

821761

ANNUAL REPORT

OF THE

Sewerage Commission

OF THE

CITY OF BALTIMORE

1905



BALTIMORE
WM. J. C. DULANY COMPANY
PUBLIC PRINTERS

1906

1871

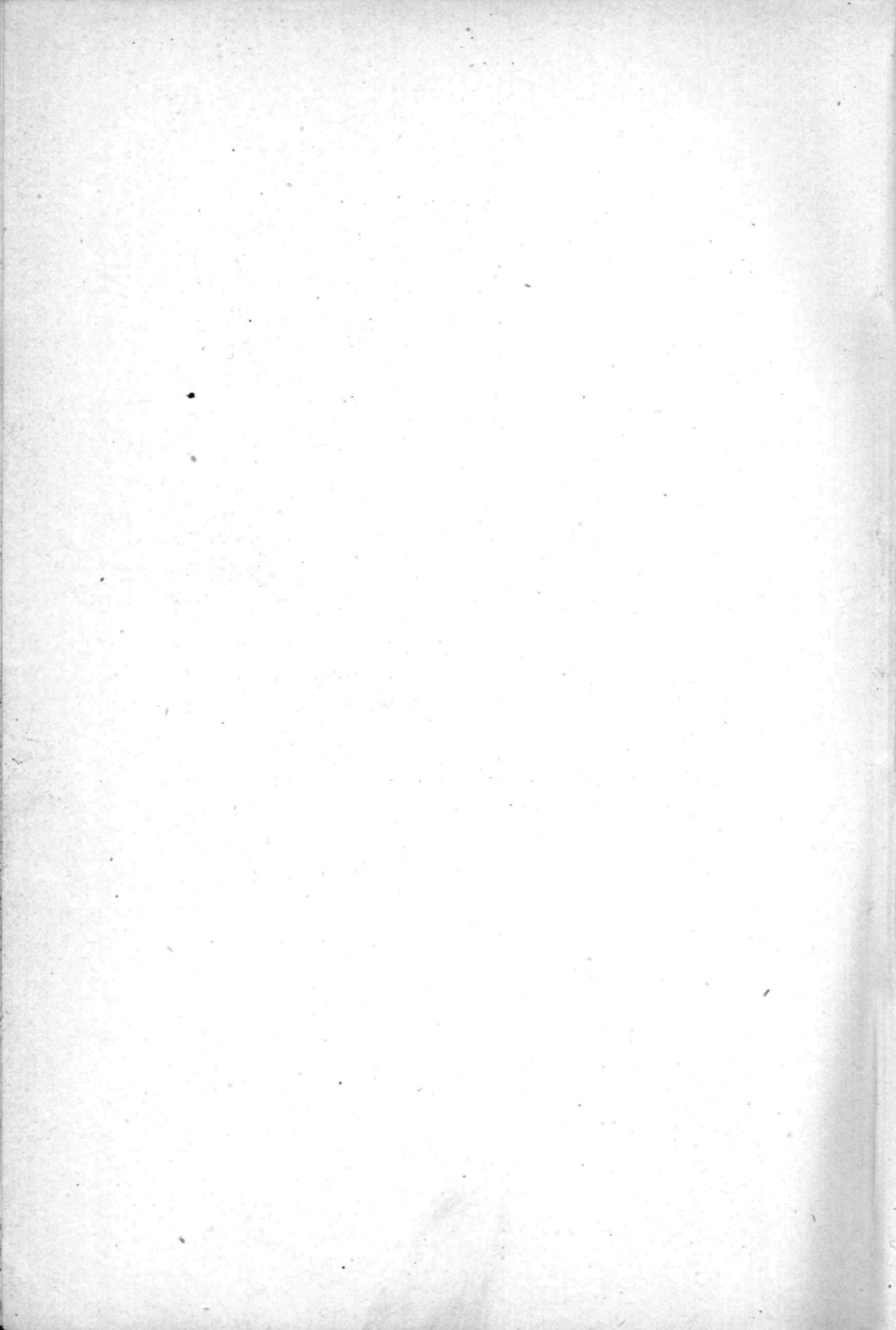
ANNUAL REPORT

OF THE



CONTENTS

| | PAGE |
|---|------|
| I. GENERAL REPORT | 5 |
| II. FINANCIAL STATEMENT | 16 |
| III. INVENTORY OF PROPERTY | 17 |
| (a) List of Books | 17 |
| (b) Office Furniture | 18 |
| (c) Instruments, Office Equipment, etc. | 19 |
| (A). CITY SOLICITOR'S OPINION | 21 |
| (B). CITY SOLICITOR'S OPINION | 25 |
| (C). REPORT OF CHIEF ENGINEER | 29 |



Sewerage Commission of the City of Baltimore,
AMERICAN BUILDING.

BALTIMORE, December 31, 1905.

HONORABLE E. CLAY TIMANUS,
Mayor of Baltimore,

SIR :

In obedience to the requirements of Section 1 of the Act of the General Assembly of Maryland, to establish a Sewerage System for the City of Baltimore, approved by the Governor April 7th, 1905, this Commission has the honor to make herewith a detailed report of all its official transactions and expenditures.

The Commission having been organized on the 19th, 20th, and 21st of June, 1905, by the election of the Chairman and the Secretary, a Committee of three, consisting of His Honor, the Mayor, Dr. Remsen and the Chairman, was appointed to select suitable quarters for the Commission. The Committee examined the Equitable, the Calvert and the American buildings, and after careful consideration selected offices on the 9th floor of the American building. Four rooms were leased for the immediate needs of the Commission, with the understanding that when more rooms were required the Commission would be able to secure them on the same floor of the building at the same rate.

At the meeting of the 20th of June, a Committee on Rules, consisting of Messrs. England, Whitridge and Mohler, was appointed under Section 6 of the Enabling Act, to frame such rules and regulations for the Commission as might be re-

quired for the conduct of its work. This committee has made a report of progress, and is now engaged in the further prosecution of its work.

A committee was also appointed, consisting of the Chairman and Messrs. Platt and Mohler, to select furniture and fittings for the offices. This committee has completed its work, and the offices are suitably furnished with neat and substantial furniture.

At the meeting on the 20th of June, on motion of Dr. Remsen, authority was given His Honor, the Mayor, and the Chairman, to enter into correspondence with Messrs. Rudolph Hering, of New York, Samuel M. Gray, of Providence, R. I., and Frederic P. Stearns, of Boston, Mass., with the object of learning whether or not they would be willing to serve as members of a Board of Advisory Engineers in the preliminary stage of the work of the Commission, to study the problem and report upon the best method of construction and disposal available under the conditions existing in the City of Baltimore.

