

Reports and correspondence respecting the drainage of the new palace at Westminster : January, 1849.

Contributors

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Metropolitan Commission of Sewers.

JANUARY, 1849.

REPORTS AND CORRESPONDENCE

RESPECTING THE

DRAINAGE OF THE NEW PALACE AT WESTMINSTER.

To the Right Honourable and Honourable the Metropolitan Commissioners of Sewers.

Mr Austin's Report.

GENTLEMEN, 29th August, 1848.

Information having been received which rendered it desirable that an examination should be made of the sewers at the New Palace at Westminster, I beg to inform you that, according to your instructions that I should undertake this duty and report to you thereon, I sought in the first place an interview with the architect, Mr Barry, who explained to me the general features of the drainage, and subsequently at my request furnished a tracing of the plan, exhibiting the direction, levels, and cross sections of the main lines of drainage.

I then proceeded with the examination of these works, accompanied by M Lovick, the Assistant-Surveyor, and a Clerk of the Works, and obtained all the information that appeared desirable.

The accompanying block plan will assist the description of the works that I have to offer.

To Her Majesty's Commissioners appointed to superintend the completion of the New Palace at Westminster.

Mr Barry's Reply.

GREAT GEORGE STREET, 8th November, 1848.

MY LORD AND GENTLEMEN,

In compliance with a request made in a letter from your Secretary, Mr Cole, of the 28th September last, I have now the honour to forward to you my remarks on the Report of Mr Austin to the Metropolitan Commission of Sewers, relative to the Drainage of the New Palace at Westminster, which remarks I have thought it best to append to the enclosed printed copy of that Report. I regret that, owing to a long absence from home, I have been prevented from taking an earlier notice of this extraordinary document.

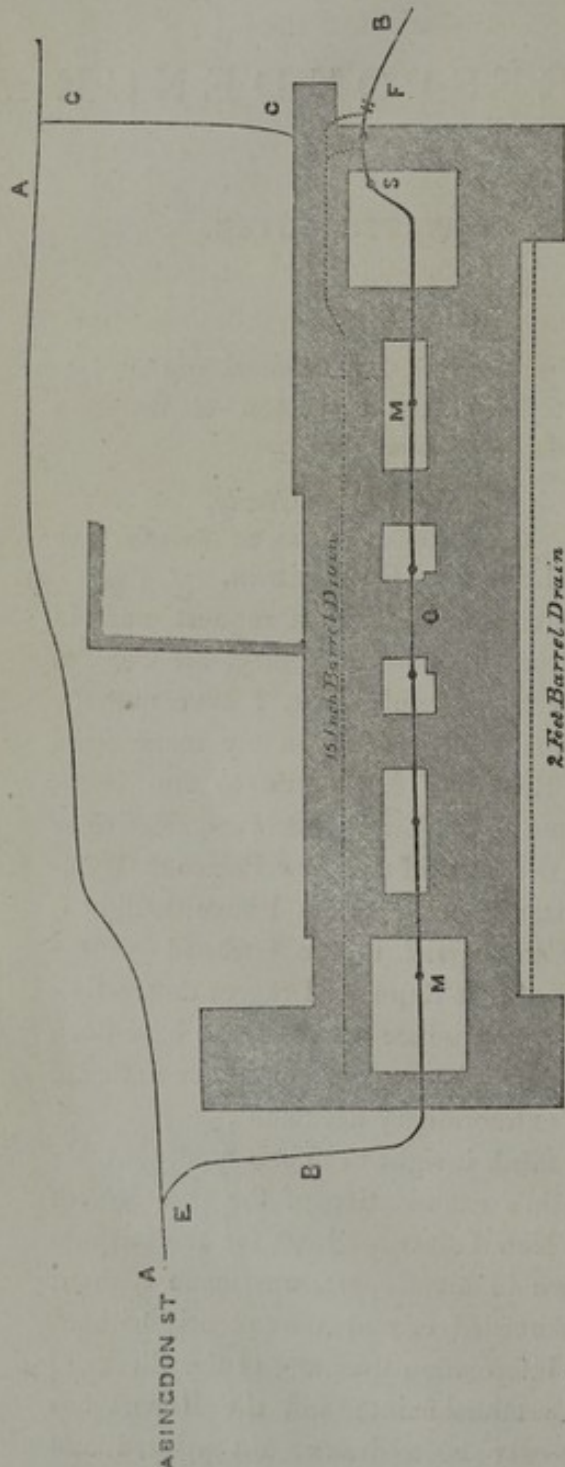
I think it right to inform you, that Mr Austin's examination of the Drainage of the New Palace, at least for the purpose shown in his Report, was made without my knowledge, and consequently without any information from any of the Clerks of my establishment; and the Report has not only been drawn, but printed and

A

Mr Austin's Report.

Mr Barry's Reply.

Block Plan of the New Palace at Westminster.



freely distributed by the Metropolitan Commission of Sewers, without giving me the opportunity of affording any explanation previously on the subject of it.

It will, I trust, be obvious to the Commissioners, from my remarks upon this Report, that if Mr Austin had applied to me for such explanation, it could never have appeared in its present shape.

As, however, the Metropolitan Commission of Sewers has thought proper, notwithstanding, to give it publicity, and it has already found its way in substance into the daily prints, and as its highly-wrought descriptions and numerous mis-statements are therefore likely to be prejudicial to my professional character, I have earnestly to request your assistance in doing me the justice to cause such a publication to be made of my replies, as will be co-extensive with that of the allegations contained in Mr Austin's Report.

I have, &c.

(Signed) CHARLES BARRY.

Remarks of the Architect of the New Palace at Westminster on the annexed Report upon its Drainage.

As no specific mention is made in this Report of the several circumstances under which the system of drainage at the New Palace has been arranged, and in part carried out, it is proper to state—

Firstly, That it was devised and commenced in accordance with the rules and regulations of the late Commission of

Mr Austin's Report.

Mr Barry's Reply.

Sewers for Westminster, and that the lowest available depth of drainage was adopted of which the data furnished by that Commission would admit.

Secondly, That the system was arranged at a time when the present vaults of the building were not in contemplation.

Thirdly, That the system is as yet only partially carried out, in consequence of the unfinished state of the building; and that many of the existing arrangements connected with the drainage are either unfinished, or are of a temporary nature.

Fourthly, That during ten hours upon an average in every tide, the outfalls of the public and Palace main sewers are closed by the rise of the tide in the River, and all drainage from the New Palace is consequently stopped for that time periodically.

Under these circumstances no other system than that which was adopted was found to be practicable; but it has been long the intention of the Architect to recommend the adoption of an exclusive system for the New Palace, by which its drains should be entirely cut off from the public sewers.

1. The sewer A A from Abingdon street to the River at Westminster bridge was constructed to receive the sewers from the New Palace, at the instance of the late Westminster Commissioners of Sewers. The private sewer B B traverses the whole length of the new buildings, and it would appear that it was intended originally to have its outfall at each end into the public sewer just described. The northern arm

1. Both the sewers A A and B B were constructed in 1837 and 1838. The northern arm C C was cut off in 1842 on the unexpected discovery of an old sewer passing through the abutment of Westminster bridge, and communicating with the Bridge-street sewer near its outfall into the Thames, by which an additional depth of five feet six inches was obtained for the outfall of the Palace drains,

Mr Austin's Report.

C C has however been cut off, and the sewer B B continued directly to the outfall into the River at Westminster bridge.

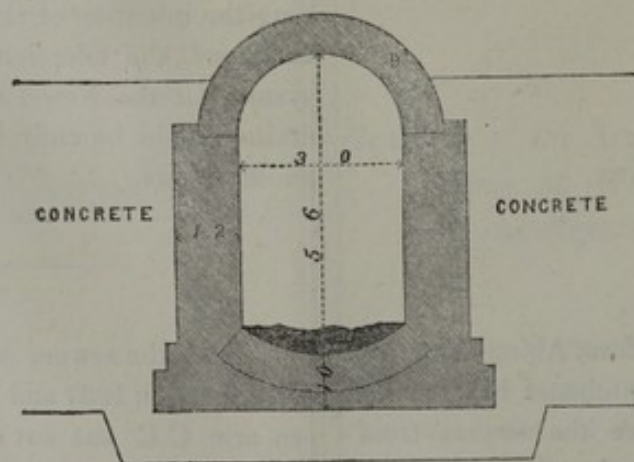
2. This northern arm, as well as the southern junction at E, is protected by a heavy three-quarter inch slate flap, which with great difficulty can be raised by one man. On entering it is found to be built up at the end with a dead wall; and the invert is covered with foul decomposing matter, although two gully-drains now only discharge into it.

