

PUBLIC IMPROVEMENTS IN WASHINGTON.

FEBRUARY 15, 1832.

Mr. WASHINGTON, from the Committee for the District of Columbia, to which the subject had been referred, made the following

REPORT:

The Committee for the District of Columbia, to whom was referred the resolution of this House, of the 15th December last, instructing said committee "to inquire into the expediency of providing, by act of Congress, for the repair or improvement, by paving or McAdamising, of the Pennsylvania avenue in the city of Washington, for the further improvement of the pavements about the public squares, and for the introduction, through pipes, of a sufficient supply of water for the public buildings and the protection of the archives of the nation from fire," beg leave to report:

That a resolution of this House, embracing so much of the above recited resolution as relates to the improvement of the Pennsylvania avenue, was referred to the Committee for the District of Columbia, of the 1st session of the 21st Congress; and, after a full and laborious investigation by that committee, a report was made to the House, embodying much useful information, and many details, in relation to the amount and value of the property owned by the United States in this city, the amount of the sales, cost of the public buildings, value of property unsold, and also estimates of the cost of graduating and paving or McAdamising the Pennsylvania avenue. Your committee, concurring in the views presented in that report, beg leave to refer to it, and incorporate it in this report.

FEBRUARY 10, 1830.

The Committee for the District of Columbia, to whom was referred the resolution of this House of the sixth of January last, instructing said committee "to inquire into the expediency of making provision by act of Congress, or otherwise, for the repair and improvement of the street in Washington City, called the Pennsylvania avenue, from the President's House to the Capitol, on the McAdam plan or other permanent manner," beg leave to report:

That your committee, upon due consideration of the subject referred to them, have come to the conclusion, that it is just and expedient for Congress to provide by law for the repair and improvement of said street in a perma-

nent manner. This is deemed necessary, not merely for the convenience of the citizens of the District of Columbia, but for members of Congress, the various and numerous officers of the General Government residing in this District, and the citizens of the States, who may have business to transact with Congress and those officers.

It will be observed that the Capitol, in which both Houses of Congress and all its committees, and the Supreme Court of the United States, hold their sessions, and which contains all their archives and records, and also the public library, is nearly a mile and three quarters from the President's house, contiguous to which are all the Executive Departments of the Government, except that of the General Post Office, which is nearly central between those points. Hence will be seen, at a glance, the great extent of intercourse which becomes indispensable between those points, by such persons as are directly or indirectly connected with the Government: and also, the importance of a convenient and safe road of communication. It is scarcely necessary to add, that, at certain seasons of the year, the present communication is neither convenient nor safe.

Your committee, after having taken as much pains as other duties would allow, to ascertain the best mode of improving said Avenue, have thought proper to recommend, that the centre thereof, between the two middle rows of trees, which are forty-five feet distant from each other, be either paved with sizeable round stone in a superior manner, or that a road of the same width be constructed of pounded stone upon the McAdam plan. Your committee are not entirely satisfied which mode would be the cheapest and best. It appears from the documents attached to this report, that the expense of paving, including curb stones and brick gutters, in the city of Baltimore, is seventy-two cents per square yard; in the city of Richmond, about the same; and that stone for the purpose are brought by Eastern vessels in ballast, at the former place, for one dollar per ton, and at the latter, for four dollars per cord. The expense at Georgetown, in this District, is stated at sixty-eight cents per square yard, and it does not vary much from this at Philadelphia, where the stone are hauled by land, at the cost of about five dollars per cord. At Boston, paving as above, costs seventy cents per square yard, and the stone are brought from Mount Desert, in the State of Maine, at one dollar and twenty-five cents per ton. At Albany, the expense of paving, not including curb stones and gutters, is about fifty-eight cents per square yard. Although small quantities of paving stone brought by Eastern vessels in ballast, can be purchased at a lower rate than large quantities, which must constitute their principal lading, yet it is presumed that paving in the best manner will not cost much over seventy cents per square yard.

As there has not been a great deal of experience in this country, in making roads upon the McAdam plan, it is found difficult to make a very accurate estimate of the expense. A short street, constructed in Baltimore, upon this plan, is stated to have cost one dollar and eight cents the square yard. A similar road has lately been constructed between Albany and Troy, which cost only about forty-two cents per square yard. Robert Leckie, of this city, has made a small experiment, which has satisfied him that the expense of such road here, would not exceed forty-five cents the square yard; but Mr. Elgar, the Commissioner of Public Buildings considers this estimate much too low, and that it will not cost less than seventy-two cents. Documents from which the above statements are made, are here-to annexed.

The comparative expense of paving and McAdamising roads in England, is much in favor of the latter; but there, the cost of labor is less in proportion to the materials than in this country. It appears from the examination of witnesses before a committee of the House of Commons in 1823, that paving in the city of Bristol, cost 5s. 6d. a square yard; and that the expense of taking up old pavement, pounding the stone, and relaying it upon the McAdam principle, was but 5d. per square yard: this kind of labor being generally done by male and female paupers.

It was also stated that the annual expense of the McAdam roads would not be one-fifth of those which were paved, "because that, in seven years, the whole value of the pavement is nearly lost." Such however, is the durability of the materials in this country, that our pavements last a much longer period. Influenced by the above and other testimony, the same committee inclined to the belief, that at least, in all the large streets in London, it would be advisable to convert the pavement into roads as had been done both at Bristol and Exeter, and also at St. James's Square, and over Westminster Bridge. Your committee, however, have understood, that serious objections have been made to this change of *town* streets, in England, on account of the accumulation of mud in wet weather, and dust in dry, upon the McAdam roads. Some of your committee have noticed that evil in relation to a few streets in Boston, constructed upon that plan.

It may not be improper to observe, that the credit of this improvement is generally conceded to Mr. McAdam as its author, yet it was clearly proved before the Committee of the House of Commons, above mentioned, that precisely the same mode of constructing roads had long been successfully practised in Sweden. In consideration, however, of the great exertions of Mr. McAdam, in applying this improvement to English roads, and the expense he incurred, the British Parliament granted him a gratuity of several thousand pounds; nor does it appear that he knew of the Swedish method of making roads.