At the meeting of July 18th, the Commission appointed an Auditing Committee, consisting of Messrs. Whitridge, Platt and England, to audit all bills of the Commission, and it was further ordered that all bills to be paid must first be approved by the Chairman, the Secretary and the Auditing Committee.

On the 21st, of June an identical letter was addressed to each of the selected engineers, in the following terms :

DEAR SIR:

"At a meeting of this Commission, held yesterday, it was determined that, with a view of carrying out the provision of the Enabling Act of the General Assembly of Maryland in the matter of establishing a system of sewers for the City of Baltimore, this Commission shall be authorized to call into the service of the city, three sanitary engineers of the highest standing in their profession, to study the problem and to report upon the best method of disposal of the sewage, and the construction of the sewers. The Commission has there-

fore named yourself, Mr. Samuel M. Gray, of Providence, R. I., and Mr. Frederic P. Stearns, of Boston, Mass., as the gentlemen to investigate and report a plan for adoption. The Commission will therefore be pleased if you will confer with the gentlemen named and with them communicate to the Commission the terms upon which you are willing to enter upon this work for the city. It is desirable that a joint reply to be sent to the Commission by July 10th, if practicable, and that the receipt of this communication be acknowledged. It is understood that what it desired is advice in regard to the proper method to be adopted for the disposal of the sewage, and such general advice in regard to the construction of the sewers as may be necessary before the Constructing Engineer is appointed."

Very respectfully,

(Signed) E. CLAY TIMANUS,

Mayor.

(Signed) PETER LEARY, JR.,

Brig. Genl., U. S. A., Retired, Chairman.

In reply to this letter it was learned that Mr. Hering was not in New York. His associate, Mr. George W. Fuller, informed the Commission of his absence, and after a consultation by telephone between His Honor, the Mayor, and Mr. Fuller, it was agreed that Mr. Fuller should represent Mr. Hering in the deliberations of the Advisory Board until Mr. Hering's return from Europe.

In a letter dated June 27th, signed by Mr. Fuller for Mr. Hering, and by Mr. Gray and Mr. Stearns, the Commission was informed that the engineers would be pleased to accept the appointment as an Advisory Board, on the following terms, namely: a fee of one hundred (\$100) dollars per day for each of them for the time devoted to the work, besides reimbursement for traveling and other necessary expenses connected with it. It was determined that it would be desirable, in order to prevent confusion and ambiguity, for the Board of Engineers to personally meet the Commission

on the 20th of July, Mr. Fuller to represent Mr. Hering. On the 19th of July His Honor, the Mayor, received a telegram from Mr. Gray to the effect that by reason of a surgical operation which he was compelled to undergo, he would not be able to meet the Commission on the 20th of July.

At the meeting of the Commission on July 20th, it was determined that it would be advisable to await the return of Mr. Hering from Europe and the recovery of Mr. Gray, in order that the Commission might have the benefit of the advice of the three gentlemen originally selected, and the Chairman was accordingly authorized to fix a date some time early in September for the next meeting, it having been learned that Mr. Hering would sail from Hamburg for this country on the 26th of August, and would probably reach New York on the first or second of September.

As the Commission had been informed that Mr. Stearns, who was a member of the Advisory Board of Engineers of the Panama Canal, would be required to meet that body in the City of Washington on the first of September, Thursday, September, 7th, was determined on as the date for the meeting of the Commission with the Board of Advisory Engineers. Accordingly, on the 7th of September, the Commission met Messrs. Hering, Gray and Stearns, and the following questions were propounded to them, viz:

1. What method of disposal of sewage do you recommend for the City of Baltimore?
2. Approximately, how long would it take you to give us an answer to this question?
3. Are you willing to make a proposition looking to the payment of a lump sum for the preparation of this report? We ask this question, thinking that the public may prefer this method of dealing with the problem.
4. Please give us a revised estimate of the cost of the method of disposal recommended.

The above questions were fully discussed by the Commission, and in the course of the discussion the engineers desired

to know the degree of purity which should characterize the final effluent of the Sewerage System, whereupon the following resolution was adopted by the Commission :—

RESOLVED, That the effluent proposed to be discharged into the Chesapeake Bay or its tributaries under the system to be recommended by the engineers, shall be of the highest practicable degree of purity.

The engineers retired for a consultation, and upon their return stated that they would undertake to give the Commission a report as to the best method of disposal of the sewerage and a revised estimate of the cost thereof, on the following terms, namely : each of the engineers to receive a personal fee of \$5,000; the Commission to pay in addition, their traveling expenses and the expense of all clerical and other assistance that might be necessary to enable them to make their report, which report shall be presented to the Commission not later than the first day of April, 1906, or sooner if possible.

It was further understood, after a consultation with the Mayor, that the city shall furnish the engineers with all the assistance and information within the scope of the ability of the city's departments.

Upon the return of the engineers after they had retired to permit the Commission to discuss their proposition, the Commission determined to accept the proposal of the engineers, and the Chairman was directed to impress upon them the desire of the Commission that they shall report upon the subject at an earlier date than April 1st, 1906, if possible. This was accordingly done.

At this meeting a letter from Mr. Mendes Cohen, the Chairman of the former Sewerage Commission, was read, in which Mr. Cohen informed the Commission that he would be pleased to turn over to it all the original minutes, records, correspondence, records of disbursements and the original official report of the Consulting Engineers. This proposition was accepted by the Commission, and Mr. Cohen was so informed.

A meeting of the Commission was called for September 14th, and on that date the Board of Engineers arrived in the city, and expressed the wish to be taken down the Patapsco River with a view of looking at the shores of the river and its tributaries in Anne Arundel County. His Honor, the Mayor, placed the Harbor Board's tugboat "Baltimore" at the disposal of the Commission, and the meeting for that day was held aboard the tugboat on its way down the river. The engineers were taken as far as Walnut Point, in Curtis Creek, and were then brought back to the city. At this meeting a letter was read from Major Richard M. Venable, President of the Board of Park Commissioners, regarding a number of private sewers now discharging into Stony Run, in the northern section of the city, asking the Commission to build subsidiary sewers to divert the sewage from Stony Run into Jones Falls, in advance of the construction of the general system. The Commission was of the opinion that it was without authority to construct such sewers, because of the fact that the Sewerage Enabling Act prohibited the Commission from building any system of sewers which would empty crude sewage into the Chesapeake Bay or any of its tributaries. The matter was directed to be referred to the City Solicitor for an expression of opinion as to the authority of the Commission in the premises. A reply from the City Solicitor was received, which confirms the opinion of the Commission as to its legal authority in the matter.

