

# REPORT

TO THE

HON. THE COMMISSIONERS OF SEWERS

OF THE

CITY OF LONDON,

OF THE RESULTS OF THE

GAUGINGS OF THE SEWERS

DISCHARGING

WITHIN THE LIMITS OF THE CITY OF LONDON,

DURING THE YEAR 1853.

BY

WILLIAM HAYWOOD, M.I.C.E.,

ENGINEER TO THE COMMISSION.

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*28th April, 1857.*

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1857.



*At a Meeting of the Commissioners of  
Sewers of the City of London, held  
at the Guildhall of the said City, on  
Tuesday, April 28th, 1857:—*

The Engineer laid before the Court the following  
Report.

RESOLVED AND ORDERED—

That 250 Copies be Printed, and one be  
sent to every Member of this Court, and 20 to the  
Chairman of the Metropolitan Board of Works.

JOSEPH DAW,  
*Principal Clerk.*



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TO THE HON. THE COMMISSIONERS OF SEWERS  
OF THE CITY OF LONDON.

SEWERS' OFFICE, GUILDHALL,  
28th April, 1857.

GENTLEMEN,

In the year 1853 I received your permission to take a series of Gaugings of the whole of the Sewers, which either serving for the City alone, or passing through it, discharge their con-

tents into the Thames within the limits of your jurisdiction. A general total of this discharge was obtained as quickly as possible, and held in readiness for any purpose for which it might be required; but as the extent to which I had the gaugings taken, gave means of showing very accurate and detailed results, and deducing information of an interesting as well as useful nature, I delayed reporting to you upon the subject, until time was afforded me of collating the large mass of figures which record the actual observations, and their calculated equivalents, and I now have the honor of laying the results before you.

With a single exception, the whole of the outlets gauged are within the jurisdiction of the Commission; the exception is an outlet which, discharging upon the eastern side of the Tower, is without the present Corporation area, and is termed the Irongate. By arrangement with Mr. Bazalgette, the Engineer to the then existing Metropolitan Commission of Sewers, I undertook the gauging of this also, inasmuch as it is almost entirely a City Sewer, being in fact a portion of the Old City Ditch, and receiving but a very trifling addition of sewage after it leaves the City boundary; its gaugings are therefore incorporated with the others in the general tables; with it the list of outlets is as

follows, commencing with that which is nearest to the south-eastern boundary of your jurisdiction :—

| No. on Tables. | Name of Sewer Gauged.      | Drainage Area, Acres. |
|----------------|----------------------------|-----------------------|
| 1              | The Irongate . . . . .     | 104·00                |
| 2              | Tower Dock . . . . .       | 3·25                  |
| 3              | Wool Quay . . . . .        | 4·95                  |
| 4              | Custom House, East . . . . | 14·59                 |
| 5              | Custom House, West . . . . | 22·70                 |
| 6              | London Bridge . . . . .    | 2250·00               |
| 7              | Dowgate Dock . . . . .     | 113·50                |
| 8              | Hambro Wharf . . . . .     | 10·00                 |
| 9              | Paul's Wharf . . . . .     | 69·00                 |
| 10             | The Fleet . . . . .        | 4220·00               |
| 11             | Whitefriars Dock . . . . . | 55·50                 |
|                | Total Area . . . .         | <u>6867·49</u>        |

The Tower of London drains by its own Sewers into the Thames, these were not gauged and their area is excluded from the Tables and computations, as well as an area of 24 A. 2 R. 11 P. within the City, which also drains by numerous small outlets directly into the river.

The discharges were taken by means of weirs fixed across the Sewers, constructed so as to insure the whole of the sewage being discharged over them, and as near to the outlets as was prac-

ticable: the gaugings were carried on by night and day, whenever the state of the tides and the condition of the weather permitted, and when my assistants were driven out either by the tide or rain the gaugings were resumed at the same minute or hour upon the next opportunity, which a conjunction of dry weather and suitable level of the tidal waters allowed; observations were recorded every fifteen minutes, and extended over the period between the months of June and December of the year 1853, during which time the weather was generally dry and warm; observations were also frequently recorded during rain; but these, together with all subsequent gaugings until the flow had resumed its usual dry weather level, have been carefully excluded from the abstracts from which the tabulated results had been obtained. Those Tables I now lay before you, believing that every practicable care has been taken to insure their accuracy, and that with the Diagrams they show as exactly as possible the dry weather discharge in the year 1853.

The Sewers gauged comprise among them two of the most important in the Metropolis, the Fleet and London Bridge, the former of which drains nearly as large an area as any in London, and the latter I apprehend receives the drainage of a more densely populated district for its area than any of equal extent; the others run through districts where



the consumption of water takes place under almost every variety of circumstance which can affect the rate, and hours of discharge, and taking the eleven Sewers, representing as they do the drainage of an area of 6,867 acres, or about  $10\frac{3}{4}$  square miles, I believe they will furnish data as to periods and rates of discharge from areas, which will be applicable to nearly the whole of the Sewers serving for the populated districts of the Metropolis North of the Thames, and considered in relation to the known water supply at that or any future day, will enable the probable increments of sewage from the Metropolis to be estimated with tolerable accuracy.

I will now direct your attention to some of the results shown by these Tables.

#### AS TO THE HOURS OF DISCHARGE.

Examination of the Diagrams separately will show that in Sewers draining the smaller areas the hours of minimum discharge are nearly the same as those of other districts, but that local habits and circumstances directly affect the hours of maximum discharge; some results do not therefore accord with the larger and general results, but nevertheless with

one or two exceptions it will be found that they agree in giving nearly one-half of the whole daily discharge, as taking place during the eight hours which are between 9 A.M. and 5 P.M., a point of importance in its bearing upon the size of Sewers and Reservoirs for the scheme for the interception of sewage from the Thames.

The total average discharge in dry weather per diem during the six days of the week (Sunday being rejected), is 3,255,840 cubic feet, or 20,316,442 gallons.

The MAXIMUM DISCHARGE is between 11 A.M. and 12 A.M., when its average is 3497·50 cubic feet per minute.

The MINIMUM DISCHARGE is between 2 A.M. and 3 A.M., when its average is 1033 cubic feet per minute.

The periods of MEAN DISCHARGE during the day are at 7·30 A.M. and 8·15 P.M., when it is 2264 cubic feet per minute.

The hour of least discharge is between 2 and 3 A.M.; but from 1 to 5 A.M. (4 hours) the discharge varies but 52 cubic feet per minute, which excess is

between the hour of 4 and 5 A.M., during these four hours but 7.78 per cent. of the whole daily discharge takes place.

From 5 to 9 A.M. the discharge gradually but rapidly increases, and in the four hours ending 9 A.M. the total discharge is 14.42 per cent. of the whole days, or double that of the four preceding hours.

From 9 A.M. the discharge increases less rapidly, it reaches its highest point at 11 A.M., at which moment it is 3501 cubic feet per minute; it continues nearly at that rate until 1 P.M. and then begins slowly to decrease; at 2 P.M. it is nearly the same as at 9 A.M.; at 3 P.M. somewhat less, and it then falls off rapidly until 5 P.M.; the eight hours of the greatest discharge are between 9 A.M. and 5 P.M., during which time 48.97 per cent., or nearly one-half of the whole daily discharge takes place.

From 5 to 6 P.M. the discharge is nearly the same, it then declines slightly until 7, during that time 10.32 per cent. of the whole runs off; from 7 to 11 P.M. it falls off rapidly, and during those four hours 14.17 per cent. is discharged; from 11 P.M. to 1 A.M. but 4.44 per cent. runs off, and this completes the circle of twenty-four hours.

Selecting and arranging the hours into three distinct groups of eight hours each, it will be seen that from—

|                  |               |                         |                 |
|------------------|---------------|-------------------------|-----------------|
| 1 A.M. to 9 A.M. | 22·20         | per cent. of the sewage | [is discharged. |
| 9 A.M. ,, 5 P.M. | 48·97         | „                       | „               |
| 5 P.M ,, 1 A.M.  | 28·83         | „                       | „               |
|                  | <u>100·00</u> |                         |                 |

#### AS TO THE RATE OF DISCHARGE PER ACRE.

The gaugings show the largest discharges from those districts which are the most closely populated, the least from those where there is the most suburban and uncovered area; thus the Paul's Wharf Sewer which runs through the heart of the City and takes an area densely populated during twelve hours of the day, gives a discharge per acre for the twenty-four hours of 1765 cubic feet, which is the highest rate shown, and is five times that of the Fleet Sewer which discharges but 347·8 cubic feet: it must be observed that a large portion of the Fleet area is yet field and purely suburban in character, between the Fleet and Paul's Wharf Sewers which are the extremes, the rates of discharge are various.

The mean discharge from the whole area is 0·3292 cubic feet per acre per minute, or 474·09 cubic feet per acre in the twenty-four hours.

I have the honor to remain,

GENTLEMEN,

Your most obedient Servant,

WILLIAM HAYWOOD,

*Engineer.*



## REFERENCE TO TABLES.

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- TABLE I. Shows the dry weather discharge from each of the Sewers at each hour of the day in the year 1853.
- „ II. Shows the dry weather discharge per hour from each of the Sewers at each hour of the day in the year 1853.
- „ III. Shows the total dry weather discharge per minute, and its proportion to the whole daily discharge.
- „ IV. Shows the total dry weather discharge per minute, the discharges being selected and arranged in groups of eight hours.
- „ V. Shows the Sewers gauged, arranged in the order of their rates of discharge.
- „ VI. Shows the hours of maximum and minimum discharge from each of the Sewers.





CITY OF LONDON SEWERS.

TABLE No. I.—GENERAL SYNOPSIS OF GAUGINGS showing average Dry Weather Discharge per Minute at each Hour of the Day between the months of May and December 1853.

The Gaugings are for six days in the week (Sunday not being included).