The principles of this improvement are very simple. By laying and packing stone, which are reduced to pieces of six or seven ounces in weight, to the depth of nine or ten inches, the irregular angular pieces form into so solid a mass as to carry off the water, and keep the earth underneath dry and firm; the surface becomes smooth, and thus a sort of permanent metallic roof is spread over the road, which protects it from the effects of water and frost.

In view of the above facts, your committee are not prepared to determine which mode of improvement for the Pennsylvania avenue should be preferred; and therefore beg leave to refer the decision of that question to the President of the United States, who may be furnished with further information by the officer charged with the execution of the work.

It would be desirable that the distance of thirty-four and an half feet, between the proposed improvement and the side walks, should be covered at least six inches deep, with clean course gravel, and that there should be suitable drains and passages for carriages, from the gravel way on the sides, to the centre of the Avenue. The gravel way thus made would form an excellent road at all times, when not affected by frosts or extreme wet weather; and then, the centre could be resorted to, as well for the convenience of travelling, as the protection of the gravel way, from being cut up when exposed to the action of rain and frost. But inasmuch as the cost of improv-

ing the centre of the street, will be very considerable, your committee do not recommend that any thing should be done at this time, with the side ways, except so far as their improvement will be necessarily connected with proposed improvement of the centre.

The distance from the Navy Office to the east front of the Capitol, (including the circular roads round it) is three thousand nine hundred and nine yards, which makes the whole area proposed to be improved, 58,635 square yards; this at 72 cents per yard, will amount to - \$42,208 20

It is estimated that the expense of preparing the ground will amount to - - - - - 5,863 50

Making in the whole - - - \$48,171 70

and your committee recommend an appropriation of that sum.

In reply to the suggestion which may perhaps be made, that the city of Washington ought to execute this work for its own accommodation, your committee beg leave to make a few remarks, in addition to the facts above stated in relation to the importance of the work to the General Government. This city is already suffering under a pressure of local taxation, more severe, perhaps, than any other portion of this country, and is therefore unable to incur so great an expense.

At any rate, under their circumstances, their necessity for the proposed improvement does not justify the expenditure.

Some of the causes of this oppressive state of things will be found in the fact, that Government has extensive domains in the city exempt from taxation; and in the embarrassment arising from the peculiar and unfortunate condition in which this entire District is placed. In connexion with this, it should not be forgotten how much the public lands here have been augmented in value, by those extensive city improvements which have contributed largely to the existing burthens of the people. The extended scale upon which the Government originally laid out the city, and the number and width of its streets, have also greatly increased its expenses.

Believing that there has been some miapprehension in the public mind, in regard to the amount of Government expenditures for the benefit of this District, compared with the amount of moneys received for the sales of land therein, beyond their cost, and the value of lands still unsold, your committee have thought proper to procure a statement of facts relating to this subject, which is hereto annexed.

From this statement it appears that there has already been received, from the sale of public lands in this District, beyond the cost of all the lands purchased by the Government, the sum of \$696,618 68. That the estimated cash value of lands still unsold amounts to \$1,091,174 09, making in the whole \$1,797,792 77.

All the appropriations of money by Congress for the benefit of this District, independent of public buildings for the General Government, amount to \$186,860 48; of this sum has been appropriated for a Penitentiary, a Court House, and jails, \$144,295 79. There are many other considerations which might be presented, to show that the General Government ought to exercise a liberal spirit towards this district; but they will be reserved for a more important occasion, when its general concerns shall be exhibited, in pursuance of another resolution of this House.



No. 1.

HOUSE OF REPRESENTATIVES.

COMMITTEE FOR DIST. OF COLUMBIA,

January 9, 1880.

SIR: On the 6th instant, the House of Representatives passed the following resolution:

Resolved, That the Committee for the District of Columbia be instructed to inquire into the expediency of making provision, by act of Congress, or otherwise, for the repair and improvement of the street in Washington city, called the Pennsylvania avenue, from the President's house to the Capitol, on the McAdam plan, or other permanent manner."

It will readily be seen, that, to enable the committee to discharge their duties under this resolution, they must obtain accurate information on the subject of roads constructed upon the McAdam plan; and also, in relation to roads constructed upon other plans of a permanent character.

As you have been recently engaged in building a road from your city to Troy, upon the McAdam principle, and must also be acquainted with the manner and expense of improving streets, by paving with stone in the ordinary way, I have been instructed by the committee respectfully to solicit from you, the desired information on these subjects; and, without entertaining a doubt of your willingness to comply with the request, the committee wish to ascertain the following facts:

How the ground should be graduated upon the McAdam plan? that is, what ought to be its degree of acclivity from the side to the centre?

What is the best bed or foundation for the stone?

What is the best mode of curbing the sides of the road, and draining it?

What should be the depth of pounded stone; and how much should the depth vary from the centre to the side?

To what size must the first layers of stone be reduced?

How fine ought the last layer of stone to be pounded, and to what depth should it be laid?

What does your stone cost in the natural state, delivered on the ground, and what is the description of them?

What does it cost per cord to pound them fine, and what per cord to reduce the first layers to a proper size?

How much does it cost per square rod to spread and pack them?

What does the curbing or securing the sides cost per rod?

What has it cost to prepare and graduate the ground for your road per square rod?

What have been all other expenses per square rod of your road, and what its width?

What is cobble stone, suitable for paving, worth in Albany, per cord, and what is the expense of laying them, including sand, &c.?

From our ignorance of these subjects, we may have left important questions unasked, and asked those which are unimportant; but from the above resolution, and these inquiries, you will perceive the nature and extent of the information we need and desire, and we trust you will furnish it as fully as if it were specifically pointed to by interrogatories.

Your generous and prompt attention to this subject, will not only confer a favor upon the committee, but may result in great benefit to this District and the country.

I am, sir, respectfully,
Your obedient servant,
G. POWERS.

HON. JOHN TOWNSEND.

No. 2.

ALBANY, 16th January, 1830.

