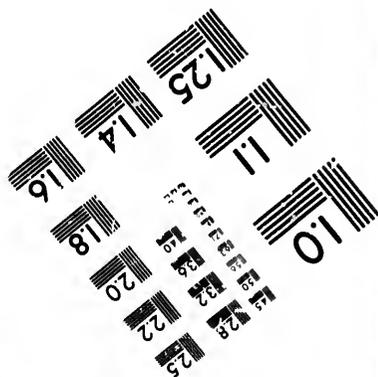
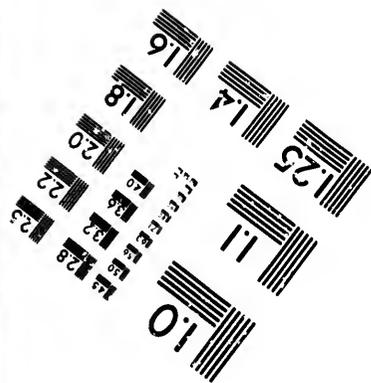
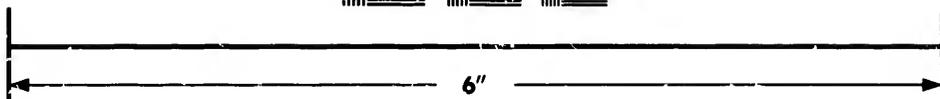
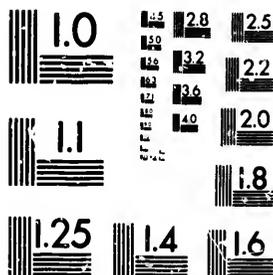


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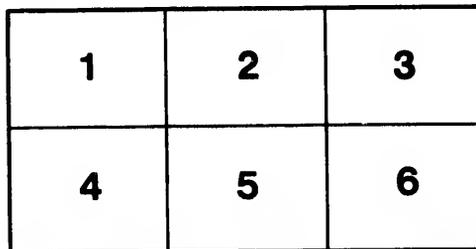
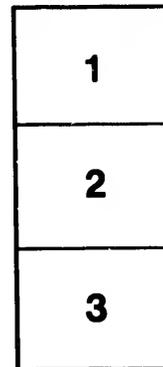
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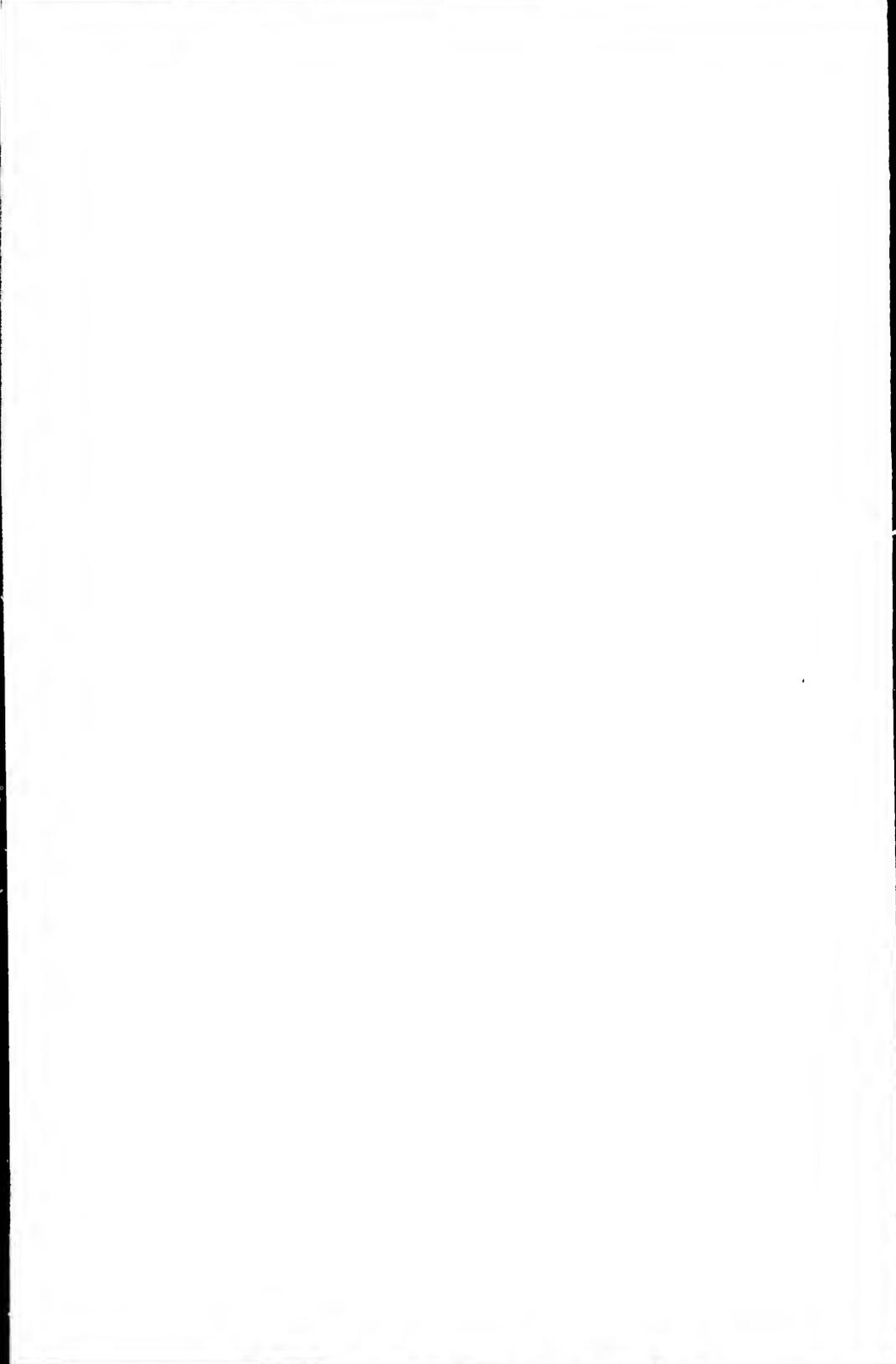
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REPORT

OF

JOHN PAGE, ESQ.,

CHIEF ENGINEER, PUBLIC WORKS,

ON

The Public Buildings at Ottawa.



Ottawa.

PRINTED BY HUNTER, ROSE & COMPANY.
1868.

27231951
 157-788
 2.572193

Original cost

Parkland County	348.500
Departmental Building	278.810
Heating	61.285
	<hr/>
	688.595

Actual expenditure at
 30th Dec 1967

2,723,981.58

Transfer to Library
 and other works

185,000

2,908,981.58

After deducting expenditure on water supply,
 Gas & electricity

Cost about 4 times amount of original
 cost.

157-785
9.572 193

REPORT

ON THE

PUBLIC BUILDINGS AT OTTAWA.

PUBLIC BUILDINGS, OTTAWA,
29th August, 1867.

F. BRAUN, Esquire, Sec'y Dept. Public Works, Ottawa.

SIR,—Agreeably to instructions conveyed in your letter of the 3rd July last, and its enclosures; I have the honor to submit the following General Report on the Public Buildings at Ottawa; but before attempting to describe the Structures themselves, it is deemed proper to give, as requested, a “brief notice of the principal events connected with their construction.”

The first direct action which appears to have been taken towards fixing on a place for the permanent Seat of Government, was on the 24th March, 1857, when resolutions were passed by the House of Assembly to the following effect:—

That the sum of two hundred and twenty-five thousand pounds be appropriated for the purpose of providing for the necessary Buildings; and that an Address be presented to Her Majesty, praying Her to select “some one place as the permanent Seat of Government in Canada.”

A despatch from the Colonial Secretary, dated 31st December, 1857, conveying Her Majesty's selection of Ottawa as the Seat of Government, was communicated to both branches of the Legislature, on the 16th March, 1858.

The place having been thus chosen, and the site of the Buildings fixed upon, the Department of Public Works issued a notice, dated 17th May, 1859, inviting architects to prepare and submit designs for Parliament Buildings, and for the Public Departments, by the 1st day of August following, and stating that the Structures “are proposed to be built in a plain substantial style of architecture, of coursed hammer-dressed masonry, &c.”

“All information as to the sites of the Buildings, their size, number of rooms, &c., necessary for the preparation of the plans, can be obtained at the office of the Department.”

This notice resulted in sixteen designs for Parliament Buildings being submitted, by fourteen different competitors; and seven designs for Departmental Buildings by six different competitors; the whole of which were exhibited, and afterwards examined by gentlemen deemed competent to judge of their comparative merits.

The first premium for the Parliament Buildings was awarded to Messrs. Fuller & Jones, and that for the Departmental Buildings, to Messrs. Stent & Laver.

These gentlemen were subsequently instructed by the Department to make certain alterations in their plans, with a view to their better adaptation to the purposes contemplated; they were also requested to have these changes made, and specifications of the works prepared, by the 15th of October following.

On the 8th of September, public notice was given, that tenders for the construction of the Buildings would be received until the 1st day of November, and that the plans and specifications could be seen at Quebec, Ottawa, and Toronto, on and after the 15th October. The time, however, was extended to the 15th November, when twenty-one tenders were received for the Parliament Buildings, and twenty-nine for the Departmental Buildings.

The tender of Thomas McGreevy was accepted, for the bulk sum of \$348,500 for the construction of the Parliament Buildings; and a contract was entered into with him on the 7th December, 1859, for their completion by the 1st day of July, 1862.

About the same time the construction of the Departmental Buildings was awarded to Messrs. Jones, Haycock, & Clarke, at the bulk sum of \$278,810, and the time fixed by the contract for their completion, was the 1st February, 1862.

The architects who received the first premiums were, on the 29th November, 1859, appointed to superintend the execution of the works connected with the respective buildings, at a commission of about five per cent. upon the contract sum.

No adequate provision having been made for heating and ventilation in the accepted plans, a notice was issued on the 14th November, 1859, calling upon competent parties willing to undertake this service, to tender for its performance, on or before the 30th December, and to submit the details of the system which they proposed to adopt, as also to guarantee its efficient working, for a period of ten years after completion.

In accordance with this notice nine tenders were received, and on the 28th January, 1860, the work was awarded to Charles Garth, at the bulk sum of \$61,285. This was understood to include the furnishing and fitting up of the whole of the apparatus necessary for the heating and ventilation of all the Buildings, except certain alterations as to the mode of warming the wings of the Parliament Buildings.

The building contractors commenced operations on the 20th December, and were principally occupied, during the winter of 1859-60, in the excavation of foundations, preparing materials, and making arrangements for carrying on the works in the ensuing spring.

The masonry was commenced on the Parliament Buildings on the 26th April, 1860, and in June the foundations of the main central tower were laid. On the Eastern Block for the Departments building operations began on the 2nd April, and the works were then generally proceeded with.

On Saturday, the 1st September, 1860, H.R.H. the Prince of Wales laid the corner-stone of the pier immediately under the north-east angle pillar of the Legislative Council Chamber; and in the early part of December building operations were generally stopped for the season.

About this time it became necessary to obtain more ample information in regard to the expenditure on, and management of, the works, than was in the possession of the Department. With this object in view, an Order in Council was passed on the 18th December, 1860, authorizing the Chief Engineer to be sent to Ottawa, for the purpose of reporting fully on all matters connected with the general character, superintendence, and progress of the works, &c., &c., from the commencement up to that period.

A detailed report was submitted by that officer on the 20th April, 1861, recommending certain changes to be made, by which the works could be resumed under a different system of management and supervision.

During the season of 1861 they were continued agreeably to the suggestions contained in the report above referred to, until the 1st of October, when, the appropriation having been exhausted, they were suspended by order of the Hon. the Commissioner.

The Hon. H. H. Killaly was, on the 21st September, 1861, instructed to proceed to Ottawa and ascertain what arrangements could be made to protect the Buildings during the ensuing winter, and to report generally upon their condition and the best mode of settling with the contractors for works which had been performed, &c.

That gentleman accordingly submitted a report, dated 12th November, 1861, embodying his views upon these matters, and accompanied by a progress estimate, shewing, in detail, the amount which he considered should be paid to the contractors for the various items of work, &c., done by them up to the 1st October, 1861, at rates and prices fixed by him. On the 11th and 12th March, 1862, he sent estimates of the work done during the months of October and November, 1861; and on the 16th April, 1862, another Report was furnished by him, which contained a summary of his previous estimates, together with an estimate of the probable cost of completing the Buildings.

In 1862, the sum of \$188,344.30 was appropriated, under the head of "unprovided items," for the previous year, and a further sum of \$500,000 was granted by the Legislature towards the construction of the Buildings.

The contractors urging a settlement for the works they had performed, and alleging certain claims for their suspension, a Commission was appointed, under the Great Seal of the Province, on the 21st June, 1862, to enquire into all matters connected with the construction of the Buildings and management of the works, so far as they had then been proceeded with, and to advise the Government as to the best method of carrying them on in future; and also to supply an estimate of the probable cost of their completion.

The gentlemen forming this Commission had a re-measurement made of the whole of the works, and examined a large number of witnesses as to their past management, value of labor and materials, and other matters connected with the subject.

At this time there had been paid to Mr. Thomas McGreevy, for work performed, the sum of \$483,163.95, and to Messrs. Jones, Haycock & Co., the sum of \$511,391.54.

On the 29th January, 1863, the Report of the Commission was submitted to the Government, containing, amongst other matters, a recommendation that the works remaining to be done should be offered to the original contractors, at a schedule of prices fixed by them (the Commissioners).

This proposition having been acceded to by the Government, and after considerable discussion, agreed to by the contractors, on the 18th April, 1863, contracts were entered into with Thomas McGreevy, for the completion of the Parliament Buildings; and with Messrs. Jones, Haycock & Clarke, for the completion of the Departmental Buildings, at a schedule of prices to be applied to the different classes and items of work.

Under this arrangement, the claims alleged by the contractors as arising out of the first contracts, were left in abeyance.

Before the new contracts were entered into, the specifications were, however, revised; and it was deemed advisable, that instead of paying the architects by commission, as formerly, they should be paid fixed salaries.

In carrying out this system, Mr. Thomas Fuller and Mr. Charles Baillaigé, were appointed joint architects for all the Buildings; and in accordance with the provisions of the new contracts, a general superintendent was also appointed.

The architects formerly in charge of the Buildings, preferred certain claims against the Government, for matters arising out of their supervision under the first contract.

The works were proceeded with, and considerable progress made in the season of 1863. During the Session of this year, the sum of \$100,000 was granted towards construction.

In May, 1864, it was deemed advisable that the Chief Engineer should proceed to Ottawa, and assume control of the works, in order that questions connected with them might be determined on the spot, and thereby avoid the delay caused by reference to the Department, then at Quebec. The method of furnishing supplies of gas and water, &c., was then decided, and the necessary works for these objects commenced.

During this season (1864), all the branches of work connected with the Buildings were urged forward as rapidly as circumstances would permit. In the Estimates for this year, a further sum of \$100,000 was appropriated towards their completion.

The contractors having repeatedly requested a settlement of the claims alleged by them to have arisen out of their first contract, and the architects having also applied for a settlement in connection with their supervision, it was decided in October, 1864, to refer these matters to special arbitration.

For this purpose the Government appointed one arbitrator, the claimants another, and these two selected a third. These three gentlemen formed a Board, before which the several cases were argued by Counsel, and evidence produced by the respective parties. The arbitrators, after a searching enquiry into the various matters brought before them, awarded to Messrs. Jones, Haycock & Clarke, in connection with their contract for the Departmental Buildings, on the 8th day of March, 1866, the sum of \$88,176, and for costs the sum of \$2,203.

In the cases of the architects, the arbitrators awarded on the 2nd day of July, 1866, to Messrs. Fuller & Jones, the sum of \$5,064, and \$181 for costs; and to Messrs. Stent & Laver, the sum of \$6,931, and \$200 for costs.

In May, 1865, the services of Mr. C. Baillaigé, one of the architects, were dispensed with.

In May, 1865, it was decided that the Public Departments should be moved to Ottawa in the fall of the year, and the contractors were notified to make every exertion to have the buildings ready for their reception by that time.

The clearing and grading of the grounds was then proceeded with, and the formation of roads to the different blocks of buildings urged forward. By the month of October, the Buildings were sufficiently advanced to permit of their occupation by the several Depart-

ments to which they had been allotted, and the roads were partially made. About this time the removal of the Government took place.

The wings and central portion of the Parliament Buildings were also in such a state of forwardness as to admit of a number of the offices being occupied, and of the library being placed in the Building.

This year the Legislature granted a further sum of \$800,000 toward the completion of the works.

In May, 1866, the claims preferred by Thomas McGreevy, for matters arising out of his first contract for the construction of the Parliament Buildings, were, by mutual consent, referred to the sole arbitration of the Chief Engineer, who, after hearing and considering the evidence produced, awarded to the claimant, on the 12th day of November, 1866, the sum of \$61,785.

The two Chambers and other rooms necessary for the accommodation of the Legislature were so far completed as to admit of a Session being opened on the 8th of June, 1866, during which the sum of \$500,000 was granted towards the Buildings.

In November, 1866, permission was given to Thomas McGreevy to transfer his contract for the completion of the Public Buildings to Robert H. McGreevy.

In the fall of this year the Departmental Buildings were completed, and in March, 1867, a settlement in full was made with the contractors for all work performed under or connected with the new or second contract, which, in the aggregate amounted to the sum of \$486,199.72.

In February, 1867, authority was granted to make certain alterations in the Legislative Assembly Chamber, for the accommodation of the increased number of Members forming the House of Commons under the Confederation of the Provinces. These works are now completed.

The Departmental Buildings having been finished, and the works on the Parliament Buildings well advanced, the staff was considerably reduced in the spring of 1867, and in the month of May, the services of Mr. Thomas Fuller, architect, were dispensed with.

GENERAL DESCRIPTION.

