward & Son Ltd., New Westminster	19,420.00	
Chapman-Long Construction Co. Ltd., North Vancouver	23,474.00	
E. H. Shockley & Son Ltd., Vancouver	18,789.00	
Mainland Construction Ltd., Burnaby	16,733.00	
Beaver Construction Co. Ltd., Vancouver	16,274.00	
Lickley-Johnson-Palmer Construction Ltd., Vancouver	20,235.00	
C. J. Oliver Ltd., Vancouver	21,400.00	
Thomas F. Hall Ltd., North Vancouver	19,298.00	
Bennett & White Construction Ltd., Burnaby	21,138.00	
Howe Construction Co. Ltd., North Burnaby	17,113.00	
Smith Bros. & Wilson Ltd., Vancouver	19,215.00	
<i>Government Agent's Residence, Prince Rupert:</i>		
Greenall Bros., Burnaby	19,954.00	Awarded.
Northwest Construction Ltd., Prince Rupert	28,994.00	
D. Robinson Construction (1952) Ltd., Nanaimo	25,380.00	
<i>Automatic Lawn Sprinkling System, Victoria College, Victoria:</i>		
Pacific Lawn Sprinklers Ltd., Vancouver	15,888.68	Awarded.
<i>Automatic Lawn Sprinkling System, Government House, Victoria:</i>		
Pacific Lawn Sprinklers Ltd., Vancouver	19,755.27	Awarded.
<i>College of Education, University of British Columbia, Vancouver:</i>		
Turnbull & Gale Construction Co. Ltd., Vancouver	1,133,644.00	
Anglin-Norcross Western Ltd., Vancouver	1,129,000.00	
A. R. Grimwood Co. Ltd., Vancouver	1,111,100.00	
Narod Construction Ltd., Vancouver	1,163,557.00	
Beaver Construction Co. Ltd., Vancouver	1,160,183.00	
Bennett & White Construction Ltd., Burnaby	1,155,778.00	
E. H. Shockley & Son Ltd., Vancouver	1,103,877.00	Awarded.
Burns & Dutton Construction Co. Ltd., Richmond	1,130,500.00	
Smith Bros. & Wilson Ltd., Vancouver	1,129,865.00	
Klassen Construction Ltd., Vancouver	1,108,814.00	
Dawson & Hall Ltd., Vancouver	1,195,227.00	
Commonwealth Construction Co. Ltd., Vancouver	1,138,945.00	
<i>Waste Heat-boiler, Incinerator Installation, Essondale:</i>		
Bridge & Tank Western Ltd., Winnipeg	26,168.00	
Dominion Bridge Co. Ltd., Vancouver	26,300.00	
Babcock-Willcox Ltd., Ontario	17,446.00	
Foster-Wheeler Ltd., Vancouver	18,427.00	Awarded.
<i>Supply, Fabrication, and Erection of Conveyors, Chutes, Hoppers, and Supporting Steelwork, Incinerator Installation, Essondale:</i>		
Dominion Bridge Co. Ltd., Vancouver	31,990.00	
Tryson & Son Iron Works Ltd., Vancouver	16,633.00	Awarded.
Mathias & Nichol Installations Ltd., Vancouver	30,668.00	
A.I.M. Steel Ltd., Vancouver	17,481.00	
Industrial Mills Services Ltd., Burnaby	24,642.00	
R. L. Welsh Ltd., Vancouver	27,136.00	
Brittain Steel Fabricators Ltd., New Westminster	21,952.00	
Westminster Boiler & Tank Co. Ltd., New Westminster	21,809.00	
Coast Steel Fabricators Ltd., Burnaby	25,104.00	
<i>Accounting Building, Provincial Mental Hospital, Essondale:</i>		
Wilson Construction Co. Ltd., North Vancouver	32,188.00	
Lickley-Johnson-Palmer Construction Ltd., Vancouver	29,645.00	
Mainland Construction Co. Ltd., Burnaby	29,873.00	
Sorensen Construction Co. Ltd., Vancouver	33,900.00	
Howe Construction Co. Ltd., North Burnaby	30,770.00	
Thomas F. Hall Ltd., North Vancouver	29,134.00	Awarded.
Brockbank & Hemmingway Ltd., Vancouver	35,400.00	
Burns & Dutton Concrete & Construction Ltd., Richmond	34,550.00	
<i>British Columbia Vocational School, Prince George:</i>		
Burns & Dutton Concrete & Construction Ltd., Richmond	337,000.00	
C. J. Oliver Ltd., Vancouver	319,500.00	Awarded.
D. Robinson Construction (1952), Nanaimo	355,995.00	