Mr Barry's Reply.

and consequently a more effective drainage of the building secured.

2. These flaps, which are no heavier than is necessary to resist the head of water occasionally against them, and prevent leakage as far as possible, were provided for the protection of the New Palace against any accident that might occur in the public sewer. They would be entirely removed if the independent system above mentioned should be carried into effect.

The "dead wall" here mentioned was built expressly to cut off all communication with the "northern arm," now disused as a private sewer. The "foul decomposing matter" said to be found in it, being entirely cut off from the drainage of the New Palace by this "dead wall," no further allusion need be made to it with reference to that drainage.



3. There are six man-holes to the main sewer through the New Palace, marked M on the plan, there being one situated in each court-yard. The accompanying section exhibits the form of the sewer. It is five feet six inches in height by three feet in width.

3. These man-holes are, and always will be, kept closed and air-tight, except when occasionally opened for repairs on the examination of the main sewer.

Mr Austin's Report.

4. On examination, it is found that the portion of the sewer running through the buildings is constructed above the level of the floor of the vaults. On looking through one of the flapped communications which enter just above the invert, the sewer appeared to be at that point nearly its entire height above the ground level. On reaching the centre of the buildings, however, at about O on the plan, we discovered an opening about two feet square broken through the arch of the sewer, apparently for some temporary purpose. On clambering through this opening, we found ourselves in the very vaults of the new buildings.

5. The accompanying sketch, without pretending to architectural precision, is an attempt to explain this circumstance, and exhibits the true relation of the level of the sewer with the vaults around at this point.

Mr Barry's Reply.

4. The main sewer is not, as stated, constructed above the floor of the vaults; the latter were not even projected when the sewer was formed. It is not the fact that it is even now in the vaults of the building; on the contrary, it passes nearly throughout its entire length under the courts and open gateways of the building. Under the courts it is embedded in the earth, and under the gateways it occupies a space which is not a vault, and where it is intended to be imbedded in solid concrete. The only portion of it which passes under the building is for about 36 feet in length at the north end of it, where it is entirely below the vault-floor level, and imbedded in the earth. At no part of its length is the main sewer, as stated, "nearly its entire height above the ground level," or, as doubtless Mr Austin means, the *vault-floor* level.

The assertion, however, with reference to the vault-floor level is untrue; for the fact is, that the invert of the sewer at its summit level is as much as 3 feet 6 inches, or nearly two-thirds of its height, below that level, and at its lowest end it is as much as 8 feet 10 inches below it.

The conjecture that the opening discovered at O was for a temporary purpose, is perfectly correct: this and the unfinished state of that portion of the building will account for the access which is at present afforded by it to the vaults of the building.

5. The following sketch of the vaults, although highly graphic and amusing, is altogether incorrect: the sewer is there represented as being in the vaults of the building, the several vaults being shown to be about 22 feet wide and 15 feet high;

*Mr Austin's Report.**Mr Barry's Reply.*

whereas, in fact, it is placed, not in the vaults of the building, but in three arched spaces under an open gateway, each of which is not more than 13 feet wide and 6 feet high, and intended ultimately to be filled in around the sewer with concrete.



6. The condition of this main sewer throughout its entire length must be regarded as extremely dangerous to the health of those who reside in, and frequent these buildings. It is nothing but a continuous cesspool from one end to the other, emitting most noxious effluvia; and being blocked up at each end with heavy flaps, the only source of ventilation is into the buildings themselves, or into the court-yards into which these buildings look.

6. Owing to the levels of the outfalls of the public sewers into the River, the lower portion of the Palace main sewer cannot be otherwise than a reservoir (termed by Mr Austin, a continuous cesspool) for ten hours in every tide; but no inconvenience or nuisance can possibly arise from this circumstance, when every drain connected with the main sewer is properly trapped, which is proposed to be done as they are successively connected with it.

The condition of this sewer, ventilated temporarily as it has hitherto been from the man-holes at the two extremities of the building, cannot even in its present unfinished state be considered, as reported, "dangerous to health;" not the slightest escape of noxious effluvia has ever been noticed either before or since the publication of Mr Austin's Report during repeated and careful examinations made

Mr Austin's Report.

7. Dr Reid has been at great pains, and considerable cost, in the construction of an air shaft, to avoid taking air for ventilation from near a sewer, while all the time a sewer of the first class is pouring forth into the buildings, from one end to the other, malaria, evaporating from a surface of foul matter of between 2,000 and 3,000 square feet in extent.

8. The foul matter throughout its whole extent is nearly equal to the full width of the sewer, and presents an evaporative surface for the exhalation of noxious effluvia equal to 150 ordinary cesspools.

9. On first raising the flap at the Abingdon-street junction, a portion of the penned-up foul matter ran off into the public sewer. On entering, the stench was so strong that the Clerk of the Works who accompanied us considered it dangerous to proceed with unprotected lamps. The safety lamp was tried, but whether from the excessive foulness of the air, or want of sufficient draught, it went out.

Mr Barry's Reply.

by the Architect and his assistants, some of whom have remained in the sewer itself for three hours continuously without experiencing the slightest inconvenience.

7. Upon a very careful examination, the surface of the foul matter within the sewer, instead of being, as stated, "between 2,000 and 3,000 feet in extent," has been found not to exceed 1,350 square feet, and this deposit has been principally occasioned by the bricks and rubbish which have unavoidably fallen into the sewer in making the numerous communications with it that have at various times been required, and which, of course, will be entirely removed from time to time as the building approaches completion.

8. The foul matter in the sewer does not extend throughout its whole length, nor is it equal to the full width of it, as reported; it may perhaps at times occupy about one-half of its length, but it does not exceed one-fourth of its width; whatever may, however, be the extent of the evaporative surface of foul matter, it is certain no noxious effluvia from it is detected in the New Palace.

9. As this startling and highly-wrought paragraph relative to the danger and difficulties of Mr Austin's examination of the Abingdon-street junction of the sewer, which, however, it should be observed, is wholly beyond the limits of the New Palace, is likely to lead to a misapprehension of the facts of the case, the Architect thinks it right to state, that the New Palace was entirely protected from the

Mr Austin's Report.

On proceeding further to the point where the communications from the buildings commence, the atmosphere was found to be considerably improved; we therefore returned for the lamps, and went on without fear.

10. On applying the lamp to one of these openings, the draught into it was so strong from the sewer that the light was nearly extinguished, which sufficiently accounted for the perceptible improvement in the quality of the atmosphere.

Fig. 2

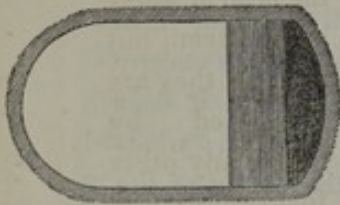


Fig. 1

11. Fig. 1 exhibits the depth of the foul deposit at the Abingdon-street end of the sewer, and fig. 2 the depth of the decomposing liquid and solid matter at the northern end of the sewer. At the latter point, immediately beneath the Speaker's house, the noxious gas was bubbling and hissing from the surface as if a great fire were below. The

most sickening effluvia arose from it.

We proceeded along this mass of filth as far as the flaps beyond the buildings, at F on the plan, which stopped our further progress.

Mr Barry's Reply.

evils which are reported to have been met with by a *safety-flap* not noticed in *Mr Austin's Report*, on the passing of which it is presumed that, according to his statement, "the atmosphere was found to be considerably improved."

N.B. This flap, which was perfect at the time of Mr Austin's examination, and subsequently, has recently been found broken to pieces by some person or persons not under the direction or control of the Architect.

10. It does not appear where the openings alluded to in the opposite paragraph are situated; but wherever any currents of air have been observed through any openings in the sewer within the limits of the New Palace, they have, upon careful and frequent examinations, been found invariably to set inwards.

11. Whatever foul deposit may have been found in the Abingdon-street junction of the sewer is wholly due to the foul state of the public sewer in Abingdon street.