The site chosen for the Buildings is in the centre of the City of Ottawa, about a mile below the Chaudière Falls, on a prominent rocky point jutting out into the Ottawa River, at an elevation considerably higher than the city and lands in the vicinity. On the eastern side it is flanked by a deep ravine, in which are situated the combined locks of the Rideau Canal. The north side is bold and precipitous, and on the western side the ground slopes quickly towards the south-west and diminishes in width. On the southern or lowest side, it is, for a distance of 1,750 feet, bounded by Wellington street, which is one of the principal streets of the city, and descends in a westerly direction towards the Falls.

The point is of an irregular shape, 1,050 feet wide at the centre, and contains an area of fully 29 acres. It was formerly known as Barrack Hill, and is a part of the Ordnance Lands conceded to the Province.

The Buildings are placed so as to form three sides of a quadrangle, measuring from north to south 600 feet, from east to west 700 feet, and containing an area of over $9\frac{1}{2}$ acres.

The Parliament Building is on the north side of the square, upon which it has a frontage of 472 feet. It faces toward the south, and its extreme depth at the centre is 370 feet, covering an area of about 82,886 superficial feet, or about $1\frac{9}{10}$ acres.

The Departmental Buildings form the east and west sides of the square; they are of a rectangular shape, having both quadrangle and southern fronts, the line of the latter being 100 feet north of Wellington street.

The Eastern Block has a frontage on the square of 319 feet, and 245 feet on the south. It covers an area of 41,840 superficial feet, or fully nineteen-twentieths of an acre.

The Western Block has a frontage towards the south of 277 feet, and on the quadrangle of 220 feet, with an area of 36,276 feet superficial, equal to about seventeen-twentieths of an acre. Thus the total area covered by all the Buildings is about $3\frac{7}{10}$ acres.

The Parliament Building is on the highest part of the ground, and its basement floors are about 159 feet above the ordinary summer water level of the Ottawa River. Those of the Eastern and Western Blocks are respectively 135 feet 3 inches and 142 feet 3 inches over the same datum.

A continuous carriage road has been made all round the square, and extended northward at both ends of the Parliament Building towards the Speakers' Towers, and also along the southern fronts of the Departmental Buildings.

The entrances to the grounds are opposite Elgin and Metcalf streets. From these points the roads incline gently to within a short distance of the Parliament Building, where they ascend by a steeper grade to the level of a wide terrace, which has been formed along the southern front of that structure.

The square has been graded to a gradual rise from the road which runs parallel with Wellington street up to the foot of the terrace, and to a plane corresponding to the levels of the Eastern and Western Blocks.

All the Buildings are constructed in what may be termed the Pointed Gothic style of architecture, and from the bold, broken outline they present—their numerous towers, high pitched, variegated slate roofs, pierced by dormers and surmounted by ornamental wrought iron cresting and terminals, together with the quaintness of the carved figures, combine to produce an imposing and picturesque effect.

The outer facing of the walls is principally composed of a light colored, compact sandstone, obtained from the Township of Nepean, at a distance of about 12 miles from the city. The dressings, stairs, gablets, pinnacles, &c., are chiefly of a greyish colored freestone, from the State of Ohio, and the relieving arches over the door and window openings are of a reddish sandstone, from Potsdam, in the northern part of New York State. The slates are generally of a dark color, with bands of a lighter hue placed at intervals. They were obtained in the State of Vermont.

The foundations and interior portions of the walls are of limestone, quarried in the vicinity. The division walls and lining of the external walls are chiefly of brick, manufactured either at Ottawa or at other places in the Province.

The marble used in the Buildings was principally obtained from Arnprior and other places on the Ottawa River.

The valley of the Ottawa also supplied the timber used in the construction, with the exception of the oak, which had to be brought from other parts of the Province.

PARLIAMENT BUILDINGS.

SOUTHERN FRONT.

The southern façade of this Building is, as already stated, 472 feet long. It is three stories in height, the basement being entirely over the ground line; the top of the main cornice is about 45 feet in height, and the front is divided into five horizontal bands, by belt-courses at the sills and springing of the doors and window openings of the different stories. This produces a degree of regularity, which is, however, broken by the heavy projections of the central and wing towers.

The central Tower is about 30 feet square, exclusive of the angle buttresses, which are of an octagonal shape, and terminate in open, clustered columns, surmounted by pinnacles with carved finials. It is divided by belt-courses into five unequal vertical spaces, in the lowest of which are lofty archways (embracing the height of the basement and ground floors) on three of its sides. These are constructed of deeply-out mouldings, enriched with carving, and ranges of marble columns. They open into a groined carriage porch, in front of the main entrance, the latter having the Royal Arms, elaborately carved, over the doorway.

The second, or inter-story, is marked out by the same horizontal lines as the first floor story of the main structure, and has three arched windows, and two niches, of similar dimensions, on each of its three sides. This portion of the Tower can be used for Committee Rooms or other purposes.

Three sides of the third space are divided, vertically, into two compartments, in each of which are three deeply-sunk, moulded, arched and weathered panels, with narrow perpendicular openings for the admission of air. The wall forming the fourth side is hid from view by the main roof.

In the fourth or largest space, or story, are two deeply-weathered, moulded, enriched, and ornamentally perforated belfry windows, on each side. These form a striking feature in the elevation of the Tower, and add greatly to its general effect.

Over these windows there is a heavy moulded and enriched cornice, immediately above which the angle buttresses are capped by the clustered column and pinnacles above referred to. Between these, on all the four sides, are pointed gables, in which are constructed circular openings for clock faces, inscribed by pointed relieving arches. The gables, pinnacles, &c., are enriched with crockets.

The masonry of the Tower is complete, but the roof is as yet unfinished; it has been carried up to a height of 156 feet above the surface of the terrace. From its mass, and the variety of light and shade produced by its deeply recessed windows, projecting buttresses, and the characteristic ornaments of the style, it presents a very imposing appearance.

On each side of the central Tower the main structure extends for a distance of about 100 feet, where it connects with the wings.

Near the angle formed by this junction are double flights of outside stairs, with moulded cut stone railings and carved balusters, leading to the entrances for Members of the two branches of the Legislature.

As already stated, the horizontal lines by which this front is marked form a striking feature in the elevation. This portion is, however, diversified on either side of the central Tower by a large tracery window, which lights the main vestibule, and by the irregular size and height of those at the public stairs, leading to the galleries of the Houses.

In the regular part of the façade (including the wings) there are, on the ground floor, 28 cusped openings for windows and doors, over which, in the first floor, are 52 smaller window openings, generally in pairs, with the exception of those in the angle towers, where there are three windows in the first floor over two in the ground floor.

Between the arches of the lower openings there are carved circular sunk ornaments, with rings of Potsdam stone.

In the roof of that portion of the main Building, between the central Tower and wings, there are, on each side, seven dormers and three chimneys.

The wings are each 121 feet long, and have a tower, carried up at each of the four angles, shown on the southern face. These stand about 4 feet beyond the general line of the face (in range with the front of the angle buttresses of the main Tower), and are built up to correspond with the leading horizontal lines and general features of the structure.

That portion of each Tower which is carried up in masonry over the main cornice reaches to the top of the central roof, and is divided into a series of moulded tracery panels, with vertical perforations for the admission of light and air, over which is a heavy cornice, with rows of gablets.

These towers are covered by high pitched truncated roofs, in each side of which are constructed three dormer windows, surmounted by wrought iron terminals. The flat portions of the roofs are finished with creasing painted deep blue, with the prominent points gilt.

The ridge of the slated roofs covering those parts of the wings between the angle towers, is a little lower than that of the central portion. In this space there are five dormers and two chimneys at each end of the building.

In the centre of each wing is a flight of outside stairs with a carved balustrade, leading to what are termed the Clerks' Entrances.

At the ground floor line the walls have, throughout, a heavily weathered offset, in which are partly placed small arched windows, for admitting light to the basement. Two doors for access are also provided.

The above constitute the main features of the southern elevation of the Parliament Building, in addition to which, however, there can be seen from the quadrangle, the highest parts of the roofs of both Houses; and the ventilating towers at their northern ends, together with those situated at other places. The tops of numerous chimneys in the rear are also visible.

Before attempting to describe another view of the Building, it is deemed proper to state, that a line through the centres of the main tower and Library, divides the ground plan of the whole structure into equal parts. The elevation of the western side is also repeated in all its features on the eastern side. It will therefore be obvious, that (for the present purpose) the following description will serve for both sides:—

WESTERN FACADE.

The horizontal outline of the western side may be briefly described as follows:—

The end of the western wing, which is the most salient point in this view, stands on the extreme right, and has a length of about 105 feet. The angle towers project about four feet beyond the general line of its front. North of this is the lean-to and Speaker's tower, situated on the west side of the House of Commons. This face has a length of 112 feet, and stands back about 100 feet from the line of the wing. To the left of this tower, but set back from it 108 feet, appears about 28 feet of the connection between the main Building and the Library. The latter, which is on the extreme north of this view, is in ground plan of a circular shape in the centre, inscribed by a polygon lean-to of sixteen sides, and presenting on the horizontal plane of this elevation, a length of 126 feet.

This end of the western wing presents a similar appearance to that of the southern face already described:—with the exception that there are no outside stairs leading up to the level of the ground floor—the entrance from this side being in the centre of the basement, and on the level of the terrace. In the ground floor there are nine, and in the first floor eleven, cusped window openings. The lean-to above mentioned, is carried up one story above the basement, and has eight arched openings on the ground floor. In its roof a continuous line of dormers has been constructed, for the purpose of admitting light into the corridor on the west side of the Chamber. In the basement there is an entrance to the tramway leading through the upper part of the boiler-house, and a flight of outside stairs to the Reporter's entrance, which is on the level of the ground floor. Above this lean-to, a part of the side wall of the House of Commons is seen, together with the high ventilating towers on the northern end. In the side of the Chamber appear five large ornamental tracery windows, by which it is lighted. The skylights in the roof are also partly visible.

The main extracting shaft, which is built at the north end of the boiler-house, stands 55 feet above the roof of the House of Commons, and forms a striking feature in this view.

The Speaker's tower is in two stories, and is carried up to the same height as the main cornice on the southern face. There are two windows in the ground floor, and three in the first floor. It is covered with a high pitched truncated roof, lighted by dormers, and finished with cresting. The entrance is on the ground floor, and is approached by a flight of outside stairs on the northern side.

The connection between the main Building and the Library is comparatively low, being only one story above the basement. This has the effect of detaching in a distinct manner the masses of these two structures.

The Library is but partly built, and is surrounded, as before stated, at its base by a lean-to of polygonal shape, at all the angles of which are buttresses carried up solid to over the height of the lean-to. These are intended to serve as bases for the flying buttresses, which will receive the thrust of the main vault of the Library.

In the central compartment formed by the buttresser is a doorway, with a window on each side, and in the two spaces adjoining there are three arched windows. The other compartments are differently arranged, having seven windows in each, of irregular height, and crown'd with an ornamental gablet, or pediment, the apex of which rises considerably above the level of the lean-to cornice.

This lean-to is built its full height and roofed; but the main walls of the Library are at present only carried up to the level of the underside of the large windows for lighting the central portion of the Building, or to a height of 43 feet above the finished surface.

From the description already given of the southern façade, it will be evident that although the long horizontal lines by which the respective stories are divided are broken by the central and angle towers, yet the general effect is comparatively regular.

On the western side, however, a more striking outline, and at the same time a pleasing contrast, is obtained by the irregular height and shape of the various masses which compose this elevation.

These remarks, of course, apply equally to the precisely similar appearance presented by the eastern side.

INTERIOR ARRANGEMENT.

On entering the Building through the large doorway under the carriage porch at the central tower, the first apartment is the main vestibule. This consists of two parts: the first being a semicircular space, 32 feet by 11 feet, included between the rear line of the tower and the front wall of the main Building, which is here supported on two columns and three arches of sandstone; beyond this is the principal part, measuring 72 feet by 38 feet, and 24 feet high.

In the north wall are five tracery windows with quarry lights, opening on the central court; and in the south, on either side of the tower, is a large ornamental window.

The floor is of Portland cement, raised three steps above the level of the terrace, and about 11 feet from the north wall there is a line of six columns and seven moulded arches of sandstone, carrying the corridor wall above. In three of the spaces between these columns are three steps up to a platform, from which flights of stairs, 10 feet wide, lead right and left to large landings, with circular projections beyond the line of the columns, and at a level of two steps below the ground floor. From these, doors lead on the north side to the public stairs, and on the east and west sides to the lobbies of the respective Chambers. There are also doors south of the latter, leading from the circular part of the landings to the first floor and to the galleries of the Houses.

The columns referred to have elaborately carved capitals, which are believed to possess considerable artistic merit. The flights of steps and landings have an ornamental stone balustrade.

Under each of the south windows are three enriched arched openings for the admission of warm air. There are also two arched openings of a similar description on each side of the circular space inside of the main entrance. To the left is a door leading to the Messengers' apartments, and on the right there is one leading to the basement. The ceiling is formed of pine sunk panelled work, with tooth enrichment oiled and varnished.

This vestibule is used in common as an entrance to the apartments allotted to both branches of the Legislature.

On the east is the Senate side, and on the west that of the House of Commons.

The area covered by each side of the Building is precisely the same, and the internal arrangements nearly alike, with the exception of the Chambers.

It is now proposed to give a brief description of that half of the Building allotted to the use of the House of Commons.

The entrance to the lobby is by a door already described as leading from the vestibule by two steps to the level of the ground floor. The lobby is 71 feet long and 24 feet wide, and in the centre there is a range of five columns running in an easterly and westerly direction, with arches between, supporting the north corridor wall above. The shafts of these columns are of polished marble from Arnprior, and the carved capitals and moulded arches over them are of sandstone. The south wall of the lobby is pierced by eight arched openings. That in the south-east corner is occupied by a cut stone tracery window, opening on the public stairs leading to the gallery, and in the south-west corner is a doorway from the Members' entrance.

The other six archways are chamfered and finished with cement. Four of these on the western side are opposite the Post Office:—and 4 feet behind them is an ornamental, deeply sunk and moulded tracery screen 8 feet high, with ground glass panels, inside of

which are the letter boxes. The top is finished by a line of low crestring, and the screen is principally executed in pine, oiled and varnished.

A waiting room is formed behind the other two archways, which has a screen similar to, and in line with that described.

Forty-nine feet of the north side of the lobby is occupied by the wall of the House of Commons, in which there is no opening. On each side of this wall there is a corridor 11 feet wide, separated from the lobby by a tracery screen of pine, oiled and varnished, finished at the top by wrought iron crestring. At the east end of the lobby there is a large cut stone tracery window, glazed with ground glass quarry lights.

The floor and skirtings are of Portland cement, and the ceiling is of deeply sunk and moulded panelled work, with tooth enrichment.

At the west end of the lobby is an arched doorway, with side and fan lights, the heads and jambs of which are finished in cement. This leads into the wing corridor, 11 feet wide, extending a distance of 100 feet to the suite of rooms at the western end of the Building and around the wing court, which is 36 by 30 feet, and has ten windows opening on it for lighting the corridor and admitting air to this part of the structure.

Along the the north side of the corridor are six Committee Rooms, and on the south side are the Accountant's Room, and arched openings to a flight of circular stairs (termed the "Committee Stairs"), which has a skylight at the level of the attic floor.

At the west end of the wing are the Sergeant-at-Arms apartments and closets, and on the south front are rooms for clerks. To this wing there is a separate outside entrance, before referred to.

All the door openings have pointed arches, with fan-lights between them and the flatter arches forming the door heads. The ceilings are similar to that over the Lobby, being of pine, panelled, moulded, oiled and varnished. The corridors referred to as opening off the lobby, pass all round the Chamber; the exterior dimensions of the latter being 85 feet by 49 feet. The entrance to the Bar of the House is in the centre of the eastern corridor, near the north and south ends of which are situated the Member's entrances. Outside of each of these doors is a panelled, moulded, tracery porch, with doors which open either way.

In the eastern side are the windows, which admit light from the central court, and a door leading down to the boiler-house.

The north end of this corridor is slightly contracted by the piers of an arch, carrying a wall connected with the ventilating tower above. The west corridor is similarly arched over, and also both ends of the north corridor.

The entrance to the Picture Gallery (which serves for a temporary Library) is at the north-east angle of the last corridor; and from the north side of the north corridor are doors leading to the Smoking Room, Reading Room, and to the Speaker's entrance; on the left of this is the Speaker's office, which is 25 feet by 23 feet, with a dressing room, bath, &c., attached. These apartments are convenient to the Chamber, and have a private entrance from the north side of the Building. They command a fine view of the Ottawa River, the Chaudière Falls, and the surrounding country.

The light for the north corridor passes through the skylights over the Reading Room and is admitted through a series of ornamental openings between low pillars, near the ceiling of the north wall.

There are two entrances to the Chamber on the east side of the western corridor, with porches similar to those already described. On the west side there is a door opening to the stairs leading down to the basement, another to closets, and two to Committee Rooms. This corridor is lighted in a like manner to that on the north side. The floors are of Portland cement, and the ceiling of pine panelled work, oiled and varnished, similar to that over the lobby of the House.

Along both sides of the north and west corridors are ranges of wardrobes for the use of Members.

The foundation walls for the corridors around the House and through the wings, form similar passages in the basement. They are, however, intersected by the line of the tramway, which is two feet above the level of the basement floor. These passages have, in some cases, been utilized for the storing of records and books connected with the House.

At the foot of the flight of stairs referred to as leading from the western corridor to

the basement, the first room to the left is the Telegraph Office, and alongside of this, in the Speaker's Tower, is the dining room attached to his apartments. To the right are lavatories and closets, and a short passage running under the western corridor and opening into the Saloon, 34 by 25, which is also entered by steps down from the tramway. Nearly opposite the foot of the stairs is the passage under the north corridor, leading towards the east. On the left of this is a large dining room for Members, and beyond it, under the smoking room, is a kitchen, provided with a range, &c. There are larders and other rooms in the vicinity.

The passage under the east corridor is fitted up with shelves for the reception of official records; the space alongside of the piers under the Members' lobby is also fitted up in a similar manner. The basement of the wing contains apartments allotted to the Sergeant-at-arms, which are entered from the west end. On the north side and part of the south front are rooms for the Chief Messenger, who can enter by a door in the rear of the Building.

