

**Chingford reservoir : inauguration by His Majesty King George the Fifth, accompanied by Her Majesty the Queen, on Saturday, the 15th March 1913 : together with some notes on the New River ter-centenary, falling on 29th September, 1913.**

**Contributors**

Metropolitan Water Board (London, England)

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NEW RIVER TERCENTENARY  
AND  
INAUGURATION OF  
CHINGFORD RESERVOIR

---

1913

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54321





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THIS CARD DOES NOT ADMIT.

N<sup>o</sup>

Metropolitan Water Board.

Inauguration of the Chingford Reservoir

by  
His Majesty the King.

accompanied by

Her Majesty the Queen.

on Saturday, 15<sup>th</sup> March, 1913 at 3-30 o'clock in the afternoon.

The Board requests the honour of the Company of

on the occasion of the ceremony.

A reply on the enclosed post card  
is desired not later than 28<sup>th</sup> Feb. 1913.

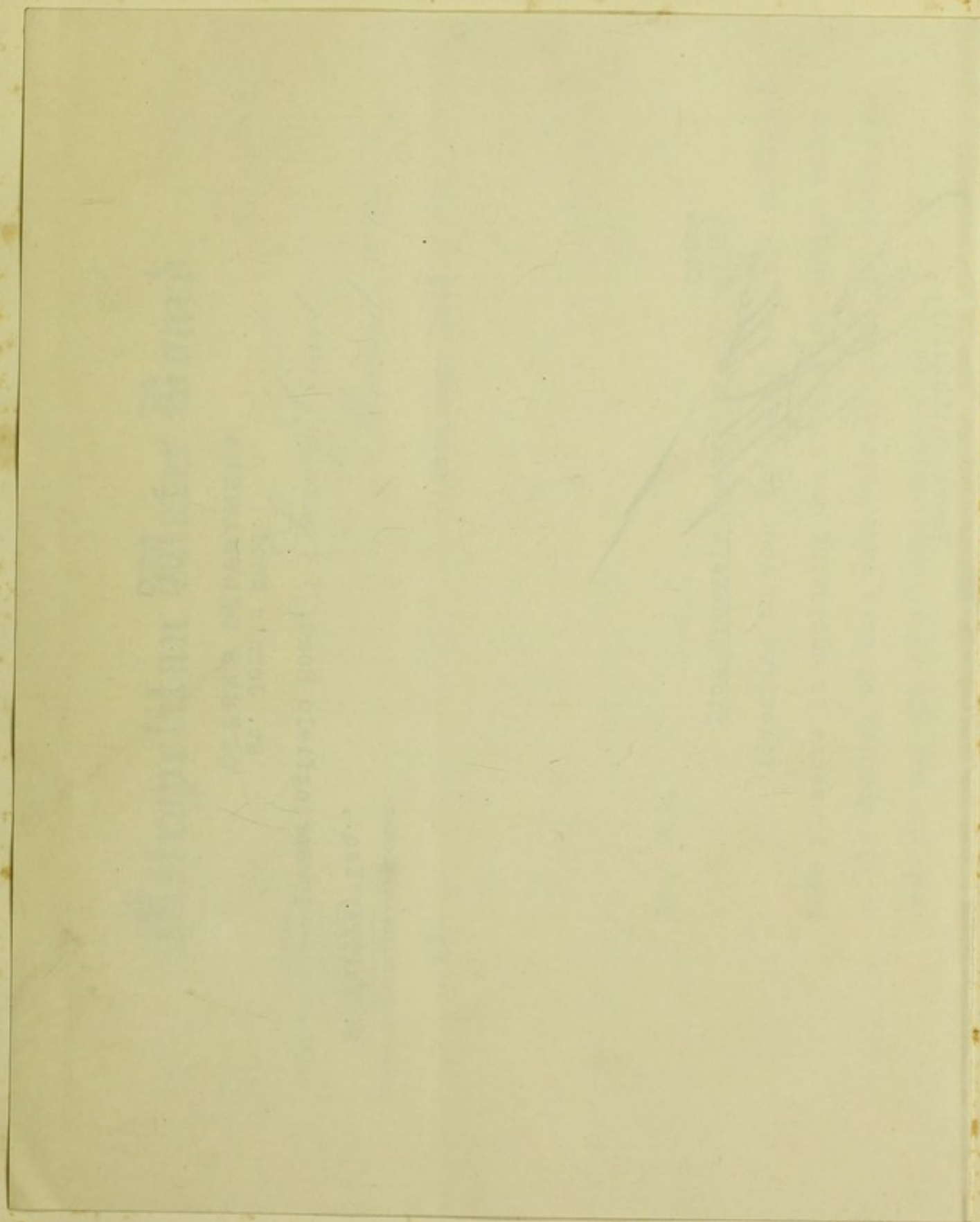
Upon receipt of acceptance the necessary  
cards of admission will be forwarded.

The reservoir entrance is about one mile from Enfield Lock  
Station on the Great Eastern Railway. There is carriage access.

A. B. Pulling,

Clerk of the Board.











METROPOLITAN WATER BOARD.

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CHINGFORD RESERVOIR.

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INAUGURATION BY

HIS MAJESTY KING GEORGE THE FIFTH,

ACCOMPANIED BY

HER MAJESTY THE QUEEN,

On SATURDAY, the 15th MARCH, 1913,

TOGETHER WITH SOME NOTES ON THE

NEW RIVER TER-CENTENARY,

FALLING ON 29TH SEPTEMBER, 1913.

A. B. PILLING,

*Clerk of the Board.*

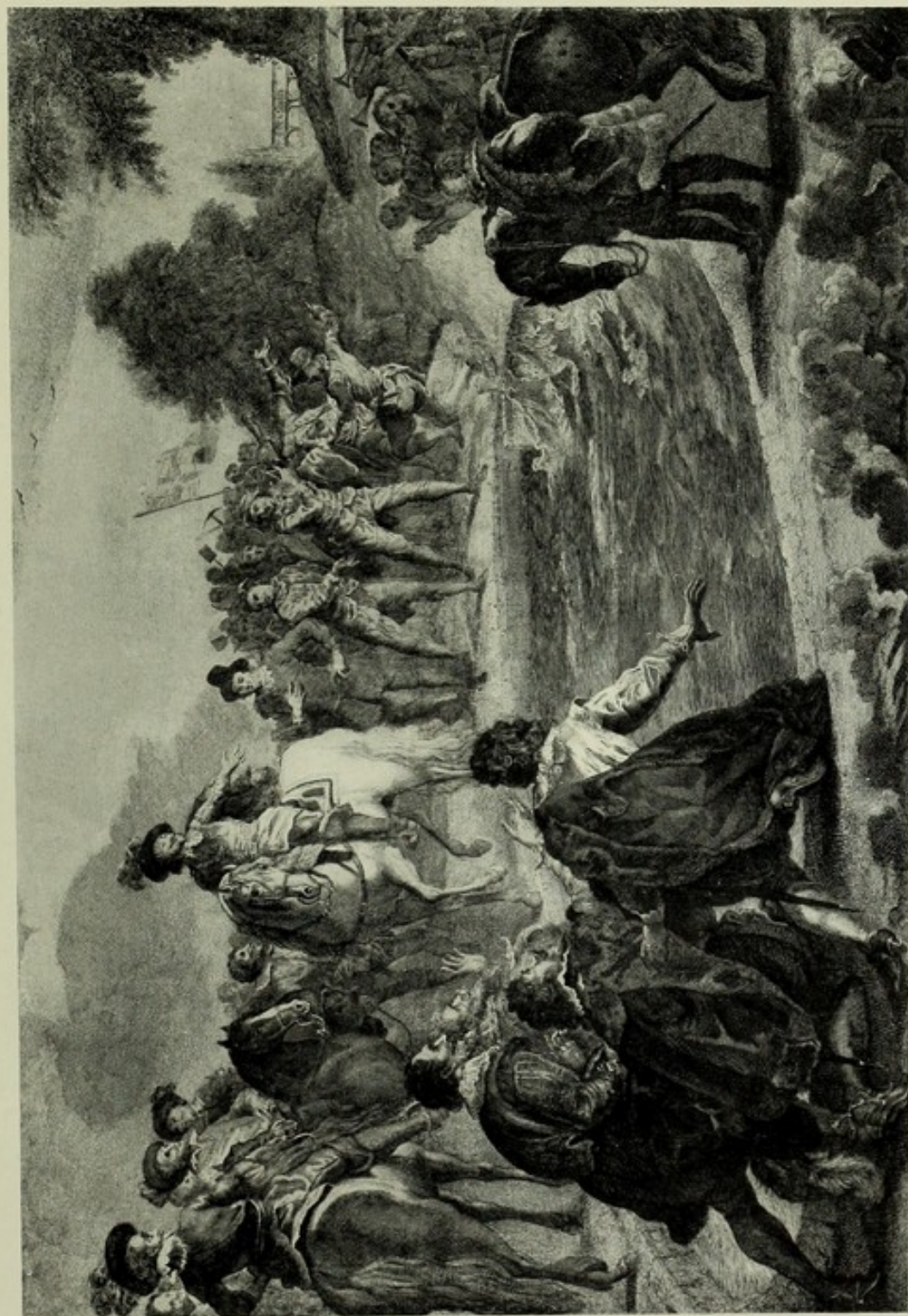


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"SIR HUGH MYDDELTON'S GLORY,  
or the first issuing of the water into the New River Head, before the Lord Mayor, Aldermen, Recorder,  
and a worthy company who stood to behold it."