SIR: Your favor of the 10th instant was received in due course. Agreeable to your request, I have obtained from the Superintendent of the Water-vliet road, (better known as the Albany and Troy road,) answers to your inquiries respecting roads, which is herewith enclosed.

This road has cost about fifteen thousand dollars per mile. It is considered an elegant piece of road—we think the best in the United States. I observe Mr. Stewart does not make any mention of rolling. We have an iron roller, weight about six tons, which was drawn over the surface of the road, on the first layer of stone, and after which, the top course is laid on, and then the roller is kept constantly passing over until the mass of stone becomes firmly packed, making a perfect smooth surface. We consider the rolling of great importance.

Respectfully yours,
JOHN TOWNSEND.

HON. G. POWERS.

No. 3.

January 16th, 1830.

HONORED SIR: In replying to the interrogations contained in your friend's letter of the 9th inst. I would, in the first place, submit for his consideration, that, both on the McAdam and Telford system, it will be necessary to have the bed of the road excavated at least one foot below the surface of the side walks, and to be an inclined plane, varying according to the circumstances, from ten minutes to one degree acclivity or depression on the length of the road.

Query 1st. The bed of the road should never exceed forty-five minutes from side to centre.

“ 2d. Gavelly soil is considered a good foundation for the stone.

“ 3d. The curb-stone should at least be 3 feet long, and from 14 to 15 inches in width, and 4 inches in thickness, set on an angle of 60 to 65 degrees; there should be pipe or scupper drains at least every 25 rods, to take off the surface water.

“ 4th. The pounded or broken stone should be 14 inches in the centre, 12 inches in the rib, and 8 inches in the gutter, forming a flat ellipsis.

- Query 5th. The stone for the first layer should be broken so as to pass through a ring of 3½ inches in their greatest diameter, and not to exceed one pound in weight.
- “ 6th. The stone for the last or top layer should be broken so as to pass through a ring of 2 inches in their greatest diameter, and not to exceed 8 ounces.
- “ 7th. The field stone for bottoming, cost here, delivered on the road, 62 cents per cubic yard, and is principally composed of silicious graywacke.
- “ 8th. The price for breaking the bottom stone is 50 cents per cubic yard, or \$2 37 per cord; and for breaking the top layer one dollar per cubic yard, or \$4 75 per cord.
- “ 9th. The stone can be spread for 12½ cents per square rod; the packing is done by means of a very heavy roller, in the shape of a four wheel carriage.
- “ 10th. The price of curb stone and setting is about 14 cents per foot.
- “ 11th. The average price for forming the bed of the road, including the side walks and ditches, will not vary much from \$3,000 per mile, or \$2 50 per square rod.
- “ 12th. The expense of the road between Albany and Troy will not vary much from \$15,000 per mile, or \$12 50 per square rod. The said road is 4 rods wide, including the ditches on each side, which are 6 feet wide at top, 2 feet at bottom, and 2 feet deep; the side walks are 10½ feet wide, and the travelling part between the curb stone is 33 feet.
- “ 13th. Cobble stone for paving is worth here \$1 25 per yard, about \$5 90 per cord; one cubic yard will pave 6 yards superficial: finding stone, sand, and labor, will cost about 37 cents per yard superficial measure.

I have now answered all the queries in a brief manner, as far as the matter came within my knowledge or observation; and remain,

Honored sir,

Your obedient and humble servant,

P. STEWART.

HON. JOHN TOWNSEND, *Mayor of Albany.*

No. 4.

(Circular.)

HOUSE OF REPRESENTATIVES,

COMMITTEE FOR THE DISTRICT OF COLUMBIA,

January 9th, 1830.

SIR: The House of Representatives having directed the said committee to inquire into the expediency of improving the Pennsylvania avenue, in this city, between the President's house and the Capitol, upon the McAdam or some other permanent plan, I am instructed by the committee to solicit of you the favor of ascertaining, from the proper officer in your city, the expense, per square rod, of paving your streets in the most substantial

manner, and to communicate to us the information. Please to have it stated where suitable stone are obtained with the greatest facility and least expense, and what they cost per cord, delivered at your wharves.

If facts, derived from actual experiments, in constructing roads upon the McAdam plan, are within your reach, the committee would be greatly obliged if you would communicate them.

I have the honor to be,

Very respectfully,

Your obedient servant,

G. POWERS,
Chairman.

No. 5.

Boston, 18th January, 1830.

SIR: In reply to your request, expressed in your letter of 9th instant, I herewith send you a memorandum from the Superintendent of the streets of this city, which I hope may embrace the desired information.

The best supply of paving stones is obtainable from Mount Desert, District of Maine, and I am advised that, in so great an undertaking as that proposed in your letter, it would probably be advantageous to send a person thither to select the proper stones, and contract for their delivery. Such an individual, well qualified for the business, may be had here, and I shall cheerfully contribute any aid in my power to the furtherance of your object.

I have the honor to be,

With great respect,

Your obedient servant,

H. G. OTIS,
Mayor of Boston.

Hon. Mr. POWERS.

No. 6.

The best paving stones are brought from Mount Desert, in the State of Maine, and cost one dollar and twenty-five cents per ton, of 2000 pounds, delivered on the wharves in this city.

The beach gravel used in paving costs thirty cents per ton of 2000 pounds, delivered in this city.

It is estimated that one ton of paving stones will lay about four square yards.

The materials and labor of paving the streets of this city in the best manner, (after the streets are properly levelled) is estimated to cost seventy cents per square yard.

With regard to McAdamising, the best stone for that purpose is the granite from the quarries in Quincy, Massachusetts, and is delivered on the wharf at the House of Correction in this city, at sixty cents per ton of 2000 pounds; it is there broken by the inmates, and the expense of this prepara-

tion we can not exactly ascertain, but it is estimated that a man will break one ton per day.

One ton of McAdam stone will cover about four square yards, of ten inches in thickness, which is the usual depth of covering our roads.

The McAdam stone is *prepared and sold* at our State Prison in Charlestown, at one dollar per ton.

The materials and labor of McAdamising is estimated at forty cents per square yard.

No. 7.

MAYOR'S OFFICE, PHILADELPHIA,

February 1, 1830.