| HOUR OF THE DAY<br>AT— |       | IRONGATE SEWER.        | TOWER DOCK SEWER.               | WOOL QUAY SEWER.       | CUSTOM HOUSE, EAST SEWER.       | CUSTOM HOUSE, WEST SEWER. | LONDON BRIDGE SEWER.            | DOWGATE DOCK SEWER.    | HAMBRO' WHARF SEWER.            | PAUL'S WHARF SEWER.    | THE FLEET SEWER.                | WHITEFRIARS DOCK SEWER. | TOTAL DISCHARGE.                |                        |                                 |       |        |        |        |         |        |       |        |      |        |
|------------------------|-------|------------------------|---------------------------------|------------------------|---------------------------------|---------------------------|---------------------------------|------------------------|---------------------------------|------------------------|---------------------------------|-------------------------|---------------------------------|------------------------|---------------------------------|-------|--------|--------|--------|---------|--------|-------|--------|------|--------|
|                        |       | Area 104·00 acres.     | Area 3·25 acres.                | Area 4·95 acres.       | Area 14·59 acres.               | Area 22·70 acres.         | Area 2250·00 acres.             | Area 113·50 acres.     | Area 10·00 acres.               | Area 69·00 acres.      | Area 4320·00 acres.             | Area 55·50 acres.       | Area 6867·49 acres.             |                        |                                 |       |        |        |        |         |        |       |        |      |        |
|                        |       | See Diagram 1.         | See Diagram 2.                  | See Diagram 3.         | See Diagram 4.                  | See Diagram 5.            | See Diagram 6.                  | See Diagram 7.         | See Diagram 8.                  | See Diagram 9.         | See Diagram 10.                 | See Diagram 11.         | See Diagram 12.                 |                        |                                 |       |        |        |        |         |        |       |        |      |        |
|                        |       | Cubic feet per minute. | Cubic feet per acre per minute. | Cubic feet per minute. | Cubic feet per acre per minute. | Cubic feet per minute.    | Cubic feet per acre per minute. | Cubic feet per minute. | Cubic feet per acre per minute. | Cubic feet per minute. | Cubic feet per acre per minute. | Cubic feet per minute.  | Cubic feet per acre per minute. | Cubic feet per minute. | Cubic feet per acre per minute. |       |        |        |        |         |        |       |        |      |        |
| A.M. ....              | 1·00  | 38·74                  | 0·3725                          | 0·86                   | 0·2646                          | 2·48                      | 0·5010                          | 3·97                   | 0·2721                          | 21·33                  | 0·9396                          | 445·04                  | 0·1978                          | 26·28                  | 0·2315                          | 2·60  | 0·2620 | 35·29  | 0·5114 | 477·38  | 0·1131 | 19·85 | 0·3576 | 1074 | 0·1564 |
|                        | 2·00  | 32·28                  | 0·3104                          | 1·00                   | 0·3077                          | 2·51                      | 0·5071                          | 4·24                   | 0·2906                          | 21·49                  | 0·9466                          | 422·04                  | 0·1875                          | 24·16                  | 0·2128                          | 2·60  | 0·2620 | 33·47  | 0·4850 | 463·95  | 0·1099 | 18·91 | 0·3407 | 1027 | 0·1495 |
|                        | 3·00  | 31·40                  | 0·3019                          | 1·23                   | 0·3784                          | 2·73                      | 0·5515                          | 3·93                   | 0·2693                          | 22·45                  | 0·9889                          | 426·31                  | 0·1894                          | 22·68                  | 0·1998                          | 2·60  | 0·2600 | 31·51  | 0·4566 | 475·80  | 0·1127 | 17·98 | 0·3239 | 1039 | 0·1513 |
|                        | 4·00  | 30·02                  | 0·2886                          | 1·21                   | 0·3723                          | 2·76                      | 0·5576                          | 4·10                   | 0·2810                          | 22·64                  | 0·9973                          | 434·97                  | 0·1933                          | 17·92                  | 0·1578                          | 2·60  | 0·2600 | 30·74  | 0·4455 | 504·61  | 0·1195 | 17·49 | 0·3151 | 1069 | 0·1556 |
|                        | 5·00  | 30·02                  | 0·2886                          | 1·31                   | 0·4030                          | 3·71                      | 0·7495                          | 4·22                   | 0·2892                          | 23·03                  | 1·0145                          | 429·28                  | 0·1908                          | 15·23                  | 0·1342                          | 2·37  | 0·2370 | 32·31  | 0·4682 | 541·15  | 0·1282 | 18·42 | 0·3319 | 1101 | 0·1603 |
|                        | 6·00  | 34·10                  | 0·3279                          | 6·54                   | 2·0123                          | 6·24                      | 1·2606                          | 3·87                   | 0·2652                          | 25·90                  | 1·1409                          | 481·94                  | 0·2142                          | 14·67                  | 0·1292                          | 2·14  | 0·2140 | 34·76  | 0·5036 | 650·14  | 0·1540 | 48·32 | 0·8706 | 1309 | 0·1906 |
|                        | 7·00  | 51·79                  | 0·4979                          | 11·05                  | 3·4000                          | 9·57                      | 1·9333                          | 4·84                   | 0·3317                          | 30·00                  | 1·3216                          | 742·07                  | 0·3297                          | 28·21                  | 0·2485                          | 2·82  | 0·2820 | 41·42  | 0·6003 | 722·20  | 0·1711 | 48·42 | 0·8724 | 1692 | 0·2463 |
|                        | 8·00  | 101·82                 | 0·9790                          | 6·26                   | 1·9261                          | 9·19                      | 1·8566                          | 5·83                   | 0·3995                          | 24·25                  | 1·0682                          | 1071·37                 | 0·4761                          | 46·83                  | 0·4126                          | 4·44  | 0·4440 | 113·04 | 1·6333 | 1191·08 | 0·2822 | 50·38 | 0·9077 | 2624 | 0·3821 |
|                        | 9·00  | 130·27                 | 1·2526                          | 2·25                   | 0·6923                          | 15·54                     | 3·1394                          | 8·61                   | 0·5901                          | 23·82                  | 1·0493                          | 1376·21                 | 0·6116                          | 48·68                  | 0·4289                          | 10·29 | 1·0290 | 129·13 | 1·8714 | 1494·43 | 0·3541 | 48·04 | 0·8655 | 3287 | 0·4786 |
|                        | 10·00 | 144·33                 | 1·3878                          | 2·54                   | 0·7815                          | 5·55                      | 1·1212                          | 7·66                   | 0·5250                          | 26·65                  | 1·1740                          | 1398·50                 | 0·6215                          | 53·09                  | 0·4677                          | 14·17 | 1·4170 | 111·87 | 1·6213 | 1531·62 | 0·3629 | 61·43 | 1·1068 | 3357 | 0·4888 |
|                        | 11·00 | 134·06                 | 1·2890                          | 5·37                   | 1·6523                          | 3·12                      | 0·6303                          | 5·92                   | 0·4057                          | 24·58                  | 1·0828                          | 1457·98                 | 0·6479                          | 67·70                  | 0·5964                          | 12·28 | 1·2280 | 115·67 | 1·6764 | 1609·30 | 0·3813 | 64·99 | 1·1709 | 3501 | 0·5098 |
|                        | 12·00 | 170·18                 | 1·6363                          | 4·69                   | 1·4430                          | 4·02                      | 0·8121                          | 7·13                   | 0·4887                          | 22·16                  | 0·9762                          | 1396·71                 | 0·6207                          | 58·85                  | 0·5185                          | 7·64  | 0·7640 | 117·15 | 1·6978 | 1642·39 | 0·3892 | 63·36 | 1·1416 | 3494 | 0·5088 |
| P.M. ....              | 1·00  | 126·22                 | 1·2136                          | 5·85                   | 1·8000                          | 3·55                      | 0·7172                          | 11·07                  | 0·7587                          | 24·86                  | 1·0951                          | 1354·71                 | 0·6021                          | 74·94                  | 0·6602                          | 6·75  | 0·6750 | 129·48 | 1·8765 | 1648·98 | 0·3907 | 65·43 | 1·1789 | 3452 | 0·5026 |
|                        | 2·00  | 114·20                 | 1·0980                          | 2·63                   | 0·8092                          | 5·66                      | 1·1434                          | 6·69                   | 0·4585                          | 22·80                  | 1·0044                          | 1274·99                 | 0·5666                          | 87·67                  | 0·7724                          | 8·36  | 0·8360 | 135·09 | 1·9578 | 1564·40 | 0·3707 | 62·01 | 1·1173 | 3285 | 0·4783 |
|                        | 3·00  | 118·82                 | 1·1425                          | 2·43                   | 0·7477                          | 7·23                      | 1·4606                          | 5·09                   | 0·3488                          | 23·55                  | 1·0374                          | 1422·18                 | 0·6320                          | 80·28                  | 0·7073                          | 4·78  | 0·4780 | 138·87 | 2·0126 | 1402·49 | 0·3323 | 63·76 | 1·1488 | 3269 | 0·4760 |
|                        | 4·00  | 119·00                 | 1·1442                          | 2·35                   | 0·7230                          | 6·69                      | 1·3515                          | 6·52                   | 0·4469                          | 23·15                  | 1·0198                          | 1325·37                 | 0·5889                          | 51·79                  | 0·4563                          | 4·02  | 0·4020 | 167·72 | 2·4307 | 1369·03 | 0·3244 | 61·71 | 1·1119 | 3137 | 0·4568 |
|                        | 5·00  | 130·24                 | 1·2523                          | 2·72                   | 0·8369                          | 7·75                      | 1·5656                          | 6·28                   | 0·4304                          | 23·35                  | 1·0286                          | 1275·29                 | 0·5667                          | 53·08                  | 0·4676                          | 3·82  | 0·3820 | 114·84 | 1·6644 | 1200·56 | 0·2845 | 50·15 | 0·9036 | 2868 | 0·4176 |
|                        | 6·00  | 130·39                 | 1·2537                          | 2·78                   | 0·8554                          | 7·54                      | 1·5232                          | 10·33                  | 0·7080                          | 24·28                  | 1·0696                          | 1147·90                 | 0·5161                          | 62·59                  | 0·5514                          | 4·93  | 0·4930 | 114·81 | 1·6639 | 1300·25 | 0·3081 | 51·48 | 0·9275 | 2857 | 0·4160 |
|                        | 7·00  | 131·15                 | 1·2610                          | 2·62                   | 0·8061                          | 5·82                      | 1·1757                          | 15·02                  | 1·0294                          | 33·89                  | 1·4929                          | 1030·63                 | 0·4580                          | 77·68                  | 0·6844                          | 5·65  | 0·5650 | 107·37 | 1·5561 | 1161·33 | 0·2752 | 50·35 | 0·9072 | 2622 | 0·3818 |
|                        | 8·00  | 147·27                 | 1·4160                          | 3·49                   | 1·0738                          | 4·98                      | 1·0060                          | 22·98                  | 1·5750                          | 45·48                  | 2·0035                          | 925·35                  | 0·4112                          | 49·86                  | 0·4393                          | 6·33  | 0·6330 | 96·08  | 1·3924 | 972·61  | 0·2304 | 38·70 | 0·6973 | 2313 | 0·3368 |
|                        | 9·00  | 116·29                 | 1·1181                          | 2·80                   | 0·8615                          | 4·88                      | 0·8848                          | 25·61                  | 1·7553                          | 55·03                  | 2·4242                          | 797·83                  | 0·3546                          | 32·96                  | 0·2904                          | 3·75  | 0·3750 | 65·00  | 0·9420 | 782·15  | 0·1853 | 31·33 | 0·5645 | 1917 | 0·2791 |
|                        | 10·00 | 66·81                  | 0·6424                          | 1·87                   | 0·5753                          | 2·85                      | 0·5757                          | 6·53                   | 0·4475                          | 32·64                  | 1·4378                          | 619·68                  | 0·2754                          | 27·03                  | 0·2381                          | 3·69  | 0·3690 | 56·03  | 0·8120 | 662·48  | 0·1569 | 25·79 | 0·4647 | 1505 | 0·2191 |
|                        | 11·00 | 43·82                  | 0·4213                          | 1·60                   | 0·4923                          | 2·46                      | 0·4969                          | 4·21                   | 0·2885                          | 26·96                  | 1·1877                          | 539·40                  | 0·2397                          | 29·12                  | 0·2565                          | 3·18  | 0·3180 | 42·15  | 0·6109 | 582·04  | 0·1379 | 22·25 | 0·4009 | 1297 | 0·1889 |
|                        | 12·00 | 35·71                  | 0·3493                          | 1·13                   | 0·3477                          | 2·77                      | 0·5595                          | 4·21                   | 0·2885                          | 22·30                  | 0·9824                          | 500·98                  | 0·2226                          | 27·40                  | 0·2414                          | 3·19  | 0·3190 | 36·08  | 0·5229 | 512·61  | 0·1214 | 20·55 | 0·3703 | 1167 | 0·1699 |
| Average of Day .....   |       | 92·03                  | 0·8849                          | 3·19                   | 0·9817                          | 5·38                      | 1·0866                          | 7·86                   | 0·5393                          | 26·94                  | 1·1868                          | 929·03                  | 0·4129                          | 44·94                  | 0·3959                          | 5·21  | 0·5210 | 84·58  | 1·2258 | 1019·29 | 0·2415 | 42·55 | 0·7666 | 2261 | 0·3292 |





CITY OF LONDON SEWERS.

TABLE No. II.—GENERAL SYNOPSIS OF GAUGINGS, showing average Dry Weather Discharge per Hour, and per Acre per Hour in each Hour of the Day, between the Months of May and December 1853.

The Gaugings are for six days in the week (Sunday not being included).