Humbly inscribed to the Directors of the New River Company by George Bickham. (1772.) See page 15.





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\* 19 Original Members of First Board appointed 1903.



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EDWARD HENRY TRIPP, *Vice-Chairman.*

THE CHAIRMAN OF THE BOARD.

THE VICE-CHAIRMAN OF THE BOARD.

SIR R. MELVILL BEACHCROFT.  
ROBERT MILNE BEATON, M.B., J.P.  
WILLIAM BURRELL.  
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EDWARD HENRY TRIPP, Vice-Chairman of the Works and Stores Committee.  
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JOHN BURGESS PRESTON KARSLAKE, Chairman of the Law and Parliamentary Committee.

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AUGUSTUS HALL TOZER, Chairman of the Finance Committee.  
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J.P., Chairman of the New Works Sub-Committee.  
FREDERICK LIONEL DOVE, Vice-Chairman of the New Works Sub-Committee.  
EDWARD GEORGE EASTON, Vice-Chairman of the Management Sub-Committee.





**S<sup>r</sup> HUGH MYDDELTON Knight & Baronet.**

*The famous Aqueduct called the, NEW RIVER was performed at his Charge, & notwithstanding many Natural Difficulties  
and the Enormous Opposition He met with, A.D. 1613. He also caused to be Wrought The Silver Mines in Wales to the Great Advantage  
of the Crown & of the Public*

*Dix Tibi Divitiarum dederunt. Arcting. friends.*

*Engraved by J. Smith, from a Portrait by Sir Peter Paul Rubens, in the Collection of the Earl of Pembroke. A.D. 1722.*









WESTCHEAP CONDUIT.

From Smiles' "Lives of the Engineers" by permission of Mr. Murray.



THE object of the Members and Guests of the Metropolitan Water Board in assembling in the Lee Valley on the 15th March, 1913, is to witness the formal admittance into the recently completed Chingford Reservoir of the waters of the Lee by His Majesty King George the Fifth, accompanied by Her Majesty the Queen.

Three hundred years ago the "sweet waters" of that valley were first brought to the people of London by the indomitable enterprise of Hugh Myddelton, Citizen and Goldsmith, who, supported by the countenance and financial assistance of King James I., constructed the famous New River, and it is a circumstance of more than ordinary interest that the Ter-centenary of this notable event should occur in the year in which His Majesty King George V. graciously admits the waters into the most recent and important of the reservoirs in the Lee Valley. So interesting a conjunction of events makes it perhaps not out of place to give some brief account of the main circumstances which brought about this intimate association between the Metropolis and the waters of the Lee.

### LONDON'S EARLY WATER SUPPLY.

The supply of water to the Cities of London and Westminster and to the Borough of Southwark on the other bank of the Thames presented no grave difficulties down to the fifteenth century. The situation of London on a broad and noble river, navigable within fifty miles from the open sea, on a healthy soil, in a valley from whose hills descended many a forgotten stream, possessed so many advantages, that its choice as a site, first for a settlement, and then for a walled city, was a matter of inevitable evolution. Much of the locality consisted of gravel resting on the clay, and interspersed with beds of brick earth; so that "sweet water" was always accessible at a small depth, whilst springs and wells were numerous, and the brick earth provided a staple material for building purposes.



In the British Museum is a map showing the wells and streams in and near the City of London in the year 1000, and among them are the Wallbrook, Lang Bourne, the Share Bourne, Old Bourne, Clerk's Well, Bad's Well, Crowder's Well, and the Fleet, which was then called the River of Wells.\*

William Fitzstephen,† the learned clerk of Thomas à Becket who wrote a life of his master, prefaced it with an account of London and its citizens in the twelfth century. He speaks of the River Thames as swarming with fish,—*Fluvius maximus piscosus*,—and it was for long a grievance with the 'prentices of London that too much salmon entered into their diet—it was so cheap! He says:—"There are also about London, on the North side, excellent suburban springs, with sweet, wholesome and clear water that flows rippling over the bright stones; among which Holy Well, Clerken Well, and St. Clement's were held to be of most note; these are frequented by greater numbers, and visited more by scholars and youth of the City when they go out for fresh air on summer evenings. It is a good city indeed when it has a good master."

Although the Thames water was abundant and excellent, centuries elapsed before any attempt was made to convey it to the dwellings otherwise than by manual carriage, for, notwithstanding the invention of the common lifting pump early in the fifteenth century, the use of this apparatus was but primitive for 200 years afterwards, and for a great part of this time those who desired to use the water of the Thames fetched it themselves or by their servants through the many lanes that led down to the riverside.

In 1343 (17 Edw. III.), the Mayor, Aldermen and Commonalty received great complaints against the inhabitants of these lanes for stopping them up and exacting a toll on all those who sought to dip their buckets into the watery highway.



A COB.

A class of citizens gained a living as water carriers, selling "the precious liquid to those who never dreamt of a full supply, except they lived near the river bank or close to the conduit." These men were vulgarly known as cobs, and a character of that name in Ben Jonson's play of "Every Man in his Humour" is said by Gifford, in a note on the play, to have been drawn from such an original; he also tells us that a lane called Cob's Court, in Broadway, Blackfriars, leading down to the river, was so named from having been inhabited principally by this class, who appeared to have formed an unruly portion of the population.

As London spread and its population and commerce increased, the intra-mural supplies became tainted. Greater attention was then paid to the numerous springs in the suburbs, and the practice grew up of conducting water from these springs to public cisterns and fountains placed in various parts of the town, which (like the pipes which supplied them) were called "Conduits"; Stowe gives a list of them.

\* This was Stowe's version of the *Rivulus fontium* of William's Latin Charter. See Eng. Hist. Rev. xi. 731. The map is not a contemporary one.

† "A monke of Canterbury borne of worshipfull parentes in the City of London." Stowe. He died 1191.



The most important of them historically was the Great Conduit at the east end of West Cheap. Stowe says :—

“The said river of the Wells, the running water of Walbrook, the bourns aforenamed, and other the fresh waters that were in and about this city, being in process of time, by incroachment for buildings and heightenings of grounds, utterly decayed, and the number of citizens mightily increased, they were forced to seek sweet waters abroad ; whereof some, at the request of King Henry III., in the twenty-first year of his reign (*i.e.*, 1235-6), were for the profit of the city, and good of the whole realm thither repairing, to wit, for the poor to drink, and the rich to dress their meat, granted to the citizens and their successors, by one Gilbert Sanforde, with liberty to convey water from the town of Tybourne by pipes of lead into their city.

The first cistern of lead, castellated with stone, in the city of London, was called the great Conduit in West Cheap, which was begun to be built in the year 1235, Henry Wales being then mayor. The watercourse from Paddington to James Head hath 510 rods : from James Head on the hill to the Mewsgate, 102 rods : from the Mewsgate to the Cross in Cheap, 484 rods.”