DEAR SIR: A press of business, in the first place, succeeded by a tedious indisposition, have prevented me from sooner replying to your favor of the 9th ultimo, on the subject of paving, &c. Immediately after the receipt of your letter, I placed it in the hands of one of our oldest and most judicious Street commissioners; he has handed me the enclosed paper, as the result of his experience. I regret that it is not in my power to add any thing to the information you wish to obtain. We have many turnpike roads, but none that are McAdamised. I am told, by persons who have had some little experience of the latter, that they are much better adapted to broad than narrow wheels, as the latter will cut them into holes—the same may be said, indeed, of all roads. If it were not for the dust, a good solid gravel road is much pleasanter to ride over than stone pavements or turnpikes; and I believe the former, with an attentive supervisor, may be kept in better order and at a cheaper rate than any stone road. Without constant vigilance and attention, the best roads soon become bad; and the old trite proverb, that “a stitch in time saves nine,” is as applicable to a road as to a garment. Our best pavements in the streets that are much used soon require repairs.

I have the honor to be,

Very respectfully,

Your obedient servant,

WILLIAM MILNOR.

Honorable G. POWERS, *Chairman, &c. &c.*

No. 8.

Statement of the Commissioner.

The best paving stone is taken from the river Delaware, above the Falls at Trenton; the average price for a three horse team load is \$2 50 delivered on the wharf; a team load will weigh from 1 ton and 15 cwt. to 2 tons, and will pave about 7 square yards of the common size; if they are large, not more than six. The grading of the street depends on the nature of the ground. The average depth of the gavel, from 16 to 18 inches; a team load of gravel will pave about three yards; the price will depend on the distance to haul it; setting the stone and ramming, may be estimated at from 10 to 12

cents per square yard. To have it well done, it ought to be rammed not less than four times; in dry weather, when ramming, the pavement ought to be well sprinkled with water. The weight of the rammers are from 56 to 60 lbs.; 34 cubic feet is the common size of the cart body.

No. 9.

BALTIMORE, *January 13, 1830.*

SIR: I have the honor to acknowledge the receipt of your favor of the 9th instant; and, in answer, beg leave to enclose you a report from the city commissioners, under whose direction all this kind of work is performed, being all the information I can afford you on this subject.

I am, sir, very respectfully,

Your obedient servant,

JACOB SMALL,

Mayor of the city of Baltimore.

G. POWERS, Esquire,

In Congress of the United States.

No. 10.

CITY COMMISSIONERS' OFFICE,

BALTIMORE, *13th January, 1830.*

SIR: In answer to the inquiries contained in the communication of the Chairman of the Committee of Congress "for the District of Columbia," and referred to us, we have to state, that the expense of paving our streets generally averages eight cents per square foot, including a row of curb stones with brick gutters, on each side of the street.

River pebble stone is preferred, and obtained from masters of vessels, (they having used it for ballast) at one dollar per ton, which will pave twenty-five square feet.

There has been one small street McAdamised in this city, which cost twelve cents per square foot, exclusive of curb stones and gutters, as above mentioned.

Very respectfully, &c.

JOHN N. MURPHY,
JAMES CURLEY.

To JACOB SMALL, Esq. *Mayor.*

No. 11.

RICHMOND, *January 18th, 1830.*

SIR: The result of my examination and inquiries, made in aid of the object of your communication of the 9th instant, has not proved satisfactory to myself, and I fear will be of no advantage to the committee. The site of Richmond being very uneven, the streets, preparatory to paving, required

levelling by excavation and filling up; and the contracts were made at so much per square yard for graduating, paving stone, and paving; the price varying with the irregularity of the surface from sixty to sixty-five cents per square yard. Curb stone at thirty cents, set at six cents per foot running measure.

Mr. A. French, a person engaged in the business, informs me, that good paving stone can be delivered in Richmond at four dollars per cord; but, that a large quantity cannot be furnished at that price.

I am not in possession of any facts, derived from actual experiments, in constructing roads on the plan of MacAdam.

Very respectfully,
Your obedient servant,
JOSEPH TATE, *Mayor*.

To G. POWERS,
*Chairman of the Committee
for the District of Columbia.*

No. 12.

MAYOR'S OFFICE, GEORGETOWN,

16th January, 1830.

SIR: On the receipt of your letter on the 13th instant, I addressed a note to the respectable President of the Rockville Turnpike Company, N. Lufborough, esq. who I knew had some experience in road making, and have the pleasure of now enclosing to you his answer. I also enclose a note from John Mountz, esq. Clerk of this Corporation.

With great respect, I am sir,
Your obedient servant,
JOHN COX, *Mayor*.

To the Hon. G. POWERS.

No. 13.

CLERK'S OFFICE,

GEORGETOWN, January 16, 1830.

SIR: In answer to your inquiry of this date, on the subject of the cost of paving, I think the cost per front foot, on a street forty feet in width, may probably be \$3. This includes sharp sand, round stone, workmanship, and hauling, also, curb stone, and putting them down.

Respectfully, your ob't servant,
JOHN MOUNTZ, *Cik*.

To Col. JOHN COX, *Mayor*.

No. 14.

GRASSLAND, *January 14, 1830.*

DEAR SIR: I have reflected on the subject of your note of the instant, and in answer, now state, that, in my opinion, the Pennsylvania avenue might be paved with broken stone, on the McAdam plan, at about seven dollars the square rod, provided the stones are put in not exceeding six inches in depth or thickness. This would be quite thick enough to lay on the broken stone; indeed, less, in my judgment, would suffice. If it be contemplated to pave in this way, the whole breadth of the centre road in the Avenue, the stone at the extreme sides need not be put on more than three or four inches thick.

The county road from Tenellytown to the District line, west, was, some years ago, paved with broken stone—ten inches thick in the middle and six inches at the sides—twenty feet in width. This was done for six dollars a rod running measure.* But the stone was more convenient to that work than it can be obtained for the Avenue; and was not, moreover, broken as fine as it should have been. On the McAdam plan, no stone must exceed in weight six ounces.