| HOUR OF THE DAY<br>ENDING AT— |       | IRONGATE SEWER.<br>Area 104.00 acres. |                               | TOWER DOCK SEWER.<br>Area 3.25 acres. |                               | WOOL QUAY SEWER.<br>Area 4.95 acres. |                               | CUSTOM HOUSE, EAST SEWER.<br>Area 14.59 acres. |                               | CUSTOM HOUSE, WEST SEWER.<br>Area 22.70 acres. |                               | LONDON BRIDGE SEWER.<br>Area 2250.00 acres. |                               | DOWGATE DOCK SEWER.<br>Area 113.50 acres. |                               | HAMBRO' WHARF SEWER.<br>Area 10.00 acres. |                               | PAUL'S WHARF SEWER.<br>Area 69.00 acres. |                               | THE FLEET SEWER.<br>Area 4220.00 acres. |                               | WHITEFRIARS DOCK SEWER.<br>Area 55.50 acres. |                               | TOTAL DISCHARGE.<br>Area 6867.49 acres. |                               |
|-------------------------------|-------|---------------------------------------|-------------------------------|---------------------------------------|-------------------------------|--------------------------------------|-------------------------------|--|-------------------------------|--|-------------------------------|---|-------------------------------|---|-------------------------------|---|-------------------------------|--|-------------------------------|---|-------------------------------|--|-------------------------------|---|-------------------------------|
|                               |       | See Diagram 1.                        |                               | See Diagram 2.                        |                               | See Diagram 3.                       |                               | See Diagram 4.                                 |                               | See Diagram 5.                                 |                               | See Diagram 6.                              |                               | See Diagram 7.                            |                               | See Diagram 8.                            |                               | See Diagram 9.                           |                               | See Diagram 10.                         |                               | See Diagram 11.                              |                               |   |                               |
|                               |       | Cubic feet per hour.                  | Cubic feet per acre per hour. | Cubic feet per hour.                  | Cubic feet per acre per hour. | Cubic feet per hour.                 | Cubic feet per acre per hour. | Cubic feet per hour.                           | Cubic feet per acre per hour. | Cubic feet per hour.                           | Cubic feet per acre per hour. | Cubic feet per hour.                        | Cubic feet per acre per hour. | Cubic feet per hour.                      | Cubic feet per acre per hour. | Cubic feet per hour.                      | Cubic feet per acre per hour. | Cubic feet per hour.                     | Cubic feet per acre per hour. | Cubic feet per hour.                    | Cubic feet per acre per hour. | Cubic feet per hour.                         | Cubic feet per acre per hour. | Cubic feet per hour.                    | Cubic feet per acre per hour. |
| A.M. ....                     | 1.00  | 2233.5                                | 21.474                        | 59.7                                  | 18.369                        | 157.5                                | 31.815                        | 245.4  | 16.818                        | 1308.9   | 57.660                        | 28380.6                                     | 12.612                        | 1610.4                                    | 14.187                        | 173.7                                     | 17.37                         | 2141.1                                   | 31.029                        | 29699.7                                 | 7.035                         | 1212.0                                       | 21.837                        | 67230                                   | 9.789                         |
|                               | 2.00  | 2130.6                                | 20.487                        | 55.8                                  | 17.169                        | 149.7                                | 30.243                        | 246.3  | 16.881                        | 1284.6   | 56.586                        | 26012.4                                     | 11.559                        | 1513.2                                    | 13.329                        | 156.0                                     | 15.60                         | 2062.8                                   | 29.892                        | 28239.9                                 | 6.690                         | 1162.8                                       | 20.949                        | 63030                                   | 9.177                         |
|                               | 3.00  | 1910.4                                | 18.369                        | 66.9                                  | 20.583                        | 157.2                                | 31.758                        | 245.1  | 16.797                        | 1318.2   | 58.065                        | 25450.5                                     | 11.307                        | 1405.2                                    | 12.378                        | 156.0                                     | 15.60                         | 1949.4                                   | 28.248                        | 28192.5                                 | 6.678                         | 1106.7                                       | 19.938                        | 61980                                   | 9.024                         |
|                               | 4.00  | 1842.6                                | 17.715                        | 73.2                                  | 22.521                        | 164.7                                | 33.273                        | 240.9  | 16.509                        | 1352.7   | 59.586                        | 25838.4                                     | 11.481                        | 1218.0                                    | 10.728                        | 156.0                                     | 15.60                         | 1867.5                                   | 27.063                        | 29412.3                                 | 6.966                         | 1064.1                                       | 19.170                        | 63240                                   | 9.207                         |
|                               | 5.00  | 1801.2                                | 17.316                        | 75.6                                  | 23.259                        | 194.1                                | 39.213                        | 249.6  | 17.106                        | 1370.1   | 60.354                        | 25927.5                                     | 11.523                        | 1094.5                                    | 8.760                         | 149.1                                     | 14.91                         | 1891.5                                   | 27.411                        | 31372.8                                 | 7.431                         | 1077.3                                       | 19.140                        | 65100                                   | 9.477                         |
|                               | 6.00  | 1923.6                                | 18.495                        | 235.5                                 | 72.459                        | 298.5                                | 60.303                        | 242.7  | 16.632                        | 1467.9   | 64.662                        | 27336.6                                     | 12.150                        | 897.0                                     | 7.902                         | 135.3                                     | 13.53                         | 2012.1                                   | 29.154                        | 35738.7                                 | 8.466                         | 2002.2                                       | 36.075                        | 72300                                   | 10.527                        |
|                               | 7.00  | 2576.7                                | 24.774                        | 527.7                                 | 162.369                       | 474.3                                | 95.817                        | 261.3  | 17.907                        | 1677.0   | 73.875                        | 36720.3                                     | 16.317                        | 1286.4                                    | 11.331                        | 148.8                                     | 14.88                         | 2285.4                                   | 33.117                        | 41170.2                                 | 9.753                         | 2902.2                                       | 52.290                        | 90030                                   | 13.107                        |
|                               | 8.00  | 4608.3                                | 44.307                        | 519.3                                 | 159.783                       | 562.8                                | 113.697                       | 320.1  | 21.936                        | 1627.5   | 71.694                        | 54403.2                                     | 24.174                        | 2251.2                                    | 19.833                        | 217.8                                     | 21.78                         | 4633.8                                   | 67.158                        | 57398.4                                 | 13.599                        | 2964.0                                       | 53.403                        | 129480                                  | 18.852                        |
|                               | 9.00  | 6962.7                                | 66.948                        | 255.3                                 | 78.552                        | 741.9                                | 149.880                       | 433.2  | 29.688                        | 1442.1   | 63.525                        | 73427.4                                     | 32.631                        | 2865.3                                    | 25.245                        | 441.9                                     | 44.19                         | 7265.1                                   | 105.291                       | 80565.3                                 | 19.089                        | 2952.6                                       | 53.196                        | 177330                                  | 25.821                        |
|                               | 10.00 | 8238.0                                | 79.212                        | 143.7                                 | 44.214                        | 632.7                                | 127.818                       | 488.1  | 33.453                        | 1514.1   | 66.699                        | 83241.3                                     | 36.993                        | 3053.1                                    | 26.898                        | 733.8                                     | 73.38                         | 7230.0                                   | 104.781                       | 90781.5                                 | 21.510                        | 3284.1                                       | 59.169                        | 199320                                  | 29.022                        |
|                               | 11.00 | 8351.7                                | 80.304                        | 237.3                                 | 73.014                        | 260.1                                | 52.545                        | 407.4  | 27.921                        | 1536.9   | 67.704                        | 85694.4                                     | 38.082                        | 3623.7                                    | 31.923                        | 793.5                                     | 79.35                         | 6826.2                                   | 98.931                        | 94227.6                                 | 22.326                        | 3792.6                                       | 68.331                        | 205740                                  | 29.958                        |
|                               | 12.00 | 9127.2                                | 87.759                        | 301.8                                 | 92.859                        | 214.2                                | 43.272                        | 391.5  | 26.832                        | 1402.2   | 61.770                        | 85640.7                                     | 38.058                        | 3796.5                                    | 33.447                        | 597.6                                     | 59.76                         | 6984.6                                   | 101.226                       | 97550.7                                 | 23.115                        | 3850.5                                       | 69.375                        | 209850                                  | 30.558                        |
| P.M. ....                     | 1.00  | 8892.0                                | 85.497                        | 316.2                                 | 97.290                        | 227.1                                | 45.879                        | 546.0  | 37.422                        | 1410.6   | 62.139                        | 82542.6                                     | 36.684                        | 4013.7                                    | 35.361                        | 431.7                                     | 43.17                         | 7398.9                                   | 107.229                       | 98741.1                                 | 23.397                        | 3863.7                                       | 69.615                        | 208380                                  | 30.342                        |
|                               | 2.00  | 7212.6                                | 69.348                        | 254.4                                 | 78.276                        | 276.3                                | 55.818                        | 532.8  | 36.516                        | 1429.8   | 62.985                        | 78891.0                                     | 35.061                        | 4878.3                                    | 42.978                        | 453.3                                     | 45.33                         | 7937.1                                   | 115.029                       | 96401.4                                 | 22.842                        | 3823.2                                       | 68.886                        | 202110                                  | 29.427                        |
|                               | 3.00  | 6990.6                                | 67.215                        | 151.8                                 | 46.707                        | 386.7                                | 78.120                        | 353.4  | 24.219                        | 1390.5   | 61.251                        | 80915.1                                     | 35.958                        | 5038.5                                    | 44.391                        | 394.2                                     | 39.42                         | 8218.8                                   | 119.112                       | 89006.7                                 | 21.090                        | 3773.1                                       | 67.983                        | 196620                                  | 28.629                        |
|                               | 4.00  | 7134.6                                | 68.601                        | 143.4                                 | 44.121                        | 417.6                                | 84.363                        | 348.3  | 23.871                        | 1401.0   | 61.716                        | 82426.5                                     | 36.627                        | 3962.1                                    | 34.908                        | 264.0                                     | 26.40                         | 9197.7                                   | 133.299                       | 83145.6                                 | 19.701                        | 3764.1                                       | 67.821                        | 192180                                  | 27.984                        |
|                               | 5.00  | 7477.2                                | 71.895                        | 433.2                                 | 87.513                        | 384.0                                | 26.319                        | 1395.0   | 61.452                        | 1395.0   | 61.452                        | 78019.8                                     | 34.668                        | 3146.1                                    | 27.717                        | 235.2                                     | 23.52                         | 8476.8                                   | 122.853                       | 77087.7                                 | 18.267                        | 3355.8                                       | 60.465                        | 180150                                  | 26.232                        |
|                               | 6.00  | 7818.9                                | 75.180                        | 165.0                                 | 50.769                        | 458.7                                | 92.664                        | 498.3  | 34.152                        | 1428.9   | 62.946                        | 72695.7                                     | 32.304                        | 3470.1                                    | 30.570                        | 262.5                                     | 26.25                         | 6889.5                                   | 99.849                        | 75024.3                                 | 17.778                        | 3048.9                                       | 54.933                        | 171750                                  | 25.008                        |
|                               | 7.00  | 7846.2                                | 75.441                        | 162.0                                 | 49.845                        | 400.8                                | 80.967                        | 760.5  | 52.122                        | 1745.1   | 76.875                        | 65355.9                                     | 29.043                        | 4208.1                                    | 37.074                        | 317.4                                     | 31.74                         | 6665.4                                   | 96.600                        | 73847.4                                 | 17.499                        | 3054.9                                       | 55.041                        | 164370                                  | 23.934                        |
|                               | 8.00  | 8352.6                                | 80.310                        | 183.3                                 | 56.397                        | 324.0                                | 65.451                        | 1140.0   | 78.132                        | 2381.1   | 104.892                       | 58679.4                                     | 26.076                        | 3826.2                                    | 33.711                        | 359.4                                     | 35.94                         | 64018.2                                  | 15.168                        | 6103.5                                  | 48.135                        | 2671.5                                       | 48.135                        | 148050                                  | 21.558                        |
|                               | 9.00  | 7906.8                                | 76.023                        | 188.7                                 | 58.059                        | 280.8                                | 56.724                        | 1457.7   | 99.909                        | 3015.3   | 132.831                       | 51695.4                                     | 23.034                        | 2484.6                                    | 21.891                        | 302.4                                     | 30.24                         | 4832.4                                   | 70.032                        | 52642.8                                 | 12.471                        | 2100.9                                       | 37.854                        | 126900                                  | 18.477                        |
|                               | 10.00 | 5493.0                                | 52.815                        | 140.1                                 | 43.104                        | 216.9                                | 43.815                        | 964.2  | 66.084                        | 2630.1   | 115.860                       | 42525.3                                     | 18.900                        | 1799.7                                    | 15.855                        | 223.2                                     | 22.32                         | 3630.9                                   | 52.620                        | 43338.9                                 | 10.266                        | 1713.6                                       | 30.876                        | 102660                                  | 14.946                        |
|                               | 11.00 | 3318.9                                | 31.911                        | 104.1                                 | 32.028                        | 159.3                                | 32.178                        | 22.080   | 1788.0                        | 78.765   | 34772.4                       | 15.453                                      | 1684.5                        | 14.838                                    | 206.1                         | 20.61                                     | 20.61                         | 1441.2                                   | 42.687                        | 37335.6                                 | 8.844                         | 1441.2                                       | 25.968                        | 84060                                   | 12.240                        |
|                               | 12.00 | 2385.9                                | 22.938                        | 81.9                                  | 25.200                        | 156.9                                | 31.692                        | 252.6  | 17.310                        | 1477.8   | 65.103                        | 31211.4                                     | 13.869                        | 1695.6                                    | 14.937                        | 191.1                                     | 19.11                         | 2346.9                                   | 34.014                        | 32839.5                                 | 7.779                         | 1284.0                                       | 23.136                        | 73920                                   | 10.764                        |
| Average of Day                |       | 5522.3                                | 53.097                        | 191.4                                 | 58.906                        | 322.7                                | 65.200                        | 472.1  | 32.359                        | 1616.5   | 71.208                        | 55741.8                                     | 24.773                        | 2696.7                                    | 23.758                        | 312.5                                     | 31.250                        | 5074.7                                   | 73.545                        | 61157.4                                 | 14.490                        | 2552.7                                       | 45.994                        | 135657                                  | 19.752                        |





CITY OF LONDON SEWERS.

TABLE No. III.—ABSTRACT OF GAUGINGS showing the Mean Discharge per Minute, the quantity of Sewage Discharged during each Hour of the Day and Night, and its proportion to the whole daily discharge for six days in the week (Sunday not being included), between the months of May and December 1853.