In conversation of the Chairman with Mr. Cohen, it was learned that the Commission of which Mr. Cohen was Chairman, had purchased a number of technical books on the general subjects of sewage collection and disposal, and of sewerage construction, and that Mr. Kenneth Allen, who was the Principal Assistant of the old Board in its engineering work, had collected, at considerable expense samples of soil from land in Anne Arundel County near Glenburnie and Marley Neck, and that maps of the district had been prepared showing the exact location from which the samples had been

taken. These samples were contained in test-tubes, and when the old Commission, under the law, turned over its property and records to the city authorities, the samples of earth were packed by Mr. Cohen in the drawers of a desk which he had used as Chairman of the Commission, with the view of their preservation for future use. As Mr. Hering had spoken of the importance of these samples and maps to the present Advisory Board of Engineers, a special effort was made to recover them, if possible, as it was believed if they could be found it would be a considerable saving of time and expense to this Commission. The vaults of the City Hall were carefully searched for the property of the old Commission, including those samples of soil. A large number of maps and drawings have been recovered, including the maps which indicated the points from which the samples of soil had been taken, but no trace has been found of either the test-tubes or their contents. A number of note books, however, were found in the office of the Water Engineer, which turned out to be the original notes and memoranda prepared by Mr. Allen, upon which the reports of the former Commission were based. Among these note books was one which contained reference to the notation on the maps relating to the character of the soil, which will be of service to the engineers.

A number of valuable books upon the general subject of sewage disposal and sewer construction were also found, badly mildewed and requiring attention. The Commission authorized the rebinding of all the books so found, which had been damaged, and they have accordingly been rebound, and are now available for use. Among other property recovered was a drawing-board and map-case, for which the Commission is indebted to the courtesy of Major Hutton, Harbor Engineer, to whose office it had been sent by the Superintendent of Buildings. It is in excellent condition and serves an immediate need.

At a meeting of the Commission on October 24th, 1905, a letter from the City Engineer to His Honor, the Mayor, was

read, concerning the advisability of the construction of certain storm-water sewers by way of extension of existing lines of sewers in several sections of the city, at an estimated cost of \$54,350.00. Doubt as to the authority of the Commission to authorize the contemplated expenditure in the manner suggested by the City Engineer having been expressed, it was determined to refer the question to the City Solicitor for opinion, which was furnished the Commission under date of October 30th, 1905, a copy of which is hereto appended, marked "A."

The City Solicitor expressed the opinion that he could see no objection to the construction by the City Engineer of the proposed sewers, at the expense of this Commission, as there was no intention that any of the sewers so proposed should be tapped for purposes of house-drainage.

Subsequently, on December 7th, the City Engineer addressed a letter to His Honor, the Mayor, on the same subject, asking: "Am I to build these as agent of the Commission, or will the Commission build them?" His Honor referred this letter to Mr. Hendrick, asking to have the matter considered at some future meeting of the Commission, and Mr. Hendrick placed it before the Commission at its meeting of December 18th, when the Commission referred the following questions to the City Solicitor for an opinion, viz.: "As to its right to appropriate any part of its funds authorized to be raised by the Enabling Act, to be expended by the City Engineer in the construction of storm-water sewers which form no part of the permanent system contemplated in Section 2 of the Enabling Act?" and "as to its right under the Act to appropriate any part of its funds in the construction of sections of storm-water sewers, before the Commission knows whether or not the section so constructed will ultimately form part of the system which the Commission is planning?"

In reply to the questions of the Commission, on December 20th, Mr. Bruce sent in his opinion, hereto appended and

marked "B" to the effect that the Commission has no power to use any part of its funds in the construction of storm-water sewers, by the City Engineer acting as its agent, which will form no part of its permanent system, and further, that the Commission has no power to use any part of its funds in the construction of storm-water sewers which it does not absolutely intend to become part of its Sewerage System.

At the meeting of December 28th, it was determined, on the suggestion of His Honor, the Mayor, to defer further consideration of the matter until a meeting in the near future, when Mr. Fendall may be given an opportunity to express himself on the subject to the Commission.

On the 4th of November a letter was read to the Commission from Dr. Remsen, presenting to it a set of the "Reports of the British Royal Commission on Sewage Disposal," consisting of ten volumes, which have been substantially bound and are a valuable addition to the Commission's collection of books on that subject.

At its meeting of November 4th the Committee on the selection of a Chief Engineer of the Commission, reported that after very careful deliberation and consideration of all applicants, they had narrowed the selection to two gentlemen, who seemed to have pre-eminent qualifications for the work to be expected of the man who should be the Chief Engineer, viz: to Mr. Calvin W. Hendrick, of New York City, and Mr. Harrison P. Eddy, of Worcester, Mass., and that after most careful consideration of the merits of these two gentlemen they had concluded to recommend to the Commission as its Chief Engineer, Mr. Calvin W. Hendrick, who was thereupon elected Chief Engineer at a yearly salary of \$10,000, which was fixed at the succeeding meeting, upon condition that he shall devote his entire time and attention to the work of the Commission.

On September 12th the Commission adopted the organization and scale of salaries as recommended by the Chief Engineer, as follows :

REPORT OF THE

| | |
|---|------------|
| First Assistant Engineer..... | \$4,000 00 |
| Division Engineer, High Level | 3,600 00 |
| Division Engineer, Low Level | 3,600 00 |
| Division Engineer, Disposal Plant..... | 3,600 00 |
| Assistant Engineer of Office..... | 2,100 00 |
| Assistant to Division Engineer..... | 2,100 00 |
| Assistant Engineer..... | 1,500 00 |
| Instrument Man | 1,200 00 |
| Rodman..... | 900 00 |
| Chainman | 720 00 |
| Engineer in Charge of Drafting..... | 2,100 00 |
| Draftsmen to range from \$1,000 to..... | 1,500 00 |
| Inspectors (a month)..... | 150 00 |
| Cement Testers (a month)..... | 75 00 |

The following appointments were made by the Commission at this meeting, viz.:

First Assistant Engineer:

ALBERT M. BROSIUS, of New York and Baltimore.

Division Engineer, High Level:

OLIVER W. CONNET, of Baltimore.

Division Engineer, Low Level:

KENNETH ALLEN, of Baltimore and Atlantic City.

Division Engineer, Disposal Plant:

EZRA B. WHITMAN, of Baltimore and New York.

Assistant Engineer of Office:

HERBERT M. KNIGHT, of Norwich, Conn.

Engineer in Charge of Drafting:

FRANK T. DANIELS, of Boston, Mass.

Pursuant to the instructions of the Commission to begin the organization of the Division of Storm-water and Drainage Sewers, the Chief Engineer at the meeting of December 28th, nominated as the Engineer of that Division, Mr. George T. Hammond, of Brooklyn, N. Y., who was thereupon elected to that position.