Riley’s “Memorials of London and London Life in the XIIth--XVth Centuries” contains a grant, dated 11 Richard II., 1388, of leave to erect a penthouse over the aqueduct in Fleet Street to remedy inundations through the breaking of the pipes which rotted and damaged the houses and cellars. A footnote states —“These pipes appear to have been partly above ground and exposed to the vicissitudes of weather and accident.” As explained by Stowe, the water was conveyed by these leaden pipes from Tybourne to St. James Hill (now Constitution Hill), thence to the Mews, where the royal falcons were “mewed,” near the site of the National Gallery, Charing Cross ; and thence through the Strand and Fleet Street to Cheap.

This Tybourne conduit was maintained and continued from time to time by wealthy citizens.

In 1439, the Abbot of Westminster granted to the Lord Mayor and citizens, doubtless in order to augment the supply, a head of water and certain springs in the Manor of Paddington for the annual fee of two pounds of pepper payable on the Feast of St. Peter ad Vincula (1 Aug.) ; and this grant was confirmed by Henry VI.\*

The Conduit Head, where the several local waters were collected, used to be viewed annually, together with the adjacent conduits and springs, by the Lord Mayor and Aldermen on horseback, accompanied by their ladies in waggons. John Strype describes the visit of 18th September, 1562 : “And afore Dinner they hunted the Hare and killed her, and then to Dinner at the Head of the Conduit. There was a good Number, entertained with good Cheer by the Chamberlain. And after Dinner they went to hunting the Fox. There was great cry for a mile ; and at length the Hounds killed him at the End of S. Giles’s. Great hallowing at his Death, and blowing of Hornes, and then the Lord Maior, with all his Company, rode through London to his Place in Lombard Street.”

\* See Calendar of Letter Books of the City of London. Temp. Hen. VI. “K.” pp. 233, 355.





The Conduit Head was adjacent to the Banqueting House, the site being marked by Stratford-place, Oxford-street, built in 1775 by Edward Stratford, second Earl of Aldborough, and others, to whom a ground lease was granted by the Corporation. Maitland describes it as having been a handsome building, but, having been for many years neglected by the citizens, it was taken down in the year 1737, and the cisterns under the house for the reception of the water were arched over. (Maitland, ed. 1739, page 779.)

Ben Jonson refers to it :—

“ . . . . A Conduit Head  
 Hard by the place toward Tyburn, which they call  
 My Lord Mayor's Banqueting House.”

—Ben Jonson—*The Devil is an Ass.* Act. V., sc. 1.

Another suburban source was from Highbury to Cripplegate, dating from 1438. Nelson's “History of Islington” states that this ancient conduit remained open as a watering place for cattle before the building of Highbury-place, and that the water flowed into wells or reservoirs behind the houses, communicating with each other, the lower well receiving the surplus water when the upper one was filled. The same author states :—

“ In digging for gravel at Islington, lead pipes of a large size have been discovered, branching in various directions, supposed to have been connected with the springs that supplied the Priory in Smithfield, from the place then called the Conduit-head of St. Bartholomew.”



There was also the "White Conduit" at Pentonville, originally a reservoir connected with the Charterhouse. This was in existence from 1430 or 1431 onwards, but apparently was not so called until its re-building in 1641, when the date and the arms of Sutton were placed thereon. Tomlins' "Perambulations of Islington" says, "it appears "from all accounts to have been an arched structure cased with white stone, from which "it received its appellation of White Conduit."

There was another "White Conduit" in Chapel Street, Bloomsbury, which, with the "Chimney" or "Devil's" Conduit in Queen's Square, supplied water to the Grey Friars' Convent, afterwards Christ's Hospital, on the north of Newgate Street. An account of these conduits can be found in *Archaeologia*, Vols. LVI., 251-266, and LXI., 347-356. Pepys, of the famous diary, who was a governor of Christ's Hospital, was besought to take steps for the protection of this conduit, as appears from the following entry in the court book of the Hospital on 27th June, 1678 :—

The Court finds "that frequently there are ill-disposed persons that doe Steale or convey the Conduite water from the maine pipes for their owne private use to the great damage of this Hospital and that it would be very necessary to gett an order of his Ma<sup>tie</sup> and Councill for the preserving of the Springs of the Conduite and pipes that convey the water from Grayes Inne ffeldes to the Hospitall, and that a Warrant should be had there upon to apprehend any person whom there is Just cause to Suspect shall take or convey the said water from the said pipe or pipes. The Court desired the Wor<sup>d</sup><sup>l</sup> *Samuell Pepys, Esq<sup>r</sup>*, to procure an order of the Councill if need shall require or use any other way or meanes which may prove effectuell for removall of this great drainage to this House."

The City records show that in the 14th century, water was allowed to be taken away from the Conduits for domestic purposes without payment, but that a charge was made to those who required it for trade purposes ("brewers, cooks, and fishmongers"), the proceeds being devoted to the upkeep of the Conduits.

Another conduit was begun in 1535 for conveying water from Hackney to Aldgate. Then there was Lambe's Conduit, founded by a gentleman of the Chapel Royal of Henry VIII., and rebuilt by Sir Christopher Wren in 1667.

Anthony Munday, in the 1633 edition of Stowe, states : "Another conduit was also built at Aldersgate, without the Gate, in 1610, and Thames water conveyed unto it in pipes of wood and stone, by an English gentleman, named Mr. Thomas Hayes." "This is lost since the fire," adds Strype.

A copious supply of water by these conduits was all the more necessary as London was for the most part built of timber and liable to frequent fires. Every citizen was bound to have a barrel full of water outside his door as a primitive mode of fire prevention. The Corporation protected its conduits most jealously, and inflicted severe punishments on those who interfered with the flow of water. The City records of 1478 relate how one William Campion, resident in Fleet Street, had cunningly tapped the conduit where it passed his door and conveyed the water into a well in his own house, "thereby occasioning a lack of water to the inhabitants." Campion was immediately brought before the Lord Mayor and Aldermen and, in addition to being thrown into prison for a time, he was set upon a horse with a vessel shaped like a conduit placed on his head,



with a number of small pipes running from it. The vessel was filled with water and as it emptied itself it was filled again. In this condition Campion was taken all round the conduits of the City, and the Lord Mayor's proclamation of his offence and the reason for his punishment was read at Leadenhall, at the Cornhill pillory, at the great conduit in Chepe, at the little conduit in the same highway, at Ludgate, Fleet Bridge, at the Standard in Fleet Street, at St. Dunstan's Church in Fleet Street, and at Temple Bar.

When water was scarce in the City conduits there were frequent contentions for "first turn." These sometimes grew into riots, and the Lord Mayor had to issue a proclamation forbidding persons from resorting to the conduits armed with clubs and staves.

As the years rolled on, the conduits became insufficient for the increasing needs of the inhabitants, and in the year 1544 the Corporation of the City of London, at the instance of Sir William Bowyer, Kt., Mayor, obtained an Act of Parliament (35 Henry VIII., cap. 10) to empower them to cut trenches and to lay pipes for conveying water to the City from springs that might be found in the vicinity of London. The Act says, "the Citie of London hath bene before this tyme well furnyshed and habundauntly served, till that nowe of late, that either for fayntnes of the springes or for the drynes of the erthe, the accustomed course of the waters comyng from the old sprynges and auneynt heddes are sore decayed dymynyshed and abated ; and dayly more and more be like to appeire and faile, to the great discomoditie and displeasure both of the Citezens and Inhabitauntes within the saide Citie and Suburbes thereof . . . to the great decay of the same Citie, if speddy remedy the sooner be not therein had, forseyne and provyded . . ."

This Act of 1544 empowered the Corporation to convey water to London from "dyvers great and plentifull springes at Hampstede Hethe, Marybon, Hakkney, Muswell Hill, and dyvers places within fyve miles of the saide Citie, very mete, proper and convenyent to be brought and conveyd to the same."

It was not until some 45 years afterwards that Sir John Hart, Lord Mayor in 1589-90, attended to the execution of these works, when four reservoirs were formed in the dip between the summit of Hampstead Heath and Pond Street ; and to these, in 1777, another was added in the Vale of Health. Subsequently, at about a mile distant, between Hampstead and Highgate, eight other reservoirs were constructed between Caen Wood and Kentish Town. These works, which had originally belonged to the Corporation of London, were conveyed in 1692 to the Hampstead Water Company, whose undertaking was taken over by the New River Company in 1855. One of these reservoirs was filled up in 1891, but the remaining twelve are still in use. They are now known as the Hampstead and Highgate Ponds, and in the year ended 31st March, 1912, afforded a supply of nearly 40 million gallons. This supply, however, is not now used for drinking purposes.