Total Area Drained by Sewers, 6867·49 Acres.

| Hour.                      | Discharge per minute. | Mean discharge per minute during hour. | Total discharge per hour. | Per centage of whole daily discharge. | Total discharge between 12 P.M. and any of the succeeding 24 hours. |            |              |
|----------------------------|-----------------------|--|---------------------------|---------------------------------------|---|------------|--------------|
|                            |                       |  |                           |                                       | Hour.   | Discharge. | Per centage. |
| At 12 o'Clock p.m. . . . . | 1167                  | Cubic feet.                            | Cubic feet.               |                                       | From 12 p.m.  |            |              |
| " 1 " a.m. . . . .         | 1074                  | 1120·50                                | 67230·00                  | 2·07                                  | to  | 67230·00   | 2·07         |
| " 1 " a.m. . . . .         | 1074                  | 1050·50                                | 63030·00                  | 1·94                                  | 1 a.m. 1 hour . .   | 130260·00  | 4·01         |
| " 2 " a.m. . . . .         | 1027                  | 1033·00                                | 61980·00                  | 1·90                                  | 2 a.m. 2 hours .  | 192240·00  | 5·91         |
| " 2 " a.m. . . . .         | 1039                  | 1054·00                                | 63240·00                  | 1·94                                  | 3 a.m. 3 " . .  | 255480·00  | 7·85         |
| " 3 " a.m. . . . .         | 1069                  | 1085·00                                | 65100·00                  | 2·00                                  | 4 a.m. 4 " . .  | 320580·00  | 9·85         |
| " 3 " a.m. . . . .         | 1069                  | 1205·00                                | 72300·00                  | 2·22                                  | 5 a.m. 5 " . .  | 392880·00  | 12·07        |
| " 4 " a.m. . . . .         | 1101                  | 1500·50                                | 90030·00                  | 2·77                                  | 6 a.m. 6 " . .  | 482910·00  | 14·84        |
| " 4 " a.m. . . . .         | 1309                  | 2158·00                                | 129480·00                 | 3·98                                  | 7 a.m. 7 " . .  |            |              |
| " 5 " a.m. . . . .         | 1309                  |  |                           |                                       | 8 a.m. 8 " . .  | 612390·00  | 18·82        |
| " 5 " a.m. . . . .         | 1692                  |  |                           |                                       |   |            |              |
| " 6 " a.m. . . . .         | 1692                  |  |                           |                                       |   |            |              |
| " 6 " a.m. . . . .         | 2624                  |  |                           |                                       |   |            |              |

|    |      |      |         |           |      |            |            |        |
|----|------|------|---------|-----------|------|------------|------------|--------|
| 10 | a.m. | 3857 | 1322 00 | 19920 00  | 6-12 | 10 a.m. 10 | 989040-00  | 30-39  |
| "  | "    | 3857 | 3429-00 | 205740-00 | 6-32 | "          | "          | "      |
| "  | "    | 3501 | 3497-50 | 209850-00 | 6-45 | 11 a.m. 11 | 1194780-00 | 36-71  |
| "  | "    | 3494 | 3473-00 | 208380-00 | 6-40 | 12 a.m. 12 | 1404630-00 | 43-16  |
| "  | "    | 3494 | 3368-50 | 202110-00 | 6-21 | "          | "          | "      |
| "  | "    | 3452 | 3277-00 | 196620-00 | 6-04 | 1 p.m. 13  | 1613010-00 | 49-56  |
| "  | "    | 3285 | 3203-00 | 192180-00 | 5-90 | 2 p.m. 14  | 1815120-00 | 55-77  |
| "  | "    | 3285 | 3002-50 | 180150-00 | 5-53 | 3 p.m. 15  | 2011740-00 | 61-81  |
| "  | "    | 3269 | 2862-50 | 171750-00 | 5-27 | 4 p.m. 16  | 2203920-00 | 67-71  |
| "  | "    | 3137 | 2739-50 | 164370-00 | 5-05 | 5 p.m. 17  | 2384070-00 | 73-24  |
| "  | "    | 3137 | 2467-50 | 148050-00 | 4-55 | 6 p.m. 18  | 2555820-00 | 78-51  |
| "  | "    | 2868 | 2115-00 | 126900-00 | 3-89 | 7 p.m. 19  | 2720190-00 | 83-56  |
| "  | "    | 2868 | 1711-00 | 102660-00 | 3-15 | 8 p.m. 20  | 2868240-00 | 88-11  |
| "  | "    | 2857 | 1401-00 | 84060-00  | 2-58 | 9 p.m. 21  | 2995140-00 | 92-00  |
| "  | "    | 2857 | 1232-00 | 73920-00  | 2-27 | 10 p.m. 22 | 3097800-00 | 95-15  |
| "  | "    | 2622 |         |           |      | 11 p.m. 23 | 3181860-00 | 97-73  |
| "  | "    | 2622 |         |           |      | 12 p.m. 24 | 3255780-00 | 100-00 |
| "  | "    | 2313 |         |           |      | "          | "          | "      |
| "  | "    | 2313 |         |           |      | "          | "          | "      |
| "  | "    | 1917 |         |           |      | "          | "          | "      |
| "  | "    | 1917 |         |           |      | "          | "          | "      |
| "  | "    | 1505 |         |           |      | "          | "          | "      |
| "  | "    | 1505 |         |           |      | "          | "          | "      |
| "  | "    | 1297 |         |           |      | "          | "          | "      |
| "  | "    | 1297 |         |           |      | "          | "          | "      |
| "  | "    | 1167 |         |           |      | "          | "          | "      |

WILLIAM HAYWOOD, Engineer,

28th April, 1857.



TABLE No. IV.—ABSTRACT OF GAUGINGS *showing the aggregate quantity Discharged during certain Selected Hours each week (Sunday not being included), between the months of March and May 1891.*

*Total Area Drained 1,000 Acres.*

|  | No. of Hours.           | Hours.                  | Mean discharge per minute during hour. | Total discharge per hour. | Percentage whole daily discharge. |
|--|-------------------------|-------------------------|--|---------------------------|-----------------------------------|
| Hour of Minimum Discharge from 2 a.m. to 3 a.m. ....   | 4                       | 1 a.m. to 2 a.m. ....   | 1050·50                                | 63030·00                  | 1·94                              |
|  |                         | 2 a.m. to 3 a.m. ...    | 1033·00                                | 61980·00                  | 1·90                              |
|  |                         | 3 a.m. to 4 a.m. ....   | 1054·00                                | 63240·00                  | 1·94                              |
|  |                         | 4 a.m. to 5 a.m. ....   | 1085·00                                | 65100·00                  | 2·00                              |
|  | 4                       | 5 a.m. to 6 a.m. ....   | 1205·00                                | 72300·00                  | 2·22                              |
|  |                         | 6 a.m. to 7 a.m. ....   | 1500·50                                | 90030·00                  | 2·77                              |
|  |                         | 7 a.m. to 8 a.m. ....   | 2158·00                                | 129480·00                 | 3·98                              |
|  |                         | 8 a.m. to 9 a.m. ....   | 2955·50                                | 177330·00                 | 5·45                              |
| Hour of Maximum Discharge from 11 a.m. to 12 a.m. .... | 6                       | 9 a.m. to 10 a.m. ....  | 3322·00                                | 199320·00                 | 6·12                              |
|  |                         | 10 a.m. to 11 a.m. .... | 3429·00                                | 205740·00                 | 6·32                              |
|  |                         | 11 a.m. to 12 a.m. .... | 3497·50                                | 209850·00                 | 6·45                              |
|  |                         | 12 a.m. to 1 p.m. ....  | 3473·00                                | 208330·00                 | 6·40                              |
|  | 2                       | 1 p.m. to 2 p.m. ....   | 3368·50                                | 202110·00                 | 6·21                              |
|  |                         | 2 p.m. to 3 p.m. ....   | 3277·00                                | 196620·00                 | 6·04                              |
| 2  | 3 p.m. to 4 p.m. ....   | 3203·00                 | 192180·00                              | 5·90                      |                                   |
|  | 4 p.m. to 5 p.m. ....   | 3002·50                 | 180150·00                              | 5·53                      |                                   |
| 2  | 5 p.m. to 6 p.m. ....   | 2862·50                 | 171750·00                              | 5·27                      |                                   |
|  | 6 p.m. to 7 p.m. ....   | 2739·50                 | 164370·00                              | 5·05                      |                                   |
| 4  | 7 p.m. to 8 p.m. ....   | 2467·50                 | 148050·00                              | 4·55                      |                                   |
|  | 8 p.m. to 9 p.m. ....   | 2115·00                 | 126900·00                              | 3·89                      |                                   |
|  | 9 p.m. to 10 p.m. ....  | 1711·00                 | 102660·00                              | 3·15                      |                                   |
|  | 10 p.m. to 11 p.m. .... | 1401·00                 | 84060·00                               | 2·58                      |                                   |
| 2  | 11 p.m. to 12 p.m. .... | 1232·00                 | 73920·00                               | 2·27                      |                                   |
|  | 12 p.m. to 1 a.m. ....  | 1120·50                 | 67230·00                               | 2·07                      |                                   |



DON SEWERS.

Quantity Discharged per Minute during each Hour of the Day and Night, as proportion to the whole daily discharge for six days in the month of December 1853.

Area, 6867.49 Acres.

| Time. | Per centage of whole to daily discharge. | Hours. | DISCHARGE IN PERIODS OF EIGHT HOURS. |                       |                                  |                                    |   |   |
|-------|--|--------|--------------------------------------|-----------------------|----------------------------------|------------------------------------|---|---|
|       |  |        | Total.                               | Per centage of whole. | Mean rate of discharge per hour. | Mean rate of discharge per minute. | Mean rate of discharge per acre per hour. | Mean rate of discharge per acre per minute. |
|       |  |        | Cubic feet.                          |                       | Cubic feet.                      | Cubic feet.                        | Cubic feet.                               | Cubic feet.                                 |
| 00    | 7.78                                     | } 8    | 722490.00                            | 22.20                 | 90311.25                         | 1505.18                            | 13.005                                    | .2167                                       |
| 00    | 14.42                                    |        |                                      |                       |                                  |                                    |   |   |
| 00    | 37.54                                    | } 8    | 1594350.00                           | 48.97                 | 199293.75                        | 3321.56                            | 29.019                                    | .4836                                       |
| 00    | 11.43                                    |        |                                      |                       |                                  |                                    |   |   |
| 00    | 10.32                                    | } 8    | 938940.00                            | 28.83                 | 117367.50                        | 1956.12                            | 17.090                                    | .2848                                       |
| 00    | 14.17                                    |        |                                      |                       |                                  |                                    |   |   |
| 00    | 4.34                                     |        |                                      |                       |                                  |                                    |   |   |

WILLIAM HAYWOOD, *Engineer,*  
28th April, 1857.

## CITY OF LONDON SEWERS.

TABLE No. V.—Gaugings between May and December 1853, for six days of the week, (Sunday not being included). Table showing the Sewers Gauged in the order of their discharge per acre per 24 hours, beginning with the Sewer having the least rate of discharge.

| No. | NAME OF OUTLET SEWER GAUGED.  | DRAINAGE AREA. |  | TOTAL DISCHARGE in 24 hours. |                      | REMARKS.            |
|-----|-------------------------------|----------------|--|------------------------------|----------------------|---------------------|
|     |                               | Acres.         |  | Cubic feet.                  | Cubic feet per acre. |                     |
| 1   | The Fleet Sewer.....          | 4220.00        |  | 1467778.8                    | 347.8                | See Diagram No. 10. |
| 2   | Dowgate Dock Sewer.....       | 113.50         |  | 64722.0                      | 570.2                | Ditto No. 7.        |
| 3   | London Bridge Sewer.....      | 2250.00        |  | 1337803.8                    | 594.6                | Ditto No. 6.        |
| 4   | Hambro' Wharf Sewer.....      | 10.00          |  | 7500.0                       | 750.0                | Ditto No. 8.        |
| 5   | Custom House, East Sewer..... | 14.59          |  | 11331.6                      | 776.6                | Ditto No. 4.        |
| 6   | Whitefriars Dock Sewer.....   | 55.50          |  | 61266.0                      | 1103.9               | Ditto No. 11.       |
| 7   | Irongate Sewer.....           | 104.00         |  | 132535.8                     | 1274.3               | Ditto No. 1.        |
| 8   | Tower Dock Sewer.....         | 3.25           |  | 4594.8                       | 1413.8               | Ditto No. 2.        |
| 9   | Wool Quay Sewer.....          | 4.95           |  | 7746.0                       | 1564.8               | Ditto No. 3.        |
| 10  | Custom House, West Sewer..... | 22.70          |  | 38795.4                      | 1709.0               | Ditto No. 5.        |
| 11  | Paul's Wharf Sewer.....       | 69.00          |  | 121792.8                     | 1765.1               | Ditto No. 9.        |
|     | Total.....                    | 6867.49        |  | 3255867.0                    | 474.09               | Ditto No. 12.       |

WILLIAM HAYWOOD, Engineer,  
28th April, 1857.