The spaces under the Post Office and Waiting Room are used as a Messengers' waiting room, metre room, vaults for records, &c. The basement floors, where used or occupied for rooms, are formed of Portland cement; but those of the dining rooms and saloon are of pine laid over the concrete.

The basement on the Senate side is similarly arranged,—except that the saloon is fitted up for records; the space under the Members' lobby is used only for storage, &c., and the Messengers' room is on the ground floor instead of the basement.

The vaults under both Houses can be used for the storage of fuel.

The space under the central court, 68 by 74½ feet, is occupied by the boilers and apparatus connected with heating and ventilation. From this point warm air vaults and cold air ducts extend in various directions throughout the basement. These will be more particularly referred to under their proper heads.

There are, as before mentioned, two flights of stairs to the first floor of the Building on this side: one of these is the public stairs leading from the main vestibule, and the other is what are termed the "Committee stairs," situated in the wing. There is also a flight of stairs off the vestibule leading directly into the public galleries of the House.

Ascending the public stairs, the landing on the first floor is in the corridor, and directly opposite the south-east angle of the House. This corridor runs the whole length of the south front of the building, with the exception of the suites of rooms at each end. It is divided by four arched doorways with side lights, one at each of the southern angles of the Houses. It also extends around the wing court, and is throughout immediately over the corridor of the ground floor.

Following the line of this corridor, from the landing at the head of the public stairs towards the east end of the Building, the first room on the right is that apportioned to the use of the Contingent Committee; between this and the landing at the public stairs, on the Senate side, are two rooms, allotted to the Clerk of the Crown in Chancery, together with a passage, leading to a small waiting room, beyond which is a large general Committee Room, in the main central Tower.

The next room beyond the stairs, on the south side, is the Railway Committee Room 36 by 19 feet, to which there are two entrances from the corridor. The room east of this is for the Committee on Private Bills (23 by 19 feet), the entrance door to which is immediately opposite the south-east angle of the Senate Chamber. The four rooms last mentioned are to the eastward of the central Tower.

Starting from the same point, at the south-east angle of the House of Commons, and advancing towards the west, the first five rooms on the left are for committees and clerks. Seventy-five feet of the opposite side of the corridor is occupied by the south wall of the House, in which there are two entrances to the galleries,—one at the south-east and the other at the south-west angle; beyond the latter there is a stairway leading to the attic, in a small room for messengers.

Next on the left is the space occupied by the Committee stairs. On the north side (including the Angle Tower room) are apartments for Committee Rooms and French Translators. On the west end of the Building are the closets, and Sergeant-at-Arms' apartments. The south front of the wing and the adjoining room are occupied by the English Translators, Law Clerks, and Stationery. That part of the corridor in the wing is lighted

by ten windows, opening on the Court. Opposite the ends of the Chambers the corridor is lighted by means of a panelled glass ceiling, and skylights in the roof. Between the two Chambers the light is admitted by five windows, opening on the central Court. The floor and skirting of the corridor are of Portland cement, and the ceilings (with the exceptions above mentioned) are of pine panelled work, similar to those in the ground floor. All the rooms are provided with double windows, the lower halves of which are hung, and arranged to slide up in the casements, thus obviating the necessity of removing one set during the summer season; they are also furnished with inside venetian blinds. There is a fire place in each room, with a pointed arch and moulded chimney-piece, and hearth of sandstone.

The floors of all the rooms are of pine, grooved and tongued, laid in narrow widths, and fastened to strips embedded in the concrete underneath; the skirtings are also of pine, chamfered and grooved into the floors. The ceilings of all the principal rooms are of pine, moulded sunk panelled work, oiled and varnished.

In the rooms with plastered ceilings there are cornices suitable to the sizes of the various apartments.

There are also stands (with marble tops) and wash-basins in most of the rooms; these are provided with silver-plated taps.

The division walls of the interior are chiefly of brick, and the floor joists are of rolled iron of a sectional area varied to suit the lengths between the bearings. These are generally laid 18 inches apart, and upon the lower flanges boards are placed transversely to carry the concrete, which has a general depth of 12 inches. In this manner the floors of all the rooms, corridors, &c., are constructed, both on the ground and first floors, and attics, and also the floors of the two Chambers, together with those portions of the ceilings over the corridors and galleries. This renders the Building, below the attic floor, in a great measure fire-proof, and cuts off the means of its being communicated to the wooden roofs of the Building, except at the Committee stairs and at those points south of the Chambers on the first floor where the corridor ceiling is of glazed panelled work. Between the roofs of the other parts of the Building and those of the Chambers are cut-off brick walls, which lessen the probability of fire extending in this direction, whilst the wooden ceilings of both Chambers are at such a height as to be comparatively secure. The outer coverings of the roofs being of slate, lead and galvanized iron, it will be evident that the risk of fire is confined to as narrow limits as possible, considering that the roofs throughout are of wood;—that is to say, it can only spread in the attics and roofs themselves.

On the north side of the central court is a suite of rooms allotted to His Excellency the Governor General and the Chaplain to the Senate. These open into the Picture Gallery (which measures 28 by 54 feet) and is also entered by doors at the angles of the corridors leading round the Senate and the House of Commons. This apartment is 25½ feet high, and the ceiling of a part of the slope of the roof on either side is of pine panelled and moulded work, similar to that of the corridors. The centre of the room, however, is covered by a flat ceiling, panelled, and filled in with ground glass, through which light is admitted from skylights formed in the roof.

There is a door in the centre of the north side opening to a passage leading to the Library proper, at the end of which is a highly ornamental arched, moulded, and enriched doorway, with clustered columns and carved capitals. At this point a temporary partition has been erected so as to enclose a space of 36 feet by 11 feet (the passage), which, together with the Picture Gallery and the adjoining rooms, has been fitted up for the reception of a part of the Library of Parliament. In the larger room is a gallery running around its four sides for access to the higher ranges of books, which could not otherwise be easily reached from the floor.

The Smoking Room on the Senate side (about 36 by 15 feet), which is entered by a door on the north corridor, has also been fitted up for part of the Library.

CHAMBER.

The House of Commons measures 82 feet by 45 feet inside, and is arranged for the accommodation of 194 Members.

It is lighted from the ceiling, and by means of large windows on three of its sides.

In the centre of the western side is the Speaker's chair, opposite which, on the eastern side, is the Bar, and a door opening into the adjoining corridor.

The floor of the House occupies a space 16 feet wide, and to the north and south of this are 7 ranges of desks. The two front ranges are on the floor, and the other five on each side are placed on platforms which rise each seven inches as they recede from the centre towards the north and south ends of the Chamber, where they are about 3 feet above the floor level. In the risers of the platforms are perforated cast-iron gratings for downward ventilation.

The desks are placed in pairs, and between each pair is a narrow passage to afford access to the seats.

Between the ends of the platforms and the east and west walls of the House there are passages 3 feet wide, by which Members entering at the side doors can either pass on to the floor of the House, or ascend by means of steps to the level of the rear platform. A brass railing separates this passage from the ranges of seats which stand above the floor level.

In the centre of the floor of the House there is a large opening covered by a perforated grating, through which cold air can be admitted to the Chamber during periods of adjournment. Over this are placed the Clerks' table, and that for the Mace.

The five entrance doors to the House have inside porches of panelled, moulded and tracery work in pine, and are covered by glass ceilings.

Walls are carried up round the area described (82 feet by 45 feet) to a height of 16½ feet over the level of the floor. These walls are divided by marble pilasters on the east and west sides into five bays each, and on the north and south ends into three bays. Between the pilasters, and extending all round the Chamber, is a projecting cornice of marble, the top of which is on a level with the floor of the gallery. The pilasters terminate at the height of the railing along the front of the gallery, and upon them are placed clusters of marble columns with carved capitals. From these spring pointed arches, reaching nearly to the ceiling, which is horizontal, and 45 feet over the floor of the House. Behind these arches, and extending back to the main walls (a distance 12½ feet) are the galleries, immediately over the ground floor corridors, around the House. The pilasters, clustered columns, cornice and arches are of blue veined marble, polished.

Alongside the Chamber walls, at a height of about 6½ feet over the floor, there is a continuous line of openings for the admission of warm or cold air. This is covered by an adjustable perforated grating of brass, placed at such an angle as to give a proper direction to the current. At the north and south ends of the Chamber, the openings in the centre bays, between the pilasters, communicate directly with the duct, and air is supplied by means of a large tube from the fan in the boiler house. This arrangement is for the purpose of changing the air in the Chamber as rapidly as possible when required.

Immediately under the marble cornice, there is also a range of ornamentally perforated cast iron gratings for the introduction of air. The gallery front is formed of a line of pine panelling, ornamented with quatre-foils, oiled and varnished. Upon this is placed a range of wrought iron standards supporting a walnut rail, at the height of the pilasters above referred to, or 19 feet above the floor of the House.

The southern three-fifths of the east gallery is allotted to Members of the Senate, and is entered by a door opposite the head of the first floor stairs. The other two-fifths of the east, and the whole of the north gallery is for the public, and is approached by a separate stair leading off the main vestibule. The south gallery is for the ladies, and the southern part of the west gallery is for persons admitted by the Speaker.

In each of these galleries are three ranges of seats, rising 14 inches above each other, with passages at intervals between them. In the south gallery there is, however, a fourth range of seats alongside the wall.

Three bays of the north part of the west gallery are arranged with desks and divisions for the accommodation of Reporters, and in rear of these there are seats provided for other persons connected with the Press. To these gentlemen have also been allotted two rooms, immediately over each other, in the Speaker's Tower—one on the level of the gallery and the other in the attic, which is lighted by large dormers on two of its sides. To these rooms there is a separate stair and an outside entrance.

In rear of the three bays, formed by the arches in front of the north gallery, there

are three large windows, of elaborate design, with mullions and tracery of sandstone, the inside sashes being filled with richly ornamented stained glass. On each side of these is a narrower window, of a similarly ornate character, with stained glass, also of the most brilliant colors.

In the eastern side, and corresponding with the bays between the marble arches, are five windows. The three central (and largest) ones, are formed of five narrow lancet windows, with tracery heads; that on either side is composed of four lancet windows of similar design.

On the west side there are four windows, similar to those opposite.

They are all glazed with richly ornamental stained glass, and both the side and end windows have an outside glazing of quarry lights.

In line of the arches over the gallery fronts, there are at each corner two pointed arches, of about 10 feet span, reaching over the galleries themselves; those at the north end support the ventilating towers. These arches spring on one side from carved corbels, built into the main walls, and on the other from the larger clusters of columns at each angle of the House. In all the four corners included between these arches and the side walls, are groins with moulded ribs of marble, filled in with brick and plastered. The ribs, which start from the angle of the exterior walls, also spring from ornamental carved corbels.

The ceiling over the galleries is formed of deeply moulded panel work, with tooth enrichment, oiled and varnished, and has a somewhat similar appearance to those over the corridors on the ground floor; except the space opposite the centre bay, on each side, in which the panels are filled in with perforated cast-iron plates, for the purpose of upward ventilation.

The arches over the gallery fronts are, as before stated, supported by clustered columns of polished marble, resting on pilasters of the same material. The larger clusters at the four angles consist of one heavy central column, wrought and sunk so as to represent five columns, around which are arranged eight smaller ones. The twelve intermediate spaces between the angles are divided by smaller clusters, consisting of one large central column, encircled by four of less diameter. All the columns measure 6 feet 2½ inches, from the top of the pilasters to the capitals. About midway between these points there is a projecting band, which encircles the whole cluster. The capitals are 18 inches high, and carved to represent foliage. From these spring the respective arches, which are deeply moulded and polished, and carried up to a height of 41 feet 8 inches over the door of the House.

In the spandrels between the arches, on all the four sides of the Chamber, are rose shaped openings, inscribed in circular mouldings of marble, 4 feet 6 inches diameter. At the height of 1 foot over the apices of these arches is the line of the underside of the main cornice. This cornice is 2 feet 6 inches high, and has a projection of 18 inches. It consists of several deeply moulded members, with a carved enrichment in a cove near the lower side.

The moulded framework of the ceiling is divided into sixty panels, and in the divisions are ranges of perforated quatre-foils for the purposes both of ventilation and ornament. The panel work is deeply moulded, and has a tooth enrichment. Both it and the cornice are of pine, oiled and varnished, and the panels are filled in with ground glass, through which light is admitted from skylights placed in the roof.

From the foregoing description of the House, some idea may be formed of the effective result which its large dimensions and generally ornate character could scarcely fail to produce.

The chief features of the interior are characteristic of the style of architecture in which the Building is constructed, the lofty arches over the gallery fronts are pointed, and the clusters of marble columns supporting them are light and graceful in appearance, whilst at the same time they possess ample strength.

The tracery windows in the main walls are of elaborate design, and are filled with richly colored stained-glass, representing the Royal, Provincial, and other coats of arms, together with various heraldic devices, emblazoned in brilliant hues. The light thus admitted throws the ranges of arches along the gallery fronts into relief, and greatly enhances the beauty of the interior.

The groined arches at each angle of the Chamber also form attractive features, and the peculiarities of the style are artistically carried into minute details.

The Senate Chamber is of the same dimensions, and presents throughout a similar appearance to the House of Commons, except that the arrangement of the Speaker's Chair, desks, &c., on the floor of the House, and the positions of the entrance doors are different.

The Throne and Speaker's Chair are situated in the centre of the north end of the Chamber, and the floor of the House extends from north to south, 15 feet wide. The Bar is at the south end, and the wardrobe for the Senate is off the east corridor. The Throne in this Chamber, and the Speaker's Chair in the House of Commons, are both of a temporary character.

DEPARTMENTAL BUILDINGS.

The Departmental Buildings (which flank the square) are, for the most part, two stories in height, the basement being generally sunk below the ground level, and the main cornice about 40 feet over the finished surface. The Eastern Block has a picturesque and broken skyline, and, from its numerous towers and projections, presents a great variety of light and shade.

The Western Block, although not so ornate as that opposite, has a sufficiently diversified exterior to produce a pleasing effect.

EASTERN BLOCK.

Quadrangle Front.—This, as already stated, is 319 feet long, and the principal tower, which is situated at the south-west angle, is set back 16 feet from the line of both this and the southern front. At the north-west angle, the end of the north wing stands back 15 feet from the front line.

The basement floor throughout is considerably lower than the surface of the ground, and six of the openings in it for light are enclosed by detached sunk areas. At the north end, the area is continuous.

The central portion of this front, for about 54 feet in length, has a projection of 3 feet, and is three stories high. The middle part of this (25 feet long) has a further projection of 3 feet to the line of the angle towers, and corresponds nearly in length to the Governor General's carriage porch, which stands out 18 feet from the general line, and forms the most prominent feature in the ground plan of this face.

The porch is principally built of cut stone. It has three arched openings on the west face, one of which is a doorway. The carriage entrance is by archways on the south and north faces. Inside, the roof is groined. Over the front arches there is a pediment, in which the royal arms are elaborately carved: this is surmounted by a wrought-iron terminal.

On each side of the entrance door under this porch there is a window to light the vestibule, and on either side of the middle projection there are two arched windows, with sunk panels underneath on the ground floor level.

Immediately over the roof of the carriage porch, there are three combined windows, which light the Governor General's room, and one large window on each side of this, on the first floor. Above this there is a large tracery window and two smaller ones.

At the level of the cornice, over the first floor, two projecting angle buttresses are started on the main central portion, and are carried up to the elaborate cornice which runs along its top. They are crowned with enriched pinnacles. The masonry of the middle compartment is carried up somewhat higher than this, and has a lighter cornice, with a small pediment in the centre, corresponding with the arch over the tracery window above referred to. The roof of this is truncated, but not so elevated as that over the main central portion, which has a similar outline, and stands high above the roof on each side. These roofs have wrought-iron cresting and terminals.

On either side of this central part there are two recessed bays of 47 feet, each of which is divided into seven vertical compartments. Three of these contain windows—two on the ground floor, and one large window immediately above them on the first floor.

Over this is a heavy cornice from which the roof is carried up level with the top of the central tracery window.

These bays are flanked by two low towers, each about 30 feet wide on this view. That on the south has two windows on the ground floor, with sunk panels underneath, and one large tracery window immediately over these on the first floor, the apex of its arch reaching to the level of the main cornice over the bays. The masonry is carried up to a height of about 6 feet over this cornice, above which there is a centre pediment containing two small arched windows which light the attio formed in the tower roof.

That on the northern side has two arched windows with sunk panels on the ground floor, and two with larger openings in the floor above. This tower is built to the same height as that just described, but there is no central pediment—in place of which there are three small arched windows—the cornice over the latter being similar to that over the bays before described.

On each side of these low towers are two others—that standing on the north-west corner being, as before stated, the main tower, and forming the chief feature in this block. It has a base of about 36 feet square, and about 13 feet of the central part is recessed for a large window. On either side of this the piers are carried up vertically from the level of the plinth to that of the string course which surrounds the building, at the springing line of the ground floor openings. From this the piers are heavily weathered and constructed of cut stone work to the height of the string course, at the springing of the first floor windows—from which level a double arch of about 21 feet span is carried over the window recess. The apex of the relieving or upper arch is about the height of the main cornice of the low towers previously described.

Between these arches there is included a large surface of cut stone work, in the centre of which is a sunk circular space, enriched by carving.

On each side of this and in the spandrels of the lower arch there are moulded and sunk panels. In the large area between the lower arch and the plinth course, there is a group of three lancet windows, enriched at their bases by sunk panels—and that portion of the recess surrounding these windows is filled in by what is termed "random work."

From the upper string course the tower is carried up vertically to a height of about 56 feet over the ground surface, where there is another weathered offset, which reduces its width to 30 feet. From this it is carried, with perpendicular sides and moulded corners, to a height of about 106 feet, or to where the main cornice commences.