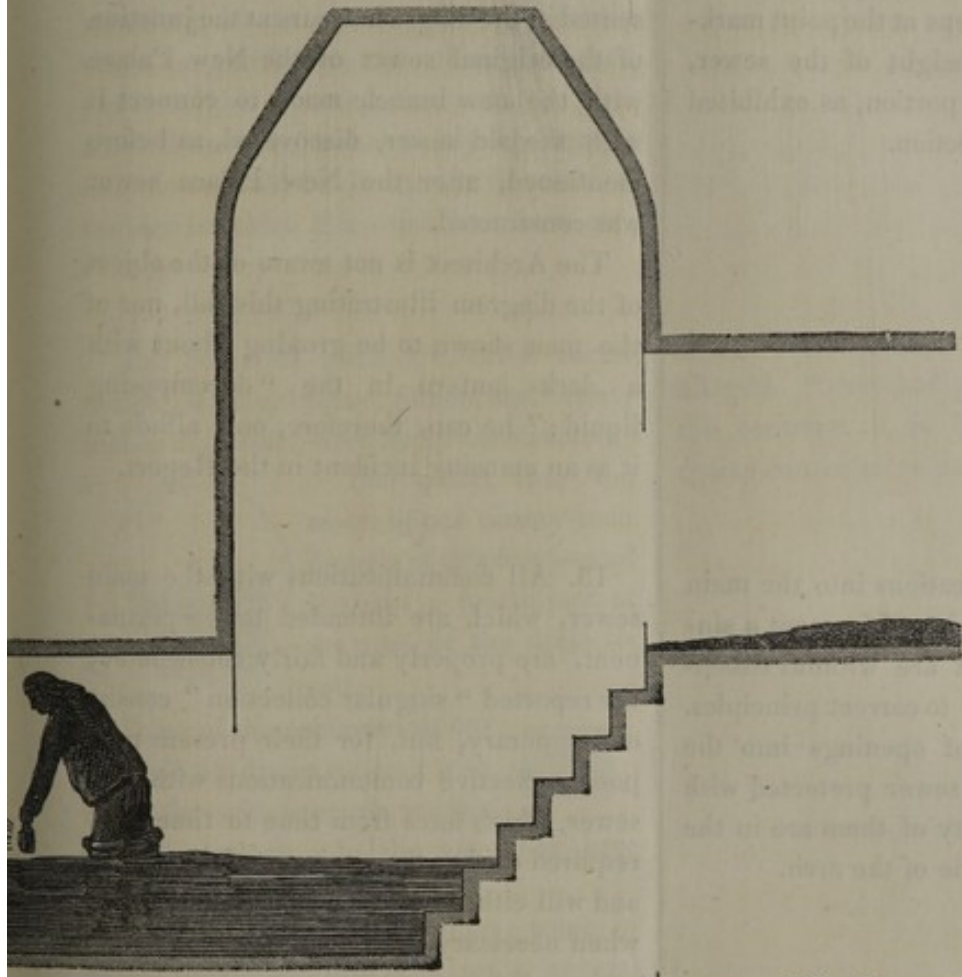
The decomposing liquid and solid matter shown in Diagram No. 2, at the northern end of the New Palace sewer, is due also to the foul condition of the public sewer in Bridge street, and to the periodical stoppage of the Palace drainage during the rise of the tide as before alluded to; at low water the whole of the solid matter and decomposing liquid would pass off if the public sewer were freed from the accumulation of solid matter that has been permitted to collect in it.

The Diagram, fig. 2, can only be true as showing the amount of it impounded at a time when the outfall flap was closed.

The "*bubbling and hissing*" here mentioned, is not immediately beneath the

Mr Austin's Report.

Mr Barry's Reply.



Speaker's house, as stated, but at the least 100 feet from it; bubbles have been observed to rise at this point when the River is at or near high water.

They are supposed to be occasioned by the passage of air through the lower portion of the sewer, owing perhaps to some defect in it, and to the pressure of the head of water in the River; but whether they are occasioned by this or any other

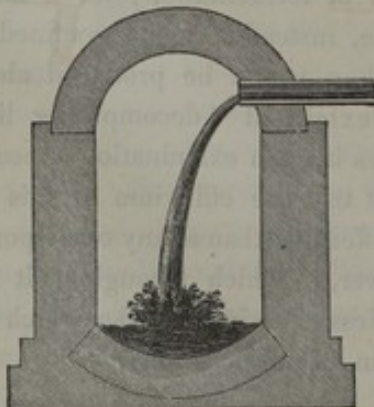
cause, while the present foul condition of the public sewer in Bridge street is suffered to continue, it is impossible to ascertain. They cannot be supposed to arise, as is inferred in the Report, from the evolution of any noxious gas during the process of fermentation; for if this were the case, instead of being confined to one spot, they would be produced along the whole extent of "decomposing liquid;" nor does it upon examination appear to be the fact that the effluvium at this spot is more offensive than at any other portion of the sewer, in which throughout it is infinitely less offensive than that which usually exists in all public sewers.

Mr Austin's Report.

12. This portion of the sewer descends suddenly by seven steps at the point marked S, and is the full height of the sewer, lower than the other portion, as exhibited in the longitudinal section.

13. The communications into the main sewer throughout its length present a singular collection, and are without exception entirely opposed to correct principles. There are a series of openings into the lower portion of the sewer protected with flaps; but the majority of them are in the upper part, in the side of the arch.

14. From one of these, (apparently the drain from a water-closet,) a discharge of water took place just as we were passing, producing the hydraulic effect exhibited in this cross section :

*Mr Barry's Reply.*

12. The sudden fall in the sewer represented in the diagram occurs at the junction of the original sewer of the New Palace with the new branch made to connect it with the old sewer, discovered, as before mentioned, after the New Palace sewer was constructed.

The Architect is not aware of the object of the diagram illustrating this fall, nor of the man shown to be groping about with a dark lantern in the "decomposing liquid;" he can, therefore, only allude to it as an amusing incident in the Report.

13. All communications with the main sewer, which are intended to be permanent, are properly and fairly constructed; the reported "singular collection" consist of temporary, but, for their present purposes, effective communications with that sewer, which have from time to time been required during the progress of the works, and will either be removed or made perfect when necessary.

14. The object of this diagram is doubtful; unless it be to show the "hydraulic effect" of a jet of water in stirring up and liquifying the foul deposit at the bottom of the sewer, and thereby facilitating its removal by the ordinary scour to which the sewer is subjected.

Mr Austin's Report.

Several of these upper communications would appear to have been very recently made, for the bricks and rubbish knocked out from the openings are still strewn about the sewer; and certainly Mr Barry's attention should be directed to the careless manner in which this work has been carried on.

15. Some of them are brick barrel drains, of nine, twelve, fifteen, and twenty inches diameter, wretchedly constructed.

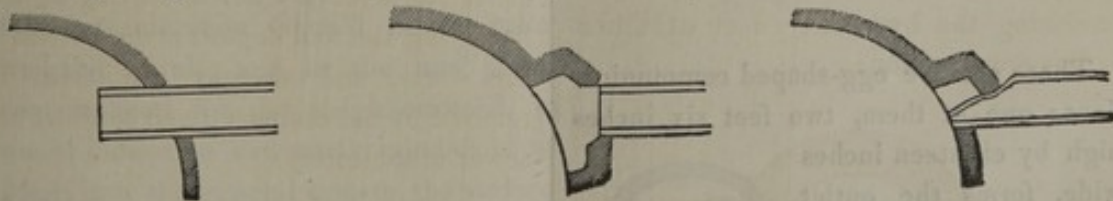


The outlet into the sewer of one twenty-inch drain is of this form—and is about a fourth part of the area of the drain itself.

Some of the communications are half-tile drains covered with brick flat, with square openings broken through into the sewer, as here shown.



Several are stone-ware pipes; some of them projecting into the sewer several inches, others stopping several inches short; some broken right away at the mouth by being driven forcibly in.—



Some are obstructed at the outlet by brick and lumps of cement, one to the extent here shown:—



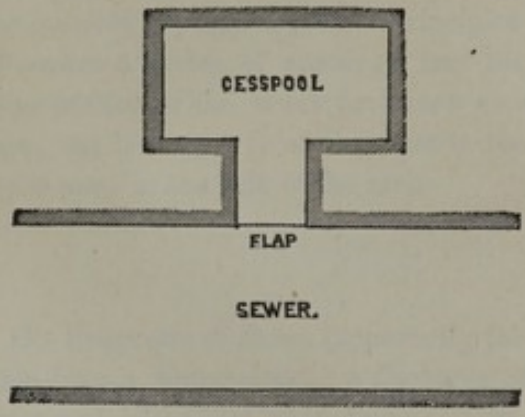
Mr Barry's Reply.

15. The brick barrel drains are not, as alleged, "wretchedly constructed." On the contrary, it is impossible that such drains can be more perfectly constructed.