Upon the recommendation of Dr. Remsen and of Mr. Hendrick, the Commission at the meeting of the 28th of December, appointed Mr. C. A. Emerson, Jr., of Columbus, Ohio, a graduate of the Massachusetts Institute of Tech-

nology, as the Chemist and Bacteriologist of the Commission, at a monthly salary, for the present, of \$85

At its meeting of September 7th, 1905, Mr. John J. Frederick, of Baltimore, was appointed stenographer to the Commission at a monthly salary of \$75, which was increased to \$100 per month at the meeting of November 29th.

At its meeting of December 12th, the Commission confirmed the appointment of Mr. Robert B. Morse, Draughtsman, at a salary of \$1,000 per annum, authority for the appointment to this position being given at its meeting of November 29th.

At its meeting of December 30th, 1905, awards for Engineering Instruments and Supplies were made by the Commission, amounting to \$2,277.59.

11

FINANCIAL STATEMENT.

The attention of Your Honor is invited to the following report of the financial operation of the Commission from the date of its organization:

| | |
|--|--------------------|
| By amount of appropriation | \$50,000 00 |
| (Ordinance No. 24. Mayor and City Council, approved November 15th, 1905.) | |
| To Salaries of Commissioners and employes... | \$ 6,907 08 |
| “ Furniture..... | 1,416 52 |
| “ Rent of offices to December 31st, 1905..... | 1,058 92 |
| “ Current Expenses; Typewriter, Stationery, Telegrams, Office Supplies, Laundry, etc. | 374 52 |
| “ Expenses in connection with the work of the Advisory Board of Engineers..... | 719 85 |
| “ Advertising for Proposals for Instruments, etc., for Engineering Department..... | 103 16 |
| Total Expenditures..... | \$10,580 05 |
| Balance remaining to be returned to Western Maryland Railroad Fund..... | 39,419 95 |
| | <u>\$50,000 00</u> |

III INVENTORY OF PROPERTY.

Appended hereto is a list of the property of the Commission which is all in serviceable condition.

(a)

LIST OF BOOKS.

| TITLE. | AUTHOR. |
|---|--|
| Sanitary Engineering. | <i>Moore.</i> |
| Sewerage Disposal in the United States..... | <i>Rafter and Baker.</i> |
| The Separate System of Sewerage. (2nd Edition) } | <i>Stanley and Pierson.</i> |
| Flow of Water in Rivers and other Channels..... } | <i>Ganguillat and Kutter.</i> |
| Sewerage..... | <i>Fotwell.</i> |
| Sewer Gas and Health..... | <i>Roechling.</i> |
| Corfield's Treatment and Utilization of Sewerage. } | <i>W. H. Corfield and Lewis Parks.</i> |
| (3rd Edition)..... } | <i>W. Santo Crimp.</i> |
| Sewerage Disposal Works. (2nd Edition)..... | <i>W. Santo Crimp.</i> |
| Report of old Sewerage Commission of the City of Baltimore. (2 volumes)..... } | <i>O. L. Fassig.</i> |
| Report on the Climate and Weather of Baltimore and Vicinity. (2 volumes)..... } | <i>O. L. Fassig.</i> |
| Reports of British Royal Commission on Sewerage Disposal. (8 volumes)..... | |
| Cleaning and Sewerage of Cities..... | <i>Baumeister.</i> |
| Boston Main Drainage, 1885..... | |
| Traite Pratique de la Construction des Egouts..... | <i>Jules Hervien.</i> |
| Sewerage Disposal..... | <i>Kiersted.</i> |
| The Purification of Sewerage..... | <i>S. Barwise.</i> |
| Ordinance and Resolutions, 1904-1905..... | |
| Trades Waste. Its Treatment and Utilization..... | <i>W. Naylor.</i> |
| The New Charter of Baltimore City..... | |
| Purification of Sewerage and Waste..... | <i>W. J. Dibdin.</i> |
| Webster's International Dictionary..... | |

(b)

OFFICE FURNITURE.

BOARD ROOM.

- 1 Oak Wardrobe (double).
- 2 Oak Tables.
- 12 Oak Chairs.
- 1 Metal Hat Tree.

CHAIRMAN'S ROOM.

- 1 Oak Rolltop Desk.
- 1 Revolving Bookcase.
- 1 Oak Rocking Chair.
- 1 Leather Lounge.
- 1 Metal Dictionary Stand.
- 1 Oak Wardrobe (single).
- 1 Oak Flat Top Table.
- 1 Water Cooler.
- 5 Oak Chairs.
- 2 Telephone Brackets.
- 1 Metal Hat Tree.

SECRETARY'S ROOM.

- 4 Oak Filing Cases.
- 1 Oak Roll Top Desk.
- 1 Letter Press Copying Machine.
- 6 Oak Chairs.
- 2 Remington Typewriters.
- 2 Metal Telephone Brackets.

ENGINEERS' ROOMS.

- 19 Oak Chairs.
- 6 Flat Top Desks.
- 3 Flat Top Tables.
- 1 Map-case Drawing Table.
- 12 Cuspidors.
- 3 Drawing Tables.
- 3 Stools.
- 3 Hat Trees.

(c)

LIST OF DESK FURNITURE AND SUPPLIES, ETC.

| | |
|---|--|
| 5 Boxes Rubber Bands. 4 Reams Paper. 1 Minute Book. 1 Typewriter Ribbon. 1 Box Carbon Paper. 12 Waste Paper Baskets. 6 Dozen Pencils. 1 quart Carters Ink. 1 quart Stafford's Ink. 2 dozen Penholders. 4 Gross Pens. 1 Desk Pad. 2 Cut Glass Inkstands. 1 Library Inkstand. 2 Davis Inkstands. 4 Plain Inkstands. 1 Ledger. 1 Postal Letter Scale. 1 Ream Manilla Paper. 6 Dozen Scratch pads. 1 Dater and Ink Pad. 1 Numbering Machine. | 3 Augurs. 6 Paper Weights. 2 dozen Pyramid Pins. 1 lb. Bank Pins. 12 Steel Erasers. 12 Envelope Openers. 2 dozen Desk Blotters. 25 dozen Cut Blotters. 1 Invoice Book. 1 dozen Records. 3 Pairs Shears. 1 dozen Note books. 4 Bottles Higgin's Inks. 1 dozen Kohinoor Pencils. 1 T-Square, 1 Rule. 2 Triangles. Letter Heads. (Printed.) Letter Heads. (Plain.) Envelopes. Warrants. |
|---|--|