A small piece of road between my house and Georgetown, has been improved on the McAdam plan. I cannot state the cost, the hands being employed by the day, and no separate account kept of that work. The stone was laid on a solid foundation, about equal to what the Pennsylvania Avenue now is, *not more than three inches thick*. This work has been done five or six years—now exhibits a smooth and even surface—the heaviest loaded wagons not having made the smallest impression on it. The stone is hard flint.

I remain, sir,

Very respectfully,

Your ob't servant,

NATHAN LUFBOROUGH.

To JOHN COX, *Mayor, &c.*

No. 15.

CAPITOL, U. S. *Feb. 6, 1830.*

SIR: In reply to your inquiries, I have the honor to state, that the public grounds in the city of Washington consist of two descriptions: Firstly, building lots, assigned to the United States, upon a division with the original proprietors, agreeably to the terms and conditions of the deeds of trust, by which the proprietors of the soil, within the limits of the city, ceded to the United States one moiety of the building lots, without any pecuniary equivalent. Secondly, "Reservations" of entire squares, or larger sections of grounds, reserved for the use of the United States, but for which the proprietors received payment at the rate of 66 $\frac{2}{3}$ dollars per acre. The number of building lots assigned to the United States, was 10,136, of which number 6,852 have been sold for the sum of \$732,717 68, leaving 3,284 for sale; which, if estimated at the same rate, would amount to \$351,174 9, making together, a sum total of \$1,083,891 77 for building lots. The reservations contained the quantity of 541 acres 1 rod 29 perches. In a report

* Four dollars a rod for hauling and two for breaking.

made to Congress, by the Secretary of the Treasury, in 1816, this property is estimated at \$740,000, and if the cost of the ground, say, \$36,099, be deducted, it leaves for the nett value of the reservations

Building lots, as above	-	-	-	\$ 703,900 00
Donation from the State of Virginia,	-	-	-	1,083,891 77
Do do Maryland,	-	-	-	120,000 00
				72,000 00

\$ 1,979,702 77

Amounting in grounds and donations, to the sum of one million nine hundred and seventy-nine thousand seven hundred and two dollars and seventy-seven cents, accruing to the United States from the mere circumstance of locating the seat of Government at this place.

The expenditures on the public buildings in this city, have been as follows:

On the wings of the Capitol, previous to their destruction in 1814	-	-	-	\$ 788,071 98
On the President's house, previous to 1814	-	-	-	333,207 00
On the public offices, do do	-	-	-	93,014 00
Rebuilding the wings of the Capitol	-	-	-	687,126 00
Do President's house, including two porticos erected since	-	-	-	301,496 25
Rebuilding public offices,	-	-	-	68,317 00
Erecting centre building of the Capitol	-	-	-	957,647 36

\$ 3,228,879 59

The appropriations made by Congress, for objects within the District of Columbia, exclusive of buildings for the accommodation of Government, have been as follows, as far as I have been able to ascertain them, viz:

1800. Making a footway from Georgetown to the Capitol		\$ 10,000 00
1803. Improving Pennsylvania avenue	-	13,466 69
1807. Repairing and opening streets and avenues	-	3,000 00
1823. Streets and foot pavements	-	5,000 00
1824. Footways between Capitol and Executive offices	-	5,000 00
1825. Road around Capitol square	-	3,018 00
1825. Road adjoining President's square	-	1,080 00
1824. Enclosing public burial ground, (Eastern Branch)		2,000 00
1823. Court-house for Circuit Court	-	10,000 00
1824. Fitting up the same	-	1,116 00
1802. Building a jail in Washington		\$ 5,800 00
1803. Do do do	-	5,902 66
1826. Repairing do do	-	5,000 00
1826. Penitentiary in the District of Columbia		40,000 00
1827. Do do do do		15,390 00
1828. Do do do do		22,387 97
1829. Do do do do		27,000 00
		121,480 63
1826. Jail in Alexandria	-	10,000 00
1828. Do do	-	1,699 16
		11,699 16

\$ 186,860 48

Court-house, jails and penitentiary,	-	-	-	144,295	79
Other objects,	-	-	-	42,564	69
				<hr/>	
				§186,860	
				<hr/>	
				48	

The distances between the Capitol and the Executive offices, are as follows, viz:

	Yards.
Circular road,	654
Pennsylvania avenue, from circular road to 15th street,	2,318
Thence to front of the President's house,	508
Thence to the Navy office,	429
<hr/>	
Total distance, yards,	3,909

The middle way of the avenue is 15 yards wide, and if this width is continued through the whole distance, the area to be paved will be 58,635 square yards. To prepare for the pavement, there will be an average of at least one foot of the present road to *lift*, and cart away; which, at 10 cents per yard, would amount to \$5,863 50. The side-ways on the avenue are 11½ yards wide each, and contain 53,314 square yards. These, it is proposed to gravel; and work of that kind has been done for 6 cents per square yard, when the distance to cart is small; but it is done with a base material, composed of cobble, clay, and sand. To execute the work in a proper manner, would cost more than double that sum. For regulating the side ways, say \$5,331 40. I take leave to submit the report of an experiment made by Mr. Leckie, to determine the cost of constructing a road on Mr. McAdam's plan, but I am satisfied the result comes out too low; not from any want of skill or precision in making it, but from rating the materials too low. Granite stone delivered on our wharves, costs one dollar per perch, and 12½ cents are charged for wharfage. The best information I have been able to collect has led me to the conclusion, that a good McAdam road, with nine inches of metal, would be about equal in cost to cobble paving, say 72 cents per square yard; and at that rate, 58,635 yards would amount to \$42,208 20.

I have the honor to remain,

With great respect,

Your faithful servant,

J. ELGAR,

Commissioner of Public Buildings.

HON. GERSHOM POWERS,

Chairman of Com. for Dis't of Columbia.

CAPITOL, U. S. February 12th, 1830.

SIR: In presenting to you my report of the 8th instant, I took the liberty of stating, that in regard to appropriations in the District of Columbia, other than for the accommodation of Government; I had spared no pains to make the list complete, but could not be positive that I had entirely succeeded. It has since occurred to me, that a very liberal and beneficent appropriation, by Congress, for purposes within the District, had escaped my research. I refer to the act of January 24th, 1827, by which 20,000

dollars were appropriated "for the relief of the indigent sufferers by the destructive fire in the city of Alexandria." If not too late, permit me to add this item to the list.