Mr Austin's Report.

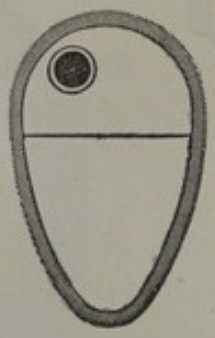
16. Two of the communications are wooden troughs, no doubt for temporary purposes ; another is a five-inch iron pipe, carried through the vaults on brick piers.

On raising one of the iron flaps of the lower communications before referred to (which two men could only accomplish with difficulty, it was so stiff), a square cesspool, four feet long by two feet wide, was discovered on the other side, full of foul liquid. On looking through, this was found to be open to the vaults of the building, as before explained. Others were of similar construction ; one being, however, filled with dry rubbish instead of liquid. They would appear to be intended for water-traps.



There are five egg-shaped communications: one of them, two feet six inches high by eighteen inches wide, forms the outlet only to a four-inch pipe, as here shown.

The whole of the junctions with the main sewer appear to be at right angles.



Mr Barry's Reply.

16. The tanks for water traps adjoining the main sewer, and occurring at intervals along its entire length, (one of which is represented in the opposite diagram, and improperly termed a "cesspool,") have not at present any drains connected with them. The particular tank to which Mr Austin alludes is evidently in this condition, and as the protection flap has not been in use since it was fixed some years since, it is not to be wondered at that it should have become stiff, as here reported.

The alleged foul liquid which it contains, resulting alone from land and surface drainage, has been examined and found to be clear and wholly free from noxious effluvia.

Mr Austin's Report.

17. For a length of eighty-eight feet the sewer is lined with cement on both sides, nearly to the top. A great portion of this has parted from the walls, bulging inward, and a considerable quantity has fallen into the sewer.

18. Such being the actual condition of these works, I will beg to submit a few remarks on the chief means that appear to lie open for remedying the inconvenience which results.

So much has recently been said on the extravagant size of sewers which generally prevails, that it will be unnecessary to enlarge upon this part of the subject; but it may be urged as a reason for such large constructions in this immediate district, that a certain amount of reservoir is required for the storage of storm waters during high tides, when the outlets of the sewers are closed; but these reservoirs, where indispensable, should never form the receptacles of the general refuse drainage. In the buildings in question, where every facility exists for the immediate discharge of all surface water into the River, this consideration should never have weighed at all; and in the new plans contemplated for the neighbourhood, it would indeed be extremely injudicious to admit into the general system the surface waters from buildings occupying an area of between six and seven acres, from which no decomposing matter would be conveyed by the rain, and from which any amount of storm water may at all times be immediately discharged into the Thames.

Mr Barry's Reply.

17. The lining of cement represented as having parted from the walls and fallen in considerable quantity into the sewer, was applied with success as a temporary remedy for the leakage caused by an injury which the sewer sustained from an irruption of the River before the safety-flaps were completed. As it has served its purpose, it might now and will probably be removed.

18. High tides at the New Palace usually rise several inches, and under extraordinary circumstances have been known to reach a height of 3 feet 9 inches above the floor of Westminster Hall; therefore the surface water cannot, as Mr Austin states, be at all times carried off; it does not appear by the Report why the surface water, when it cannot be discharged otherwise, should not be admitted into the reservoir provided for the foul drainage. Whether this be or be not advisable, it is clear that ample reservoirs for occasional storage under existing circumstances are absolutely necessary in the low situation of the New Palace, where the Architect denies that every facility exists, as Mr Austin would have it believed, for the immediate discharge of all surface water into the River.

Mr Austin's Report.

19. It would be necessary before entering into details of arrangements for the improvement of the drainage of these buildings, to be made acquainted with the description and position of all the inlets; but no serious difficulty can be apprehended in effecting the proposed separation with very inconsiderable means. Two fifteen-inch pipes falling each way, and discharging north and south, with the inclination and pressure that would be obtained, would carry off the waters of the greatest storm upon record from nearly double the surface, or twelve acres of covered ground.

Were the drainage of these buildings now to be laid out for the first time, the question would be an extremely simple one; but the arrangements already made must now to a certain extent necessarily enter largely into any considerations of improvement.

20. The main sewer through the building Mr Barry has it in contemplation to alter, by cutting off its junction with the Abingdon-street sewer, and directing the inclination all in one direction, from the south end of the buildings to the outlet at Westminster bridge; but if the proposed separation and immediate discharge of the surface waters were to be effected, a construction of these large dimensions would be totally unnecessary, inasmuch as it would be upwards of thirty times greater than the utmost provision that should be made; and as while it is allowed to continue, the buildings can never be maintained in a healthy condition, I would strongly advise its entire removal.

Mr Barry's Reply.

19. The two 15-inch pipes here recommended, considered, as they must be, as reservoirs for the storage of storm water during the time when the outfalls are closed by the tide, are utterly insufficient; they would not, for instance, contain 1-40th of the quantity of water which fell in three hours upon the area mentioned in the last storm in the month of August of the present year.

20. The dimensions of the main sewer are considered by the Architect to be no greater than are absolutely necessary for the reception of the waters which at times must enter and be retained in it. The escape of noxious effluvia from it when the drainage is completed will be impossible.

Mr Austin's Report.

21. The cost of the alteration would be comparatively most trifling; but even if it were considerable, it would be folly to be spending many thousands upon ventilation, and an attempt to provide fresh air, while this fruitful and extensive source of malaria is permitted to exist.

22. A nine-inch pipe, with a fall each way of an inch in ten feet, which can be obtained along the present line of sewer, would discharge 72,000 gallons of water per hour; a supply many times beyond what the requirements of the buildings can ever furnish. An arrangement of this kind, with such modifications and additional provision as any special circumstances may require, would obviate every present inconvenience, and this work would fall in with, and could hereafter be readily attached to, the general system proposed for the district.

I have the honour to be,
Gentlemen,
Your very obedient servant,
HENRY AUSTIN,
Consulting Engineer.

29th August, 1848.

Mr Barry's Reply

21. The cost of its removal, instead of being trifling, as alleged, would be very considerable. The system of drainage now adopted, especially if rendered, as already mentioned, independent of the public sewers, will, in the opinion of the Architect, be effective and free from all objections.

22. The 9-inch pipes here recommended for the ordinary drainage of the New Palace would, for the reasons stated in respect of the 15-inch pipes, be utterly inadequate.

Under the circumstances above stated, the Architect cannot advise the removal of the sewer, nor the adoption of the other recommendations made in Mr Austin's Report; and that, inasmuch as any failure, however partial, in the drainage of such an important public edifice as the New Palace at Westminster, situated as it is, might lead to the most disastrous consequences, the Architect earnestly hopes that it will not be submitted to any new and untried system, which can only be tested by careful trials and a long and continuous experience.

(Signed) CHARLES BARRY.

November 8th, 1848.

Mr Austin's Observations upon the Remarks of Mr Barry on the Report upon the Drainage of the New Palace at Westminster.

4th January, 1849.

The "Remarks" of Mr Barry on my Report upon the Drainage of the New Palace at Westminster having been referred to me by the General Purposes Committee, for any observations thereon which I might desire to offer, I have the honour to submit the following statement with reference to that document.

In the letter to her Majesty's Commissioners appointed to superintend the completion of the New Palace, which accompanied Mr Barry's Remarks, he complains "that my examination of the drainage of the New Palace, at least for the purpose shown in my Report, was made without his knowledge, and consequently without any information from any of the clerks of his establishment," and "he trusts that it will be obvious to the Commissioners, from his remarks upon this Report, that if I had applied to him for such explanation, it would never have appeared in its present shape."

With reference to this observation, I beg to remind the Committee that the instructions I received from the Survey Committee for this examination originated in the discovery of a very serious oversight of another kind in connection with the sewerage of the New Palace, the observations upon which formed, in the first instance, the chief feature of the Report: but, for very sufficient reasons, it was considered advisable not to print this portion

Mr Barry's Rejoinder to Mr Austin's Observations, etc.

WESTMINSTER,

22nd January, 1849.

SIR,—I have to acknowledge the receipt of your letter of the 20th instant, enclosing, by order of the Metropolitan Commissioners of Sewers, a printed paper containing Mr Austin's Report to that Commission on the Drainage of the New Palace at Westminster, together with my remarks thereon, addressed to Her Majesty's Commissioners for superintending the completion of the New Palace, and Mr Austin's observations on my remarks.