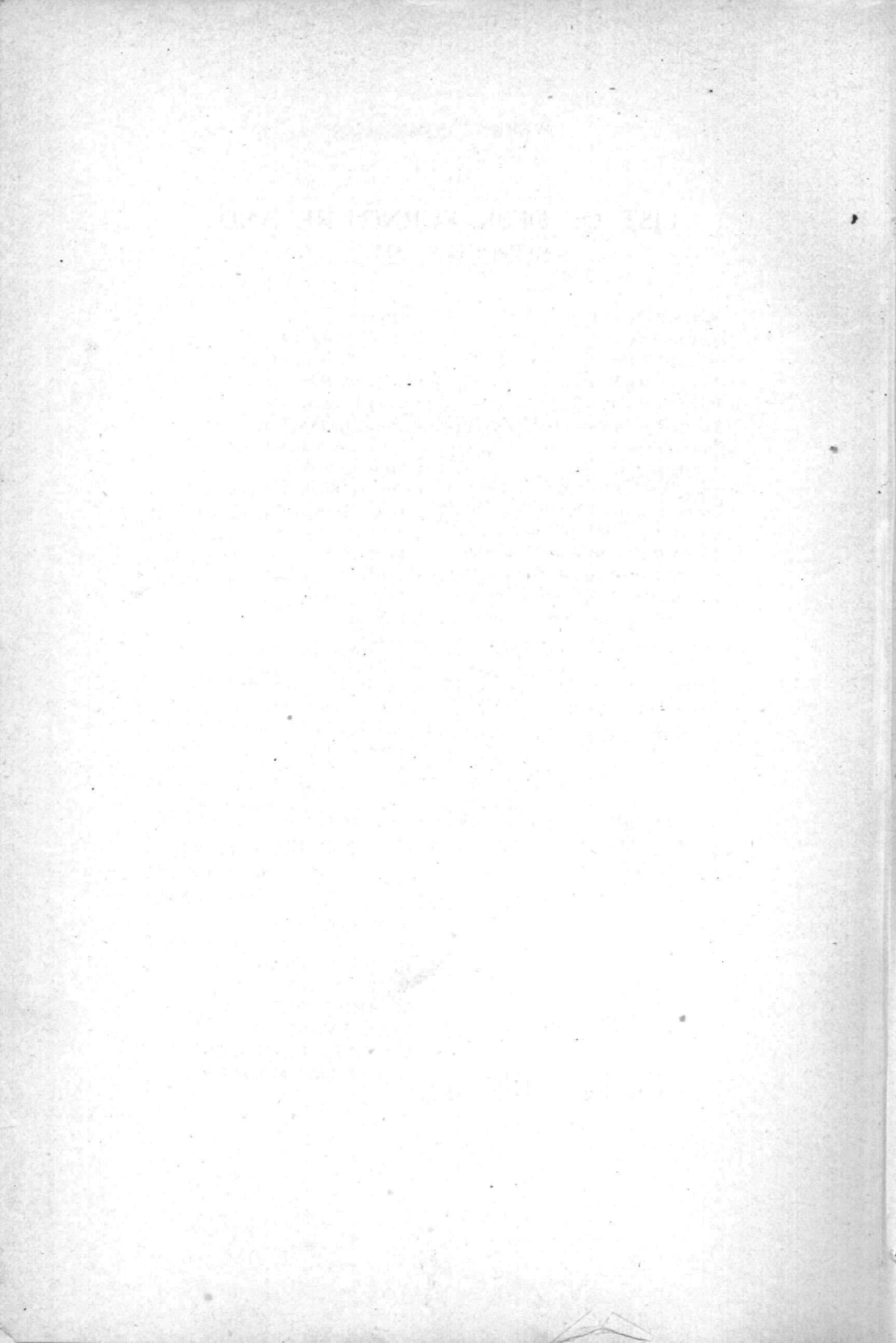
The attention of Your Honor is further invited to the Report of Mr. Calvin W. Hendrick, Chief Engineer, which is hereto appended, marked "C".

Very respectfully,

PETER LEARY JR.,
Chairman.

E. CLAY TIMANUS,
W. D. PLATT,
MORRIS WHITRIDGE,
IRA REMSEN,
CHARLES ENGLAND,
J. EDWARD MOHLER,

HARRY W. RODGERS, *Secretary.*



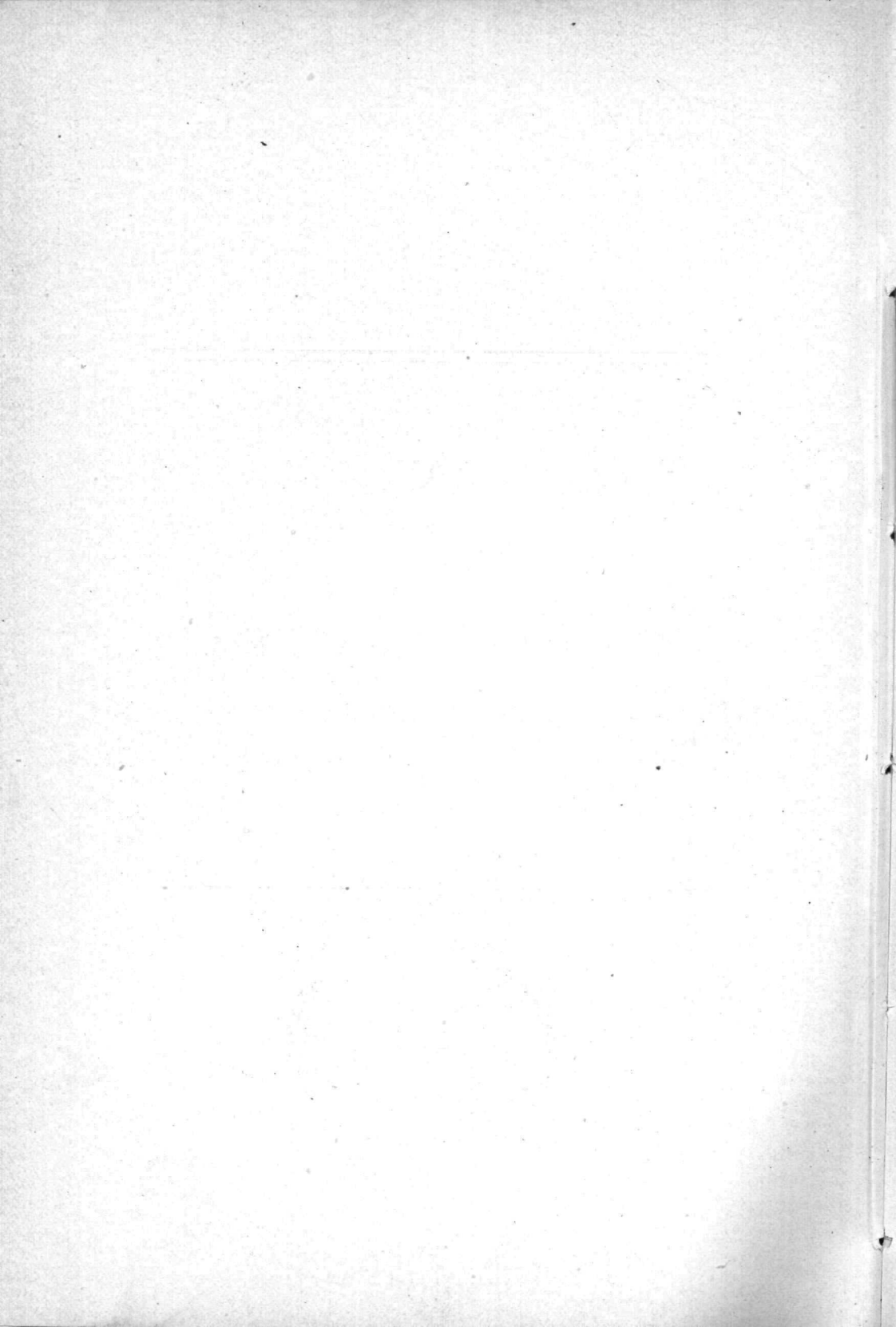
(A)