In the space included between these horizontal bands, there is, on each of the four sides of the tower, a large enriched, deeply recessed and weathered tracery window, over which projects a heavy pedimented hood moulding, the apex of which is ornamented by a fleur-de-lis finial, carved in stone, the ends being stopped against grotesque figures.

On either side of this moulding are two circular windows, with quatre-foil shaped openings.

The main cornice has a very heavy projection, and (including the gablets which form its lowest member) is nearly 10 feet high. From this the truncated roof is carried up to a height of 34 feet, and is lighted by two ranges of dormers on each side. This roof is crowned by a wrought-iron terminal, 56 feet in height, the top of which is 206 feet above the finished surface of the ground.

In the ground floor level of the north-west tower (which is 23 feet square), the entrance to the Executive Council end of the building is situated. Over this entrance are two lights, and in the floor above is a large window, similar to that on the first floor of the main building.

Above this window is a horizontal string course, on the level of the lower member of the cornice of the north wing, from which is started a large tracery window. Over this again (and at a height of about 61½ feet over the ground), there is a weathered offset, reducing the width of tower to 21 feet, and from this it is carried up to a height of 20 feet, to the level of its cornice. In each of the four sides there is a pedimented gable enclosing a tracery window enriched with sunk panels at the base. The whole is covered by a high pitched truncated slate roof, 24 feet 6 inches high, surmounted by a wrought-iron cresting and terminal, the top of the latter being 127 feet over the level of the ground.

To the left of this tower is seen the end of the north wing, which corresponds in height to the main structure. This end is divided into four vertical compartments, in two

of which there are four windows on the ground floor, and two larger ones above.

To the south of the main tower is seen the side of the low tower which forms the western end of the southern front—the base of which is however partly hid by the projection of the large flight of outside stairs that lead up to the main entrance to this block.

In this end there are two windows on the ground floor, and one large opening on the first floor. The roof is at the same elevation as the low towers already described.

On the western front there are nine chimneys visible. The ventilating shafts (100 feet high) which stand in the rear can also be seen.

South Elevation.—Along the greater portion of this front the sunk areas for the admission of light are continuous, and the horizontal outline is broken only by the projections of two low angle towers, which stand six feet forward. One of these is situated at the east, and the other near the west end, adjoining the main tower. This front is about 245 feet in length, and is divided by horizontal belt courses, in a similar manner to that of the western elevation.

The main tower is also the most important feature in this view. It stands back 16 feet from the adjoining portion of the walls, and presents a like appearance to that already described, except that, instead of a large window on the ground floor, there is a doorway, which forms the principal entrance to the Building.

This doorway is moulded and enriched, and within the arch immediately over it is carved the Canadian coat of arms; between this and the lower relieving arch are sunk panels.

Starting on the same line as the other arches, above the first floor of the Building, there are two of different heights, between which are two sunk panels, and a circular carved enrichment.

The entrance is approached by a wide flight of outside stairs, on each side of which are walls, coped with cut stone, and massive pillars, surmounted by gas lamps. To the left (but at 48 feet to the north) is the low south-west tower, in which are (on this face) two windows on the ground floor and two on the first floor.

To the right, and adjoining the main tower, is one of the low towers above mentioned. It has a face of 30 feet; and on the ground floor there are two windows, with sunk panels underneath. Over these, in the first floor, is a large tracery window, with three vertical compartments, the top of which is on a level with the main cornice. There is a gable in this front of the tower, with two small arched windows, standing above the large tracery window referred to. This tower has an exactly similar elevation to the low south-west tower on the western face.

The angle tower at the east end is also 30 feet wide, and the same height as that described. It has two arched windows on the ground floor, with a buttress between them, and two on the first floor, corresponding in height with the generality of those on this elevation. In its truncated roof there is also a pedimented gable, with two arched windows.

In that portion of the southern front embraced between these towers, and measuring 136 feet in length, there is another entrance, approached by a flight of outside stairs, with a buttress and pillar for gas lights on either side. This entrance door is built in a recess about ten feet wide, which is carried up to the story above; it is double arched, with a fan-light in the space between. On the first floor, immediately above, there is a large heavily-mullioned tracery window, with four vertical openings, the relieving arch over which springs from the same level as those of the first floor windows. The top of this arch rises above the level of the main cornice:—a central space, 25 feet in width, being carried up to the height of the angle towers to receive its upper part.

On either side of the central portion there are six lancet windows on the ground floor, and three large arched windows on the first floor.

At the east end of this front the Agricultural wing is situated, in which there is a tower over the entrance, of similar height and design to that described as the north-west angle tower on the west elevation; the side of the entrance stairs to this wing is also seen.

This end of the Building overlooks the eastern part of the city, and has been completed in a manner in all respects equal to any other portion of the structure.

There are nine chimneys seen on the south front, and the two ventilating shafts in the rear are also visible.

Interior Arrangement.—The principal entrance is, as before stated, under the main tower, situated at the south-west angle of the Building. It is approached by a flight of outside stairs, 24 feet wide; at top of this there is a landing, 24 by 16 feet. Immediately at the doorway are two steps, in the risers of which are inserted horizontal strips of glass, for the purpose of lighting a portion of the basement. The vestibule occupies the space (24 feet square) within the tower walls, and is carried up on all its sides in free-stone, ashlar rubbed.

The ceiling is a rib groined arch with carved centre, pendant, and springer corbels. The centre of the groin is about 43½ feet over the floor. Around the vestibule, at the level of the first floor, there is a gallery of stone, 4 feet wide, supported by sixteen ornamental wrought-iron brackets,—four on each side,—and provided with a wrought-iron railing. The floor is of encaustic tiles laid in cement. Opposite the entrance is a moulded and stopped arched doorway, in which are side and fan-lights, approached by two steps, and opening into the corridor, extending along the centre of the west front. A similar door with steps, &c., leads into the corridor which runs along the centre of the south front. The vestibule is lighted by the large tracery window seen in the west elevation of the main tower.

At the level of the gallery there are doors of a like character opening to the corridors, immediately above those on the ground floor. All the corridors are nine and a half feet wide.

Advancing from the main vestibule towards the east wing, along the south corridor, on the right, are two piers and three archways which support the wall above. Two of the openings between the piers afford an entrance to the space (24 feet by 24 feet) occupied by the main stairway. Above these are similar piers and arches on the first floor. The stairs are hanging, five and a half feet wide, and start from the foot of the east pier. They are carried along the east wall, and have a landing at mid-story which reaches across the south wall, and is supported by a cut stone screen, formed of three columns and four moulded arches. From this landing they rise along the west wall to the level of the first floor. The stairs and landings have ornamental wrought-iron balusters, with a heavy oak handrail starting from a large newel at the base, and stopping against one of the piers of the first floor arches.

This space is floored with encaustic tiles, together with that portion of the corridor adjoining. In the south wall of the ground floor there are two square-headed windows, which are seen through the cut stone screen above referred to; and on the west side there are also two windows. Over these, in the first floor, are large tracery windows, all of which are filled with diapered glass, except the circular openings in the heads, which are of ornamental stained glass.

The ceiling is 35 feet 6 inches over the floor, with an enriched plaster cornice run all round it.

This stairway and the adjoining vestibule form attractive features in the interior of the block.

The line of the south corridor is broken by four moulded arches, which spring from pilasters in the face of the walls.

The three rooms on the right beyond the main stairway, and all those opposite on the left, are occupied by the Audit branch of the Finance Department.

Next those on the right is the central entrance, and small vestibule with steps up to the corridor. Opposite this are three archways facing on stairways, leading to the first floor and basement.

The rooms on the south front, between this entrance and the east end of the Building, and three rooms on the left, are allotted to the Receiver General's Department, the Minister's Room being on the south-east angle. Opposite to this is a staircase (19 feet 6 inches by 21 feet 6 inches), which is also entered from a vestibule (18 feet by 14 feet), lighted by fan and side-lights, formed in cut stone, under the Agricultural tower. This stairway leads to the first floor and story above and also to the basement.

The two large rooms, fronting towards the east, beyond this stairway, are apportioned to the Bureau of Agriculture. Those opening towards the west are connected with the Receiver General's Department, and are accessible by a short corridor running towards the north.

Starting from the south end of the west corridor, the first room on the left is that of the Minister of Finance, and the whole of the rooms (four on each side), up to the Governor General's entrance, are occupied by the Finance Department. The vestibule at this entrance is 19 feet by 25 feet, and about midway in it are three steps leading up to the level of the ground floor. The doorway at the corridor has side and fan-lights. Opposite there are two piers from which spring three arches. The openings between these lead to a stairway to the first floor and attic. Under the stairs, in the ground floor level, is a door to the Governor General's bath room.

Between this entrance and that leading to the Council Chamber, the rooms on both sides of the corridor (10 in all) are occupied by the Customs and Excise.

The entrance to the Executive Council has a vestibule, 17 feet square, under the north-west tower, and the doorway to the corridor has side and fan-lights. Opposite this are also three moulded and chamfered archways, similar to those above referred to.

Beyond this the six apartments in the north wing are allotted to the Provincial Registrar's Department.

The line of the west corridor is broken by piers and arches, in like manner to that on the southern front.

In the basement passages are also continued under the ground floor corridors, and the division of rooms is in all-cases nearly the same as in the upper floors.

The rooms along the south and west fronts are occupied by the messengers and office-keepers. Those in the rear are used as store-rooms for records and for other purposes.

There are four entrances to the basement in rear of this block, and there are either continuous or detached areas for access to them, and for the admission of light and air.

The divisions of the rooms, in the first floor, are also similar to those below, and the corridor walls are carried up in like manner. Commencing at the gallery around the vestibule and proceeding towards the east, the first space is that of the main staircase already described. The six rooms next, on the right along the south front, and the seven opposite on the left, are apportioned to the Provincial Secretary's Department.

Over the south entrance door on this floor there is a large tracery window with four vertical compartments filled with diapered glass. The circular openings above these have ornamental stained glass. Opposite this window is the landing from the stairs which is lighted by a tracery window in the north wall of the building.

In the east end and wing are rooms occupied by the Bureau of Agriculture. The Ministers' room being in the south-east angle. In the north end of this wing is a large room intended for the reception of models, but at present occupied by clerks. It is 53 by 31 feet, and is lighted by a large bay tracery window at its east end. In the west end there is also a large tracery window, and in the north wall there are two windows.

The ceiling is 22½ feet high with a heavy cornice run around it. In the room between this and the staircase at the east end (28 by 18½ feet) there is also a large tracery window, in the east front. The staircase is approached by a narrow passage leading to the left off the main corridor. The continuous line of the latter is broken by four arches and piers.

Starting from the south end of the west corridor and proceeding northward, the large room to the left is that of the Attorney General West, and the other two rooms adjoining are for the chief and assistant clerks. On the opposite side is an apartment for the Solicitor General, and a waiting room.

On both sides of the corridor, up to the north side of the centre staircase on this front, are the rooms of His Excellency the Governor General and Staff.

His Excellency's room is immediately over the vestibule, and is lighted by three arched windows on the quadrangle front. North of this is the aid-de-camps' room. The staircase is lighted by a tracery window, filled with diapered and ornamental stained glass.

The next five rooms on the west front, up to and including the north-west tower, are occupied by the Attorney and Solicitor General East, and clerks connected with the Crown Law Department. The four on the right, up to the staircase at the north end, are occupied by Executive Council clerks.

All the apartments in the north end and wing are partitioned off for the Executive Council. The west corridor is, however, continued to the north wall, and the last door to the right opens to the room of the President of the Council. South of this is a short

corridor leading towards the east. The first room on the left of this is for the assistant clerk; the next that of the clerk; and in the north-east angle is the Council Chamber, 30 by 21. The ceiling of this room is 17 feet high, and has a heavily moulded and enriched cornice.

The entire attic of the south front, which is approached by the stairway at the east end, is fitted up for a Model room, in connection with the Bureau of Agriculture. This space is about 160 feet long by 35 feet wide, and 19 feet high. There are also four rooms at the east end, for census and other clerks. Above three of these, there are other rooms for like purposes.

Immediately over the Governor General's room is a large tracery window, divided into three compartments. This lights the middle room of three on this front occupied by his office-keeper, who has also another room in the rear.

The above comprise all the rooms occupied in this block above the ground floor. In the main tower, an iron stairway leads from the level of the attic floor to the top.

There are three stacks of water closets and urinals: one opposite the south entrance; another opposite the west centre entrance; and the third opposite the Executive Council entrance. All these are approached from the respective staircases. There is also a closet, the entrance to which is off the corridor leading to the Executive Council Chamber.

The ground, first, and attic floors are formed of rolled iron joists, of depths suited to the various lengths of the bearings. Upon the lower flanges of these, boards are laid transversely, to receive a bed of concrete, which is generally 12 inches deep. Thus the building, with the exception of the roof, may be considered fire-proof.

The floors of the rooms are of pine, laid in narrow widths on strips imbedded in the concrete. The skirtings are also of pine.

The corridor floors are throughout of Portland cement, laid upon a similar arrangement of rolled iron joists and concrete, as that for the room floors, except those portions opposite the main stairway and Governor General's entrance, which are of encaustic tiles, laid in cement. The vestibules at all the front entrances are also floored with encaustic tiles.

The basement passages are floored with Portland cement, laid upon concrete, and the rooms (where occupied) have also cement floors.

The rooms generally have fire places, grates, and hearths, and moulded sandstone chimney pieces, formed by a pointed arch. In the Ministers' rooms the chimney pieces are of Annprior marble polished, and in the Governor General's room, Executive Council Chamber, and Model room are mantle pieces of sandstone with carved enrichments.

Plaster cornices are run all round the rooms, corridors, &c. The skirtings of the latter are of Portland cement, stopped at registers, projections, and offsets.

The outside doors are of oak, hung with ornamental wrought-iron hinges. The joiner work of the interior is chiefly of pine, painted four coats oil colour. The architraves round the doors, &c., are generally plain, except in some of the most important rooms, where a rope moulding is added. The windows have double sashes, the lower half being hung. This obviates the necessity of taking them down in summer, except where the mullions and sides are of stone.

The rooms are provided with stands (marble top) for wash basins, plated taps, &c.

The boiler house is situated in the rear of the angle formed by the south and west fronts. It can be approached from the basement, and there is also an outside entrance, from the rear of the building.

WESTERN BLOCK.

South Elevation.—This face is 277 feet in length. On the right, the end of the west front, 40 feet wide, stands back about 16 feet from the general line. The elevation proper (237 feet in length) is flanked by two angle towers, each showing a width of 20 feet. Adjoining these are two projecting porticos, 25 feet in width, which stand out 6 feet beyond the front line of the building. The main part (147 feet in length) has a continuous sunk area; and in the centre is the principal entrance door, with a small buttress on each side. The approach to this is by a flight of outside steps, at which cut stone pillars, for gas lamps, are placed. Over this doorway are two pointed arches, of different pitches, the intermediate space being formed into a fan-light, above which is an enriched balcony pro-

jection, supported on corbels. In the first floor is a large tracery window, divided into four vertical spaces, with circular opening above them. The arch over this window is carried up to the height of the block cornice of the main building.

At this point, for a distance of 28 feet, the wall is carried up 6 feet higher, and is capped by an enriched cornice. The roof is steep, of a truncated shape, and higher than that in its vicinity, which gives this portion of the structure the appearance of a low tower.

On each side of the centre door there is one single and three mullioned windows on the ground floor, and in the first floor, immediately above, are four large windows with single openings. This portion connects with the projections before mentioned, in each of which, on the ground floor, is a double window, and immediately above it a large tracery window, divided into three vertical openings; the top of the relieving arch of the latter is a little higher than the main cornice.

At this point the cornice is carried over in a circular form, and has an ornamental keystone, with a wrought-iron terminal above its upper line. The roof of these projections is of a similar shape to that over the central compartment, but is not carried up quite so high.

The angle towers are 23 feet square, and are carried up vertically to a height of about 66 feet above the surface, where there is a weathered offset, which reduces the width to 21 feet.

In the ground floor of the western tower there is a narrow arched doorway, with a flight of outside steps leading up to it, similarly arranged to that at the central entrance. Over this doorway, in the first floor, is a window of a like size to those in the principal front. At the lower line of the main cornice, the tower is divided by a string course over which, and under the weathered offset referred to, is a tracery window with two vertical openings. Above, and on the right and left of this arch, are two small circular windows, with quatre-foil openings. Over the offset, the walls are carried up vertically to the cornice of the tower, and on all the four sides there are pedimented gables and tracery windows. The roof is of a truncated form, and ornamented with cresting and terminals. The height to its top is 127 feet.

In the eastern tower there is no entrance, but on the ground floor there are two lancet windows. Above this its features are similar to those of the western tower just described—with the exception that on the northern side there is no tracery window—but a large chimney is carried up above the level of the cornice. In the southern end of the west front there is a doorway with outside stairs, &c., similar to that in the western tower, and there is a window to the left of this in the ground floor; over these are two large windows. The roof of this portion is on the same level as the central part of the south front.

There are six chimneys visible on this front and part of the ventilating shaft in rear.

Facing the west and Chaudière Falls there is a wing (72 feet long), on the north-west corner of which is a small octagonal tower, forming a distinctive feature from that point of view.

Eastern Front.—There are nine detached areas along this front, which is 220 feet long; 23 feet of the southern end of this is occupied by a side elevation of the angle tower, and projection on the southern front. The remaining length of 197 feet is flanked by two portions of 24 feet in length, which project 6 feet beyond the general line.

In the centre there is a 3 foot projection, 47 feet long, and in the middle of this there is a length of 25 feet, which stands out 3 feet further, or in line with the angle projections above mentioned.

The recessed portion of the front measures on the north side 54 feet, and on the south 50 feet.

In front of the centre there is a groined entrance porch supported on pillars, with an archway in front, in which are steps leading up to the door. This porch has small arches for light on its north and south sides, and over the centre archway there is a cornice and pedimented gable in which the Royal Arms are carved. Immediately over the door there is a large tracery window, with three vertical openings, the relieving arch of which springs from the same level as that of the first floor windows, and is carried up to the height of the underside of the main cornice. The masonry of the middle portion is built 7 feet higher than this line, and there is then a cornice with a pedimented gable enclosing a double

window in the third story. The roof of this portion is truncated in shape, and rises 14 feet above the level of the main roof.