With reference to Mr Austin's observations upon my remarks, I have to state that he takes no notice of nearly two-thirds of them, which more or less directly impugn the accuracy of his statements and conclusions. With reference to those remarks which he has thought proper to notice, I have to offer the following statements, in the order in which his observations occur, namely:—

That the only information which he has ever received from me or my assistants relative to the drainage of the New Palace was, as he well knows, afforded to him for a far different purpose than that of enabling him to understand the system of it in detail, or to form any competent judgment upon its merits as a whole.

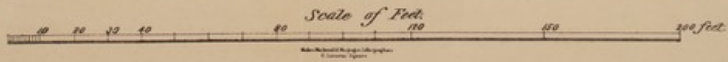
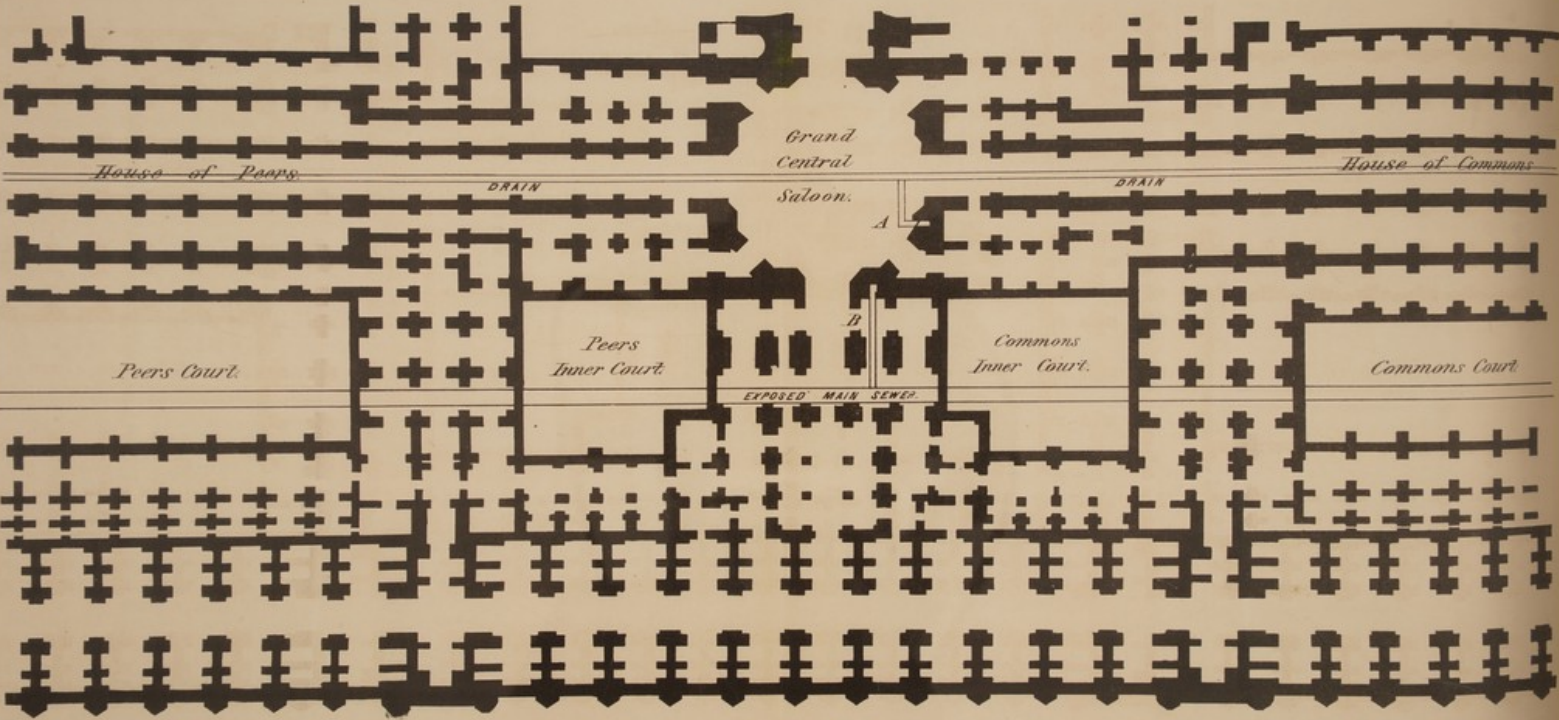
That I have not attributed nor do I wish to attach any blame to the Westminster Commissioners of Sewers in re-

TABLET

of the Institution

No.	Name	Age	Sex	Profession
1	John Smith	25	M	Teacher
2	Mary Jones	22	F	Student
3	James Brown	30	M	Farmer
4	Sarah White	18	F	Student
5	Robert Green	35	M	Merchant
6	Elizabeth Black	28	F	Homemaker
7	William Grey	40	M	Physician
8	Anna King	20	F	Student
9	Thomas Lee	27	M	Student
10	Jessie Hall	15	F	Student
11	George Young	32	M	Teacher
12	Charlotte Adams	24	F	Student
13	Henry Miller	38	M	Farmer
14	Frances Wilson	19	F	Student
15	Charles Moore	29	M	Student
16	Lucy Taylor	17	F	Student
17	Richard Scott	33	M	Teacher
18	Rebecca Baker	21	F	Student
19	Edward King	31	M	Merchant
20	Martha Clark	16	F	Student
21	Samuel Lewis	26	M	Student
22	Ann Walker	14	F	Student
23	Joseph Hall	36	M	Farmer
24	Isabella King	23	F	Student
25	Benjamin Clark	28	M	Teacher
26	Elizabeth King	18	F	Student
27	George King	34	M	Merchant
28	Frances King	19	F	Student
29	Thomas King	25	M	Student
30	Ann King	15	F	Student

PLAN OF BASEMENT
OF PART OF
The New Palace at Westminster.



Mr Austin's Observations.

of the Report. Mr Barry must, nevertheless, be aware that with the view to a remedy for this defect, a description of the whole system was absolutely necessary. I now beg leave to state, that when I first waited on Mr Barry, I was the bearer of a letter to him from a member of the Committee, stating the object of the examination which was required to be made; that I had on that occasion a long conference with Mr Barry on the subject of the drainage of the New Palace, during which, with the aid of one of his own plans, he explained to me the whole of the existing arrangements, and pointed out the alterations which he himself proposed to make therein; that I subsequently, on the 9th of August last, wrote to Mr Barry, requesting to be furnished with a "tracing of the plan and longitudinal and transverse sections of the sewer and main drains of the buildings," and the accompanying tracing was accordingly supplied to me with the following note:—

"32 Great George street,
14th August, 1848.

"SIR,—I am instructed by Mr Barry to forward you the accompanying tracing of the principal drains in the basement of the new Palace at Westminster, and to explain to you that Mr Barry has it in contemplation to shut off all connection with the main sewer in Abingdon street at a point somewhere near to the letter A on the plan.

"I am, Sir,
"Your obedient servant,
"ALFRED MEESON.

"Henry Austin, Esq."

I had every reason, therefore, to imagine myself in possession of all the useful information which Mr Barry or the clerks of his establishment could afford me on the subject, and which was openly sought for at his hands with the object previously stated to him by letter.

Mr Barry's Rejoinder.

spect of the system adopted, which was, nevertheless, carried out in accordance with their rules and regulations, and the data and assistance furnished by their officers.

That with respect to the outfalls of the New Palace sewer, it was impossible, under the circumstances, that they could be placed otherwise than in connexion with the public sewers.

That, agreeing with Mr Austin in thinking it immaterial whether the main sewer of the Palace passes through "vaults" or "arched spaces," I have to observe that the term "arched spaces" was made use of by me to correct, in some degree, the false impression created by the exaggerated description and pictorial illustrations of them contained in his Report, from which it might be inferred that the main sewer had been constructed in spacious vaults under the entire building, instead of passing, as it does, through comparatively small and insignificant spaces, at intervals, and under open gateways, intended to be filled up solid with concrete. It matters not, therefore, under such circumstances, whether the sewer passes, as he states, within "about twelve yards from the basement of the Grand Saloon connecting the Houses of Lords and Commons," or immediately under it.

That the perfectly open communication between the sewer and the vaults and arched spaces to which Mr Austin alludes, and by which, he states, he has himself passed more than once from one to the other, was a temporary hole in the crown of the sewer, as before explained in my remarks upon his Report, which, in fairness, he should have noticed.

Mr Austin's Observations.