In 1582, Peter Morice, a Dutchman, placed the first of his water wheels within the first arch of London Bridge, for which he paid an annual rent of 10s. to the City Chamberlain. In 1594 a large horse-engine was erected at Broken Wharf, near Blackfriars Bridge, by Bevis Bulwar. Both these works for lifting water "for the purpose of



conveying Thames water into men's houses," subsequently became the property of the New River Company. Years after there was discovered on the latter site a large cistern with a wooden trough, communicating with the river, and a number of very thick and heavy leaden pipes.

Even these supplementary works, however, proved to be inadequate, and the City of London became familiarised with the idea of fetching its water from sources that became more distant as time went on. Thus one of the editors of Stowe tells us that even before the New River was brought to the supply of the City, the projecting for the conveyance of water from the north side of the City was not out of the heads of the citizens, and about the year 1580 odd (as John Strype conceives it), there was one Russel, who proposed to bring it from Isleworth, namely, the River at Uxbridge, to the north of London, and that by a geometrical instrument he propounded the invention in writing to the Lord Burleigh.

The idea of going farther afield was also stimulated, perhaps, by the example of Sir Francis Drake, who was Mayor of Plymouth in 1582, and through whose influence a Bill was promoted in 1585, authorising a supply to be taken from Dartmoor to Plymouth in an open cutting or leat. After the Bill received the Royal assent Drake was entrusted by the Municipality with the execution of the work, and as he was also wealthy the Corporation gladly allowed him to finance the scheme. In December, 1590, he cut the first sod; and by the ensuing April, amid the rejoicings of the populace, the water was flowing into Plymouth through a circuitous open channel of 25 miles. The Mayor and Gownsmen went out to meet Sir Francis and the water, and ushered the stream and its pioneer into the town in state, "but whether the water was dammed back to keep pace with their Worships, or whether their Worships galloped along to keep pace with the water, neither tradition nor legend hands down to us." As the stream ran past the door of his own house, Sir Francis dipped his scarlet cloak therein "in exultation that he had attained his desired end."(\*)

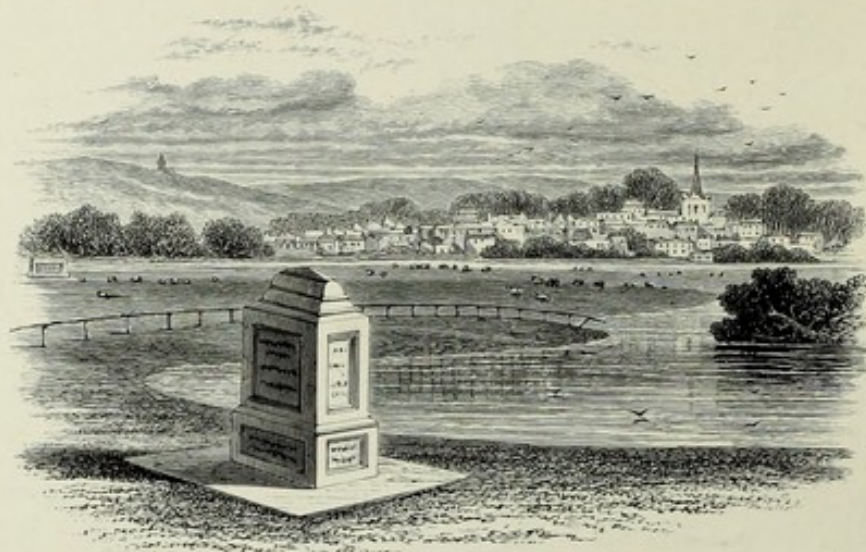
These proceedings bear a close resemblance to those which subsequently obtained in London when Hugh Myddelton undertook and completed his triumphant achievement in constructing the New River. Drake and Raleigh were contemporaries of Myddelton, and there can be little doubt that the latter's acquaintance with Raleigh brought him into contact with the constructor of the Plymouth Leat. There was a tradition in the parish of St. Matthew, Friday Street, that Raleigh and Myddelton often smoked tobacco together at the door of Myddelton's house in that parish, to the amazement of the passers-by, (†); and Pennant also records that Captain William Myddelton, R.N., Hugh Myddelton's brother, a famous sea captain and friend of Drake and Raleigh, with other sea dogs, were the first who smoked, or, as they called it, "drank," tobacco publicly in London, and that the Londoners flocked on all sides to see them (‡). Be that as it may, it is the fact that 18 years after Drake's completion of the Plymouth Leat, Myddelton commenced the construction of the New River, of which the following account may be of interest.

\* Whitfield's "Plymouth and Devonport in Times of Peace and War," p. 58.

† Malcolm's "Londinium Redivivum" 1801, vol. 4, p. 499.

‡ Pennant's "Wales," vol. 2, p. 33.





CHADWELL SPRING, WITH MYLNE'S PEDESTAL.

From Smiles' "Lives of the Engineers," by permission of Mr. Murray.

## THE NEW RIVER.

Flow on, thou gently winding River,  
 Refreshing flow'ry lawn and vale;  
 And may thy banks run full for ever,  
 Thy springs exhaustless never fail!

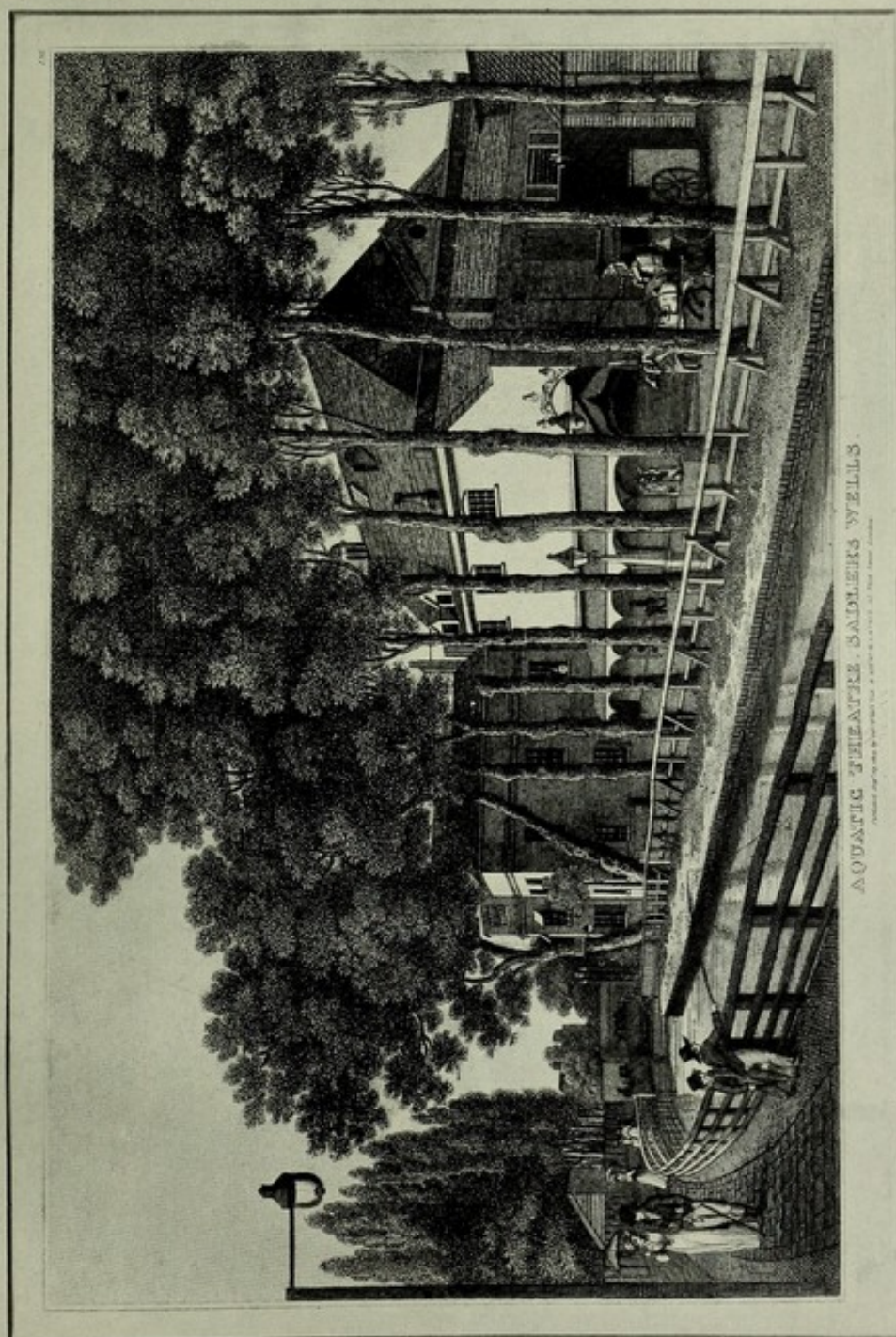
—*R. Chiffins, 1816.*



**I**N 1605, the Corporation of the City of London obtained an Act (3 James I., cap. 1) for the bringing in of "a fresh stream of running Water to be brought to the North parts of the City of London from the springs of Chadwell and Amwell and other springs in the County of Hartford not far distant from the same, which upon view is found very feasible and likely to be profitable to many." This Act took power to make an open cutting or trench for the purpose of conducting the water.