The projection of 47 feet long (which embraces that now described) has one window on either side on the ground floor, and one above each of these. Its cornice is on the same level as that of the recess, but has additional rows of gables. The roof is also truncated and rises to a height of 8 feet over the main roof.

The recesses, which constitute the principal part of this front, have each six windows in pairs, on the ground floor, and three larger windows over these on the first floor.

The angle projections of 24 feet in length present a precisely similar elevation to that described for those in the south face. There are six chimneys visible on this elevation, and both the ventilating shafts in rear are also seen.

This building is not so irregular in its outline as the Eastern Block, but is in a higher position, and commands, from its western side, a fine view of the Ottawa River and the Chaudière Falls.

Interior Arrangement.—As already stated, the centre entrance on the south front is approached by a flight of outside steps. This leads into a vestibule (20 by 12 feet), in which there are four steps, extending across its whole width. It is floored with encaustic tiles, laid in cement. On the right there is a door to a room occupied by the Department of Public Works. The door to the corridor has side and fan lights, and immediately opposite are two piers and three archways to the stairs leading to the first floor, attic, and also to the basement.

This corridor is 9½ feet wide, and extends along the centre of the whole southern front, and is also continued along the middle of the quadrangle front and the east side of the west wing. These corridors are lighted by windows at their respective ends, and their line is broken by four arches on the south and three on the quadrangle front.

Proceeding westwards from the south centre entrance, the first two rooms on the left and one on the right are occupied by the Public Works Department; the second room on the right is apportioned to the Railway Commissioners; and the remaining rooms on the west end and throughout the west wing (12 in number) are allotted to the Militia Department.

Advancing eastwards from the same starting point, the two first rooms opening off the corridor, on the right, are set apart for the Public Works; the two beyond these are allotted to the Indian Department; and the five rooms on the left are occupied by the Fisheries branch of the Crown Lands, and by the Indian Department.

There are also outside entrances in this front, on the south-east and south-west angles. They are approached by flights of outside steps, but are seldom used for access to the building.

All the rooms on the ground floor, on both sides of the corridor which runs along the quadrangle front (20 in number), are apportioned to the Post Office Department—the Post Master General's room being in the north-east angle.

In the centre of the east front there is a vestibule at the entrance (26 by 12 feet), in which there are three steps, running across its whole width. At the top of these is a door, with side and fan lights, and opposite there are piers and arches, and flights of stairs, similar to those on the south front, leading to the first floor, attic, and the basement.

In the basement are passages corresponding with the ground floor corridors; the rooms in the rear part are similar to those on the floor above. Along the fronts the warm air vaults occupy a portion of the space, and diminish the sizes of the rooms, to which there is access only at points opposite the stairs, and at the ends of the passages.

The rooms are chiefly occupied by the office-keepers of the various Departments, and for store rooms. The floors throughout are of Portland cement laid on concrete. There are three outside entrances in the rear of the building, by flights of steps in the sunk areas by which a large portion of the back part is surrounded.

The boiler-house is situated in the angle formed by the rear lines of the east and south wings. This will be more particularly referred to under the head of Heating and Ventilation.

In the first floor the corridors run immediately over those in the floor below, and their

line is also broken by a similar number of archways. The openings at the staircase are also carried up the same as those on the ground floor.

That portion west of the south centre entrance, together with the rooms in the west wing, are occupied by the Department of Public Works. These apartments are 16 in number, that of the Minister being in the centre of the west wing.

The south front, east of the entrance referred to, together with the whole of the east front, containing 31 rooms, have hitherto been occupied by the Department of Crown Lands. In the centre of the east front there is a landing from the stairs below, the stairs being continued to the attic.

There are two stacks of water closets and urinals which are entered from the landings opposite the respective stairs.

The attics of this Block have been fitted up for drafting rooms, and are lighted by a series of skylights on the flat portions of the roof. The two on the south front, which measure respectively 86 feet by 33 feet and 85 feet by 33 feet, are occupied by the Public Works Department, and those on the east front 66 feet, by 34 feet and 63 feet by 34 feet, have been used by the Department of Crown Lands.

There are also rooms in the south-east and south-west angle towers, the floors of which are a few steps below the attic.

Opposite the landing of the stairs from the south centre entrance, there is a narrow stairway leading to Photographing Rooms connected with the Department of Public Works. These are situated in a compartment of the rear, in the higher portion of the roof, and the operating room is provided with a large skylight. The tracery windows in the projections at the angles, and on each side of the entrance doors, on both the ground and first floors, are glazed with quarry lights.

The ground, first, and attic floors are formed of rolled iron joists and concrete, with pine floors in the rooms; the corridors are of Portland cement. The vestibules are laid with encaustic tiles, and the rooms generally have fire places, chimney pieces, wash basins, skirtings, doors and windows and cornices similar to those described in the Eastern Block.

The principal stairs throughout both blocks are of Ohio blue sandstone rubbed. They are 5 feet wide, the ends are keyed into the side walls, and the steps have moulded nosings. They are checked into each other, and the underside presents a fair surface, corresponding to the rise. The balusters are of ornamental wrought iron, with a heavy handrail of oak, which is stopped against the piers. They are generally called "hanging stairs."

Both blocks are provided with safes for the preservation of important documents.

The framework of the roofs is of wood sheathed with grooved and tongued boards; the high-pitched portions are covered with slates arranged in bands of different colors. The decks, or flat parts, are covered with galvanized iron laid on rolls; and the valleys, angles, and flashings are of sheet lead. On the ridges of the roofs are ranges of ornamental wrought-iron crestings; terminals are also fixed on all the towers, gables, dormers, &c. These are painted blue with the prominent points gilt.

HEATING AND VENTILATION.

The mode of heating adopted throughout the buildings is by steam produced in boilers, situated near the centres of the respective blocks, and applied generally on what is termed the "Vault System."

This may be briefly described as consisting of a series of ducts for the admission of external air, over which are constructed, in the interior of the buildings, vaults for steam pipes leading from the boilers. The air enters these vaults through the perforated coverings of the ducts, is heated by coils of pipes, and subsequently passes through openings in the top of the vaults, into the various rooms, &c. On this system the two Legislative Chambers and the central portion of the Parliament Buildings are heated, with the

exception of the main vestibule, and the rooms immediately over it. These, together with both the wings, are heated by direct radiation from steam coils, placed in the corridors and various apartments. The other two blocks of buildings are also heated on the Vault System, except a few rooms, where it was considered expedient to place coils for the purpose of heating by direct radiation. In this manner the attics are also warmed.

PARLIAMENT BUILDING.

The principal ducts for the admission of cold air to this Building are as follows: A line of duct runs from an inlet on the brow of the hill, on the west side of the grounds, passing immediately in rear of the wings, and through the centre of the Building to another inlet on the edge of the ravine on the east side, a distance of 840 feet.

From an inlet situated in front of the terrace, a line runs northwards through the centre of the Building to its termination on the brow of the hill in rear of the Library, a distance of 540 feet.

Parallel to this (and about 90 feet on both sides of it) there are two ducts, one in line with the west side of the House of Commons, and the other in line with the east side of the Senate Chamber.

These are continued northwards from their junction with the main duct east and west, to terminations at the brow of the hill. The mean length of each being about 350 feet. It will thus be seen that there are six inlets for the admission of external air to this Building.

The bottoms of the ducts have a descent outwards from the Building to their respective terminations. Those on the east and west sides, and in line with the Chambers have each a sectional area of about 6 by 3 feet, where they enter the Building, and at their outer ends they have an area of 6 by 6 feet. The central duct from the brow of the hill to the boiler-house, has a minimum area of 10 by 3 feet, and at its northern inlet measures 10 by 6 feet. At the southern end it is about 9 by 4 feet, and is divided into two parts up to the front line of the Building. At a short distance from the terrace inlet there is a branch on each side running diagonally to the angle formed by the wings and central portion of the structure. Connected with the principal ducts are others round the walls of both Chambers, Reading rooms, &c., which are joined by one under the Picture Gallery. There are also lines 4 feet wide along the passages, and around the wing courts which at different points intersect the leading ducts:—and from the former there are several minor branches.

There is also a transverse line passing through the centre of the Library, connecting those running north and south. The whole of the ducts are below the level of the basement floor.

The aggregate length of those connected with this building is 4,220 lineal feet, or about four-fifths of a mile. Of this length there are 2,611 feet in the interior. They are constructed of masonry faced with dressed limestone. Those portions outside the buildings are arched; in the interior they are covered with flags perforated for the admission of the air.

The inlets at the brow of the hill are finished with cut stone terminations and wrought iron gratings.

Boiler House.—The central court, $74\frac{1}{2}$ by 68 feet, is occupied by the boiler-house, the floor being sunk 10 feet below the basement, and the level of the roof from 4 to 7 feet under the sills of the ground floor windows. It measures $17\frac{1}{2}$ feet in height, and is divided into two compartments by 6 piers and 7 arches, built for the purpose of supporting a tramway, on which fuel is brought in and placed in a position convenient to the furnaces.

This tramway is 8 feet wide, and, together with the side walls occupies a space of 11 feet. The roof is supported by three built girders in the southern division, and by a girder bearing on four stone piers in the northern compartment. It is formed of rolled iron joists with transverse boards for retaining a bed of concrete 12 inches thick. In this fillets 3 by 3 inches are placed to receive the roof boarding, which is covered by galvanized iron laid on rolls.

Light is admitted through four elevated wrought-iron skylights, and by a series of windows in the side-walls of the tramway.

To prevent the galvanized covering being injured, and to facilitate the removal of the snow that falls from the high roofs adjoining, it is sheeted with plank, and the skylights are protected in a similar manner.

The smoke and extracting shaft for downward ventilation is situated in the centre at the north end. It is 15 feet square at the base, and built to a height of 155 feet. The interior opening, is 9 by 9 feet, in which are carried up and secured by cross-bars, two boiler-plate smoke pipes, each 21 inches diameter. The walls of the boiler-house, tramway piers, and the smoke shaft to the height of about 20 feet, are of dressed block limestone.

Along the north end are placed six Cornish boilers, three on each side of the smoke shaft. These are each 20 feet long and 5 feet diameter, built in brick work and provided with cast-iron fronts. They are furnished with steam drums, safety valves, gauge cocks, steam valves, &c., &c., and have been subjected to a cold water test of 100 lbs. pressure to the square inch. They are locked up at 30 lbs. pressure of steam.

The centre arch under the tramway is occupied by a cistern for water from steam condensed in some of the pipes and coils. The arches alongside the walls lead to stairs from the east corridor of the House of Commons, and the west corridor of the Senate Chamber. The other arched spaces are used for the storage of fuel.

In that portion of the boiler-house south of the tramway, are two cast-iron cisterns, each capable of containing 5,000 gallons. These are connected with the water supply (to be hereinafter described) and are intended as a reserve for the use of the boilers. On the east side is fitted up a steam pump calculated to force 200 gallons of water per minute to the height of the roofs of the main structure. This pump is for the purpose of supplying the boilers—and, in case of necessity, of throwing water into the roofs over the Legislative Chambers, with which it is connected by wrought-iron pipes.

The principal lines of cold air ducts, previously referred to, intersect each other in the southern division of the boiler-house, having been formed with a descent, so that they pass under the floor. At this point a fan, 14 feet diameter, has been placed for the purpose of forcing cold air directly into the Legislative Chambers, or into the warm air vaults by which they are surrounded. This fan can be driven at such a velocity as may be deemed expedient, by means of a powerful steam engine, also placed in this division of the boiler house.

Warm Air Vaults.—Over the cold air ducts described as running all round the interior faces of both Chambers, are situated warm air vaults, 5 feet wide and about 10 feet high, arched on top and constructed of brick. The lines of these vaults are intersected at four points by the tramway, which crosses them at a level of 3 feet 6 inches over the top of the duct. At these points the vaults are stopped, and there are entrances to them by iron doors. Through the central portion of the building are warm air vaults, 4 feet wide and nine feet high, connecting with those round the Chambers. There is also another vault leading from the boiler-house under the main vestibule, with branches to the front walls—two on each side of the main entrance.

From the rear line of the smoke shaft there is a warm air vault, 11 feet wide, leading to the Library, which has been built as far as the inner wall of that structure. There are also two lengths of about 20 feet each under the passages leading to the smoking rooms for both Houses.

The aggregate length of these vaults (exclusive of those still to be constructed under the Library) is 926 lineal feet. It may therefore be said, that there are about 1,194 lineal feet of cold air ducts rendered applicable to the Vault System, and about 1,417 feet connected with the wings and other parts of the Building, which are heated by direct radiation from coils. For the latter, flues are carried up in the walls from the cold air ducts to the various rooms and corridors above.

The steam produced in the boilers, is conveyed by steam pipes to the remotest parts of the Buildings, attics and angle towers. Those forming the main lines are of cast iron, and generally 4 inches diameter; towards the extremities they are wrought iron of less size.

Over the boilers a pipe, 6 inches diameter, is carried from east to west and connected with the steam drums. It is diminished to 4 inches diameter at each end, and leads into

the warm air vault under the respective Chambers, where it is carried nearly all round them of a similar size.

In the centre of the boiler-house a 6-inch branch runs southward from the main steam pipe, to a point 10 feet beyond the inner face of the wall, where it is divided into two 4-inch pipes, leading right and left into the vaults under the central portion of the Building. From the same point a 2-inch pipe is carried into the vault under the main vestibule, where it branches off into two 1½-inch pipes. Each of these are again branched off into two 1-inch pipes, which are extended to the coils in the front of the Building, immediately under the ornamental arched openings in the main walls, on each side of the central entrance.

The leading pipes are, in all cases, placed immediately over the perforations in the covering of the cold air ducts, so that the entering current is at once subjected to the action of heat. The temperature of the air is further increased by the large heating surface of numerous coils, placed in the upper portion of the vaults. These are generally composed of four rows, and eight in width, of 1-inch pipe (or between 700 and 800 lineal feet each), laid to a gradual inclination. The highest part of each coil is connected with a vertical feed from the leading steam pipes, and at the lowest point it has a branch to the return pipes, the latter being, in every case, of equal capacity to the main steam pipes, and laid on the opposite side of the vaults. The coils are placed about 2 feet apart, and occupy nearly the whole length of all the warm air vaults.

It will be evident, that the steam, after having circulated through such a length of pipe, has lost a considerable portion of its heat by radiation, so that at the point of junction with the main return pipes, there is a quantity of water. This descends into that portion of the pipe which runs along in front of the boilers, below the level of the floor, and is connected with them by branches and valves, for the purpose of admitting the water, which (by the operation of gravity, combined with the pressure of unexhausted steam in the pipe) enters when the pressures in the main return pipes and boilers are nearly alike.

In the arches over the vaults around the Chambers, there are numerous openings for the exit of warm air. From these flues are carried up in the side walls, and the air is admitted to the Chamber by the line of perforated brass gratings, 6½ feet over the floor of the House. This can be so adjusted as to regulate the supply. Air also passes through the ornamental grating under the gallery fronts.

The other portions of the Building, which are heated on the Vault System, have flues conveying the warm air directly to registers in the various rooms.

The system of heating by box coils is applied principally to the wings. The main steam and return pipes are extended from the warm air vaults, and raised nearly to the basement ceiling, and from these branch pipes run up in the flues from the cold air ducts to the coils in the various rooms, passages, &c., on the upper floors.

The cold air flues have, in all cases, an opening behind the coils, which are of different sizes—placed in recesses cut in the walls—and have in front cast-iron screens for the admission of warm air. There are also branch pipes from the ends of the vaults along the front portion of the wings and part of the rear, and one descending branch from the ceiling, which heats several of the basement rooms, in rear of the wing. These connect in a return pipe in the vault, which is carried separately to a tank in the boiler-house. Similar arrangements are adopted for heating the dining-rooms, closets, &c., in that portion of the basement alongside both Houses. Steam pipes are also carried up to, and along the attics to the angle towers, where coils are placed in the tank rooms, for the purpose of preventing the water freezing during winter. Coils of steam pipes are also placed in the ventilating towers, at the north end of the Chambers, to increase the upward draught.

Ventilation.—Two modes have been adopted for the ventilation of the Chambers, one termed the "Upward System," and the other the "Downward System."

The latter provides for drawing off the vitiated air near the floor, through perforated gratings, in the risers of the platforms, on which the Members' seats are placed. These gratings open into spaces between the arches under the floors of the Houses, which are connected at several places with foul air ducts running around the Chambers in the basement passages. These ducts are all joined at the north-east and north-west angles of the respective Houses, and from thence extended, so as to enter the main extracting shaft, at a level of 7 feet over the boiler-house floor.

The air in the shaft being rarefied by the heat of the iron smoke pipes, an upward draught is created, by which the foul air is rapidly extracted through the ducts from the Chambers, and escapes through the side openings formed near the top.

The "Upward System" may be described as consisting chiefly of a series of small ventiducts, arranged along the ceiling, and leading to others at the sides, of larger capacity, with openings into the ventilating shafts, situated at the north ends of the Chambers.

Over the ranges of quatre-foil openings, between the panelled work of the ceilings, are placed semi-circular ducts, 11 inches diameter, running from north to south, and joined to others (extending from east to west), 15 inches wide, 9 inches high at the centre, and 18 inches high at the sides. The latter are connected with large triangular ducts, formed in the roof on each side, leading directly into the outlet shafts. In the shafts are steam coils for the purpose of rarefying the air, and producing a current through the various ducts to the towers and other openings at the top.

The two systems above mentioned are in effective operation in both Chambers. In the House of Commons, there is, however, additional means of upward ventilation provided, by the insertion of cast-iron perforated gratings in eight of the centre panels of the ceilings over the galleries. These communicate with large ventiducts leading to the shafts, and constructed under the roof on each side of the Chamber.