Having laid before the Survey Committee the results of my examination of these works of drainage, they were of opinion that it was a duty to report the facts to the General Purposes Committee, or to the Court which, by the Westminster Sewers' Act of 1847, is charged with the control and direction of the whole of the drainage of the district, public and private, from which control the drainage of the New Palace itself is not exempted.

Mr Barry states that "the system of drainage of the New Palace was devised and commenced in accordance with the rules and regulations of the late Commission of Sewers for Westminster; and that the lowest available depth of drainage was adopted of which the data furnished by that Commission would admit." And further, "that no other system than that which was adopted was found to be practicable; but it has long been the intention of the Architect to recommend the adoption of an exclusive system for the New Palace, by which its drains should be entirely cut off from the public sewer."

With regard to these remarks, it must be observed, that whatever blame the Westminster Commission of Sewers may have to bear, they are at any rate guiltless of the faults of drainage of the New Palace of Westminster. That it was entirely a private drainage, over which, except as regards the outfall into the public sewer, the Commission at the time of its construction (which was some years before the passing of the Act of 1847 which gives jurisdiction over it) could exercise no possible control.

That even with regard to the outfalls, they should, under the circumstances,

Mr Barry's Rejoinder.

This hole was made for the purpose of conveniently entering the sewer from time to time, and avoiding the necessity and inconvenience of opening the man-holes in the courts of the building, over which the railroad used for the constant transmission of stone and other heavy materials passes. A temporary cover was provided for it, which was sometimes inadvertently removed; but the hole has now been permanently closed, and all communication with the sewer and the arched spaces and vaults effectually cut off.

That the whole of the statements in my remarks upon Mr Austin's Report, as to the levels of the main sewer, and the dimensions of the arched spaces through which it passes, are correct, although attempted to be falsified by Mr Austin; and that the inference which he deduces from one of them, as to the position of the summit level, is not warranted.

That the evidence which I possess as to the truth of my statement of the amount of foul deposit in the New Palace sewer is, I have no doubt, as full and satisfactory as that to which Mr Austin alludes.

That no part of the sewer was to my knowledge constructed at variance with the plans prepared for it, namely, with a current in the wrong direction; but that if this be the case, either from neglect, or subsidence of the soil, the consequences are immaterial, and the remedy is simple and inexpensive.

That the cause of a want of free drainage from the New Palace sewer has constantly been owing to the foul condition of the public sewers connected with it, and the impediment thereby created to the free and perfect action of the outfall flaps. Mr

Mr Austin's Observations.

obviously never have been into the public sewer at all; and Mr Barry himself now admits this by his proposal for the adoption of an exclusive system. The drainage should from the first have taken its shorter course directly into the River, where the depth of its outfall would have been quite independent of any data furnished by the Commission of Sewers.

Mr Barry objects to the statement that the main sewer is constructed above the floor level of the vaults of the New Palace; as the latter, he says, were not even projected when the sewer was formed: and that it is not the fact that it is even now in the vaults of the building, but in "arched spaces"!

It would appear to matter little by what term these portions of the basement of the building should be called; the fact being, that there exists, as shown on the accompanying plan, *a perfect communication throughout the buildings by their means*; that the whole of these works, whether of "vaults" or "arched spaces," appears to be of precisely similar construction, and have, I am informed, always been known and spoken of before Committees, and on the works, without distinction, as "vaults;" and that although open gateways may exist immediately above this part, that the exposed sewer itself passes within *about 12 yards from the basement of the Grand Central Saloon connecting the Houses of Lords and Commons*; with the vaults or arched spaces of which there is perfectly open communication, and through which I have myself passed more than once to the sewer.

Mr Barry denies that at any part of its length is the main sewer nearly its entire height above the vault-floor level, as stated

Mr Barry's Rejoinder.

Austin states that the *Abingdon-street sewer* was at the time of his examination *perfectly clean*: so far from this being the case, I have the best evidence to prove that very soon after that examination, it was found that the soil which had accumulated against the flap had been removed from it, and shovelled up in a heap on one side to a depth of about one foot nine inches. That with respect to the equally foul state of the *Bridge-street sewer*, Mr Austin is silent.

That Mr Phillips's offer of assistance in improving the drainage of the building was not solicited, and was not accepted, as I did not consider any re-arrangement of it to be necessary.

That Mr Austin's re-assertions as to the *bubbling and hissing*, and foul condition of the sewer, are not warranted by the facts and circumstances of the case.

That the "safety flap" which is sneeringly alluded to by Mr Austin, but the omission of the mention of which in his Report is not accounted for, is so named for a very different reason than that which he supposes or chooses to infer; but that it did really protect the New Palace from the stench of the public sewer at the time of his examination, I have no doubt.

That Mr Austin has unfairly assumed what he is pleased to state I ought to have said, as to the ventilation of the sewer, and has erroneously stated that I have acknowledged that foul air has escaped into the buildings and courts.

That if Members and those engaged on the works have complained, as stated, of the bad state of the atmosphere, the cause is not to be attributed to what Mr Austin is pleased to term the unusual foulness of the main sewer.

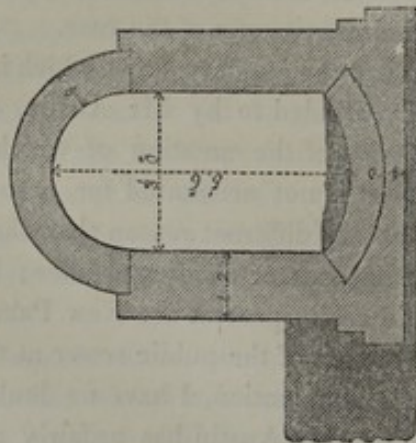
Mr Austin's Observations.

in the Report, and that the assertion is untrue, for that at its summit level it is as much as 3 feet 6 inches below that level.

It would be inferred from this statement that the summit level is the point where the sewer is the most exposed, but it is not so. The level of the sewer at the summit, with relation to the vault-floor level, is correctly drawn in section, in the illustrative sketch in the second page of the Report, where the opening into the vaults is shown. Further on, however, and immediately opposite to the opening above referred to, leading to the basement of the Grand Central Saloon, the top of the sewer is as much as 5 feet above the vault-floor level, leaving little more than a foot below that level to the invert, instead of 3 feet 6 inches, as stated by Mr Barry.

FIG. 2.

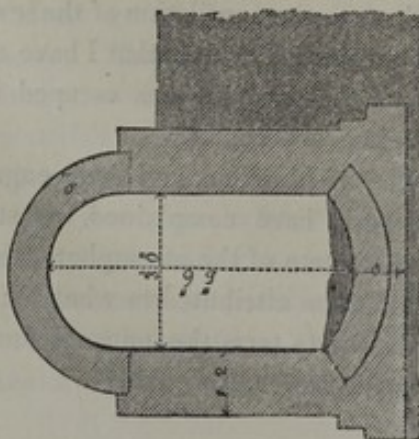
VAULTS



OF

FIG. 1.

CROWN

*Mr Barry's Rejoinder.*

That no inconvenience or nuisance can by any possibility arise from the main sewer of the Palace being at times a reservoir for the retention and discharge of the drainage at every tide, such reservoir being perfectly ventilated by an up shaft, and every branch drain communicating with it being properly trapped, which Mr Austin might have ascertained to be a part of the system, if he had thought proper to have examined or inquired into the matter.

That the works recently executed in the sewer in furtherance of its completion, so far from reducing it to a dangerous condition, have in fact improved it.

That it is not cut off, as stated, from all possibility of ventilation, being, as alleged, *no better than a vast retort of 15,000 cubic feet, in which the foulest gases will be perpetually generating and escaping in a concentrated form into the buildings*; on the contrary, it is perfectly ventilated, and that whatever gases may be generated cannot escape in any form or degree into the buildings; a fact which I am prepared to prove to the Commissioners, if they are disposed to accompany me in a personal inspection of the sewer; and of which fact Mr Austin might have been convinced, if he had applied to me for explanation as to the completion of the system adopted.

That the flaps to the branch drains are not fixed for the purpose of preventing the escape of foul air into the building, as Mr Austin seems to suppose, although they may contribute to that object; but that other and perfectly effective means are provided for that purpose, of which he appears to be ignorant. All Mr Austin's reasoning, therefore, upon these flaps and their admission of foul air into the building falls to the ground.

Mr Austin's Observations.

Fig. 1 is a section showing the relation of the sewer with regard to the vault-floor at the summit level, quoted by Mr Barry. Fig. 2 is a section as it exists opposite the basement of the Grand Central Saloon.