TABLE No. VI.—Abstract showing the Hours of Maximum, Minimum, and Total Dry Weather Discharges PER HOUR, of the various Sewers Gauged between the months of May and December 1853, for six days in the week (Sunday not being included).

| NAME OF OUTLET SEWER GAUGED.   | No. of Diagram. | AREA.   |                         | MAXIMUM DISCHARGE. per hour. |                      | MINIMUM DISCHARGE. per hour. |                      | TOTAL DISCHARGE in 24 hours. |                      |
|--------------------------------|-----------------|---------|-------------------------|------------------------------|----------------------|------------------------------|----------------------|------------------------------|----------------------|
|                                |                 | Acres.  | Hour.                   | Cubic feet.                  | Cubic feet per acre. | Cubic feet.                  | Cubic feet per acre. | Cubic feet.                  | Cubic feet per acre. |
| The Irongate Sewer .....       | 1               | 104.00  | From 11 a.m. to 12 a.m. | 9127.2                       | 87.759               | 1801.2                       | 17.316               | 132535.8                     | 1274.3               |
| " Tower Dock Sewer .....       | 2               | 3.25    | " 4 a.m. to 5 a.m.      | 527.7                        | 162.369              | 55.8                         | 17.169               | 4594.8                       | 1413.8               |
| " Wool Quay Sewer .....        | 3               | 4.95    | " 1 a.m. to 2 a.m.      | 741.9                        | 149.880              | 149.7                        | 30.243               | 7746.0                       | 1564.8               |
| " Custom House, East Sewer .   | 4               | 14.59   | " 1 a.m. to 2 a.m.      | 1457.7                       | 99.915               | 240.9                        | 16.509               | 11331.6                      | 776.6                |
| " Custom House, West Sewer .   | 5               | 22.70   | " 8 p.m. to 9 p.m.      | 3015.3                       | 132.831              | 1284.6                       | 56.586               | 38795.4                      | 1709.0               |
| " London Bridge Sewer .....    | 6               | 2250.00 | " 3 a.m. to 4 a.m.      | 85694.4                      | 38.082               | 25450.5                      | 11.307               | 1337803.8                    | 594.6                |
| " Dowgate Dock Sewer .....     | 7               | 113.50  | " 10 a.m. to 11 a.m.    | 5038.5                       | 44.391               | 897.0                        | 7.902                | 64722.0                      | 570.2                |
| " Hambro' Wharf Sewer .....    | 8               | 10.00   | " 2 a.m. to 3 a.m.      | 793.5                        | 79.350               | 135.3                        | 13.530               | 7500.0                       | 750.0                |
| " Paul's Wharf Sewer .....     | 9               | 69.00   | " 2 p.m. to 3 p.m.      | 9197.7                       | 133.299              | 1867.5                       | 27.063               | 121792.8                     | 1765.1               |
| " Fleet Sewer .....            | 10              | 4220.00 | " 3 a.m. to 4 a.m.      | 98741.1                      | 23.397               | 28192.5                      | 6.678                | 1467778.8                    | 347.8                |
| " Whitefriars Dock Sewer ..... | 11              | 55.50   | " 12 a.m. to 1 p.m.     | 3863.7                       | 69.615               | 1064.1                       | 19.170               | 61266.0                      | 1103.9               |
| " Whitefriars Dock Sewer ..... | 11              | 55.50   | " 12 a.m. to 1 p.m.     | 3863.7                       | 69.615               | 1064.1                       | 19.170               | 61266.0                      | 1103.9               |
| " Total .....                  | 12              | 6867.49 | .....                   | .....                        | .....                | .....                        | .....                | 3255867.0                    | 474.09               |



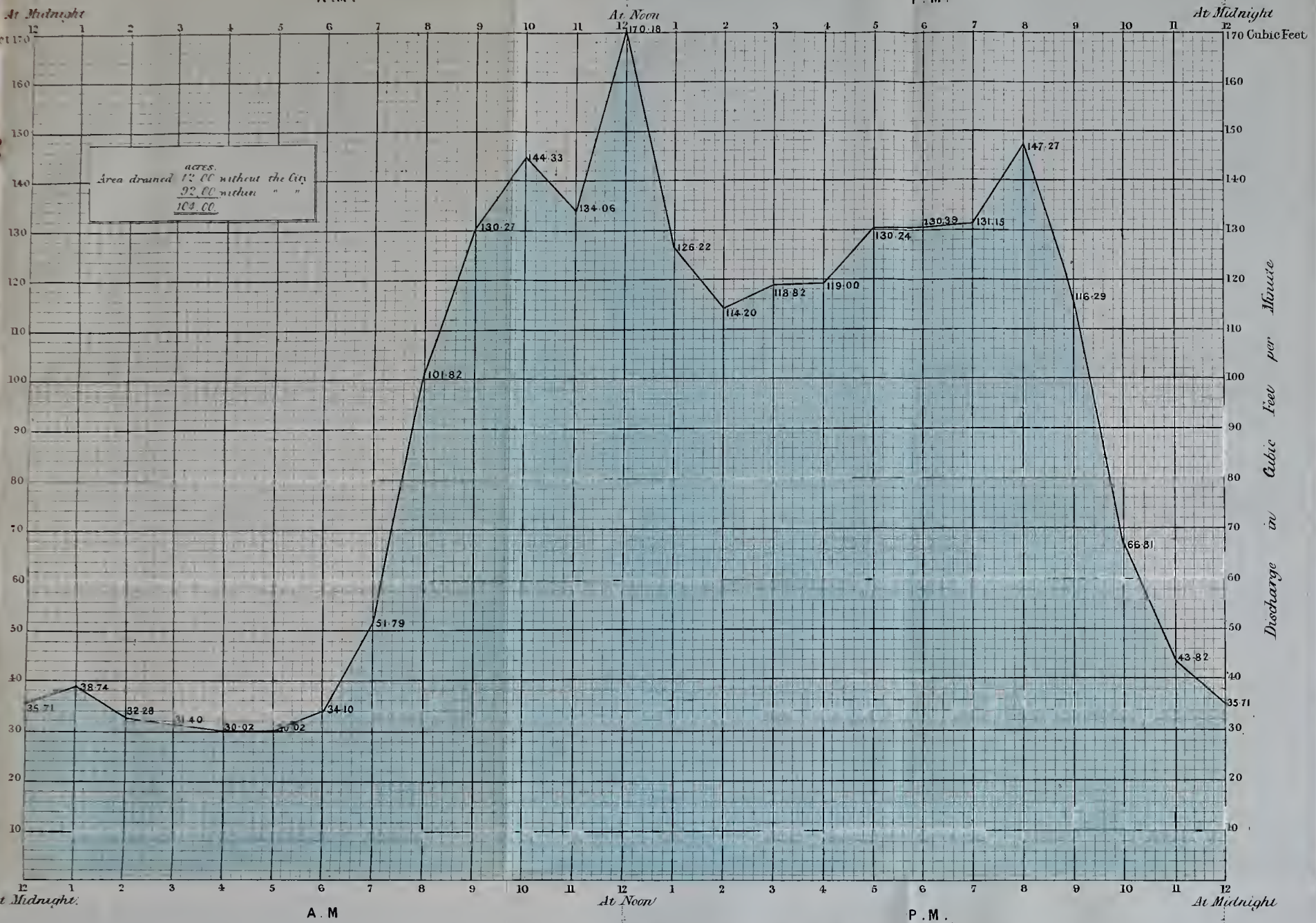


# IRONGATE SEWER

A. M.

1853.

P. M.



A. M.

At Noon

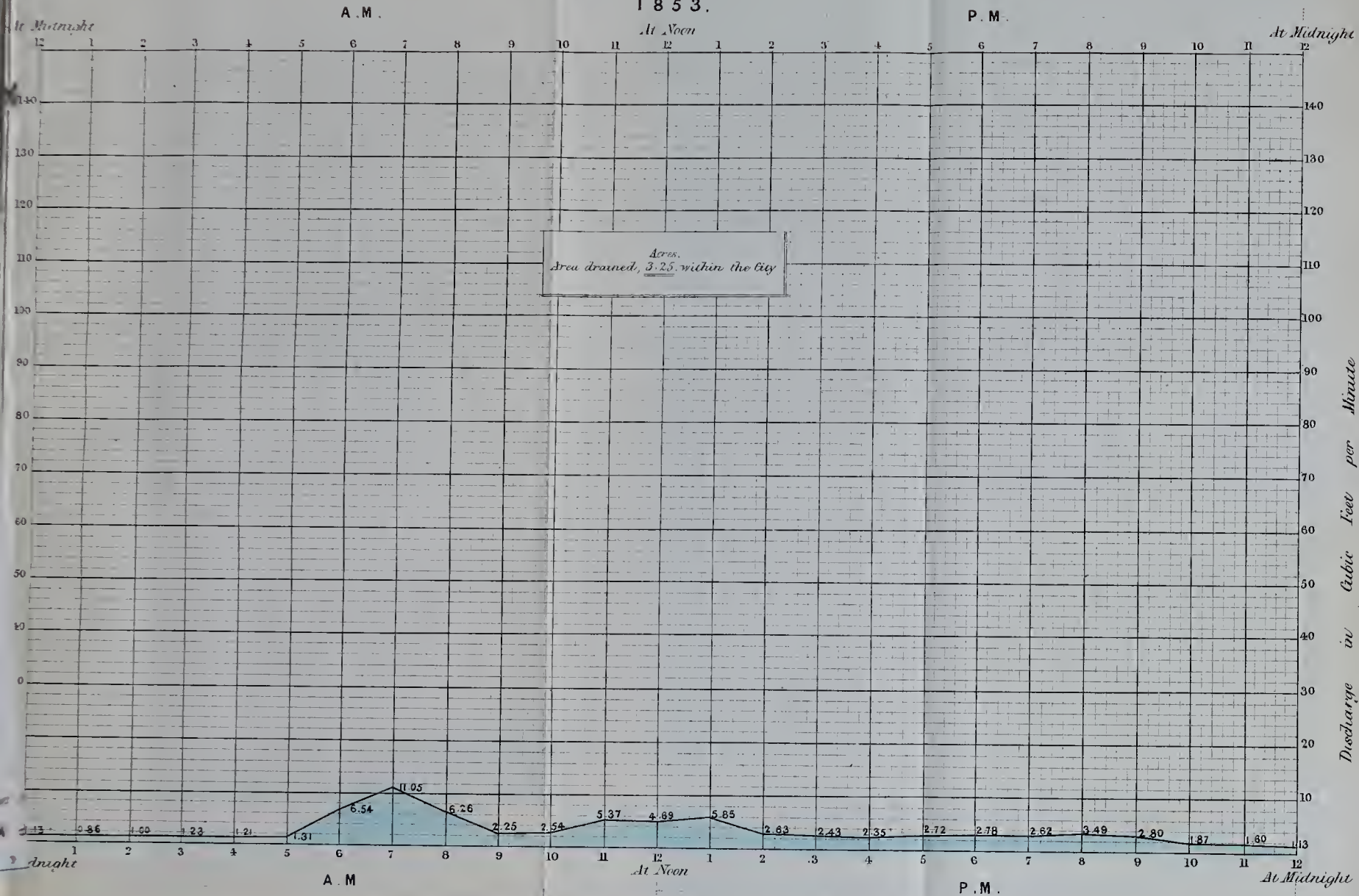
P. M.

At Midnight

The Black line shows the line of discharge at the different periods of the day. The figures thus 35.71 show the discharge in cubic feet per minute at the particular hours under which they are placed.

shows the particular hours under which they are placed

GAUGINGS  
TOWER DOCK SEWER  
1853.



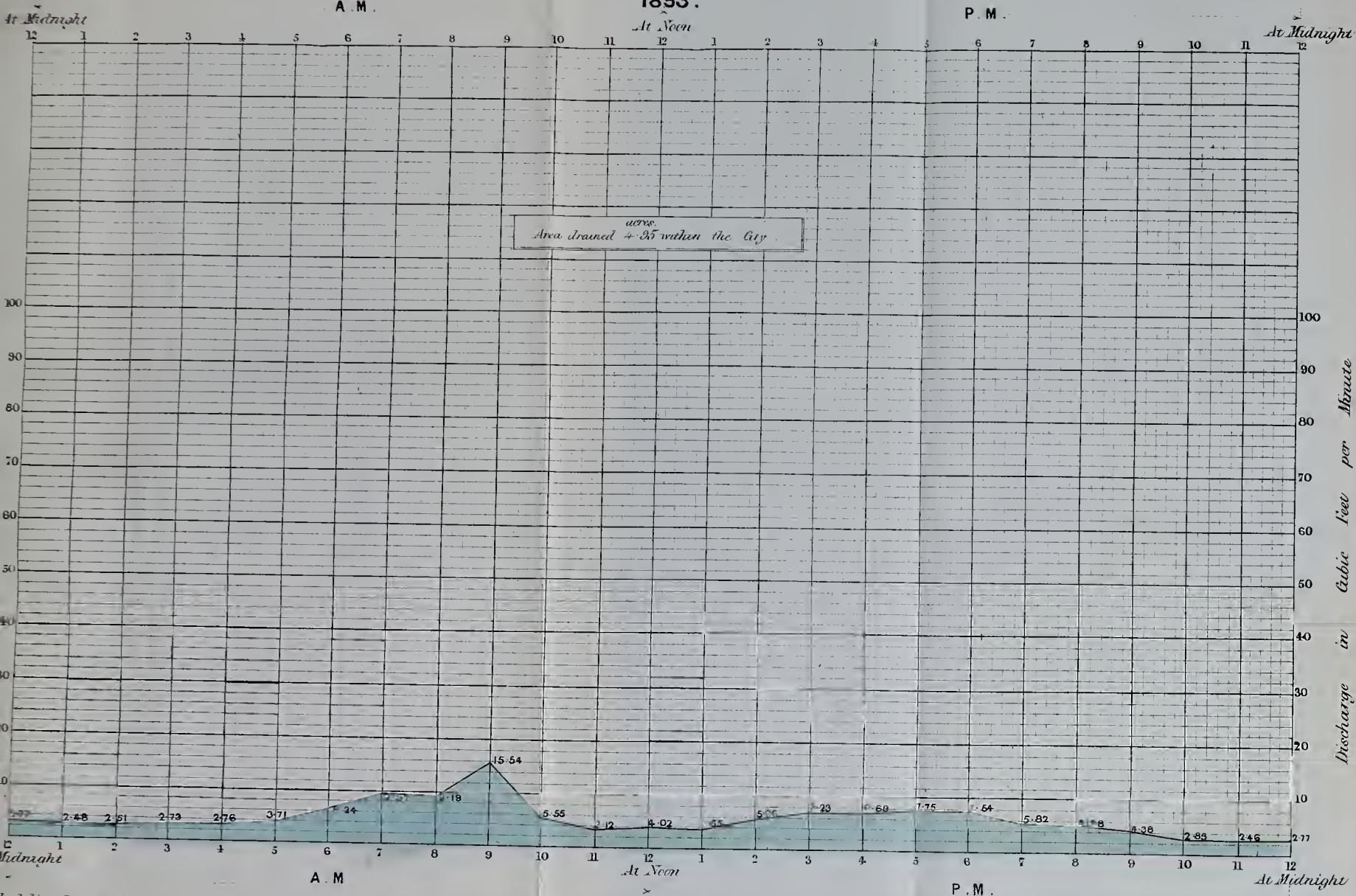
Black line shows the line of discharge at the different periods of the day. The figures thus 1.00 show the discharge in Cubic Feet per Minute at the particular hours under which they are placed





CUAGINGS.  
WOOL QUAY SEWER.