All the main ventiducts have doors near their outlets for regulating the draught, and the gallery ventilation is separated from that of the Chamber by a vertical partition in the shaft, to guard against cross currents. In the other parts of the Building, (whether heated on the vault or coil systems), ventilation is effected by means of registers placed near the floors and ceilings of the respective rooms and corridors. These registers open to flues communicating with galvanized iron ventiducts, increasing in size from 7 to 26 inches diameter as they approach the ventilating shafts, and are joined by flues from the numerous suites of rooms. The shafts are situated alongside the Committee stairs, and in the angle formed by the rear line of the wings and the walls of the Chambers. The Picture Gallery is ventilated by a flue formed for that purpose in a chimney at each side.

DEPARTMENTAL BUILDINGS.

The mode of heating adopted for these buildings is, as already stated, with a few exceptions, on the Vault System—external air being introduced through a number of ducts below the level of the basement floor.

Eastern Block.—The cold air ducts for this Block are generally 3 feet 9 inches wide, and 2 feet 3 inches high, and are constructed of dressed limestone, with a covering of flags, in the interior of the building; those outside are chiefly of a good class of rubble masonry, arched over. They are of different shape to those inside, but of a larger sectional area. There are three inlets on the quadrangle front; two on the south front; one on the east front; and five in the rear. In all, eleven in number.

The six front inlets are immediately alongside the front walls of the building, where they have small cut stone terminations, with vertical iron gratings.

The three ducts in rear of the south and west fronts meet at a point 75 feet north of the Agricultural Building. From thence they are continued northward to the brow of the ravine, near which they are joined by two others from the north end of the building. The whole then form one group—but each duct is carried separately throughout—and they have a cut stone termination with wrought-iron gratings, &c. Their aggregate length is 2,215 feet, of which 945 feet are in the interior of the building.

Boiler House.—The boiler-house measures 31 × 42 feet, and is situated in the angle formed by the rear line of the west and south portions of the building. It is entered by a door from the area in the rear. From this there is a flight of steps down to the floor, which is sunk 10 feet below the level of the basement, and is paved with dressed limestone. The walls are carried up 21 feet high, of dressed block limestone, and the roof is formed of rolled iron

joists, upon the lower flanges of which transverse boarding is laid, supporting a bed of concrete 10 inches thick. In this are imbedded 3×3 inch fillets, and upon these the roof boarding is nailed, which is covered by galvanized iron laid upon rolls. The whole is supported by built girders resting on the walls.

The roof has a slight inclination towards the north, and light is admitted through an elevated wrought-iron skylight.

In the south-east angle of the boiler-house there is a smoke flue and ventilating shaft carried up to a height of 100 feet over finished surface, $11\frac{1}{2}$ feet square, with an inside opening of $6\frac{1}{2}$ feet square. In this is a brick flue, 18 inches diameter inside, carried up to the level of the attic floor. From this point to the top there is an 18-inch boiler-plate pipe. From the boiler-house two underground flues, 2 feet diameter, are connected with the ventilating shaft in rear, opposite the south entrance. In this an 18-inch brick flue is also carried up to the level of the attic, and from thence an 18-inch boiler-plate pipe to the top.

There are two Cornish boilers, 20 feet long and 5 feet diameter, built in brickwork, and fitted up with all the requisite apparatus. They have been tested to a pressure of 100 lbs. to the square inch, and locked up to a pressure of 30 lbs. of steam. They are provided with ornamental cast-iron fronts.

Fuel is supplied through an opening in the east wall, a little over the surface of the ground.

In the north-east corner is placed a wrought-iron tank into which the draw-off from the steam pipes is discharged. Alongside of this is a steam pump for supplying the boilers. In a room adjoining the boiler-house there is a wrought-iron tank capable of holding 5,000 gallons, fed from the water supply pipes.

Warm Air Vaults.—In front, and alongside of the basement passages in the south and west portions of the building, is a line of warm air vaults, 4 feet wide and 484 feet long. This is however, interrupted by two passages to the front basement rooms, one 7 feet, and the other 4 feet wide. Where the line of vaults is thus broken they are provided with iron doors at each end.

Under the narrower corridor of the Agricultural wing there is a vault 67 feet long and 4 feet wide. Between the basement passages and the rear of the building near the several stacks of closets there are also three short lengths of vault, about 22 feet each. At the north end there is an extension of the main vault, 62 feet long, which reaches to within 16 feet of the east end of the wing. The total length of vaults is about 680 feet. They are built of brick, arched on top, and generally about 9 feet high.

Four-inch steam and return pipes are laid above the perforated covers of the cold air ducts along the whole length of the main vault. From these pipes of smaller diameter are extended in the branches at the Agricultural and north wings, and the short lengths leading to the water closets. In all cases the return pipes are of the same capacity as the steam pipes, and the vaults are supplied with a series of coils arranged in a similar manner to those described for the Parliament Buildings.

Steam is supplied to all the latter through a 4-inch pipe which runs across the north ends of the boilers, and is continued in the same line, to an arched way, and thence to a connection in the main vault, at a point about $3\frac{1}{4}$ feet north of the main tower. The return pipe at the boiler-house is dropped below the level of the floor, and carried along in front of the boilers, with which it is connected by two stand pipes having regulating valves.

The basements are heated by pipes leading from the mains, and communicating with coils in the different rooms. The returns from these lead into the main return pipes.

There is a separate 2-inch steam pipe carried up alongside the north wall of the main tower, for the purpose of heating the large model room on the south front, and other attic rooms on the quadrangle. This is also extended to heat the tank rooms, in the towers.

In the arches of the warm air vaults, are openings, communicating with flues in the walls, which conduct the warm air through registers into the various front rooms and corridors above.

Heated air is also conveyed, by means of galvanized iron pipes, across the passages in the basement, to flues in the corridor wall, which lead to the rooms in the rear portion of building.

The rooms in the Agricultural wing, to which the Vault System does not fully extend, are warmed by means of horizontal and box steam coils.

VENTILATION.

The various rooms on the quadrangle front are ventilated by flues, $8\frac{1}{2}$ by $8\frac{1}{2}$ inches, carried up in the walls and having registers situated at the floors and near the ceilings. These flues lead into a series of 9-inch earthenware pipes, laid along the attic floor, communicating with the arched brick ventiduct, $9\frac{1}{2}$ feet by 3 feet 9 inches, over the western corridor. This discharges at its southern end into the ventilating shaft at the south-west angle of the boiler-house. The rooms in the north wing have similar pipes leading into the north end of the ventiduct. The south front is ventilated from each end, towards the centre, the main duct over the corridor being divided by a partition wall opposite the ventilating shaft in the rear, at the south entrance. From this point, two separate arched branches lead into the shaft. The pipes from the flues to the north portions of the ventiduct are of earthenware, and 9 inches diameter. The pipes are in all cases laid so as to join the ventiducts in the direction of the escaping foul air current. Those from some of the rooms lead into chimneys which are provided with separate flues for that purpose.

WESTERN BLOCK.

The cold air ducts for this Block have two inlets on the south front; one on the west; and five in the rear: nine in all.

Those in the front consist of plain openings in the area walls, provided with gratings; except that on the west side, which has a cut stone termination. The three in rear of the quadrangle front meet at a point about 40 feet from the building, and are continued in a westerly direction to the brow of the hill, where they form one range in the termination. The other two are carried to the same point, and immediately over those just mentioned, and form a second range at a higher level. At the edge of the hill they are finished in dressed block limestone, and furnished with wrought-iron gratings.

In the interior, the main duct runs along near the centre of the building for the whole length of the south and west sides; from which branches lead off to the several inlets.

The aggregate length of the ducts is 2,564 feet—of these 842 feet are in the interior. They are 3 feet 9 inches wide and 2 feet 3 inches high, with sides of dressed limestone covered with flags in the interior and arched over outside the building.

The boiler-house is 40 feet square, and situated in the rear angle formed by the west and south portions of the block. It is sunk to the same depth below the basement floor, similarly roofed and fitted up as that of the Eastern Block, with the exception that there is one built girder, which is supported by two cast-iron columns. There are two Cornish boilers, 20 feet long and 5 feet in diameter, with all the requisite apparatus for regulating the supply of water and steam. The warm air vaults are 570 feet in length, of the same sectional area, and with steam coils fitted up in them in like manner as described for the Eastern Block.

The steam pipes are arranged, and the heating of the basement, attics, and tank rooms in the towers is effected in the same way as in the Eastern Block.

There is also a smoke and ventilating shaft in the angle of the boiler-house, and another connected with it by underground flues. This is situated in rear of the west front, near its north-west angle.

The warm air flues and flues for ventilation are carried up in the walls. The latter connect with numerous 9-inch earthenware pipes, leading into arched brick ventiducts constructed over the corridors, and communicating with the ventilating shafts in the same manner as already described for the other Block.

The lengths of the various cold air ducts, warm air vaults, flues, pipes, &c., connected with the heating and ventilation of all the Buildings are, approximately, as follows:—

Cold air ducts.....	8,999 lineal feet.
Warm air vaults	2,186 “

Cold and warm air flues.....	8,568 lineal feet.
Flues for ventilation.....	19,224 "
Chimney flues.....	18,600 "
Arched brick ventiducts.....	800 "
Galvanized iron and earthenware ventiducts.....	11,938 "
Cast-iron pipe, 6 and 4 inches diameter.....	4,400 "
Wrought-iron pipe, 1 inch diameter and upwards.....	111,000 "

DRAINAGE.

The main drains from all the Buildings discharge into the Ottawa River at three points, at the northern base of the hill. They are sunk so as to drain the respective boiler-houses, which, as previously stated, are 10 feet below the level of the basement floors. This unavoidably entailed deep cuttings in rock of irregular strata and difficult of excavation. The upper portions of the trenches were, however, used as a channel for the cold air ducts.

Parliament Buildings.—The main drain runs westward from the boiler-house, passing in rear of the wing, and immediately under the cold air duct, to the brow of the hill, a distance of 355 feet. It is 4 feet 6 inches high, 3 feet wide, arched on the top and bottom, and built of cut block limestone. All the pipe drains from the various stacks of water-closets, wash-basins, &c., on the west side, empty into this drain near the north west angle of the wing. It is continued down the steep face of the bank to the margin of the river in a cast-iron pipe, 268 feet long, 12 inches diameter, where it joins a wrought-iron tube, 22 feet long, built into a crib sunk at short distance from the shore. This crib serves to keep the pipe clear and protect it from injury by ice or otherwise. The eastern side is drained by a number of pipes leading from the various closets, wash-basins, &c., which connect with a leading earthenware pipe, 12 inches diameter. This is carried to the brow of the hill and joins the main drain from the Eastern Block.

Eastern Block.—The main drain from this Block runs eastward from the east side of the house a distance of 65 feet, where it is joined by a branch 87 feet long. From this boiler-point it is continued northward under the line of one of the ducts to the brow of the hill. It is 432 feet long, 4 feet 6 inches high, and 2 feet 6 inches wide, built of cut block limestone, and arched both at the top and bottom. Into this the various pipe drains from the closets, wash-basins, &c., are emptied at several points. From the brow of the hill it is continued in a brick barrel drain, 2 feet diameter and 720 feet in length, to the river, where it is joined to a boiler-plate tube of the same diameter, the end of which is built in pier-work carried out to deep water.

In addition to this, there is a surface drain, running from the north end of the Block along the west and south fronts, with connections from the several areas. This drain is continued out to the east brow of the hill, and thence downwards along the face of the ravine to a junction with the 2-foot barrel drain above mentioned, at a point 85 feet from its commencement.

Western Block.—The principal drain for the Western Block runs out of the north side of the boiler-house, and turns toward the west, whence it is continued to the brow of the hill under the line of one of the cold air ducts. It is 367 feet long, built and of similar dimensions and class of masonry as that for the Eastern Blocks.

All the drains from closets, wash-basins, &c., discharge into this in rear of the building. From the brow of the hill to the river it is continued in a brick barrel drain, 2 feet diameter, 476 feet in length, the end of which is united to a wrought-iron tube built into a crib sunk in the river at a distance of 56 feet from the shore.

There are also surface drains carried nearly all round this Block: they are connected with the several areas, and discharge into the main drain at two places in rear of the building.

Along the terrace in front of the Parliament Building (which has an inclination outwards), at a distance of about 20 feet from the top of the slope, a water-table of dressed stone has been laid. This is for the purpose of carrying off the surface water to gratings at each end, from which earthenware pipes convey it into the drains on the west and east sides of the grounds.

A similar water-table, but of larger dimensions, has been laid across the quadrangle, in line with the southern fronts of the Departmental Blocks. This takes the surface water from the square, and discharges it into the drain that passes along the southern front of the Eastern Block.

GAS SUPPLY.

In 1865, a contract was entered into with the "Bytown Consumers' Gas Company," for the supply of the Illuminating Coal Gas required for all the Public Buildings, for a period of ten years; the Company being bound to lay down an 8-inch main from their works to the entrance to the Government grounds, and to furnish the gas in such quantities as might from time to time be required, the same to be measured at the Buildings by meters provided by the Government.

The main enters at the gate, opposite Elgin street, and is carried directly (a distance of 110 feet) into a meter room, fitted up alongside the main tower of the Eastern Block, where all the gas used is measured. For this purpose, a large dry meter has been provided, and placed, capable of registering the full quantity of gas that can pass through an 8-inch pipe.

The exit pipe is also 8 inches diameter, and is continued of this size 67 feet westward, or nearly on a line with the quadrangle front of the Eastern Block, where it is divided into three branches, one 4-inch branch 75 feet long, leading back to the Eastern Block, and another 4-inch pipe is continued across the quadrangle, a distance of 738 feet to the Western Block. The centre pipe is 6 inch diameter, and is laid through the square on a curved line to the Parliament Building, a distance of 716 feet, where it enters the meter room described as being in the basement, west of the main vestibule.

At about 160 feet south of this, a 4-inch branch sweeps round to the meter room on the Senate side, a distance of 240 feet. From this 4-inch branch a 2-inch pipe leads off to the eastern side of the Building, and is continued along the south front, and around the east end to the Speaker's entrance. A 2-inch pipe also leads westward from the 6-inch pipe above mentioned, and runs around the west end to the Speaker's tower on the Commons side.

These 2-inch pipes are used solely for the purpose of lighting the outside entrances, and have no connection whatever with those in the interior.

In each of the meter rooms above mentioned, a 1,000-light dry meter has been fitted for registering the quantity of illuminating gas consumed in the Offices and Chambers, occupied by the respective branches of the Legislature.

On the Commons side, the exit pipe is 6 inches diameter, and within the room is divided into four branches, one of these (2 inches diameter) is for supplying the gas lights around the corridors, and the small lights in the angles of the Chamber. In addition to this, however, on the Senate side it supplies light for the Bar, and standards on each side of the Throne. Another (3 inches diameter) is conducted towards the Library, but at present it is only used to light one half the Picture Gallery and Smoking rooms, together with some rooms in the basement. The third branch (3 inches diameter) is carried to the ceiling of the Chamber, for the purpose of supplying the gaseliers by which it is lighted.

The fourth branch is also 3 inches diameter, and supplies the Post Office, Waiting, and other rooms in the central portion of the Building on both floors. It is carried along the ceiling of the basement passage, to a point under the west corridor of the House, where it is divided into two 2-inch pipes, one of which is continued northward, and supplies light to the Saloon, Dining Rooms, and closets in the basement. From this branches lead up to the Wardrobe, Speaker's rooms, closets, Reading room on the ground floor, and also to the Reporters' rooms above. The other 2-inch pipe is for supplying the wing, and is carried along the basement passages, diminishing in size as it approaches the west end of the Building.

The smaller pipes for supplying the rooms and corridors above are carried up from this in chases cut in the walls, and are led off between the concrete and floor to the centre of the rooms for pendants, and to the sides for brackets.

The gas fittings in all the rooms are of the best descriptions manufactured for general use. Those in the Chambers and vestibule, however, are plain ring burners, formed of wrought-iron pipe, and intended to serve until arrangements are made to provide others of a more suitable kind.

Eastern Block.—As before stated, all the gas supplied by the Company is measured in the main meter room of this Block; and is immediately led out of the building in a pipe of the same size as the supply main.

The gas for this Block re-enters by a 3-inch pipe, and is carried up near the north-east angle of the main tower, where there is a 100-light meter placed for registering the consumption. The 3-inch pipe is continued vertically to the attics, and from it branches lead along the south and west corridors and attics, diminishing in size as they approach the east and north ends of the building.

Those in the corridors are imbedded in the concrete, and laid with an inclination.

In the ground floor they are 1½ inches diameter, where they lead off from the main pipe. These supply the various basement rooms and passages, together with the boiler-house. Those on the first floor are 2 inches diameter, with branches laid for brackets in the various rooms and corridors, and for pendants in the principal apartments.

On both the ground and first floors these pipes are laid on that side of the corridor next the rear of the building.

The branches carried along in the attic supply the various rooms and corridors on the first floor, the model and other rooms in the attics, and the various apartments over these, in the Agricultural wing.

From the 8-inch exit main a 2-inch branch is led along the south front of the building, and round the east end to the entrance to the Agricultural wing. From this it is continued 1½ inch diameter for a distance of 55 feet.

From the 4-inch pipe (diminished to 3 inches before entering the wall) which supplies this Block, a 2-inch pipe is carried along the west front to the Governor General's porch, where it is diminished to 1½ inches, and extended to the north end of the building.

These outside pipes are for the sole purpose of supplying gas to the lamps at the various entrances.

Western Block.—From the 4-inch pipe for this Block above referred to, a 2-inch pipe is carried along the quadrangle front to the entrance porch; from thence it is extended 1½ inches diameter to the north end of the building.

There is also a 2 inch pipe leading along the south front to the centre entrance, where it is reduced to 1½ inch, and is extended to the west end. These pipes are for supplying the lamps at the different entrances.

The 4-inch pipe which is carried across the square, is reduced to 3 inches where it passes through the east wall of the south-east angle tower.

In a room adjoining this, there is a 100-light meter for measuring the gas consumed.

The supply pipe is carried up vertically to the attics, and from this branches are imbedded in the concrete floors along the sides of the corridors next the rear of the building.