I regret that the illustrative sketch in the Report above referred to, which was distinctly stated to have no pretensions to architectural precision, should have given cause of complaint, by making the vaults of greater importance than really appertains to them; but on subsequent measurement, I find that Mr Barry himself not only errs very considerably in the dimensions which he has quoted as those of the sketch, but in those also which he has given as the correct dimensions of the work. Instead of 22 feet wide and 15 feet high, as stated by Mr Barry, the only arched opening which is complete in the sketch is shown about 11 feet wide and 10 feet high. Mr Barry gives 6 feet high as the correct dimension of the work itself; whereas, the crown of the vault is in fact upwards of 8 feet from the floor-level at the point referred to. I should have conceived that the disproportion noted was scarcely worth remark, inasmuch as the circumstance detracts somewhat from the real importance which the exposed sewer maintains in these vaults.

With reference to Mr Barry's statement as to the amount of foul deposit in the New Palace sewer, I have evidence to prove that the quantity named in the Report is an under estimate of that which really existed at the time of the examination, and which there is every reason to believe does usually exist. Among other excuses for its existence, Mr Barry throws the blame on the bad condition of the

Mr Barry's Rejoinder.

That with regard to the discharge from the branch drains into the main sewer from a height of four to five feet above its invert, several practical advantages are obtained of which Mr Austin appears to be ignorant, and what seems so obvious to him to be disadvantages are not so in the opinion of those who are equally competent to form a judgment on the subject.

That with regard to the reported foul state of the sewer the question is one of fact, not of opinion, and I invite therefore the Commissioners to accompany me in a personal inspection of the sewer, to enable them to judge how far any faith is to be placed in Mr Austin's statement on this subject. Numerous examinations have recently been made of the sewer, of from four to six hours' duration, and none of the persons engaged upon them have experienced the slightest unpleasant sensation either at the time or since. It is utterly impossible that any serious effects can be apprehended from the foul matter that may collect in the main sewer, let its extent be what it will, either in a "warm season" or at any other time, and that the occupants or frequenters of the building need not, therefore, be under the slightest apprehension of disease arising from such a cause; the inference of Mr Austin to the contrary being altogether false, and calculated only to create unfounded alarms and unfavourable impressions.

That whatever may have been Dr Reid's intention as to the ventilation of this sewer, as alluded to in Mr Austin's remarks, the system long since devised and now in part adopted is, in my belief, as effective as any which he could have proposed for adoption.

That there are no defects of a seri-

Mr Austin's Observations.

public sewer. As the *Abingdon-street sewer was, however, perfectly clean at that time*, it is right to state that the true cause for the foul deposit in the New Palace sewer, beyond what is penned up by the heavy flap, exists in the fact that parts of the sewer at the south end are so constructed as actually to fall the wrong way. The accompanying section, made from very careful levels, illustrates this serious defect; and it will be seen that whatever may be the condition of the public sewer, the New Palace sewer, being so constructed, must ever contain foul deposit.

This is not, however, the first time that the state of the public sewer in Abingdon street has been alleged as the cause of an obstruction to the free discharge of the refuse from the sewer under the New Palace; for in the month of October 1846 Mr Barry made a complaint to the Westminster Commission of Sewers, in consequence of which an examination was then made by Mr Phillips, their Surveyor, and the following reply sent to Mr Barry:—

"Sewers' Office, No. 1 Greek street, Soho square, October 20th, 1846.

"SIR,—In consequence of your complaint to me that the deposit in the sewer in Abingdon street formed an obstruction to the discharge of the sewage from the sewer which communicates therewith from the new Houses of Parliament, I went into them on Thursday last for the purpose of examining them, and now beg to report to you the result of my examination:—

"There are two flaps placed across the sewer from the new Houses of Parliament, one of which is made of slate, and is fixed close to its junction with the sewer in Abingdon street, and the other is made of wood, and is fixed about 60 feet backwards from it. These flaps are very heavy and clumsy, and are badly constructed for allowing the water and sewage to run off freely. This sewer is on the same level as the one in Abingdon street; and its bottom for a few feet outside

Mr Barry's Rejoinder.

ous nature, as stated, in the drainage of the New Palace, to justify the entire removal of the work connected with it, as recommended by Mr Austin; and that assuming his remedy for the imaginary evils of it to be restricted to what he proposes, and the consequent alteration of the whole of the branch drains of the building, the consequences may be most serious, and the expense to be incurred, which must necessarily be very great, would, in my opinion, be a most wanton waste of public money.

That Mr Austin is in error in stating that the court-yards are not below the level of the highest known tides. They are below that level, and not from any oversight, as he would have it supposed. Every facility *does not*, therefore, exist for the discharge of surface water at all times into the River. That the fact of Westminster Hall and the basement of the building being below that level has much to do with the subject; and that the provision of a reservoir for storage water and sullage is neither, as he states, a great mistake, nor is it mischievous. That his proposed 15-inch and 9-inch pipes would, under the circumstances, be insufficient and inefficient to meet the unusual and extraordinary contingencies of the site.

Having now remarked upon the whole of the observations contained in Mr Austin's rejoinder, I beg to state that I am in a condition to prove the truth of every assertion which I have made, and shall be ready to do so before any competent, impartial, and unprejudiced tribunal.

With respect to Mr Austin's assertion that I have, myself, admitted to a Member

Mr Austin's Observations.

each flap is sunk about 9 inches, so as to allow the flaps to close the sewer; consequently the water and deposit outside, by pressing against them, prevent the sewage inside until it accumulates to a great extent from forcing them open.

“From the bad construction, therefore, of these flaps, as well as the improper form and levels of the sewers themselves, the sewage is being constantly pent back, and the sewer under the new Houses of Parliament forms as it were an elongated cesspool, the great evil of which must eventually be very obnoxious and injurious. Both sewers now contain a large accumulation of soil; and from their present arrangement and construction I do not see how this can be otherwise, or ever obviated, unless a systematic plan of flushing be adopted, which will cause constant attention and great expense. But had the sewer along Abingdon street, as also that communicating therewith, running under the new Houses of Parliament, been properly formed in the first place, they would have kept themselves clean without the assistance of flushing.

“In consequence of these defects, I am of opinion that the main drainage of the new Houses of Parliament should be entirely re-arranged and diverted from its present course.

“Should you feel disposed to perfect the same, for which there are ample facilities at hand, I shall be most happy to afford you any assistance in my power relative thereto.

“I am, Sir,

“Your most obedient servant,

(Signed)

“JOHN PHILLIPS, Surveyor.

“To Charles Barry, Esq., &c. &c.”

Mr Phillips' offer was not accepted, and the evil remains the same to the present day.

Mr Barry states that the “bubbling and hissing” noticed in the Report, which rises from the body of foul matter at the northern end of the sewer, is supposed to be occasioned by the passage of air through the lower portion of the sewer, owing, perhaps, to some defect in it, and to the pressure of the head of water in the River; but that “whether occasioned by this, or

Mr Barry's Rejoinder.

of the Sewers' Commission, in his (Mr Austin's) own hearing, since the issue of his Report, that “*the drainage of the New Palace was as bad as it could be,*” I have to state, that to my knowledge I have never seen Mr Austin since he made his Report, and that I could not have made such an admission to any Member of the Sewers' Commission, inasmuch as I firmly believe, and ever have believed, that the drainage of the building is as perfect as it can be, all local and other circumstances being duly considered.

If there is an impression on the mind of any Commissioner that I have delivered a contrary opinion, such an impression must have arisen from misapprehension.

In conclusion, I have to request that this letter may be printed, and as freely circulated as that of Mr Austin's rejoinder to my remarks upon his Report.

I am, Sir,

Your very obedient servant,

CHARLES BARRY.

Mr Austin's Observations.

"any other cause, while the present foul condition of the public sewer in Bridge street is suffered to continue, it is impossible to ascertain." I would submit whether, under the circumstances suggested by Mr Barry, *water* would not rise in the sewer rather than *air*, and that the horribly foul state of the sewer itself is quite sufficient evidence that the bubbles *are* those of noxious gas generated on the spot.

This portion of the sewer was inadvertently stated to be situated immediately beneath the Speaker's house, instead of that of the Serjeant-at-Arms, on the north side of the Speaker's court.