TENDERS RECEIVED AND CONTRACTS AWARDED—Continued

Description of Work and Names of Tenderers	Amount	Remarks	
<i>Ferryment's Accommodation, Darrell Bay:</i>			
Greenall Bros. Ltd., Burnaby	\$23,456.00	Awarded.	
Brockbank & Hemmingway Ltd., Vancouver	17,900.00		
W. J. Dick Ltd., West Vancouver	31,296.00		
Hazel Bros. Construction Co. Ltd., North Vancouver	29,500.00		
Minty & McLean Ltd., Vancouver	20,587.00		
Chris I. Bendesen, North Burnaby	23,850.00		
G. E. Millhouse Construction Co. Ltd., North Vancouver	20,634.00		
<i>Credit Union and Telephone Exchange, Essondale:</i>			
Klassen Construction Ltd., Vancouver	116,662.00	Awarded.	
C. J. Oliver Ltd., Vancouver	112,944.00		
Mainland Construction Ltd., Burnaby	103,614.00		
Bennett & White Construction Ltd., Burnaby	116,765.00		
Howe Construction Co. Ltd., North Burnaby	113,468.00		
Ward & Son Ltd., New Westminster	107,600.00		
Thomas F. Hall Ltd., North Vancouver	104,099.00		
Gilmour Construction & Engineering Co. Ltd., Burnaby	110,430.00		
<i>British Columbia Vocational School, Burnaby, Phase 2:</i>			
Burns & Dutton Concrete & Construction Ltd., Richmond	238,000.00		Awarded.
C. J. Oliver Ltd., Vancouver	249,000.00		
Lickley-Johnson-Palmer Construction Ltd., Vancouver	242,547.00		
Narod Construction Ltd., Vancouver	249,600.00		
Allen & Viner Construction Co. Ltd., Vancouver	247,900.00		
George Born Construction Co. Ltd., Burnaby	241,928.00		
Coyne & Ratcliffe Construction Co. Ltd., New Westminster	231,336.00		
Klassen Construction Ltd., Vancouver	257,500.00		
Manson Bros. (1959) Ltd., South Burnaby	234,613.00		
<i>Primary Service and Underground Distribution, Oakalla Prison Farm:</i>			
J. H. McRae Co. Ltd., Vancouver	59,199.00	Awarded.	
Paterson Electrical Construction Co. Ltd., Vancouver	63,654.00		
The Tide Co. (B.C.) Ltd., New Westminster	68,993.00		
The Canadian Comstock Co. Ltd., North Vancouver	59,647.00		
Mott Electric Ltd., New Westminster	74,984.00		
<i>Public Works Building, Essondale:</i>			
Mainland Construction Ltd., Burnaby	64,691.00	Awarded.	
Lickley-Johnson-Palmer Construction Ltd., Vancouver	61,870.00		
Minty & McLean Ltd., Vancouver	64,476.00		
International Construction Ltd., New Westminster	62,497.00		
E. H. Shockley & Son Ltd., Vancouver	68,929.00		
Thomas F. Hall Ltd., North Vancouver	58,737.00		
Kelsey Construction Ltd., Vancouver	63,062.00		
P. B. Ford & Co., Vancouver	65,730.00		
Walter Cabott Construction Ltd., New Westminster	69,970.00		
Sorensen Construction Co. Ltd., Vancouver	63,923.00		
<i>Mechanical and Miscellaneous Completion Work, Incinerator, Essondale:</i>			
Vancouver Pipe & Engine Works Ltd., Vancouver	37,984.00	Awarded.	
Fred Welch & Son Ltd., Vancouver	31,113.00		
The Bay Co. (B.C.) Ltd., New Westminster	29,662.00		
Regent Construction Co. Ltd., Burnaby	36,035.00		
<i>Industrial Therapy Building, Essondale (Project No. 5-B-120):</i>			
Smith Bros. & Wilson Limited, Vancouver	535,535.00	Awarded.	
Halse-Martin Construction Co. Ltd., Vancouver	546,451.00		
Grimwood Construction Co. Ltd., Vancouver	542,395.00		
Bennett & White Construction Ltd., Burnaby	513,911.00		
E. H. Shockley & Son Ltd., Vancouver	512,866.00		
Commonwealth Construction Co. Ltd., Vancouver	499,625.00		
C. J. Oliver Ltd., Vancouver	529,000.00		
Kennett Construction Ltd., Vancouver	539,800.00		
Northern Construction Co. and J. W. Stewart Ltd., Vancouver	517,000.00		
John Laing & Son (Canada) Ltd., New Westminster	564,678.00		
Sorensen Construction Co. Ltd., Vancouver	497,923.00		
Frank Stanzi Construction Ltd., Vancouver	509,980.00		
Narod Construction Ltd., Vancouver	509,966.00		
Manson Bros. (1959) Ltd., South Burnaby	488,300.00		
George Born Construction Co. Ltd., Burnaby	489,192.00		
<i>British Columbia Vocational School, Burnaby, Phase 3:</i>			
Bennett & White Construction Ltd., Burnaby	260,975.00		Awarded.
George Born Construction Co. Ltd., Burnaby	243,435.00		
Manson Bros. (1959) Ltd., South Burnaby	237,470.00		
C. J. Oliver Ltd., Vancouver	259,000.00		
Alex Park & Son Ltd., Vancouver	264,964.00		
Turnbull & Gale Construction Co. Ltd., Vancouver	252,723.00		
Coyne & Ratcliffe Construction Co. Ltd., New Westminster	266,345.00		
J. Olund Construction Ltd., New Westminster	252,300.00		