There are also branches in the attics. All the pipes are of like dimensions, and laid in a similar manner to those in the Eastern Block.

The position for brackets in the various rooms have been arranged to meet the views

of the Heads of Departments, but no gas fittings have as yet been provided for either the Eastern or Western Blocks.

As already stated the pipes for supplying gas to the entrance lamps lead directly off the mains outside, and have no connection with those in the interior of the different Buildings. The gas thus consumed, is therefore only registered by the main meter, and its cost should be apportioned to the respective branches of the Legislature, and the two blocks of Departmental Buildings.

BELLS.

The system of bells originally contemplated, was that in ordinary use, rung by means of pulls, cranks, and wires. This, although advantageously applied to houses of moderate size, constructed in the usual manner, was, after mature consideration, believed to be wholly unsuitable for structures of the magnitude and character of the Public Buildings.

The chief objections being the great distances the rooms were apart between which communication had necessarily to be established; the circuitous route the wires would in many cases have to be carried, and the difficulty of making passages for them, through the floors and walls, together with the numerous cranks required. It therefore appeared evident, that bell wires from 200 to 300 feet long (which they must frequently have been), would stretch so much by an ordinary pull as to render cranks of the usual size, wholly inefficient. It was therefore recommended, that a system of Electric Bells should be adopted, as they had been extensively used in large buildings elsewhere. This was approved, and subsequently carried out.

This system is operated in two ways, viz.: on the Indicatory principle simply, and on the Indicatory and Repeating principles combined.

In either case a galvanic battery, of the necessary strength for the service which it has to perform, is employed, with wires connecting the various apartments, and leading to indicating boxes and bells, placed in the different messengers' rooms.

The complexity of the Indicatory and Repeating system, as well as the great expense of carrying it out, led to the adoption of the simple Indicatory system for all the Buildings.

The latter may be briefly described as follows:—

The electric fluid is supplied by what is termed the Daniell Battery.

This consists of a glass vase, or jar, a cylinder of zinc, a porous cell, and an inverted glass globe, filled with sulphate of copper and water. In the neck of this is placed a cork, with a gutta serena tube, that dips into the porous cell, and serves to keep up the strength of the solution by which it is filled.

The cells are joined together in such numbers by strips of copper, as to produce the strength required.

From the positive pole of the Battery, a wire connects with the "call buttons" in the various rooms; from each of these a wire is carried to the "Indicating Box," which is an apparatus employed to render one bell available for a number of rooms. When the current is sent through this, an armature is attracted, the Indicator is released, and falling forward, projects out of the box, immediately alongside of a number corresponding to that of the room from which the signal is given.

The "call buttons" are used for the purpose of completing the electric current. When the button is pressed upon by the finger a spiral spring is forced down and comes in contact with a metal plate fixed upon its under portion. The conducting wires are screwed to two points which serve to fix the spring and the metal plate. This action at once connects the two conducting wires, and the current passes onward to the indicating box.

When the indicator falls forward, as above described, it connects with a wire, by which the current is continued to the bell, which rings as long as the finger is pressing

down the call button. The bells are termed "trembling," from their action being continuous as long as the current passes through them.

Thus one current from the positive pole, when the wires are connected at the call button, releases the indicator, rings the bell, and is returned to the negative pole of the battery.

The system above described is that for which the apparatus was furnished by the manufacturers, and is applied to the various rooms and offices in the Parliament Building. In the course of fitting it up, however, Mr. Hutson, the person employed for that purpose, discovered an ingenious method by which the bell is kept ringing as long as the indicator remains fallen, instead of ceasing when the pressure of the finger is removed from the call button, as above stated. This is effected by means of a second group of cells, the wire from which passes along the rear of the indicating box, and is immediately returned through the bell to the battery.

When the indicator is released by the current through the call button, it falls forward and the tail piece presses upon a spring, by which both poles of the second battery are connected, and that current is completed. Until the indicator in its put back place, the bell, consequently, continues to ring by the action of the second current.

The advantage of this method is, that should the person in charge of the indicating box be absent when the signal is first made, his attention is at once drawn to it on his return by the continued ringing of the bell, which, under the improved system, is effected by a single pressure upon the call button.

This, when fitting up the apparatus, was applied to both Blocks of Departmental Buildings.

PARLIAMENT BUILDINGS.

As above stated, the simple system, in which only one current is used, is applied to this Building.

The battery for the Commons side is situated in the meter room, west of the main vestibule, and is generally made up of twenty-four cells. From this, wires from both poles are carried up to and pass along the attics. The positive wire has branches extending to call buttons in all the different rooms, and from every call button a separate wire is carried to an indicating box. From each box, a wire passes to a bell, and thence to the leading wire, which connects with the negative pole of the battery.

In the west end of the Building, there is a box with seven indicators, for the Sergeant-at-Arms' apartments. There is also one in the basement, on the north side, for the chief messenger: this has five indicators.

The principal indicating box is in the messengers' room, which is in the basement and adjoining the meter room, and is arranged for 62 indicators, of which 40 are in use. These lead from the reading-room, Speakers' apartments, wardrobes, committee rooms, and clerks' rooms throughout the west half of the Building.

The battery for the Division bells is placed in a room under the South end of the Chamber; it is composed of from 40 to 60 cells, according to the state of the atmosphere and temperature. From the poles of the Battery there are two positive and two negative wires.

The two positive wires are led at once to the Sergeant-at-Arms' seat in the House, where a small lever is provided, on turning which the current is established, and the bells continue in motion whilst the lever is retained in an inclined position.

One pair of wires passes into the basement saloon and dining room, thence up to the reading room and Library; on this current are placed five of the division bells.

The other pair passes through the saloon, and is carried to the smoking room and wardrobe, thence into the ground floor corridor of the north-east angle of the wing court; from this it is continued up to the first floor corridor. On this current are also placed five bells, making in all ten division bells, rung by two separate currents from the same battery.

The battery for the Senate division bells, is situated under the south end of the Chamber. From this the positive wire is brought up alongside the south porch, where a connection of the current is made by the Sergeant-at-Arms moving a small lever. The wires

are then continued to bells in the reading room, wardrobe, and corridor on the ground floor, in all four division bells placed on this current.

The arrangement for the other bells are similar to those on the Commons' side, with the exception, that the messengers' room (in which the principal indicating box is situated) is on the ground floor, instead of the basement. This box is arranged for 62 indicators, of which 32 are in use.

There is also a box with seven indicators for the Gentleman Usher of the Black Rod, and one with five indicators for the House-keeper.

DEPARTMENTAL BUILDINGS.

Eastern Block.—For this Block there are two batteries, situated in the attic, near the main tower, each of these being formed of ten jars.

One set is used for throwing out the indicators, and the other for the purpose of keeping the bells in motion, on the improved system before described.

From the first battery, wires branch off to the north and east ends of the Block (the positive wire being connected with the call buttons), with return wires to the several indicating boxes and bells, and leading to the negative pole of the battery.

From the second battery a pair of wires is carried through the indicating boxes and bells.

The indicating boxes have been fitted up in this Block, as follows, viz:—

Finance Minister's Department,	one Box,	13	Indicators.
Customs Branch, do	do	8	do
Provincial Registrar, do	do	5	do
Receiver General's, do	do	8	do
Bureau of Agriculture, ground floor,	do	2	do
do first floor,	do	10	do
Provincial Secretary's Department,	do	12	do
Attorney and Solicitor General West,	do	5	do
Governor General's rooms,	do	6	do
Attorney and Solicitor General East,	do	4	do
Executive Council,	do	7	do

Western Block.—The batteries for this Block are situated in the attic, over the south centre entrance. They are formed of a like number of jars, and the connections throughout are similar to those of the eastern Departmental Building.

Indicating boxes have been provided and fitted as follows, viz:—

Post Office Department,	one Box,	7	Indicators.
Indian, do	do	7	do
Militia, do	do	9	do
Public Works, do	do	20	do
		(13 in use)	
Crown Lands, do	do	16	do

Electric bells have also been provided for the entrance doors to all the Buildings. These are connected with the batteries in the respective Blocks.

For bell service there has been used about sixteen and a half miles of wire.

WATER SUPPLY.

As the best means of supplying the Buildings with water, appeared to be by pumping from the river in their immediate vicinity, it was decided, after a careful examination of

the locality, that the most advantageous site for the necessary work would be on the rivers edge in the rear of the Library, where the point stands furthest out into the current, and the purest water would most likely be obtained.

The cliff being at almost all parts steep to the waters' edge, except at one place, where there was a small surface of flat rock, at a level of about 9 feet above low water, this was selected as the best position for the engine-house.

The river has here a maximum variation of about 24 feet, between its highest and lowest stages; and it was, of course indispensable that the pumps should be so arranged as to be accessible during periods of highest water.

To avoid excavating into the face of the hill, which would have been both unsightly and expensive, it was decided to place the river front of the engine-house, only 14 feet back from the line of low water mark, and carry up the foundation walls to the required height.

For the purpose of admitting water into the receiving well, which is situated under the north part of the engine-house, a trench 8 feet wide was excavated in the solid rock, to a depth of 6 feet under low water line, and carried out to deep water in the river.

On each side of the trench for 15 feet from the front of the engine-house, walls are carried up, and the space between them arched over. Immediately outside of this, lines of cribwork are carried on either side, and the space over the trench covered with timber. At the outer end is a coarse rack to prevent any large pieces of floating timber from entering. Where the stone arch ends, another rack is placed across the trench, the openings being only $\frac{1}{2}$ of an inch between the vertical bars of which it is formed.

Inside the stone arch, and under the front line of the engine-house, there is a filter 6 feet square, formed of two sheets of finely perforated copper, placed 2 feet 3 inches apart, and stayed by angle pieces of brass. This is divided horizontally into four compartments in height. The entire space is filled with clean gravel—the divisions being for the purpose of lessening the great pressure which there would otherwise be at the base. All the water entering the receiving well passes through this filter.

Means are provided for shutting off the water, at a point outside of the fine rack, when access can be had from the receiving well to the covered way, in which the filters, &c., are placed.

During the season for running timber, these outside works are submerged; a strong boom has therefore been provided, and moored in such a position, as to effectually protect them from injury by rafts, &c.; this also serves to keep the entrance clear from pieces of floating timber.

The engine-house is 36 feet square inside, and is divided into two portions by a wall running east and west. In the north compartment the two pump wells are situated. They are 9 feet long, 3 feet 3 inches wide, and 12 feet 6 inches deep. In each of these is placed a double acting, force and lift pump, 6 inches diameter, and 2 feet stroke. The suction pipes are carried under arches through the walls, and dropped vertically into the receiving well, the ends being furnished with large copper roses. The well is accessible either directly from the top, or by means of a stair leading down to it inside of the building.

The exit pipes of the pumps are carried to a cylindrical air vessel, 2 feet 6 inches diameter, and 13 feet high, placed on a foundation of solid masonry, carried up alongside the west wall. This vessel serves, by the reflex pressure of the air contained in its upper portion, to equalize the flow through the main, and prevent damage by sudden jars or sucks to the machinery.

On the exit pipes are stop valves, which permit of one or both of the pumps being used, as may be required.

Immediately outside the air vessel, a reflux valve has been provided and fixed, which relieves the pumps from back pressure when not at work. A 2-inch pipe is led from the underside of the main (just outside the reflux valve), for the purpose of emptying it; on this is placed a safety valve, weighted to about 90 lbs. to the square inch, so as to permit escape of water, should the pressure in the pipe exceed that due to a column of 210 feet high.

The pumps are driven by steam power. For this purpose a horizontal high-pressure steam engine has been fitted up in the southern division of the house. This engine has

14-inch diameter of cylinder, and 30-inch stroke, with a strong cast-iron bed plate, resting on a foundation of dressed block limestone carried up from the rock. It is provided with all necessary valves and fittings complete, and connected with a locomotive boiler formed of $\frac{3}{4}$ -inch iron plate, containing seventy-nine wrought-iron tubes of 3 inches diameter and 10 feet long, with a fire-box 6 feet by 4 feet 6 inches. This boiler has a proper steam-chest, safety-valve, gauge-cocks, &c., and was tested by a pressure of 150 lbs. to the square inch. It is connected with the smoke-shaft by a flue 2 feet square, lined with firebrick.

The pumps are geared down so as to work at one-fourth the number of strokes of the engine, with which they are connected by a shaft 5 inches diameter, running north and south, and having two cranks, to which the pump rods are attached.

At the north end is a small reserve engine, with double cylinders, each 7 $\frac{1}{2}$ inches diameter and 12 inches stroke. This can be connected with the shaft, and is capable of working one pump easily. Each engine has a separate smoke shaft carried above the level of the engine-house roof. The side walls of the building are about 12 feet high, and the ends are carried up with gables, in which are circular openings for the admission of air. The roof is covered with galvanized iron, and entrance doors 6 feet wide have been provided for each division of the structure, together with windows for lighting the interior.

From the engine-house the rising main, 6 inches diameter, is carried obliquely up the face of the hill, in a trench averaging over 5 feet in depth, to the top, where it curves and runs nearly straight to the west end of the Parliament Buildings. It is then carried into a room in the basement of the north-west angle tower, where there is an arrangement of valves, curved pipes, &c., by which the supply to the several Blocks is regulated.

From this room the rising main is continued vertically to the tank in the roof of this tower, and empties over the side through a curved, wide mouthed, end piece. The height of the point of discharge over the valves of the pumps is about 210 feet; this being the elevation to which the water is forced.

The lift varies according to the fluctuation of the river, and has so far never exceeded 21 feet.

From the principal receiving tank, a small lead warning pipe is returned in the same trench as the rising main, and shews at the engine-house when the tank is full; the overflow being discharged into the main drain by a 6-inch pipe carried up in the centre of the tank.

PARLIAMENT BUILDINGS

The tanks are situated in the six angle towers, as high as the roofs will permit. They are 16 feet diameter at top, 15 $\frac{1}{2}$ feet at bottom, and 9 $\frac{1}{2}$ feet high; except the main receiving tank, which is 10 $\frac{1}{2}$ feet. They are constructed of heavy boiler-plate iron, well rivetted together, rendered perfectly watertight, and thoroughly painted. Brick arches have been built, springing about 18 inches above the attic floor, and tied together to prevent thrust on the tower walls. Upon these are floors of rolled iron joists and concrete, with an upper coat of Portland cement. On this the tanks are placed, and channels formed around them to carry off the water condensed on their outside surfaces during warm weather. All the tanks are connected by 4-inch pipes, and thus form one reservoir; but, at the same time, are so arranged that any one can be emptied without interfering with the rest. Each is provided with a stand-pipe (generally used as an overflow), which can be removed, and its connection at the bottom then serves as a drain.

As each tank is capable of holding about 12,500 gallons, their aggregate capacity is over 75,000 gallons.

From the basement room above referred to, a 4-inch pipe leads to the Western Block, and one 6 inches diameter is continued to a similar room in the east end of the Building, from whence it is carried up vertically to the tank in the north-east angle tower. There is a 4-inch branch from this, joined to a descending pipe from the tank, continued to the Eastern Block.

These three leading pipes are all so arranged that they can either be used for pumping directly into the different tanks, or (as is usually the case) supply those with which they connect by gravitation from the principal one in the north-west angle tower.

The tanks in the north-west and north-east angle towers are connected by a direct line of 4-inch pipe running the whole length of the Building. All those at the respective ends are also connected by 4-inch pipes which join on to this continuous line.

From the receiving tank a line of 2-inch pipe diminished to 1½-inch is continued southward, with 1-inch branches, for the supply of the rooms and closets on all the floors of the west end of the Building. From the tank in the angle tower of the wing, adjoining the Members' entrance, a 2-inch pipe is carried westwards. This has branches supplying the south-west angle tower and the south front of the wing, except the clerks' room. From the 4-inch pipe which joins this tank with the principal east and west line, branches are taken off to supply the clerks' and accountants' rooms, and those above and below them.

The water-pipes for the supply of the east end of the Building are similarly arranged to those above described.

In the central portion there is a pipe leading from the main 4-inch line, and is carried down to the rooms on the first floor, and the Post Office and Waiting rooms on the ground floor: this is continued to the messengers' room in the basement; from thence it is carried along under the floor of the main vestibule, and supplies the Post Office and Waiting Rooms on the Senate side, likewise the Railway Committee room on the first floor.

On the Senate side there is a pipe carried down from the 4-inch pipe in the attic to the messengers' room, on the ground floor.

The waste-pipes from the wash-basins are generally brought down alongside those for the supply, and are joined into tile pipes (under the basement floor) leading to the drains.

From the continuous line of 4-inch pipe between the north-west and north-east tanks, there is a branch (4-inch) continued down to the first floor; then runs along the south and east galleries to the north end of the chamber, where it is diminished to 3-inch, and descends to the basement, and has a 1½-inch branch to the kitchen, reduced to 1-inch for the closets.

From this 4-inch pipe in the attic, there is a 3-inch branch leading alongside down to the first floor. This passes along the west gallery to a point opposite the closets in the attic lean-to, from which it is continued northwards (2 inches diameter), for the supply of the rooms in the Speaker's tower, and Telegraph Office. The 3-inch pipe enters the closets, and is there branched off for the supply of the Member's closets on the ground floor, and the closets and saloon in the basement. On the Senate side the arrangement of the above pipes is somewhat similar, with the exception that the Governor General's and Chaplain's rooms are supplied from the 3-inch branch leading to the kitchen.

In addition to the various leading pipes and branches above enumerated, there are numerous secondary ones leading to the wash-basins in the different rooms, closets, urinals, &c., throughout the Building.

In the attic there are five hydrants which can be used in case of fire. One of these is under the main receiving tank, one in each tower adjoining both Members' entrances on this front, and one in the north-east tower; all these four have direct connections with the tanks. The fifth is opposite the main tower, and leads from the principal 4-inch pipe.

On the first floor there are two hydrants, one alongside the west gallery of the House of Commons, and the other alongside the east gallery of the Senate Chamber.