1853.

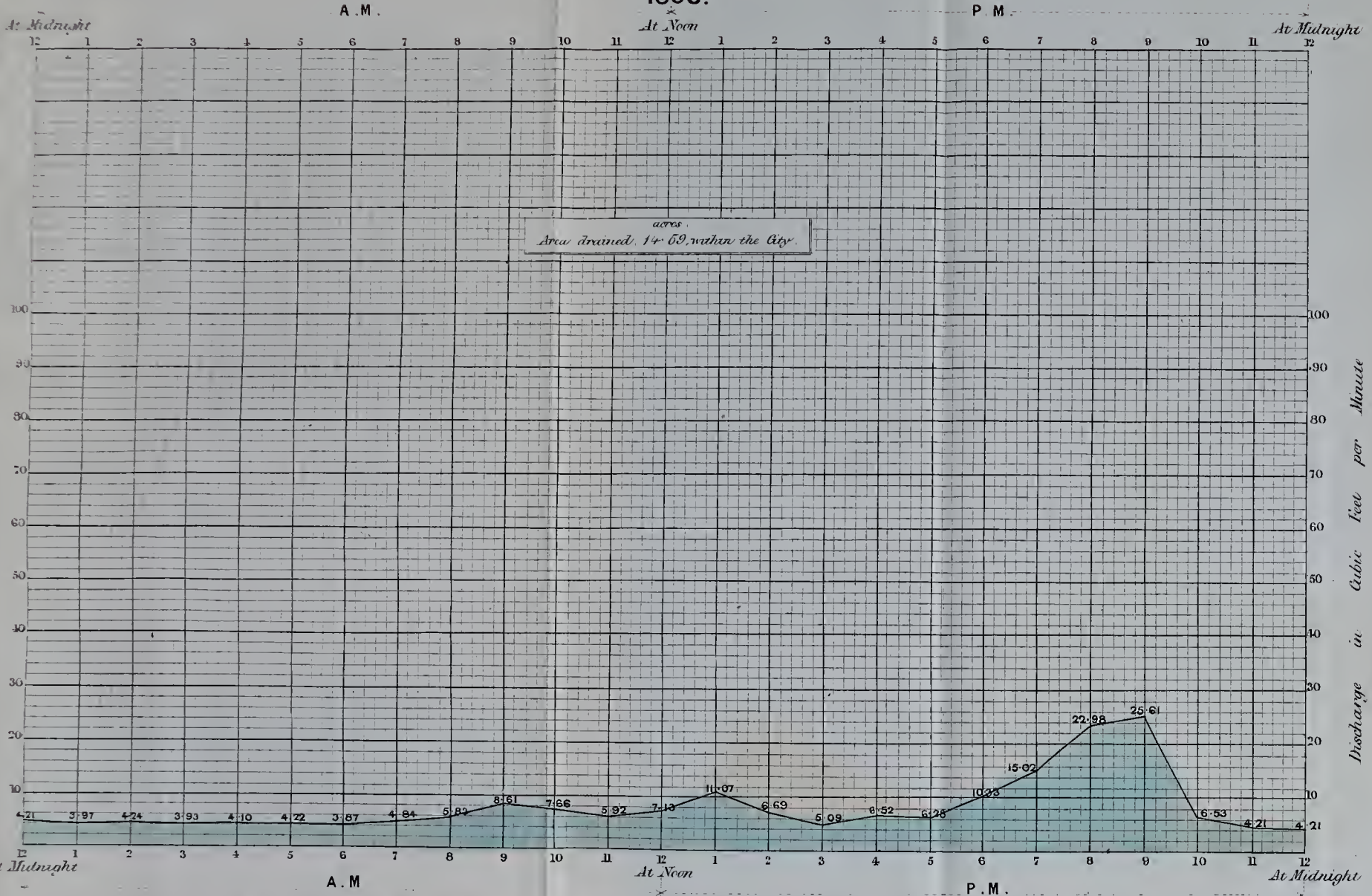


The black line shows the line of discharge at the different periods of the day. The figures thus 2.46 show the discharge in cubic feet per minute at the particular hours under which they are placed.



GUACINGS.  
 CUSTOM HOUSE EAST SEWER.

1853.

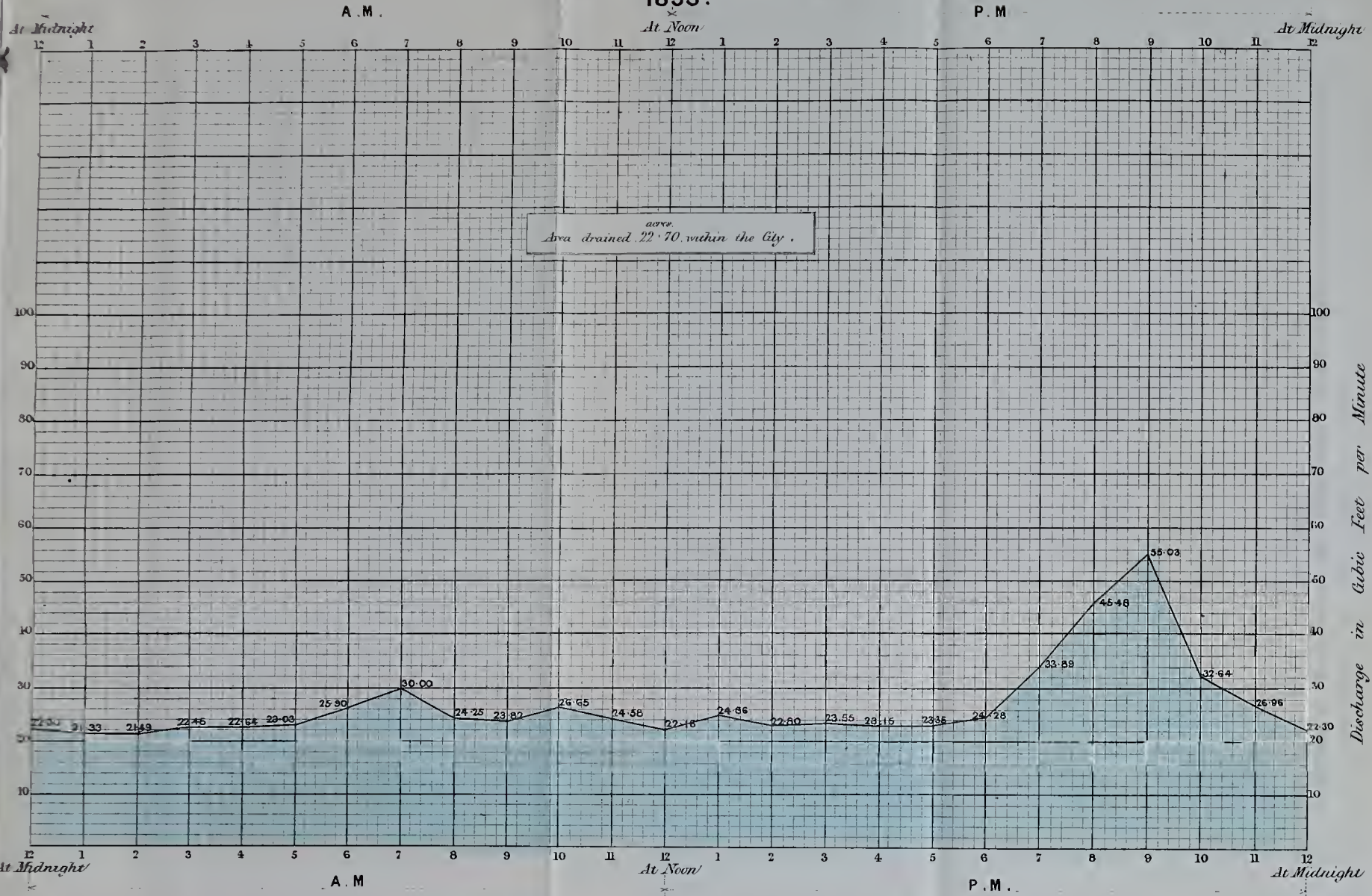


The Black line shows the line of discharge at the different periods of the day. The figures thus 4.21 show the discharge in Cubic Feet per Minute at the particular hours under which they are placed





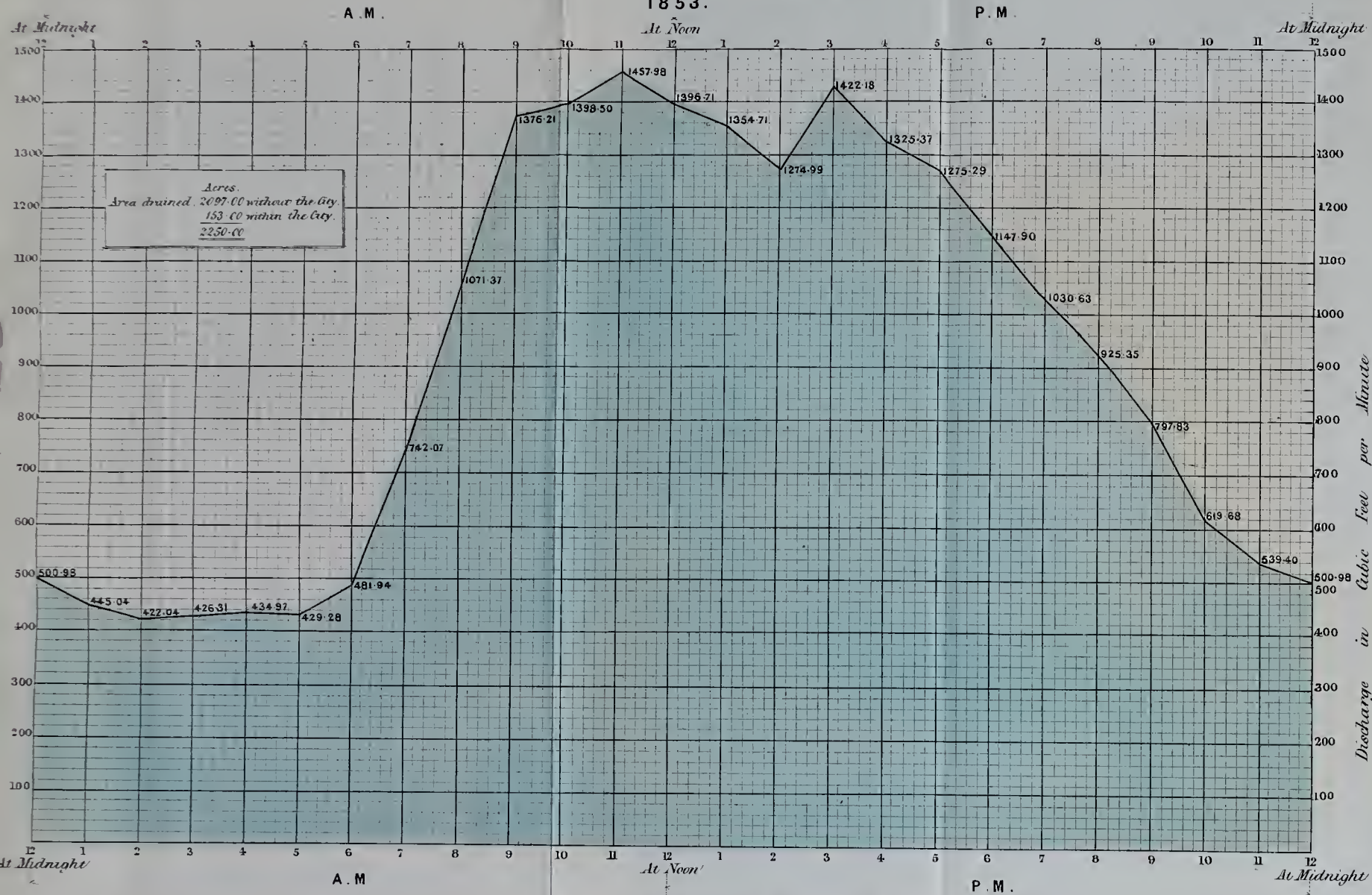
GUACINGS.  
CUSTOM HOUSE, WEST SEWER.  
1853.