I have the honor to remain, with great respect,
 Sir, your faithful servant,
 J. ELGAR.

HON. GERSHOM POWERS,
 Chairman of the Committee for the District of Columbia.

No. 16.

WASHINGTON, February 2d, 1836.

SIR: In answer to your note of yesterday, requesting the results of an experiment made at the Penitentiary, in January, 1828, the following statement is respectfully submitted:

Two perches of the worst shaped building stone were selected, and carefully measured and weighed, and then broken up.

The two perches weighed 5,520 pounds; and when measured by a half bushel, after being broke up, contained 39½ bushels.

The expense as follows:

Two perches of rough stone, delivered on the bank of the Canal,		
at 60 cents per perch,	- - - - -	\$1 20
Breaking up do. 1½ days of a laborer, at 75 cents per day,	- - - - -	1 12½
Carting 4 loads to street, at 12½ cents per load,	- - - - -	50
		<hr/>
Expense of 2 perches of McAdamised stone, delivered at the place		
where wanted,	- - - - -	2 82½
		<hr/>
This quantity of stuff covered a space of 7½ superficial yards, 9		
inches deep, and each yard would cost	- - - - -	38½
Add for hammers, levelling the McAdamised stone on the street,		
rolling, &c. per yard,	- - - - -	6½
		<hr/>
Say total expense per superficial yard,	- - - - -	\$0 45
		<hr/>

You asked my opinion of the relative advantages and disadvantages of McAdamising and pebble paving. I am decidedly of opinion, that McAdamising is preferable to pebble paving, for the following reasons:

Because the noise of carriages driving over a pebble paved street, is exceedingly annoying; and in the night, must prevent sound sleep in all the ranges of buildings fronting the street;

Because the jolting of carriages over such an uneven surface, is extremely disagreeable to passengers;

Because, if you ride on horseback over such a pavement, unless your horse is very sure footed, you cannot with safety go faster than a walk, as your horse would be treading on irregular points, instead of a smooth uniform surface.

The only advantage in pebble paving I can see, to counteract these disadvantages, is, that it is easier swept and kept clean, than McAdamising, but, if the latter be executed as it should be, by having the granite broke very

fine, and well rolled and levelled, it may be swept or scraped as well as pebble paving.

From good data, I have ascertained that clean gravel may be furnished from the Potomac river, for 25 cents per superficial yard, nine inches thick, laid on the street. The gravel consisting of round instead of angular bodies, does not consolidate as soon as McAdamised stone; but by a little attention to filling in the tracts of the wheels, it soon becomes a smooth hard surface, and in point of durability, it is superior to McAdamised granite, because the gravel being principally rolled quartz, is much harder than the granite.

I am, sir, very respectfully,

Your obedient servant,

ROBERT LECKIE.

JOSEPH ELGAR, Esq.

Commissioner of Public Buildings.



No. 17.

NEW YORK, February 10, 1830.

DEAR SIR: I will make a very bad apology for the neglect in not answering your letter of January 9th. I had forgot it.

Our knowledge in road making is very limited. We pave streets badly with pebbles or round stone. The best street pavement I ever did see, was in Montreal; the best made roads in Pennsylvania. I enclose a memorandum from our street overseer.

I am, respectfully, your obedient servant,

WALTER BOWNE.

Hon. Mr. POWERS,

Chairman of Committee for District Columbia.

Paving stones are procured partly from excavating and regulating the grounds in and about this city, and partly from the shores of Long Island Sound; and are sold by the cartman's load of 14 cubic feet, at the average price of 75 cents per load. The cost of paving a square rod may be estimated at \$12 50, including curb and gutter stones.

There are but few facts from actual experiment of McAdamising roads; from such, however, as have been made, the cost will about equal the paving with pebbles or round stone. For city streets much used, it is found that paving is much better than McAdamising, being much more durable and cleanly.



Your committee further report, that they have taken into consideration the expediency of providing for the introduction of an adequate supply of pure spring water, for the use of the members of Congress, and officers of the Government in the public departments, and are sensibly impressed with the importance of provision being made to effect so desirable an object.

A square has been purchased, by appropriation of Congress, at the cost of \$6,900 34, on which there is a fountain capable of supplying the President's house and the departments with a sufficiency of water to fill reservoirs as a

protection against fire, and for other purposes. By an estimate of the Commissioner of the Public Buildings, accompanying this report, it appears that the expense of conducting the water to those buildings, will not exceed \$5,700.

The committee need only refer Congress to the statement of the Commissioner of the Public Buildings, made part of this report, to satisfy every member of the expediency, and indeed necessity, of having a supply of pure spring water brought to the Capitol, as well for the health and comfort of the members, as the security of the building against fire.

From the reports of experienced engineers, herewith submitted, it appears that an abundant supply of the purest spring water can be brought to the Capitol at an expense inconsiderable when compared with the importance of the object.

The committee would further recommend, that the rough brick pavement (temporarily laid) from the western gate to the Capitol, should be removed, and flagging of the Seneca stone substituted. An estimate for this object, made by the commissioner, is appended.

The committee beg leave to report a bill in conformity with the above recommendations.



A.

HOUSE OF REPRESENTATIVES,

January 26, 1839.

SIR: The Committee for the District of Columbia wishes to obtain such information as it may be in your power to supply, in answer to the following queries:

What sum has been paid for the spring, and ground on which it is situated, for the purpose of supplying the President's house and public offices with water to drink, and to fill reservoirs as security against fire? and what quantity of ground is contained in such lot?

What number of pumps are on the Capitol square? what is the quality and quantity of water they afford? and, in the event of fire to any extent, would they supply water adequate to its extinguishment?

What distance is water now brought for the use of the members and officers of Congress?

Have not examinations been made to ascertain the practicability of bringing water into the upper stories of the Capitol? and can an adequate supply of pure spring water be obtained, both for drinking and to fill reservoirs? and at what expense?