On the ground floor there are four, one on the south end of each wardrobe, and one in the corridor at the entrance to each of the smoking rooms.

In the basement there are four also, situated under those on the ground floor. Thus there are in all fifteen hydrants connected with the pipes for water supply.

A 1½-inch pipe leads down from the principal 4-inch pipe in the attic, through a flue, and passing under the vestibule stairs, enters the boiler-house through an arched opening in the south wall. It then is arranged so as either to discharge into one of the tanks, or into the boilers as may be required.

The 3-inch pipe from the steam-pump passes through the south wall of the boiler-house, and ascends in a flue to the attic, where it is divided into two 3-inch branches, leading to the coilings of the respective chambers. There are two hydrant cocks on each branch, one inside and the other outside of the cut-off wall at the south end of the Chambers.

DEPARTMENTAL BUILDINGS.

Eastern Block.—The 4-inch main from the east end of the Parliament Building, passes along the rear of this Block, and enters through the north wall of the boiler-house. It is then carried along the east wall, and curves through an arched opening on the south side into an adjoining room, whence it is continued along the basement floor, and to the north wall of the main tower. It rises vertically from this point to the attic, passing through the wall by an arched opening, and empties into the tank placed in this tower, immediately over the main vestibule.

This tank is 18 feet diameter, 10 feet deep, and is supported on two built girders, resting on two brick arches, springing from the angles of the main tower.

There is also a tank in the north-west tower, over the Executive Council entrance, this is 12 feet diameter at bottom, and 12 feet 6 inches at top, and 7 feet deep; and is also supported on brick arches. That in the east tower, Agricultural wing, is oval, 113 square feet horizontal area, 10 feet 8 inches deep, and supported in a similar manner. The tops of these three tanks are on the same level, and 23 feet lower than those of the Parliament Buildings. Their aggregate capacity is 27,500 gallons. They are all joined by 2-inch independent pipes, for equalizing the levels of the water in them, and are also connected by 4-inch pipes, from which the water is distributed to the various wash-basins, closets, &c., throughout the building.

In the receiving tank there is a 4-inch stand or overflow pipe, and a regulating slide valve, moved by a float, which cuts off the supply when the cistern is full. There is also a 2-inch stand pipe in each of the other tanks, which, when removed, admit of their being emptied.

A 4-inch waste leads from the main tank, and is joined in the attic by a 2-inch branch from each of the others. This is carried down alongside of the supply pipe—leads over the top of the reserve tank—and descends along the east wall of the boiler-house to the main drain.

The wastes from the various wash-basins connect with a 4-inch pipe running along the basement ceiling. This dips towards four points, where it is tapped by pipes of similar diameter, connecting with the outside drains.

There are eleven hydrants in this Block, situated as follows:—

Attic.—One at east entrance to model room; one under tank in main tower; one at head of stairs from Governor General's entrance; one under tank in north-west tower.

First Floor.—One in small room adjoining model room, Agricultural wing; one in Attorney General's messengers' room; one over Executive Council entrance.

Ground Floor.—One in Receiver General's messengers' room; one in Minister of Finance messengers' room; one in Provincial Registrar's messengers' room.

Basement.—One in room leading to boiler-house.

Western Block.—The main 4-inch pipe from the west end of the Parliament Building passes into the north side of the boiler-house for this Block, whence it is curved into the tank room alongside. It passes over the top of the tank, and is continued to the north side of the corridor, near the south-east angle tower, where it ascends vertically to the ceiling of the attic. It is conducted from thence to the receiving tank in this tower, which is 12 feet diameter at bottom, 12 feet 6 inches at top, and 7 feet deep, with a regulating valve and float, similar to that described for the Eastern Block.

There is a tank of similar dimensions in the south-west angle tower. Both of these are 8 feet lower than those in the Parliament Building, and are furnished with stand-pipes which either serve as overflow, or, when removed, admit of the cisterns being drained.

The tanks are connected by an independent 2-inch pipe, and also by a 4-inch pipe for distribution: the latter is continued northward to the end of the quadrangle front. From these the wash-basins, closets, &c., on both fronts, are supplied.

The main tank has a 4-inch waste, which is joined by a 2-inch pipe from the other in the attic. This descends alongside the supply pipe to a point in rear of the ventilating shaft: it then turns off and enters the boiler-house, and is continued to the drain on the north side of the building.

The waste-pipes from the wash-basins empty into a 4-inch pipe carried all round near the basement ceiling. This also dips at four places, where it discharges into vertical pipes leading to the tile drains.

There are eleven hydrants in this Block, situated as follows:—

Attic.—One under the tank in south-west tower; one over south entrance; one under the tank in south-east tower; one over entrance on east front.

First Floor.—One north end of corridor (Public Works Department); one over south entrance, in corridor; one in room over south entrance, east front.

Ground Floor.—One north end of corridor (Militia Department); one in room off vestibule, south entrance; one in room at east front entrance.

Basement.—One in room leading to boiler-house.

It will thus be seen that there is a total storage capacity in the tanks in the towers of all the Buildings equal to 112,500 gallons; and there is likewise provided, as a reserve for the use of the boilers, 23,400 gallons: in all, 135,900 gallons.

The length of the different kinds of pipe used for the water and gas services alone is about 49,000 lineal feet, or fully 9¼ miles.

In the foregoing description of the Buildings, and the principal works connected with them, an attempt has been made to be as concise as possible without omitting any important particular; but the structures are of such magnitude, and the details connected with them so numerous, that it was found impossible to give even a brief sketch of them in less space than has been occupied; whilst if every matter had been referred to, this report would have been unavoidably extended to a much greater length. It is, however, believed that the information now supplied will enable a tolerably clear idea to be formed of their exterior appearance, extent, and interior arrangements.

STATEMENT shewing the amounts expended annually on, and connected with the construction of the Public Buildings at Ottawa, from their commencement in 1859 to the 30th June, 1867:—

Expended from	1st May, 1859, to 31st December, 1859....	\$ 10,052.97
Do	1st Jan., 1860, to 31st December, 1860.....	423,141.88
Do	1st Jan., 1861, to 31st December, 1861.....	655,149.45
Do	1st Jan., 1862, to 31st December, 1862.....	17,739.33
Do	1st Jan., 1863, to 31st December, 1863.....	245,347.68
Do	1st Jan., 1864, to 30th June, 1864.....	158,980.95
Do	1st July, 1864, to 30th June, 1865.....	557,682.91
Do	1st July, 1865, to 30th June, 1866....	307,051.43
Do	1st July, 1866, to 30th June, 1867....	345,834.98

Total \$2,723,981 58

On reference to the first part of this report, it will be seen that the appropriation in 1857 for the construction of the Buildings was \$900,000, and that at various times since that period the Legislature has voted further sums towards their completion, amounting to \$1,988,344.30, thus making the total amount granted \$2,888,344.30; of this there was expended up to the 1st July, 1867, the sum of \$2,723,981.28, leaving a balance of \$164,363.02 on hand, at that date.

It may, however, be stated that under the head of expenditure are included the sums of \$132,221.47, paid for furniture and carpets for the several Buildings, and \$19,566.87 for fuel, making the sum of \$151,788.34, which cannot be considered chargeable to construction.

The management of, and outlay on, the Buildings, having been frequently enquired into, under the authority of the Government, the Department is already in possession of various explanatory reports and other documents, all but exhaustive of these subjects. It is therefore only deemed proper at present to advert to the principal causes which led to the expenditure being so much in excess of the sum first contemplated.

1st. The designs for the structures seem to have been recommended chiefly on the grounds of their architectural merit, and adopted without the Government being put in possession of anything like a reliable estimate of the cost of carrying them into execution.

2nd. The plans were drawn to an imaginary horizontal foundation line, and with comparatively little provision for heating and ventilation. Upon these incomplete plans tenders were received, and the works awarded at a bulk sum.

3rd. The site selected being of a very irregular surface, and each building covering a large area, it was found at the outset, that in order to obtain a proper foundation a much larger quantity of work was necessary than that shown by the contract plans.

4th. After the building contracts were made, the system of heating and ventilation now carried out was adopted. This involved numerous changes in the contract works of the interior of the structures.

5th. This mode of heating and ventilation entailed many large works, wholly irrespective of the contracts, and for which no estimate of their probable cost was submitted.

These consisted principally of the construction of large boiler houses, sunk 10 feet in the rock below the basement floors; the lowering of the main drains to a corresponding depth—the formation of numerous lines of air ducts, which for the most part were carried out beyond the Buildings to the edge of the hill; the construction of ranges of warm air vaults—the erection of high smoke shafts; together with many matters of detail, which, although in themselves comparatively small, collectively formed a very large item in addition to those above enumerated.

6th. The basements were all excavated, and the greater part of them fitted up for rooms, whereas the original design contemplated, that only a portion of the basements should be used. This change in the Departmental Buildings required area walls, in order to protect the windows for the admission of light.

7th. It was decided to substitute Nepean sandstone for the limestone of the vicinity, for the outer facework of all the Buildings, several months after the works were commenced.

8th. The attic floors were made fire-proof, by means of iron joists and concrete, not embraced in the first contract.

9th. The position of the Eastern Block was altered, and its area enlarged, by forming the present Agricultural wing.

The main tower of the Parliament Building was extended further out; the thickness of the walls and buttresses of the Library increased, &c., &c.

From the above it will be evident, that a very important class of information was wanting at the time when the plans were first approved, and that numerous changes were made, and large additional works carried on, without a knowledge of what they would cost, or the effect they would have on the then existing contracts; whilst subsequent events clearly established the fact that the accepted tenders did not represent anything like the fair value of the works contemplated in the original plans.

This led to difficulties at the beginning, which increased as progress was made, and resulted in complications, that rendered it extremely difficult to effect an equitable settlement with the contractors.

These would have been unlikely to occur, had full information been supplied at first, as proper arrangements could then have been made; and besides the Government would have been placed in a position to determine, in advance, whether works of this style and magnitude should be undertaken, or a class of buildings constructed, the cost of which would, at least, approximate to the sum originally contemplated.

It is doubtless true that in the construction of large buildings there generally arises unforeseen causes of expenditure which swell the ultimate cost beyond the sum anticipated; but it is, nevertheless, to be regretted that the nature of the site chosen for these structures was not fully ascertained at the outset. It would have also been well that a system of heating and ventilation evidently entailing so large an outlay should have been closely investigated and, if fully approved, after its probable cost had been submitted, it should have been made to form part of the plans before tenders were invited, as a great number of air-flues, and recesses for steam-coils, &c., had subsequently to be formed in the walls, and arrangements made for cold air ducts and warm air vaults. Thus the contract works of the interior had to be so much changed that it was alleged by the contractors to be all but impossible to separate "contract" from "additional work." Besides, a large portion of the work connected with heating and ventilation were in such positions that they had to be executed before the contract works could be commenced, so that when the appropriation of 1857 was exhausted and operations suspended, in 1861, it was found that a sum fully equal to that paid on the contract had been expended on additional works.

At this time the outside walls of the Departmental Blocks were generally carried up to the level of the main cornice, and the principal part of the Buildings roofed in, but not slated. The towers were of a similar height to the main walls.

The south front and wings of the Parliament Building were also built up to the line of the main cornice, and the interior walls considerably advanced, but no part of the permanent roof was on. The foundation walls of the Library were carried up to the plinth course, and the exterior works partly executed.

The contractors having prepared and delivered a large quantity of material when the works were stopped, and having the requisite plant provided, the Government, therefore, deemed it advisable to first offer them the completion of the Buildings as recommended by the Commission of Inquiry, and this having been accepted, operations were resumed in May, 1863, upon a basis by which many of the difficulties hitherto experienced were obviated, inasmuch as the different classes of work done were measured and paid for at a fixed schedule of rates, and proportionate prices for items to which the schedule annexed to the contract did not directly apply.

The Departmental Buildings were accordingly completed in 1866, and a final settlement made for the work done under the second contract was satisfactorily and promptly effected.

The contract for the Parliament Building, however, still remains in force, as the upper part of the main tower of that structure is yet unfinished, and the Library, as before stated, is only carried up a few feet higher than the roof of the lean-to by which the central part is surrounded. With these exceptions, the whole of the Building has been completed.

Taking into consideration the many difficulties which have attended the construction of the Buildings, arising chiefly from the causes above referred to, it is, nevertheless, satisfactory to be able to state, that the work generally has been performed in a substantial manner, and at a rate which, under the circumstances, cannot be deemed excessive.

The interior arrangements appear to be well adapted to the requirements of the service; the various apartments are suitably fitted up, and some of the best modern improvements have been introduced. The House of Commons has been adapted for the increased number of Members; additional means have been provided for ventilation, and an attempt has also been made to improve its acoustic properties. The original arrangement of the seats in the Senate Chamber has not been altered, but some additional ones have been provided.

The exterior effect of this group of Buildings is greatly enhanced by the natural beauty and prominence of the site, which renders them conspicuous from every part of the surrounding country, so that, in approaching the city in any direction, their irregular mass and numerous towers present a constantly changing and picturesque appearance. Upon closer inspection, their vast extent, ornate character and architectural merits, become apparent; and, in brief, they may be fairly classed amongst the best specimens of the pointed Gothic style on this continent.

 WORKS TO COMPLETE.

The original design for the Library of Parliament contemplated the construction of a groined roof, the ribs being of stone, and the spaces between them filled in with hollow brick; the ribs to be supported by marble columns, resting on corbels of the same material. The groin to be 42 feet in height, and the springing line 40 feet over the floor. In the centre of the vaulted space is an opening of fully 30 feet in diameter, the main ribs being so arranged as to touch its circumference and continue in a vertical plane between the springers. Over this opening is a groined lantern, 42 feet high, the top of which is 124 feet over the level of the floor.

The Library is to be circular inside, and 90 feet diameter. The main wall is about 4 feet thick, and its exterior face forms a polygon of 16 sides, at each angle of which is a flying buttress, spanning the roof of the lean-to and joining the main wall at a height calculated to resist the thrust of the vaulted roof. This thrust is thrown in the direction of the greatest resistance, and every precaution apparently adopted to render the vaulting secure. The design, as a whole, is bold, and, if carried out in its entirety, would doubtless, be very effective.

It is, however, to be feared from the large span and the great weight of material in the vault, together with that in the high lantern over it (the central portion being open), that any imperfection in the works might lead to serious consequences. But, without expressing a decided opinion as to the advisability of adopting the present design or otherwise, it might be well to consider whether the same object could not be effected with a greater degree of certainty by the construction of an iron roof, especially as stone of the required dimensions for a vaulted roof of this span could only be obtained (if at all) at great labor and expense. Indeed, a dome-shaped ceiling and lantern of wood might possibly be built, which would answer the purpose, as its great height over the floor would place it out of the reach of fire from the interior, whilst the outside roof (required in any case) being covered with slate and galvanized iron, or lead, would afford protection to the exterior of the building.

The roof of the main tower has not yet been commenced; it is proposed to be of wood, covered with tin or galvanized iron, octagonal in plan, and tapering to the deck on top, which is 52 feet 6 inches above the pinnacles at the angles, and about 208 feet above the level of the terrace. Upon this a wrought-iron terminal is to be placed, the dimensions of which have not been determined.

The cost of these works is approximately estimated at \$185,000.00.

Nothing has yet been done towards the permanent fencing, or the ornamentation of the grounds; nor have the roads been extended as far as necessary.

The outlay for this will, of course, depend upon the character of the works undertaken; but, it is presumed, that a proper fence will be made alongside of Wellington street, a distance of 1,750 feet. This might be formed of a wall about three feet 6 inches over the level of the street, of a good class of masonry, coped with cut stone, and having an ornamental iron railing on top, with gates at the several entrances. The higher portions of the grounds along this street ought to be dressed to a slope, terminating at the rear of the wall, where a proper drain should be constructed. A similar fence and drain might be continued along the east side of Bank street, to the brow of the hill. It would also be desirable that a fence should be carried round the edge of the cliff, so as to complete the enclosure of the grounds.

The square only has been graded, the other portions are as yet untouched, whilst the surface being in many places irregular, it is important that steps should be taken at least to reduce it to some degree of uniformity. For this purpose it would be well that a general plan were agreed upon before the works are commenced.

The question of establishing an efficient system of general management for all the Buildings under one competent head, has frequently been brought under the notice of the Department. This has been urged for the reason, that buildings of this extent and character, will require a considerable annual outlay for maintenance, which could be more

judiciously applied by a person whose sole business it would be to keep the Buildings and works connected with them in a thorough state of repair, and the grounds (when finished) in proper order, than if the service were intrusted to various parties who have other duties to perform.

It will always be found difficult to keep the numerous decks, valleys, &c., of the roofs staunch, as the metal coverings of these portions expands and contracts considerably during the extremes of heat and cold. This will require the attention of a mechanic under the superintendence of a practical person.

If ice or snow is allowed to collect in the valleys, when a sudden thaw occurs, the water is backed up under the slates, and enters the building; and where a low roof is constructed, immediately adjoining a higher one, ice, if permitted to form, becomes detached during thaws, and when it falls damages the roof below.

The snow must therefore be removed from many parts of the roof during winter, and the performance of this service should only be intrusted to careful men, as damage has already been done, both to the slates and metal coverings, by careless or unskilful persons.

The roof projections are so small, and there being no eavestroughs, the water falls directly on the basement walls, and the alternate action of wet and frost upon them, takes out the pointing, which must be renewed from time to time.

The proper working of the drains, and numerous other matters outside, will have to be looked after, besides the important duties of attending to the extensive apparatus of heating and ventilation, the works connected with water supply and distribution, gas service, electric bells, &c., all of which would fully occupy the attention of an energetic and competent person, through whom all the expenditure for these purposes could be made.

It is believed that the information called for, on matters relating to the Public Buildings, has now been supplied in such an extended form, as to enable all the important subjects connected with them, to be readily understood.

If, however, further details are required, it is presumed that they can be obtained from the numerous special reports and letters in the possession of the Department.

I have the honor to be, Sir,

Your obedient servant,

JOHN PAGE,

Chief Engineer, Public Works.