The Black line shows the line of discharge at the different periods of the day. The figures thus 22.30 show the discharge in Cubic Feet per Minute at the particular hours under which they are placed.



CAUGINGS  
LONDON BRIDGE SEWER  
1853.

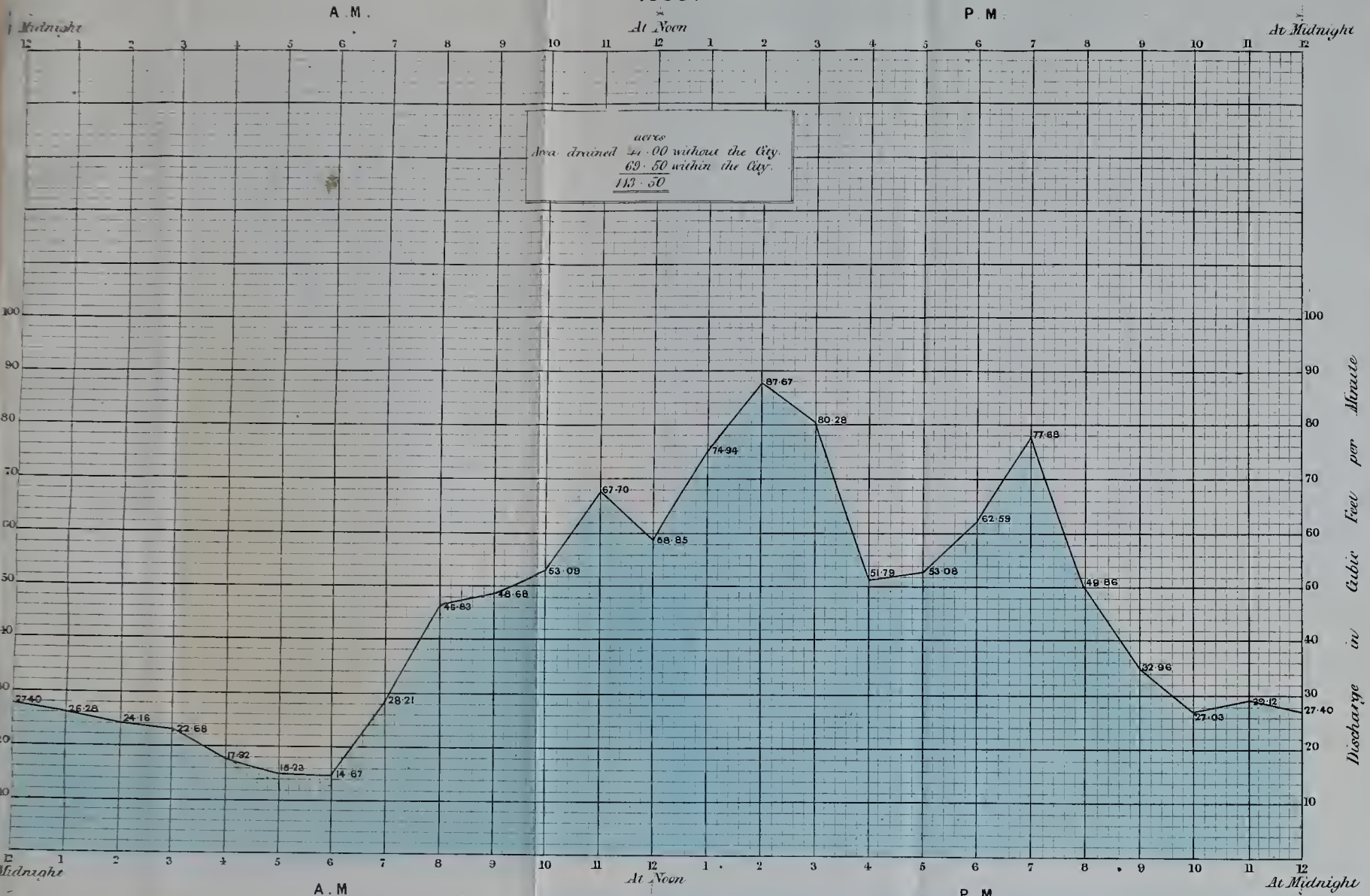


The Black line shows the line of discharge at the different periods of the day. The figures thus 422.04 show the discharge in Cubic Feet per Minute at the particular hours under which they are placed.





GAUGINGS.  
DOWGATE DOCK SEWER.  
1853.



Black line shows the line of discharge at the different periods of the day. The figures thus placed show the discharge in Cubic Feet per Minute at the particular hours under which they are placed.



Y OF LONDON SEWERS.  
N° 8.

GAUGINGS.  
HAMBRO' WHARF SEWER.

1853.

A. M.

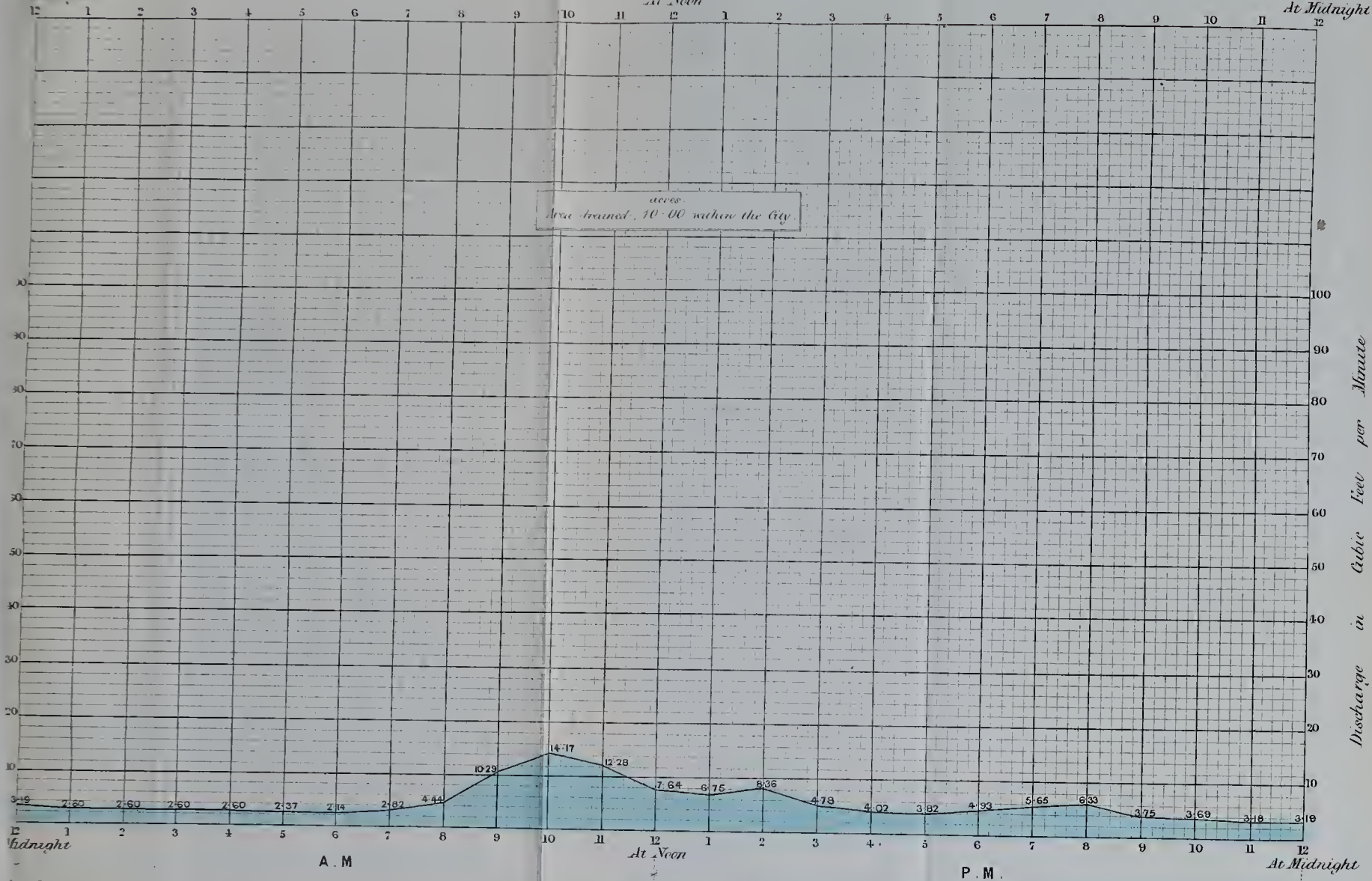
P. M.

Midnight

At Midnight

At Noon

Area drained across.  
Area drained, 10.00 within the City.

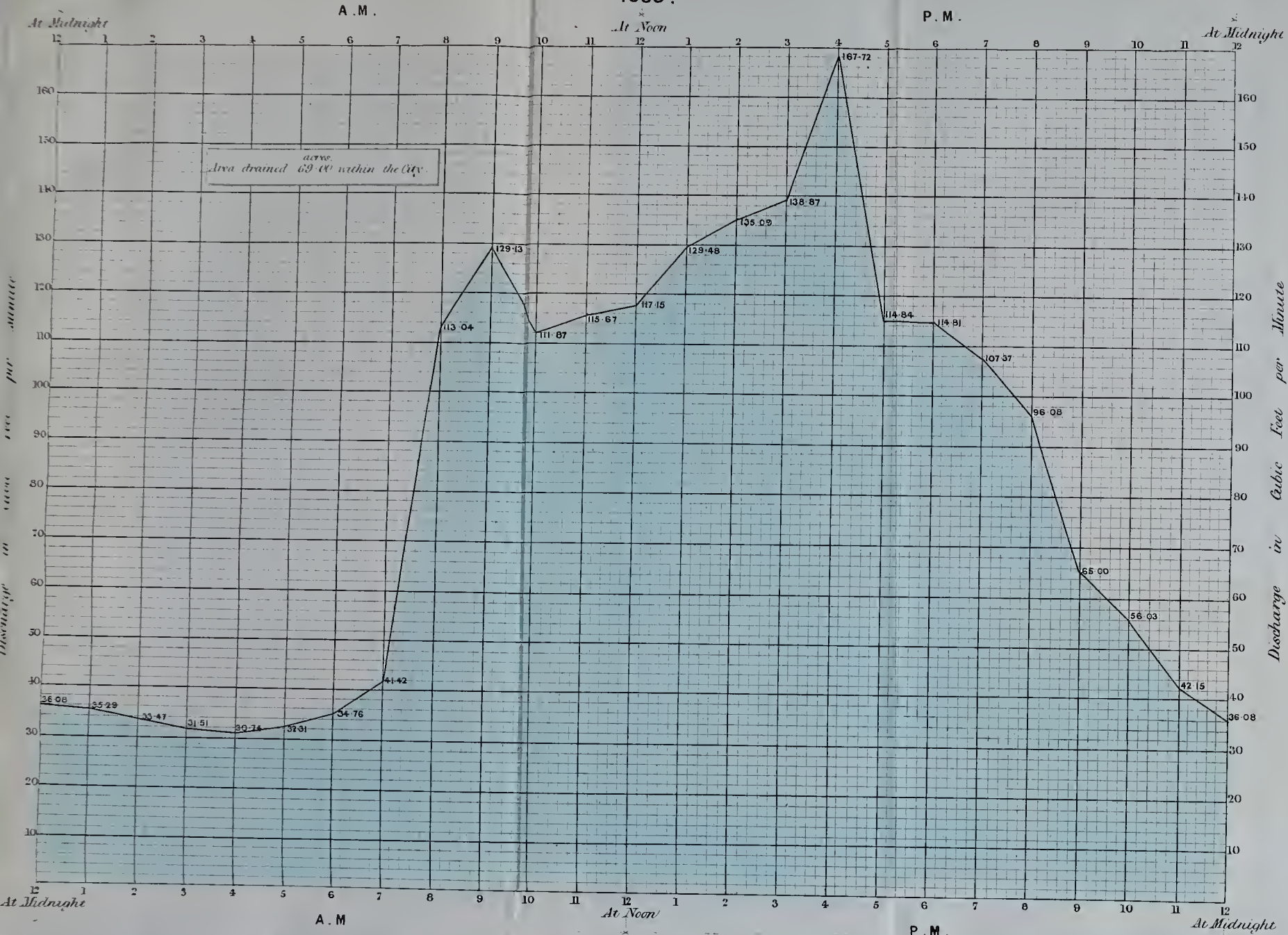


This line shows the line of discharge at the different periods of the day. The figures thus 2.60 show the discharge in Cubic Feet per Minute at the particular hours under which they are placed.