Another Act was obtained in the next year (4 James I., cap. 12), which recites the Act of the year before and proceeds— "Now for that sithence the making of that law, upon view of the grounds through which the waters are to pass, by men of skill, and upon advised consideration of the premisses it is thought more convenient, and less damage to the ground, that the same Running Water be brought and conveyed in and through a Trunk or Vault of Brick or Stone inclosed, and in some places where need is, raised upon Arches, than in open Trench or Sewer . . ." There being doubt whether the previous Act authorised this, the second Act gave the Corporation more ample powers.





NEW RIVER AND SADLERS WELLS THEATRE.  
 From a Print published Aug. 23, 1815, by Jas. Whittle and Richd. B. Laurie, 53, Fleet Street, London.







Master Hugh Myddelton, Citizen and Goldsmith, and one of the Company of Merchant Adventurers of England, had paid considerable attention to the subject as a member of the Committees of the House of Commons, before whom the Bills for the Acts were discussed, and the Corporation not being minded to avail themselves of the powers conferred, owing perhaps to the great responsibility and the little profits which, at that time, appeared likely to result, readily agreed to Myddelton's proposal to the Common Council of the City that he should take the work on his own shoulders, on condition of his finishing it within four years from the spring of 1609. This arrangement was embodied in an Indenture, dated 21st April, 1609, whereby Myddelton obtained an assignment of the benefits of the Acts, and thereafter with untiring energy Myddelton persevered in his undertaking, despite the opposition of the land owners through whose property the stream was to pass, and who feared that their lands would be inundated.

In 1610 his opponents carried their complaints before the House of Commons, and in their petition alleged that their meadows would be turned into bogs and quagmires, their arable land would become "squallid ground," their farms be mangled and the fields cut up into "quillits and small peeces"; that the cut, which was no better than a deep ditch, dangerous to men and cattle, would upon "soden raines" inundate the adjoining meadows and pastures, to the utter ruin of many poor men; that the Church would be wronged in its tythe without remedy; that the highway between London and Ware would be made impassable; and, further, that the City Corporation had by an irrevocable act transferred their authority to Mr. Myddelton and his heirs, "who doth the same for his own private benefit."

The agitation was taken up in Parliament itself, and on the 20th June, 1610, a Bill was introduced and committed to repeal the Act authorising the construction of the New River. A committee of ten was appointed to view the works; but politics of high moment ensued, with the result that Parliament was prorogued in July, and did not meet until four years afterwards.

Anthony Munday, the earliest of Stowe's editors, and a contemporary of Myddelton, writes bitterly enough of the obstacles placed in his way:—

. . . . "that famous (and never-to-be-forgotten) New River, brought from Chadwell and Amwell, by the only care, cost and liberal expenses of one worthy man—Master Hugh Myddelton—Citizen and Goldsmith of London, deserveth to be recorded in everlasting remembrance.

"I spare here to speak of the length of time such an intent was in talking on, like much good matter, well-motioned, though little minded; long debated, but never concluded, till courage and resolution lovingly shook hands together, as it appears in the soule of this (no way to be daunted) well-minded gentleman.

"For, if those Enemies of all good Endeavours, Danger, Difficulty, Impossibility, Distraction, Contempt, Scorne, Derision, yea, and Desperate Despight, could have prevailed by their accursed and malevolent interposition, either before, at the beginning, in the very birth of the proceeding, or in the least stolne advantage of the whole prosecution; this Worke, of so great worth, had never been accomplished.



... "concerning the conveyance of it along to London . . . I myself did divers times ride to see it, and diligently observed that admirable Art, Pains and Industry were bestowed for the passage of it, by reason that all grounds are not of a like nature, some being oozy and very muddy, others again as stiff, craggy and stoney."

The bitter opposition he met with, and the engineering difficulties he had to confront, soon brought it home to Myddelton that the undertaking was beyond his means. Thereupon his first step was to associate with himself a number of persons, who were called "The Adventurers," to contribute to the expense and to share with him the profits in proportion to the sum subscribed. Even then it was found that the undertaking was beyond their resources, and the Corporation, by an Indenture, dated 28th March, 1611, gave an extension of the time stipulated for the completion of the work.



THEOBALD'S PALACE.

In his extremity Myddelton applied to the King. James I. had already had dealings with Myddelton as a jeweller and banker, and had moreover become interested in the undertaking from observing the progress of the works from his Palace at Theobalds; and the King agreed to provide half the cost of the work, both past and future, upon condition of receiving half the profits and advantages to be derived from carrying it out, but without reserving to the Crown any share in the management of the work, except that of appointing a Commissioner to examine the accounts and to receive payment of the Royal share of the profits.\* A letter of 23rd December, 1616, from the Lords of the Council to the Lord Mayor and Court of Aldermen recites that:—"If the King had not favoured and supported the undertaking, Myddelton would have been sunk under the burden and never have completed the work. The King had been moved by the Aldermen to sanction the passage of the water through his parks."

\* Judgment of Mr. Justice Warrington of 4th June, 1908, in the "Adair Case."



This arrangement was given effect to by a Deed of the 2nd May, 1612.\* It recites the warrant made to Hugh Myddelton by the City Corporation for proceeding with the New River under the Statutes of 3 and 4 James, and that he had "soe far proceeded therein as he had brought the same waters diverse myles alredie towards the said citie whereby not onelie appeared that the same was fesible, but that thereby alsoe great hopes were given that the same might in shorte tyme both convenyentlie and prosperously be broughte throughe to the said cittie which beinge effected would bee a worke of greate use benefitt and profit and comfortt to the comonwealth and especially to the said Cittie of London which his maiestie considering out of his royall and gracious inclynacon beinge verie desirous to give his ayde and furtherance to soe publike and comodious a worke. . . ."

Up to that time the enterprise had been a private undertaking of the twenty-nine Adventurers, including Myddelton. The King was not one of the Adventurers, although he had contributed half the expenses and was entitled to half the profits. His Majesty was in effect a sleeping partner of Myddelton and his co-adventurers.†

The work was carried out to completion, and on the 21st June, 1619, the King sealed Letters Patent, which became the Charter of the Company. This Charter recites the Deed of 1612 mentioned above.

On the 29th September, 1613, some five years after the commencement of the work, the waters of Amwell and Chadwell Springs first entered the Reservoir known as "The New River Head" in the Parish of Clerkenwell, and a man of indomitable will saw his labours crowned with achievement. Although the City Corporation had themselves shrunk from the enterprise, every civic honour was accorded Myddelton when the sluices were first opened and the "sweet waters" of Herts were brought to the confines of London, and the completion of the work was celebrated with some very joyous proceedings. Anthony Munday gives the following interesting description of the ceremony :—

" Being brought to the intended cisterne, but not (as yet) the water admitted entrance thereinto: on Michaelmas Day, in Anno 1613, being the day when Sir Thomas Middelton, Knight (brother to the said Hugh Middelton), was elected Lord Maior of London for the yeere ensuing; in the afternoone of the same day, Sir John Swinerton, Knight, and Lord Maior of London, accompanied with the said Sir Thomas, Sir Henry Montague, Knight, and Recorder of London, and many of the worthy Aldermen, rode to see the Cisterne, and first issuing of the river thereinto: which was performed in this manner :

" A troupe of labourers, to the number of 60, or more, well apparelled, and wearing greene Monmouth caps, all alike, carryed spades, shovels, pick-axes and such like instruments of laborious employment, marching after drummes twice or thrice about the Cisterne, presented themselves before the Mount, where the Lord Maior, Aldermen, and a worthy Company beside, stood to behold them; and one man (in behalf of the rest) delivered this Speech.