OPINION OF

W. CABELL BRUCE, Esq.,

CITY SOLICITOR

DATED OCTOBER 30th, 1905



(A)
Department of Law,
COURT HOUSE.

BALTIMORE, October 30, 1905.

GENERAL PETER LEARY, JR.,
Chairman of the Sewerage Commission.

DEAR SIR:

I am in receipt of your letter of the 26th inst., relating to the construction of certain storm-water sewers which the Commission proposes to have constructed by Mr. Fendall at its expense.

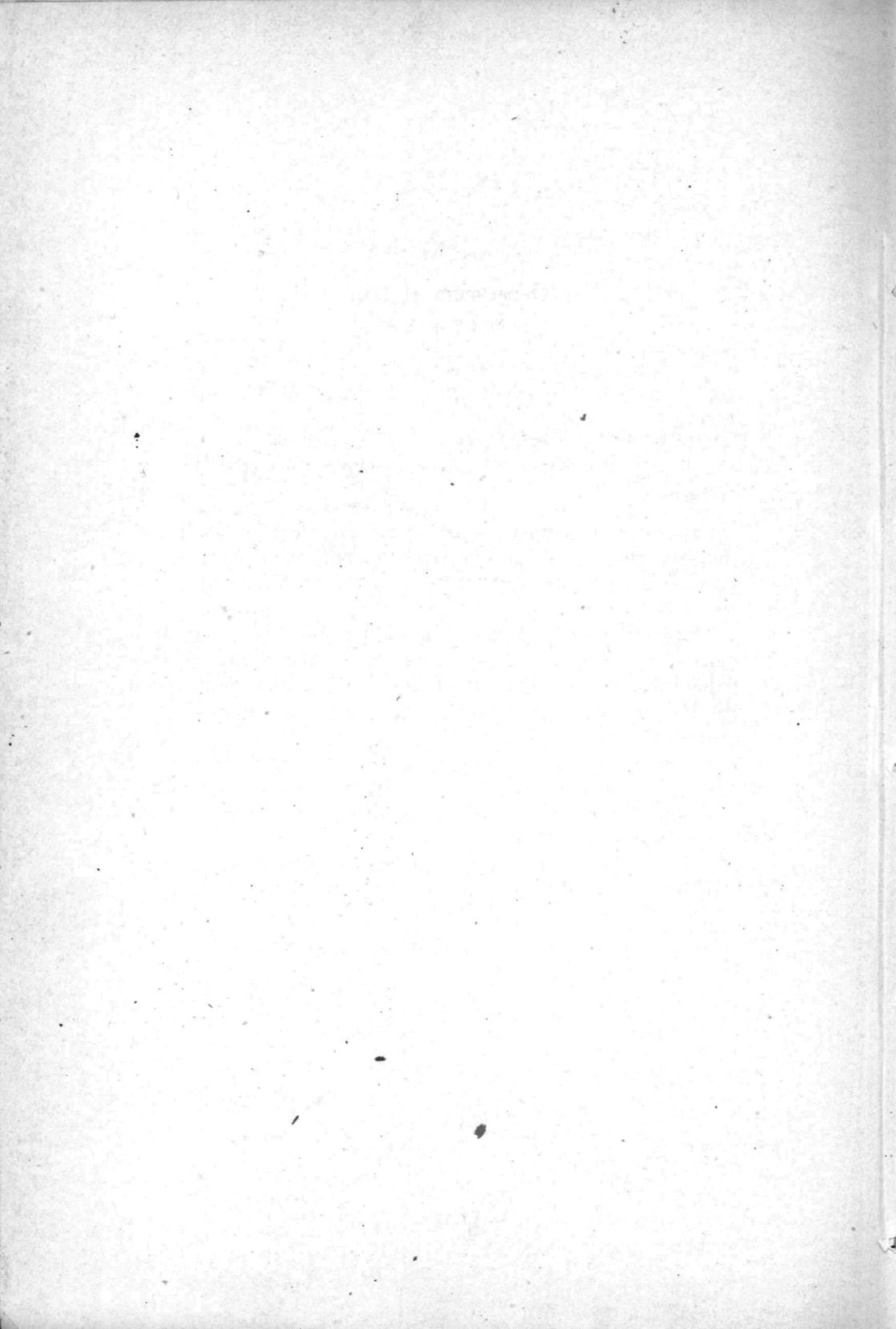
The proviso in the Sewerage Enabling Act forbidding the discharge of sewage into the Chesapeake Bay or any of its tributaries, does not apply to storm-water or ground-drainage. By the express terms of the Act, they are excepted from the operation of the proviso.

As there is no intention of permitting the sewers now proposed to be constructed to be tapped for purposes of house-drainage, I can see no objection to their construction at the present time, even though some of them should be connected with existing lines of sewers that are being used in part for purposes of house-drainage.