The committee will thank you to give an early answer, and will be pleased to receive any suggestions, upon the subjects above named, you may think proper to make.

Respectfully, your obedient servant,

G. C. WASHINGTON.

To JOSEPH ELGAR, Esq.

Commissioner of the Pub. Buildings.

B.

WASHINGTON, *January 27, 1832.*

SIR: In answer to the inquiries contained in your letter of the 26th instant, I have the honor to state, that, by authority of an appropriation by Congress, I have, with much difficulty, succeeded in purchasing from the private owners the square numbered 249, on which is a fountain capable of supplying, it is supposed, the public offices and President's house with water for ordinary purposes, and to keep up reservoirs as a protection against fires. The square contains 174,417½ square feet, and has cost the sum of \$6,900 34.

2. The greatest distance to which the water would have to be conveyed is 3,704 feet, and iron pipes of sufficient size cost one dollar per foot, including all expenses. The reservoirs and hydrants are estimated at about \$2,000.

3. There are two pumps in the Capitol yard, and one in an open court. The quality of the water in all of them is bad, entirely unfit for drinking. All the water used for *that* purpose in the building is brought from a pump on New Jersey avenue, distant about 420 yards. The quantity of water afforded by the pumps in the yard is small.

In the case of the fire which happened in the library, the alarming fact was disclosed, just as the fire was got under, that the water was exhausted; and if the fire had continued a few minutes longer, the destruction of the entire roof would have been inevitable.

The situation of the Executive offices, and their invaluable contents, is equally hazardous—indeed, from their combustible materials, more so. Without a copious supply of water, the costly apparatus, provided by Congress for the protection of those buildings and of the Capitol, must be unavailing.

4. In obedience to a resolution of the House of Representatives, I procured surveys to be made by Mr. Dumeste, of the corps of U. S. engineers, of the fountains in the vicinity of the Capitol. A copy of his report and estimate is handed to you, showing that pure spring water can be procured, in quantity sufficient for all useful purposes, at elevations capable of being conveyed into the Capitol, and at an expense, which, it is respectfully submitted, bears no proportion to the magnitude of the object.

I have the honor to remain,

Your faithful servant,

J. ELGAR.

HON. GEORGE C. WASHINGTON.

C.

Estimates for conveying water to the Capitol.

WASHINGTON, *February 27, 1832.*

SIR: To enable you to comply with the resolution of the House of Representatives of the 1st instant, I submit for your consideration the following facts, by me collected at your request.

The country around Washington, to the distance of five miles, has been explored, and every spring of any note has been duly considered.

In addition to the springs herein mentioned, I have gauged four springs, situated from one to two miles west of Georgetown; the united supply derived from said springs was 15½ gallons per minute, and the whole of them of an altitude much above the top of the capitol. The distance being so great, I did not think it necessary to make an actual survey of them until you should see cause to require it. I submit herewith estimates of all the springs from which levels have been traced.

First estimate—Smith's large spring.

For 14,268 feet of a cast iron pipe, four inches in the interior diameter, laid, including every expense	\$91,402
For 1,064 feet of additional pipe; to convey the water about the grounds of the Capitol, at \$1 50 per running foot,	1,596
For reservoirs for collecting the water at the source, and for reservoirs on the Capitol hill,	6,500
For all ornamental, and for all other expenses, to convey the water through the Capitol,	2,000
For contingencies and unforeseen incidents,	800
	<hr/>
	\$32,298
For purchase of spring and right of way,	\$
	<hr/>
Amount, -	\$

The above named spring is situated north of the capitol, and yielded, in the month of February, seven gallons per minute. From the best information I can procure, I am of the opinion that it is a durable spring. The water is of a good quality, and its height is 30' 9" 02" above the basement story of the Capitol.

Second estimate—Smith's second spring, on the same ground.

For 13,884 feet of a cast iron pipe, four inches in the interior diameter, laid, including every expense, at \$1 50 per running foot,	\$20,820
For 1,064 feet of additional pipe, to convey the water about the grounds of the Capitol, at \$1 50 per running foot,	1,596
For reservoirs for collecting the water about the source, and for reservoirs on the Capitol square,	6,500
For all ornamental, and for all other expenses, to convey the water through the Capitol,	2,000
For contingencies and unforeseen incidents,	800
	<hr/>
	\$31,716
For purchase of spring and right of way	\$
	<hr/>
Amount, -	\$

This spring yielded, in the month of February, three gallons per minute. From the best information I can procure, I am inclined to think it a durable one. The water is of a good quality, and its height is 37' 4" 82" above the basement story of the Capitol.

Third estimate—Spring in the same neighborhood, known by the name of Dunlap's spring.

For 13,570 feet of a cast iron pipe, four inches in the interior diameter, including every expense, - - -	\$20,355
For 1,064 feet of additional pipe, to convey the water about the grounds of the Capitol, - - -	1,596
For reservoirs for collecting the water at the source, and for reservoirs on the Capitol square - - -	6,500
For all ornamental, and for all other expenses, to convey the water through the Capitol, - - -	2,000
For contingencies and unforeseen incidents, - - -	800
	<hr/>
	\$31,251
For purchase of spring, and right of way, - - -	\$
	<hr/>
Amount, -	\$
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This spring yielded, in the month of February, four and a half gallons per minute. From the best information I can procure, I am inclined to think it a durable fountain. The water is of a good quality, and its height is 33' 9" 42" above the basement story of the Capitol.

Fourth estimate—Large spring east of the Capitol.

For 11,062 feet of a cast iron pipe five inches in the interior diameter, at \$2 per running foot, including every expense, - - -	\$22,124
For reservoirs for collecting the water at the source, and for reservoirs at the foot of the Capitol hill, - - -	6,500
For all ornamental, and for all other expenses, to convey the water about the foot of the Capitol hill, - - -	2,000
For contingencies and for unforeseen incidents, - - -	1,000
	<hr/>
	\$31,624
For purchase of spring, and right of way, - - -	\$
	<hr/>
Amount, -	\$
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The above spring yielded, in the month of February, thirty-two gallons per minute, and is, by far, the best in this vicinity. It is on the level of the pavement at the foot of the hill by the western gate.