The statement in the Report relative to the excessive foulness of the air experienced on first entering the New Palace sewer, Mr Barry considers is likely to lead to misapprehension, because no mention is made of a "safety" flap, which existed further up the sewer, and by which the New Palace was entirely protected from the evil reported. It was, in fact, this "safety" flap which, by cutting off all ventilation from this part of the sewer, created the danger that was at first experienced; and it was on passing this flap, beyond which the sewer was "temporarily ventilated," (as Mr Barry says,) "from the man-holes at the two extremities," and he should have added, *from the numerous openings into the building along its course*, that the atmosphere was found to be considerably improved.

Notwithstanding these means of ventilation of the sewer, or, in other words, the escape of the foul air from it into the buildings and courts, which Mr Barry acknowledges, and so accounts truly for the great

Mr Austin's Observations.

difference of the foulness of the atmosphere between it and the closed-up portion, he nevertheless asserts, that neither he nor his assistants ever noticed the slightest escape of noxious effluvia!

Beyond the evidence on this point conveyed by Mr Barry's refutation of his own statement, it is necessary to observe that the bad state of the atmosphere has been not only frequent matter of complaint by people engaged upon the works, but has been referred to by Members themselves; that much reference to this subject is also made in the printed paper of the House of Lords, 69, II, 24th March, 1846, and other Parliamentary papers, and that the unusual foulness of this sewer—the great source of the malaria of the place—was not only noticed by myself, but by those whose daily occupation is in the sewers, whose perceptive powers in this respect cannot in consequence be considered acute; and that its condition was at one time so offensive that it was a matter of remark on the spot that it was a very great relief to get back into the public sewer.

Mr Barry states, that no inconvenience or nuisance can possibly arise from this sewer of the New Palace being a reservoir, or a continuous cesspool, when every drain connected with it is properly trapped.

Since my Report was made, great changes have taken place in the sewer. The faulty work described has for the most part been amended, the man-holes have been raised and closed, and the opening to the vaults shown in the sketch has been bricked up.

The whole length of the sewer has by these very operations been reduced to the dangerous condition of the closed-up por-

Mr Austin's Observations.

tion above referred to, from the evils of which the New Palace is said to have been protected by the "safety" flap.*

Cut off from all possibility of ventilation, with constant foul deposit therein, the whole length of this sewer must shortly become nothing better than a vast retort, capable of holding some 15,000 cubic feet, in which the foulest gases will be perpetually generating and escaping in a concentrated form into the buildings.

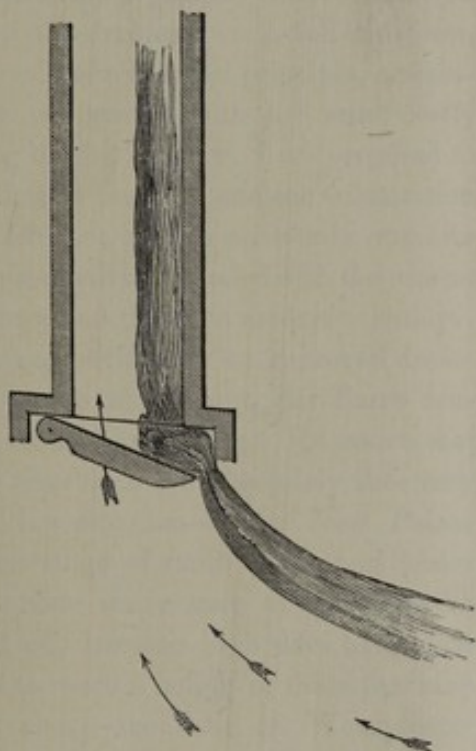
It is a fallacy to suppose that flaps, placed at the mouths of the drains, communicating with the sewer, will at all times prevent the escape of this dangerous miasma. Even supposing that the contact of the surfaces could at all times be perfectly preserved, every time that a discharge takes place, and the flap is raised, an opening is formed through which the foul and pent-up gases will rise and escape into the building as indicated in this section.

Mr Barry expresses himself doubtful as to the object of the diagram (on page 6 of the Report) exhibiting the discharge from a drain entering the sewer at the top, the force of which, acquired by the fall, stirs up the deposit at the bottom. I apprehend that the Committee will have no doubt upon the subject, and it will therefore scarcely be necessary to explain to them the great errors in principle which such a construction involves, and which it was thought would have been perceived at a glance, even by those little acquainted

* Inquiry has been made as to the destruction of this flap complained of by Mr Barry, and there is every reason to suppose that the person or persons guilty of the act were in no way connected with the Commission of Sewers.

Mr Austin's Observations.

with the subject. There are between seventy and eighty communications of drains with this sewer, the majority of them entering it in the upper portion, just where the whole volume of foul gases would rise from the decomposing matter below.



The cases of sickness and fever traced to the emanations from a single foul cesspool have been too often recorded to need further proof of the fact. What then will be the serious effect that must inevitably ensue from the foul matter in this sewer, equal in surface to 150 ordinary cesspools, in which the foul matter will be kept constantly disturbed by these numerous discharges, some of them pouring from a height of between 4 and 5 feet; the outlets of the discharging drains being most favourably placed to receive the whole of the foul emanations which would arise from the decomposing filth? Let this state of things be imagined during the sitting of Parlia-

Mr Austin's Observations

ment in a warm season, and it will be difficult to say who may escape its influence.

Reference having been made in the Report to the extensive operations of Dr Reid to ensure a pure atmosphere, while all the time this great source of contamination is pouring forth its malaria into the buildings, that gentleman has forwarded to the office documents and plans, and has afforded explanations, showing the provisions made originally by him for preventing such effects. They appear to have comprised a series of flues, as indicated at A and B on the accompanying plan, for conveying away the foul air from the sewers and drains. These flues were entirely cut off some years ago, the remains of them being still in existence. The documents are accompanied by a letter from Dr Reid, requesting that the impression necessarily arising from the Report may therefore be removed.

It is right to observe, that in calling attention in the Report to the anomaly of extensive provisions to secure a pure atmosphere under the circumstances stated, it was in no way intended to imply that Dr Reid had overlooked so obvious a source of contamination; but to show, what I still believe to be the fact, that while this magazine of malaria is allowed to remain, traversing the buildings from one end to the other, there must be the greatest risk of failure in those provisions, however complete they may be in themselves.

The defects of this construction and the bad consequences which must arise from it are manifold, and of that serious nature, that nothing short of the *entire removal* of

Mr Austin's Observations.

so faulty a work can cure the evil. It will admit of no real and practicable improvement, and after the attention which has been brought to bear upon the subject of improved drainage, and the sounder doctrines which have recently been promulgated, the precedent cannot surely be allowed of a drainage work, full of defects, and devoid of all correct principle, remaining in connection with the most costly bulding of the country. I am prepared to show that its removal, and the substitution of an efficient system on totally opposite principles, will be attended with the utmost advantage and the most moderate outlay.

The suggestions for an improved drainage given in the Report, Mr Barry considers utterly insufficient. He asserts that ample reservoirs are absolutely necessary in the low situation of the New Palace for the storage of storm water, and denies that surface water may at all times be carried off, because high tides have been known to reach a height of three feet nine inches above the floor of Westminster Hall.

If the oversight had been committed of arranging the level of the terrace and courtyards of these buildings below the highest known tides, surface water certainly could not be carried off at such times; but as this does not appear to be the case, every facility does exist for the discharge of such waters, at all times, at once into the River; and the fact that the floor of Westminster Hall, or even of the basement of the new buildings, being below that level, can have nothing whatever to do with the subject; and the provision of a reservoir for storm water, at a lower level, is not only a great mistake, but extremely mischievous. I mus b eg

Mr Austin's Observations.

to repeat, therefore, that two 15-inch pipes, as suggested in the Report, would be an excessive provision for carrying off these waters.

In concluding these observations, I must beg to submit that the remarks upon the Report which Mr Barry has put forth do not, in any essential particular, affect the substance of the statements therein contained; and Mr Barry having himself admitted to a member of the Sewers' Commission, in my own hearing, since the issue of the Report, that the drainage of the New Palace was as bad as it could be, I cannot but express my regret that, under whatever circumstances this faulty construction may have been executed, Mr Barry should now wish to have it preserved. The alterations proposed by Mr Barry will not remedy the serious defects of this work; and if allowed to remain, it must be a constant source of danger and annoyance, and would be a lasting blot on the character of the magnificent building with which it is connected.

HENRY AUSTIN.

4th JANUARY, 1849.

Metropolitan Commission of Sewers

REPORTS

AND CORRESPONDENCE

RESPECTING THE DRAINAGE

OF THE

NEW PALACE AT WESTMINSTER.

JANUARY, 1849.