\* Patent Roll (Chancery) 10 Jas. I., Part 10, No. 19.

† Some further history of the "King's Moiety" will be found on page 18.



“ The speech at the Cisterne according as it was delivered to me :—

“ Long have we labour'd, long desir'd and pray'd,  
For this great work's perfection ; and by th' aid  
Of Heaven, and good men's wishes, 'tis at length  
Happily conquered by cost, art and strength,  
And after five years dear expense in dayes,  
Travaile and paines, beside the infinite wayes  
Of malice, envie, false suggestions,  
Able to daunt the spirits of mighty ones  
In wealth and courage : this a worke so rare,  
Onley by one man's industry, cost and care,  
Is brought to blest effect, so much withstood,  
His only aim the Citie's generale good,  
And where (before) many just complaints  
Enviously seated, caus'd oft restraints,  
Stops, and great crosses, to our Master's charge,  
And the work's hindrance ; favour now at large  
Spreads itself open to him, and commends  
To admiration, both his pains and ends.  
(The King's most gracious love.) Perfection draws  
Favour from princes and (from all) applause.  
The worthy magistrates, to whose content  
(Next to the State) all this great care was bent,  
And for the publike good (which grace requires),  
Your loves and furtherance chiefly he desires,  
To cherish these proceedings, which may give  
Courage to some that may hereafter live,  
To practice deeds of Goodness and of Fame,  
And gladly light their Actions by his Name.  
Clarke of the Worke, reach me the Booke to show  
How many Arts from such a Labour flow.”

“ All this he readeth from the Clerk's book :—

“ First, here's the overseer, this tried man, }  
An ancient Souldier, and an Artisan ; }  
The Clerke, next him, Mathematician ; }  
The Master of the timber-worke takes place  
Next after these ; the Measurer, in like case,  
Bricklayer and Engineer, and after those,  
The Borer and the Pavier. Then it showes  
The Labourers next ; Keeper of Amwell-head,  
The Walkers last ; so all their names are read.  
Yet these but parcels of six-hundred more,  
That (at one time) have been imployd before.  
Yet these in sight, and all the rest will say,  
That all the weeke, they had their royall pay.”



" At the opening of the Sluice :—

" Now for the fruits then :—Flow forth, precious spring  
 So long and dearly sought for, and now bring  
 Comfort to all that love thee ; loudly sing  
 And with thy crystal murmurs strook together  
 Bid all thy true well-wishers welcome hither."

" At which words, the flood-gates flew open, the streame ran gallantly into the Cisterne drummes and trumpets sounding in triumphale manner ; and a brave peale of chambers gave a full issue to the intended entertainment."

The celebrations are portrayed in an engraving by G. Bickham, 1772, known as "Myddelton's Glory," which is reproduced as a frontispiece to these notes. It represents the scene of the ceremony and shows the stream rushing into the cistern ; the Lord Mayor, Sir John Swinerton, Kt. on a white palfrey, pointing exultantly to Sir Hugh, with the Recorder, Sir John Montague, afterwards Lord Keeper and Earl of Manchester, and by his side Sir Thomas Myddelton, Hugh Myddelton's elder brother, who was made Lord Mayor of London on the same day. The foreground shows a number of little "chambers" or miniature mortars being fired off amidst the music of drums and trumpets. It is interesting to note that the speech was composed by Thomas Middelton, the dramatist, who also wrote a Pageant called "The Triumphs of Truth" in honour of Sir Thomas Myddelton's inauguration as Lord Mayor. There is an entry in the "Chirk Castle Accounts" of Sir Thomas Myddelton (B. 1586-D. 1666), edited by Mr. W. M. Myddelton, a descendant of the family, as follows :—

		£	s.	d.
Layd out when you was at	Item for a velvet scabat to my Rapier and dag	0	5	0
London, Novem., 1613.	Given Mr. Myddelton, the poet	0	10	0

The inhabitants do not appear to have taken ready advantage of the new supply, and their laxyty received notice in high quarters, culminating in the above-mentioned letter from the Lords of the Council to the Lord Mayor and Court of Aldermen,\* which points out that "the object of the statutes authorising the work was the general good and profit of the City in the use of sweet and wholesome water, as well as for the preservation of the same from fire, of which there had been good experience three several times last summer." The King and Council had been informed that but few persons took the water, and it was not to be supposed that two Acts of Parliament and an Act of Common Council had been passed so much concerning the health and safety of the City to no use or purpose except the prejudice of such as were by the City deputed to undertake the work, and who had deserved so well of the public. His Majesty had therefore commanded, and the Council accordingly required the Court of Aldermen to provide, by Common Council or otherwise, that all such houses in the City and Liberties as either of necessity or convenience might use the same water should be required to do so.

\* See page 12.



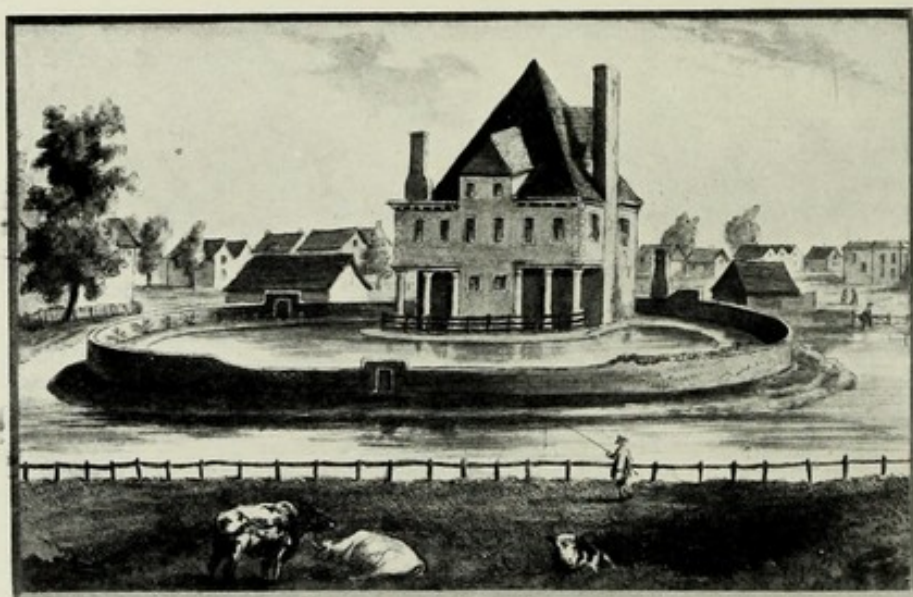
## “THE OATHE

OF HUGHE MIDDLETON, ESQUIER, GOVERNOR FOR THE COMPANY OF THE NEWE  
RYVER BROUGHT FROM CHADWELL AND AMWELL TO LONDON.

“You shall sweare, that you shall be ffaithfull and true to our Sovereigne Lord the Kinge, and to his heirs and successors, Kinges and Queenes of this Realme, and all the lawfull ordinances made and to bee made by the Governor and Company of the Newe River brought from Chadwell and Amwell to London, you shall keepe and meynetyne to your power, You shall and honestlie behave yourself in the place of Governor of this Company and justlie and indifferently shall order the matters and causes of this Company according to Right and Conscience, and no singular proffitt to your owne person doe nor take Whereby the common proffitt of this Company or the perticuler benefitt of any Member thereof, shall or may be damaged, YOU shall admitt no person into this Company nor shall refuse to admitt any into the same but according to the purport of the Kinges Majesties Letters Pattent to the said Governor and Company Granted and the Orders and Constitutions lawfullie made and to bee made according to the same, and all other thinges perteyneing to your office to the uttermoste of your power and skill, you shall well and trulie do and perform. Soe helpe you God.

“19 October, 1619.

“EDW. BROMLEY.”



“THE CISTERN,” OR NEW RIVER HEAD, 5TH AUGUST, 1730.

The New River had a total length, as first made, of about 40 miles, but engineering improvements carried out from time to time have reduced this to 27 miles, much of the stream being now culverted.