TENDERS RECEIVED AND CONTRACTS AWARDED—Continued

Description of Work and Names of Tenderers	Amount	Remarks
<i>Moving Files, Records, etc., to Victoria Law Courts, Victoria:</i>		
James Bay Movers	\$3,989.50	
Blue & White and Ferriday's	2,800.00	Awarded.
Dowell's Cartage & Storage	5,938.70	
Cantin's Moving & Storage	6,708.00	
Stocker's Security & Storage	4,856.00	
Victoria Van & Storage Ltd.	5,625.00	
Heaney's Cartage & Storage	5,210.50	
<i>Janitorial Service, Victoria Law Courts, Victoria:</i>		
National Building Maintenance Ltd., Vancouver	179,820.00	
Modern Building Cleaning Service of Canada Ltd., Vancouver	128,628.00	
Excelsior Building Maintenance Ltd., Vancouver	124,912.00	Awarded.
<i>Industrial Therapy Building, Essondale (Project No. 5-B-120) (Recall):</i>		
Manson Bros. (1959) Ltd., South Burnaby	505,355.00	
Sorensen Construction Co. Ltd., Vancouver	504,399.00	Awarded.
Bennett & White Construction Ltd., Burnaby	549,400.00	
<i>Installation of Electrical Circuits and Equipment, Incinerator, Essondale:</i>		
J. H. McRae Co. Ltd.	15,795.00	Awarded.
Ricketts-Sewell Electric Ltd., Vancouver	16,000.00	
The Tide Co. (B.C.) Ltd., New Westminster	18,430.00	
Mott Electric Ltd., New Westminster	18,722.00	
<i>British Columbia Vocational School, Burnaby, Phase 4:</i>		
Beaver Construction Co. Ltd., Vancouver	630,326.00	
Manson Bros. (1959) Ltd., South Burnaby	621,317.00	
John Laing & Sons Ltd., New Westminster	625,955.00	
Frank Stanzl Construction Ltd., Vancouver	682,320.00	
Allen & Viner Construction Co. Ltd., Vancouver	641,990.00	
Grimwood Construction Co. Ltd., Vancouver	649,387.00	
E. H. Shockley & Son Ltd., Vancouver	626,248.00	
Narod Construction Ltd., Vancouver	615,854.00	
Bennett & White Construction Ltd., Burnaby	605,375.00	Awarded.
<i>New Floor for Pumproom, Tranquille School, Tranquille:</i>		
McGregor Construction Co. Ltd., Kamloops	9,400.00	Awarded.
Marpole Construction Co. Ltd., Vancouver	11,950.00	
<i>Conversion of Nurses Home No. 2 to Offices, Woodlands School, New Westminster:</i>		
E. H. Shockley & Son Ltd., Vancouver	61,521.00	
B. Bjornson & Sons Ltd., South Burnaby	60,965.00	
C. J. Oliver Ltd., Vancouver	65,600.00	
Lickley-Johnson-Palmer Construction Ltd., Vancouver	67,708.00	
Kelsey Construction Ltd., South Burnaby	58,054.00	Awarded.
Mainland Construction Ltd., Burnaby	65,626.00	
Knutson Construction, North Burnaby	61,500.00	
H. J. Hinningson & Sons Ltd., Burnaby	64,529.00	

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