Truly yours,

(Signed) W. CABELL BRUCE,

City Solicitor



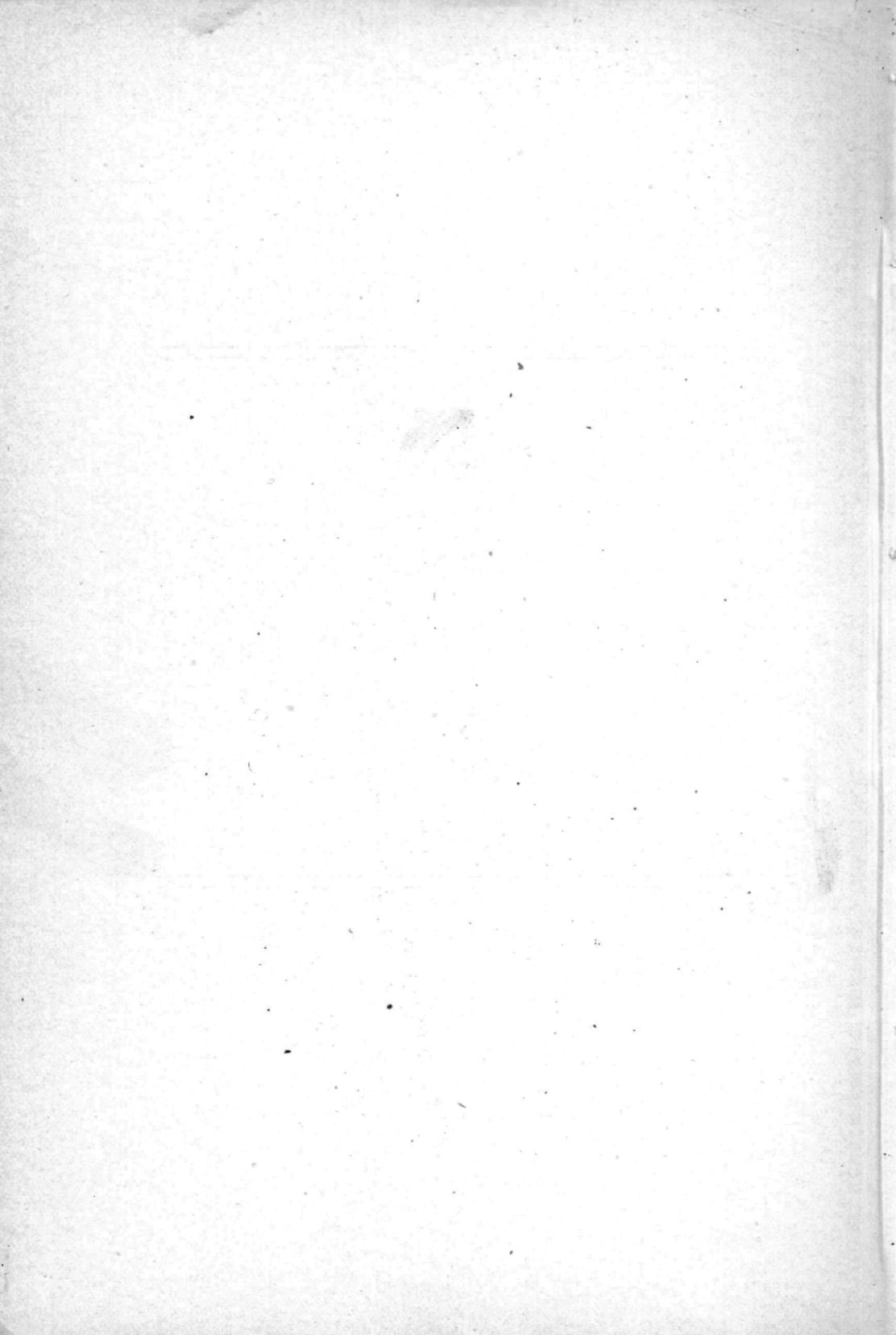
(B)

OPINION OF

W. CABELL BRUCE, Esq.,

CITY SOLICITOR

DATED DECEMBER 20th, 1905



(B)

Department of Law.

COURT HOUSE.

BALTIMORE, December 20th, 1905.

GENERAL PETER LEARY, JR.,

Chairman of the Sewerage Commission.

DEAR SIR :

In reply to your two communications of the 19th instant, touching the powers of the Commission in the matter of storm-water sewers. The several questions propounded to me by them are so closely related that I embrace my answers to them in one letter.

1. In my judgment, the Commission has no power to use any part of the amount appropriated to it in the Ordinance of Estimates for the year 1906 for its general work in the construction of storm-water sewers by the City Engineer, acting as its agent, which will form no part, when constructed (either as a combined or separate feature), of the Sewerage System which the Commission is authorized by Section 2 of the Sewerage Enabling Act to establish; though, as I have already informed the Commission, I entertain no doubt as to the power of the Commission to employ the City Engineer as its agent to now construct storm-water sewers which will become part of that system, and to pay the cost of construction out of the amount of the appropriation in question. The power of the Commission to construct storm-water sewers is a power to construct sewers of that description which when completed will be integral portions of its

Sewerage System. For it to apply any part of the funds at its disposal to the construction of storm-water sewers, which will not become such when completed, would be to divert public money applicable to its special work only to the ordinary sewer construction work of an entirely distinct municipal agent—that is to say, the City Engineer, which would be wholly unlawful. Money appropriated for the use of one municipal agency cannot be used by it to carry on the work of another. Such an obvious proposition hardly needs to be stated.

2. In my judgment, the Commission has no power to use any part of the amount appropriated to it as above mentioned in the construction of storm-water sewers by the City Engineer, acting as its agent, which it does not absolutely intend to become parts of its Sewerage System. For it to do so would simply be to speculate in contingencies, that might result in rendering its action in a given case lawful or unlawful accordingly as its uncertainty of mind ultimately took the one direction or the other. The importance of public money being applied only to the objects for which it has been specifically appropriated by lawful authority is too vital to be subject to such doubt. What the Sewerage Enabling Act contemplates is a definite coherent entire system for the collection, transportation and disposal of house and surface drainage, and any work done by Mr. Fendall that would not be a constituent part of this System, and was not intended from the beginning by the Commission to be so, would, in my opinion, be totally foreign to the cardinal purpose of the Act.

With great respect, I remain, truly yours,

(Signed) W. CABELL BRUCE,

City Solicitor.

(C)

REPORT OF

CALVIN W. HENDRICK, C. E.

CHIEF ENGINEER

(C)

REPORT OF

CALVIN W. HENDRICK, C.E.

CHIEF ENGINEER

(C)

Sewerage Commission of the City of Baltimore.
CHIEF ENGINEER'S OFFICE.

BALTIMORE, December 31st, 1905.

BRIG-GENL. PETER LEARY JR., *Chairman,*
Sewerage Commission of the City of Baltimore,
American Building, Baltimore, Md.

SIR :

I have the honor to submit herewith a report of the work done by the Engineering Department of your Board from the time I assumed office on November 20th, to December 31st, 1905.

Although my time has necessarily been taken up to a great extent in interviewing various representative people and applicants for office, it is with pleasure I am able to state that progress has been made in preparing and outlining the work.

Being anxious to receive the report of the Consulting Engineers as soon as possible, I have endeavored to furnish the information they desire with the least possible delay.