The Amwell spring has entirely disappeared, having oozed away silently about 1830 into the bed of the River Lee. The Chadwell spring, however,—a mysterious, circular, chalky pool,—has been for three centuries and continues to be a drinking fountain for millions of Londoners.



The New River for many years received the peculiar care of the Sovereign. In 1689 "His Majesty was pleased to cause a proclamation to be issued for the careful custody and well ordering of the New River brought from Chadwell and Amwell to the north parts of the City of London," which is duly recorded in the London Gazette of the 7th October of that year.

The construction of this extensive and useful aqueduct not only excited much curiosity, but was the theme of admiration and applause at the period of its accomplishment. Indeed, to surmount the difficulties which Myddelton had to combat required no ordinary share of talent, intrepidity and perseverance; and contemporary descriptions show that the execution of such an enterprise, in that age, was not only very arduous, but actually deemed wonderful—

"The depth of the trenches in some places descended full 30 feet, if not more, whereas in other places it required a sprightly arte again to mount over a valley in a trough between a couple of hills; and the trough all the while borne up by wooden arches, some of them fixed in the ground very deep, and rising in height about 20 feet."



BOARDED RIVER AT BUSH HILL.

From Smiles' "Lives of Engineers," by permission of Mr. Murray.

One of these troughs or wooden aqueducts—whence arose the name of the "Boarded River"—was constructed near Bush Hill, in the Parish of Edmonton. "Its length was 660 ft. and width and depth 5 ft. It was tied together by imposts 7 in. by 3 in., and the uprights were 8 in. by 4 in., with a height of 6 ft., like buttresses; these rested on 80 brick piers, 2½ ft. high, though not erected at equal distances. Between every two of the latter an equal number of imposts and uprights were fixed, resting in sills of similar dimensions on the basement timbers of the frame. This trough was lined with lead; and in 1725, with all its appendages of wood, &c., was raised one foot higher than at its original construction. It passed over a stream which had its source in Enfield Chase, and flowed through an arch, being 15 ft. high to its crown and 3 ft. wide. The arch sustained the trough and the road along its side." (Matthews' "Hydraulia.")

Formerly a similar wooden aqueduct conducted the New River over a valley near the place where it enters the Parish of Islington. This trough was also lined with lead and had a length of 462 ft. with a height of 17 ft. It was supported by very strong timber uprights which rested on brick piers.



As these structures were almost continually requiring repairs and their defects occasioned a great loss of water, the Company found it expedient to remove them. The removal of that at Islington was effected during the years 1776-8, by raising a bed of clay and earth to the proper height so as to be level with the top of the trough, and thus to form a bed and channel for the river in its usual track. Particular care was betowed upon the banks for the purpose of preventing the water oozing through, as well as to strengthen them by sowing grass down their sides ; and a thick bed of gravel was also laid on the top of that on the west to form a pleasant path. The wooden aqueduct near Bush Hill was likewise removed and a channel made for the river by similar means during the years 1784 and 1785. Both these improvements were made under the superintendence of Robert Mylne, then Engineer to the New River Company.

### “NEW GAUGE.”

In course of time the flow from the springs at Chadwell and Amwell, upon which the New River Company relied, ceased to be sufficient for their needs, so the aqueduct was carried farther up the valley, and a connection made with the River Lee. For some years this practice encountered no interruption, but eventually it became a subject of complaint and litigation, which an Act of Parliament terminated in 1738. Amongst other stipulations it was provided that the supply should be confined to certain dimensions, which were regulated by a balance engine and gauge constructed near the town of Hertford. Though wood was the material used in the construction of the balance engine, the Act allowed it to be continued in bricks or stone, provided it retained the same relative dimensions. The gauge was afterwards formed of marble, hence the name of the “marble gauge” ; and in 1770 the whole structure was covered with a building by Mr. Robert Mylne, the Architect of the first Blackfriars Bridge and other notable works, who was also the Engineer to the New River Company from 1767 to 1811. The existing intake at King’s Mead in the Borough of Hertford allows about 22½ million gallons a day to be drawn from the Lee into the New River in augmentation of the supply from Chadwell Spring. Additional supplies are also obtained from 18 wells constructed by the New River Company in the Lee Valley, and yielding some 5,000 million gallons per annum in 1911-12.

### THE CROWN CLOG.

It may be interesting to trace the history of the King’s Moiety, which was created as described at page 12.

It having been thought inconvenient that the King should himself personally receive the moiety of profits, he executed a deed on the 28th October, 1619, transferring such moiety to certain Trustees.

In the year 1631, by Deed dated 18th November, King Charles I. transferred the King’s Moiety to Sir Hugh Myddelton, (\*) at the same time creating or reserving thereout the annuity of £500 known as the King’s Clog or Crown Clog.

\* Myddelton was created a Baronet in 1622 ; he died on 10th December, 1631, aged 70-1 (Probate Act Book P.C.C. 1631), at his house in Basinghall Street, and was buried in St. Matthew, Friday Street, where he had often officiated as churchwarden.



By Writ of Privy Seal, dated 12th May, 1698, King William III. assigned this King's Clog to one Dennis Cooling, from whom it passed to William Adair, and is now the property of his descendant Sir Frederick Shafto Adair, Baronet.

The annuity of £500 was reduced to £400 by the deduction of land tax at the rate of 4/- in the £. This deduction was a matter of dispute between the New River Company and Mr. Adair in the years 1798-1903. The sum of £400 is the present amount of the Crown Clog, adjudged by the House of Lords still to be payable by the Metropolitan Water Board.

The Adventurers' Moiety was divided into 36 shares, and upon the assignment of the King's Moiety by William III., Sir Hugh Myddelton—the third Baronet—divided that Moiety also into 36 shares. In some cases a share of the King's Moiety was sold freed from the Clog, with the result that by the year 1769—from which date the records of the Company are preserved—the Clog as between those persons who were interested in the King's Moiety became payable by 29 out of the 36 in certain shares, and by some means two owners of Adventurers' Shares became liable to pay. (\*)

\*Judgment of Mr. Justice Warrington, dated 4th June, 1908.

### COST OF NEW RIVER.

The original cost of the New River is not known, the documents of the Company having been destroyed by a fire at their offices in Dorset Street, Fleet Street, on Christmas Eve, 1769.

Sir Samuel Smiles suggests that the original cost probably did not amount to more than £18,000, in which case the capital represented by each of the 72 shares would be £250.

According to a statement submitted to Parliament in 1828, a capital amounting to £1,040,000 had then been expended at different periods to render the New River efficient for its purposes.

By the New River Company's Act of 1852, Sec. 4, the capital of the Company was "deemed to be £1,519,958."

No dividend was paid until 1633, two years after Myddelton's death, when it amounted to £15 3s. 3d. a share; but after the Fire of London the prosperity of the Company kept pace with the rebuilding and growth of London and the general adoption of the New River water in place of the old conduits, which had been destroyed.