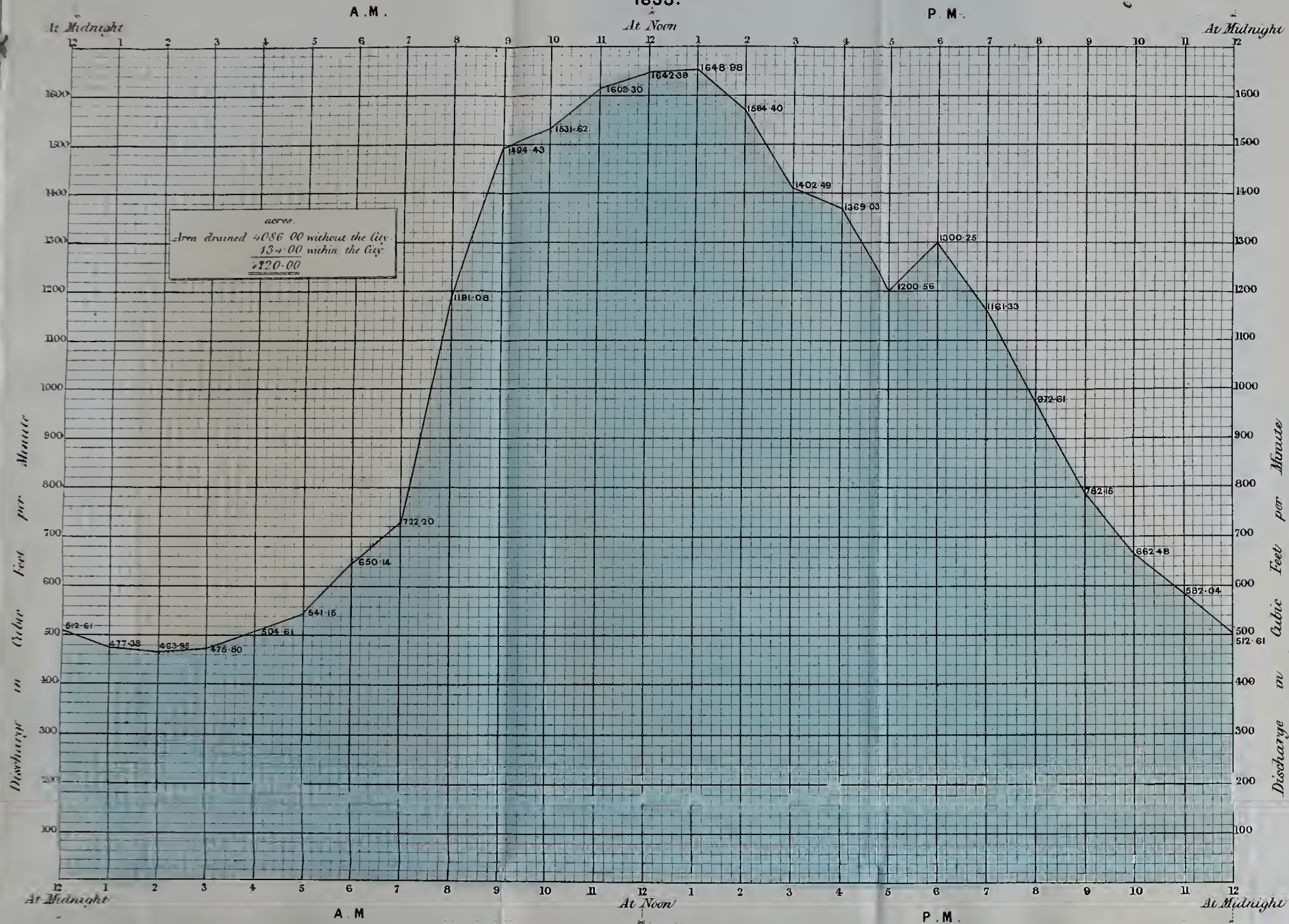
CALCULINGS  
PAUL'S WHARF SEWER.  
1853.



Area drained above 69'00 within the City.

The Black line shows the line of discharge at the different periods of the day. The figures thus 30.74 show the discharge in Cubic Feet per Minute at the particular hours under which they are placed





The Black line shows the line of discharge at the different periods of the day. The figures thus 463.95 show the discharge in Cubic Feet per Minute at the particular hours under which they are placed.





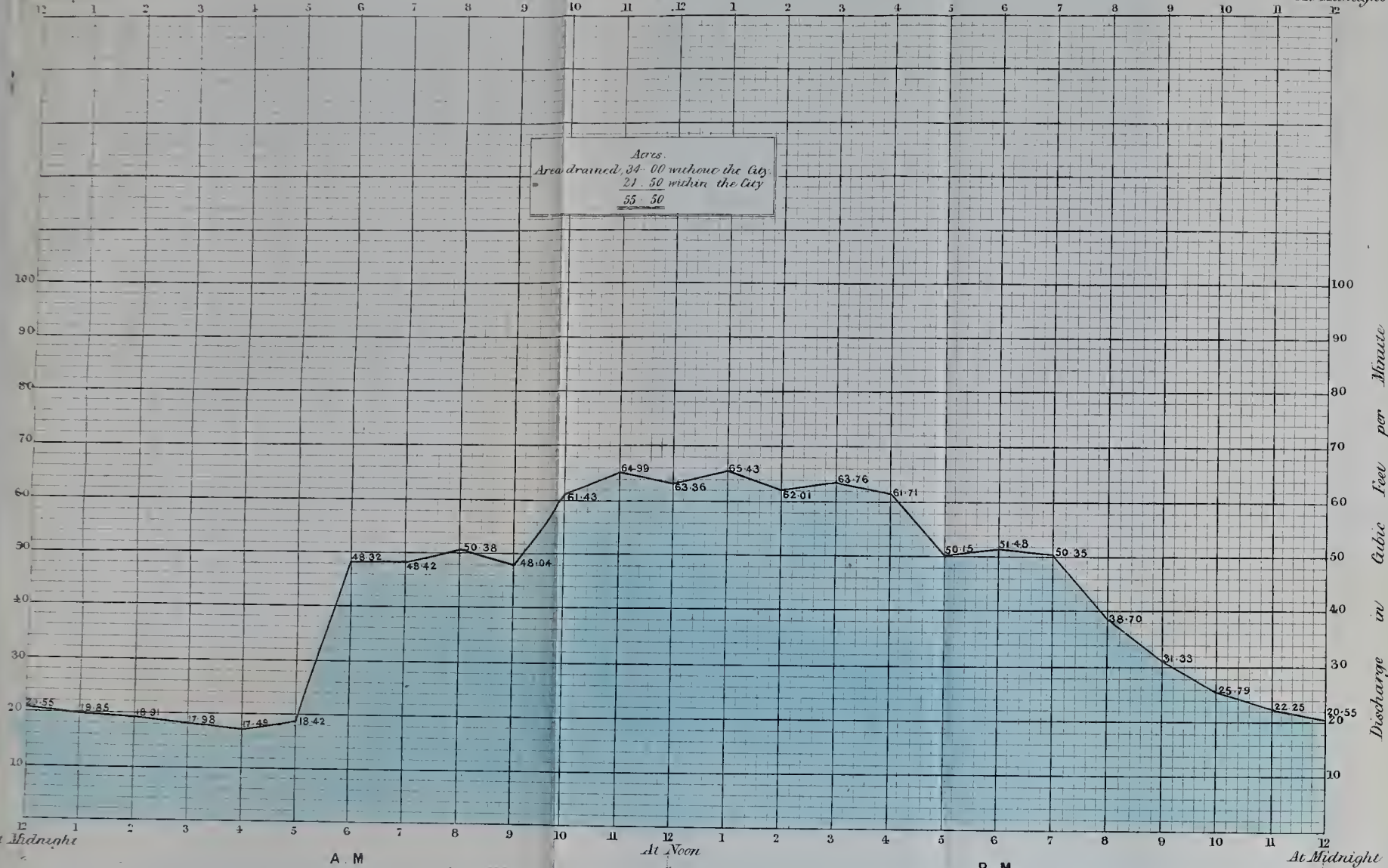
CAUCINGS  
WHITEFRIARS DOCK SEWER  
1853.

A. M.

P. M.

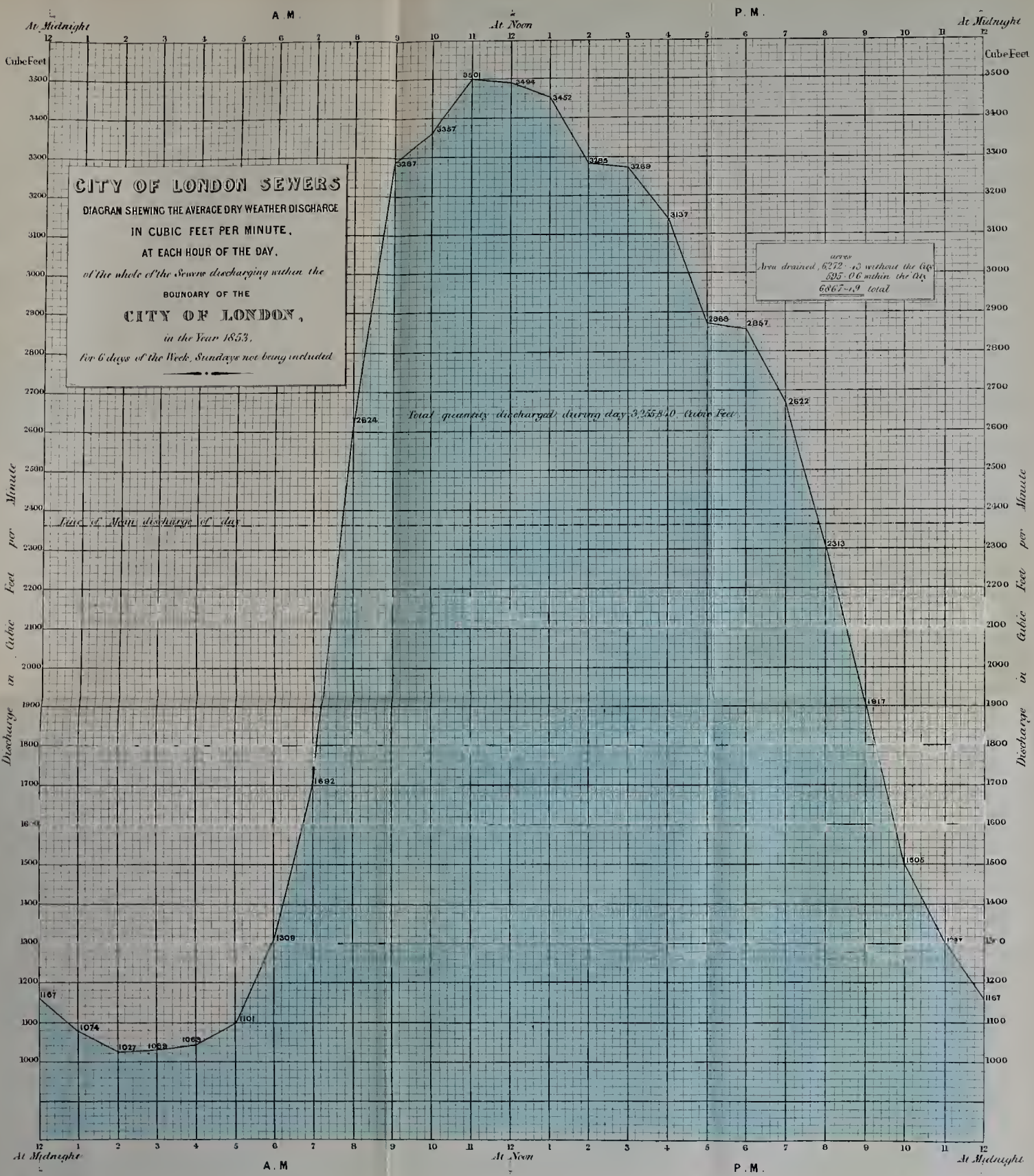
At Midnight At Noon At Noon At Midnight

Acres.  
Area drained, 34.00 without the City  
21.50 within the City  
55.50



The Black line shows the line of discharge at the different periods of the day. The figures thus placed show the discharge in Cubic Feet per Minute at the particular hours under which they are placed.





The Blue line shows the line of discharge at the different periods of the day. The figures thus 1027 show the discharge in Cubic Feet per Minute at the particular hours under which they are placed

Shannon & Co. S. E. 1853