Fifth estimate—Showing the cost of uniting the two first named springs in this report, and conveying the same to the Capitol.

For 608 feet of a cast iron pipe, three inches in the interior diameter, laid, including every expense, at \$1 per running foot, - - -	\$608
For 13,772 feet of a cast iron pipe, four and a half inches in the interior diameter, laid, including every expense, at \$1 75 per running foot, - - -	24,101
For 1,064 feet of additional pipe to convey the water about the grounds of the Capitol, at \$1 50 per running foot, -	1,596

For reservoirs for collecting the water at the sources, and for reservoirs on the Capitol square, - - -	\$7,000
For all ornamental, and for all other expenses, to convey the waters through the Capitol, - - -	2,000
For contingencies and for unforeseen incidents, - - -	800

\$36,105

For purchase of two springs, and for right of way - - -

\$

Amount, - \$

Sixth estimate—Showing the cost of uniting the three first named springs, and conveying the same to the Capitol.

For 3,627 feet of a cast iron pipe, four inches in the interior diameter, laid, including every expense, at \$1 50 per running foot, - - -	\$5,440 50
For 12,837 feet of a cast iron pipe, five inches in the interior diameter, laid, including every expense, at \$2 per running foot, - - -	25,674
For 1,064 feet of additional pipe, to convey the water about the grounds of the Capitol, - - -	1,596
For reservoirs for collecting the water at the sources, and for reservoirs on the Capitol square, - - -	8,000
For all ornamental, and for all other expenses, to convey the water through the Capitol, - - -	2,000
For contingencies, and for unforeseen incidents, - - -	1,000

\$43,710 50

- For purchase of the springs, and right of way, - - -

\$

Amount, - \$

The three springs above named yielded, in the month of February, fourteen and a half gallons per minute.

In submitting, for your consideration, the above facts and approximate estimates, I beg leave to remark that I have not had time to arrive at the cost with as much precision as might be desired. I think I have assumed prices which will be found ample for the work in contemplation. The pipe may, upon further investigation, require different dimensions; and the quantity of water may vary according to the seasons.

I am, sir,

Your most obed't serv't.

J. A. DUMESTE.

To JOSEPH ELGAR, Esq.

Commissioner of the Pub. Buildings.

D.

To the Hon. the COMMITTEE FOR THE DISTRICT OF COLUMBIA:

Gentlemen: On the subject of supplying public buildings with water, I have the honor to refer you to my letter of March 30, 1830, reported by the Committee on Public Buildings, April 5, 1830, which gives an expose of the relative merits of the several streams contiguous to the city, capable of affording the requisite supply of water for the purposes in question. According to the examinations then made and reported, the main springs of the Tiber was found to guage as follows: No. 1, seven gallons per minute; No. 2, three gallons per minute; No. 3, four and a half gallons per minute: total, fourteen and a half gallons per minute; and the expense of bringing the same to the Capitol was estimated at \$43,710, exclusive of the purchase of spring rights. If the head spring, No. 1, yielding seven gallons per minute, was only brought to the Capitol, the expense would be about \$9,000, besides the right of the spring.

But to avail ourselves of all the advantages furnished from these sources, it was proposed, in the event of resorting to the Tiber, to construct a basin, at a point where all the main springs discharge, to collect their united streams, and use them to the best advantage. By this means, a more abundant supply of water would be obtained, which would suffice not only for the Capitol, but the President's house, public offices, navy yard, penitentiary, &c. Upon this plan of bringing in the waters of the Tiber, it was shown that there would be more economy than resorting to even a single main spring, the expense being estimated from \$20,000 to \$40,000, according to the extent of supply.

From the location of the Tiber head springs, in regard to the position of the public buildings—lying so far to the north and east of the city, which would cause a great extent of pipe to be laid before any useful discharge of waters from it would be required, and the importance of having an abundant supply of water, not only for common purposes, but to answer the growing demands of the city, irrigating the public grounds, and providing the means of averting the scourge of conflagration. From these considerations, the attention of the committee was called to another source of supply in the waters of *Rock creek*. The position, capacity, and quality, of this stream, were pointed out as favorable for all purposes demanded by the public buildings, and sufficient to meet every exigency, whether of a public or private nature.

Lying on the west side of the city, this stream, brought in, would pass through the most populous parts of the city, along by the President's house, public offices, Post office, &c. before reaching the Capitol; and thus every portion of the conduit, conveying the water, may be profitably employed, and, eventually, may be made to reimburse the first cost. The vicinity of *Georgetown* to the main reservoir, would enable that place also to derive the advantages of a supply of water, of which it stands so much in need; and thus a very extensive good may be disseminated with a very little increase of expense beyond what the bringing in of the waters of Tiber would cost, the supply of which would be limited to a small extent of the city.

The whole expense of conducting the waters of *Rock creek* to the Capitol was estimated to be about \$50,000. The main supply pipe, or conduit, would be very little longer than what would be required to bring the springs of the Tiber to the Capitol.

There is another source of supply of water, which may be pointed out, still more abundant than that afforded by Rock creek, equally available, and which might be brought in at an expense probably not greater than either of those stated above;—I allude to the waters of the *Potomac*, supplied from the Little falls by means of the Chesapeake and Ohio canal, commencing with an elevation of thirty-seven feet above tide, which would furnish a considerable water power to pump into the reservoir, on the adjacent high grounds, the requisite supply to any extent demanded. The location and relative elevation of this reservoir, would command the highest buildings in the city, and a large portion of Georgetown.

The waters of large streams are always to be preferred to those of springs, being softer, more wholesome, and better adapted for culinary purposes: where a choice, therefore, is had, the larger stream should always be given a preference over the smaller, and especially over springs.

All which is respectfully submitted,

By, gentlemen, yours, &c.

ROBERT MILLS.

January 13, 1832.

E.

Estimate for paving, with flagging, the walk from the west gate to the entrance of the Capitol, viz:

7,102 square feet of paving, at \$1,	-	-	-	\$7,102
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J. ELGAR.

February 4, 1832.