On November 22nd, I met the Board of Consulting Engineers on their visit to Baltimore, and we at once entered into a thorough discussion of the subject of the filter beds. After the meeting of the Commission on that day, I took the Consulting Engineers on a trip through Anne Arundel County over the area under consideration for the contemplated filter beds, covering some 56 miles. During this trip, and later in the evening on our return to the city, we engaged in a full

discussion regarding the various qualities of sand and the receptive powers of the different kinds of material to be found in the territory in question. The Engineers, upon leaving that evening, expressed themselves as being satisfied with the results of the investigations and conferences.

The following day I took up with Major Shirley of the Topographical Survey, the question of hastening as much as possible, the work on the surveys then being made for the Consulting Engineers, and succeeded in getting him to promise special attention to this particular feature, with the view of completing it at an earlier date than he had promised the Consulting Engineers. I have since forwarded to these gentlemen surveys of Patapsco Neck in the vicinity of Bear Creek, and Marley Neck near Swan Creek.

I have taken up with the Police Department the question of the population and growth of the city, obtaining from them the latest available data bearing on this subject, and have had prepared a map of the city showing the ward and precinct lines, indicating the population and gradual growth of each of the wards and precincts.

The question of the water consumption of the city has also been taken up very thoroughly and valuable data obtained.

On November 28th, I made a trip to Anne Arundel County in company with Major Shirley and a force of men, and secured a number of samples of various kinds of material likely to be encountered should that territory be selected for filtration purposes. These samples were taken from the surface, and at depths of two, four and six feet below. Portions of each of these samples were forwarded by me to the Consulting Engineers in order that they might individually make tests of the materials, with the view of determining the receptive powers of each kind.

At the meeting of the Commission on November 29th, I submitted for the approval of the Board, suggestions regarding the organization of the staff, and the salaries to be attached to each position. This communication was referred to a

Special Committee, whose report, approving the recommendations, was submitted to the Commission at its next meeting, and adopted.

As it was quite probable that the engineers who should be selected to fill the various positions in the staff would be actively engaged in the duties of their profession elsewhere, and doubtless unable to immediately assume their new duties here, it was deemed advisable to proceed at once with the task of organizing the staff. I therefore arranged for personal interviews with a number of the applicants, and after a thorough investigation of the personal as well as the technical merits of the various gentlemen, decided to recommend to the Commission at its next meeting, on December 12th, the following named engineers for the positions indicated, viz :

Mr. Albert M. Brosius, First Assistant Engineer.

Mr. Ezra B. Whitman, Division Engineer, Disposal Plant.

Mr. Kenneth Allen, Division Engineer, Low Level.

Mr. O. W. Connet, Division Engineer, High Level.

Mr. Herbert M. Knight, Assistant Engineer of Office.

Mr. Frank T. Daniels, Engineer in Charge of Drafting.

The recommendations were acted upon favorably by the Commission, and I immediately arranged with these gentlemen to report for duty on January 2nd, 1906.

Owing to the rapid accumulation of data, the Commission, at my request authorized the appointment of Mr. Robert B. Morse, Draftsman, on December 5th, and Mr. Morse has been at work since that date.

On December 6th, the Consulting Engineers visited my office and on that day and the succeeding one we discussed at length the various details connected with our disposal work. We were in constant consultation from nine o'clock in the morning until late in the evening of each day, and accomplished a great deal.

The Consulting Engineers having expressed the desire that the work of making borings in Anne Arundel County be taken up at once, I made arrangements with Major Shirley,

on the authority of your letter to me of December 5th, to immediately place a force of men at work in the territory in question, and following out my instructions they made a great many borings, securing numerous samples of the soil throughout the territory under consideration for the filter beds. I have sent to each of the Consulting Engineers, identical samples of these borings, properly marked, in order that they may test the various kinds of sand encountered.

The investigations along this line have been completed, covering the territory of Glenburnie, Elvaton, Marley Neck, Tick Neck and Hog Neck down to Bodkin Point, and I have had maps prepared on which is indicated in a very comprehensive manner, the exact location of each boring made, and the number of the sample taken therefrom. The numbers shown on these maps correspond to those assigned to the various samples. The maps have also been sectionized, showing what portion of the territory is unavailable on account of the close proximity of clay to the surface, and also on account of the unevenness of the ground.

It is pertinent to here remark that notwithstanding the many difficulties encountered, owing to the isolated nature of many portions of the territory, and the impossibility of obtaining transportation, the work has been done in a most complete and satisfactory manner.

In addition to the samples of soil which have been forwarded to the Consulting Engineers, I have at different times sent them, and at personal conferences have given them much data pertaining to the various features of our work, and have also furnished them with complete tracings of topographical maps of portions of Anne Arundel County and Patapsco Neck.

At the meeting of the Commission of December 12th, the suggestion regarding the location of the offices of the several Division Engineers at points contiguous to the scene of their respective areas of work, was discussed and referred to the Committee on Quarters, who will confer with me regarding

this subject at the proper time. I hope to decide definitely on the locations for these offices, and to have parties from each Division in the field by the 15th of January next.

As the Commission has leased an additional room adjoining its suite in the American Building, we will, no doubt, have for the present sufficient room to accommodate the members of the staff and the drafting department, exclusive of the Division Engineers whose offices will be located at points distant from the main offices.

The various articles of furniture for the use of the staff, which were purchased in accordance with the suggestion contained in my letter to you of December 16th, have been received, and will find immediate use as soon as the engineers report for duty.

At the meeting of the Commission on December 18th, I was authorized to proceed with the work of organizing a Department of Storm-water Sewers. Mr. George T. Hammond, of Brooklyn, N. Y., who was an applicant for a position in the engineering staff, came to Baltimore at my request on the following Thursday, December 21st. As a result of my investigation as to his ability in that particular line, I recommended him to the Commission for appointment as Division Engineer in charge of Storm-water Sewers, and at the meeting of the Commission on December 28th, his appointment was confirmed with instructions to report for duty on January 8th, 1906. The question of the storm-water sewers is a very large and serious problem, and I feel we have secured the right man for the place, as Mr. Hammond is an experienced man in this particular line of work.

Acting upon the suggestions exchanged at our conference in regard to the purchase of engineering instruments and supplies for the preliminary work of the staff, I prepared specifications covering what was required, and an advertisement asking for proposals for furnishing these instruments and supplies was inserted in the newspapers of the city. Bids were received and opened at the meeting of the Commission on December 28th.

In conclusion I would state that I have had several conferences with various engineers in charge of corporations and departments regarding sub-surface structures, and am pleased to state that they are all very cordial in their willingness to aid in every possible way, giving us the benefit of their records, data, etc. I will take this matter up very thoroughly later on, and also the question of ground-water, which I am now investigating, and which will be gone into thoroughly.

Respectfully submitted,

CALVIN W. HENDRICK.

Chief Engineer.