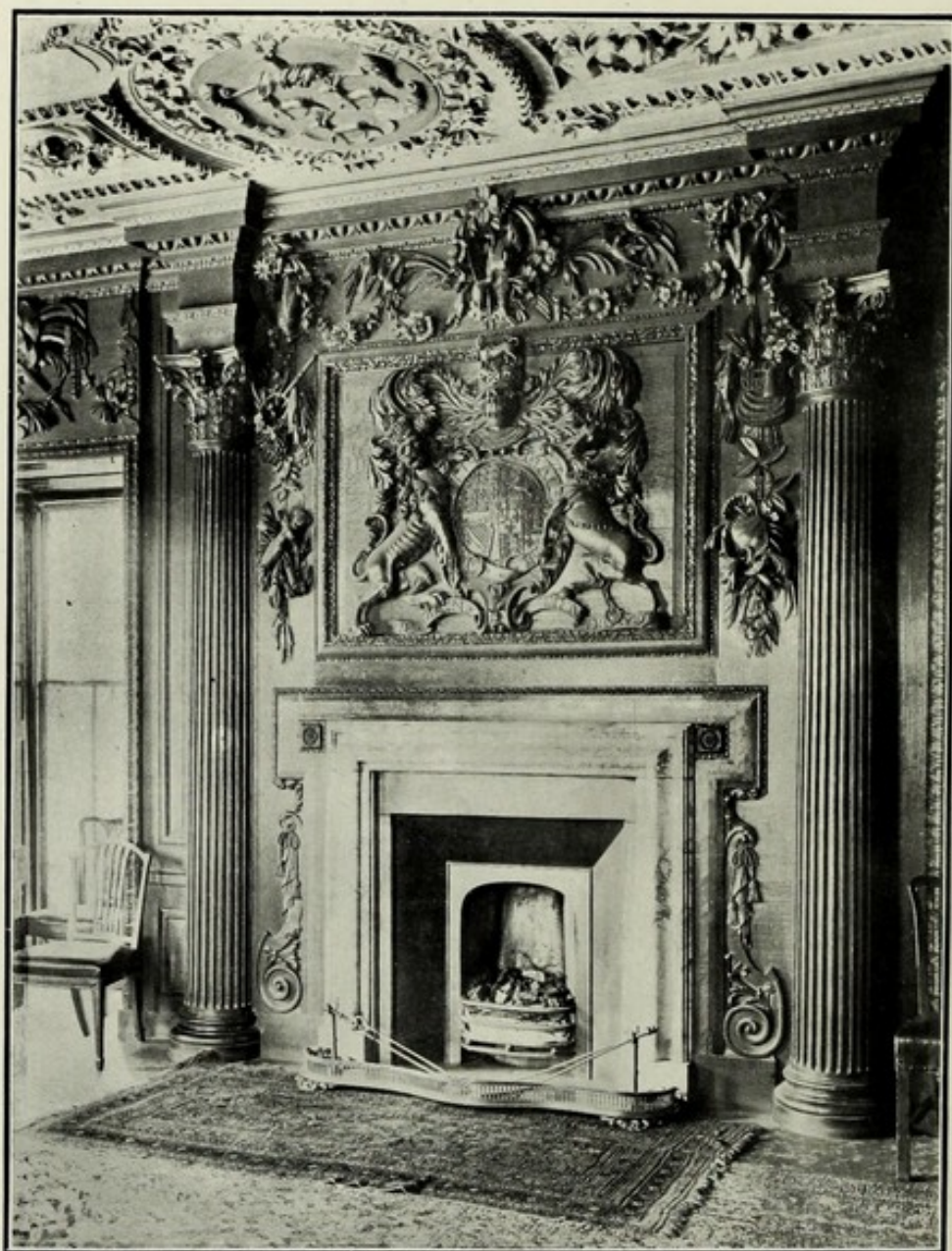
The average dividend for 10 years from 1800 was £450 per annum; for 10 years from 1810, £173 per annum; and, during the years 1813-16 respectively, £125, £25, £63 and £83.

In 1899 the shares had reached the fabulous value of about £120,000 apiece.

When the Court of Arbitration sat in 1903 to assess the compensation to be paid to the Company on the public acquisition of its water undertaking, the maintainable gross income was £614,000, and, by the Award of 1903, the Metropolitan Water Board were compelled to acquire the undertaking for £6,534,000 Metropolitan Water 3% "B" Stock,



besides taking over the Debenture Stocks, amounting to £1,258,000 ; and in addition to receiving this enormous compensation, the Company retained extensive and valuable landed estate, houses and property which were not directly used or connected with their water supply, including a part of their offices at New River Head, for which the Water Board subsequently paid £9,500 in order to secure the sole possession of the building and the celebrated Oak Room there. (\*)



### OAK ROOM.

From Smiles' "Lives of Engineers," by permission of Mr. Murray.

The New River Head premises include a Board Room handsomely decorated with oak wainscotting ; the whole of the sides from floor to ceiling being of thick black oak, as is also the floor. The mantelpiece is of solid oak, upon which is imposed a beautifully carved representation of the Arms of William III. Much of the carving in this Oak

\* £7,500 for the buildings, and £2,000 for the Oak Room fittings, carvings, and furniture.



Room—one of the delights of modern connoisseurs, and certainly unique of its kind—is the work of Grinling Gibbons. Mr. W. M. Myddleton suggests that the Oak Room was probably the dining-room of John Grene, Clerk to the New River Company, who married Elizabeth, daughter and heiress of Sir William Myddelton, Sir Hugh Myddelton's son and the second Baronet, from whom she inherited four New River shares.

The carving in places has reference to water affairs and the anglers' gentle art, since it includes creels, water birds, all kinds of fishes, crayfish, water plants, as well as ears of corn, grasses, flowers and fruits. There is a festoon border to the Royal Arms thus carved of various things of this kind, which never fails to strike the visitor with its beauty.

The ceiling contains a painting of King William III., in good preservation. Henry Cooke (1642-1700), according to Horace Walpole in his "Anecdotes of Painting in England," painted "the ceiling of a great room at the water works at Islington." The moulding of this ceiling always evokes admiration, being a very fine design of fruit and flowers with aquatic birds pecking here and there. There are also the two coats of arms of Sir Hugh Myddelton and John Grene. The Arms of Sir Hugh were "Argent, on a pile vert, three wolves' heads erased of the field," charged with the Ulster Hand; and those of John Grene were "Azure, three stags trippant or."

The room also contains furniture of a unique character. Twenty-five of the chairs which surround the tables are of old mahogany, and according to the Chippendale pattern, and ten of them are known to be actual original Chippendale chairs.

In two smaller rooms adjoining there are ceilings each having in the centre a moulding of the New River Seal and Motto, with the date 1.6.9.3, a figure in each corner of the room.

The building which contains these rooms used to be known as the Water House. It bears two tablets with the inscriptions "Erected A<sup>o</sup> MDCXIII"; "Restored A<sup>o</sup> MDCCLXXXII." Here Robert Mylne, the engineer, lived for 40 years, and here he died in 1811, aged 78. In 1770 the building was extended so as to include the New River Offices, after the fire of 1769 already mentioned.

### NEW RIVER SEAL.

The old seal of the "Governor and Company of the New River brought from Chadwell and Amwell to London" was a beautiful piece of symbolism, representing Rain descending from "an open hand upon a City," with the motto "Et plui super unam civitatem."

As all water supply comes from the clouds, the motto is of singular appropriateness, not only with reference to this scientific fact, but to the amalgamation of the undertakings of the eight Metropolitan Water Companies in one administrative authority.



The motto itself is taken from the Latin Vulgate, being part of Verse 7 of the Fourth Chapter of Amos, as follows :—

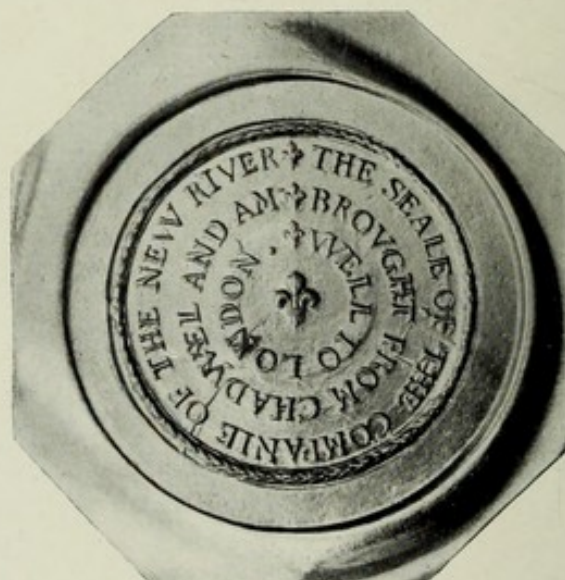
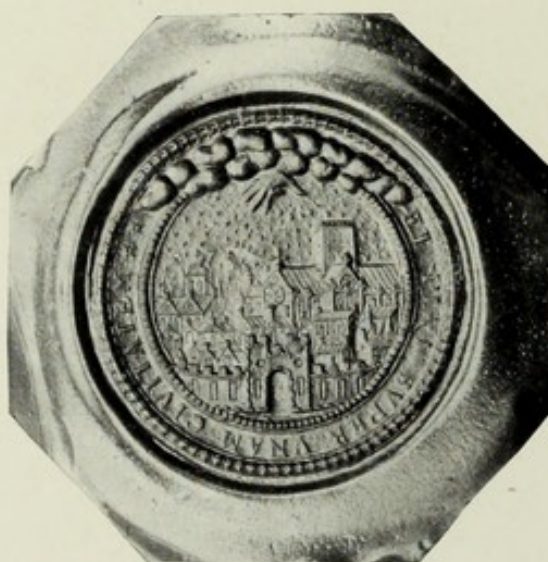
"7. Ego quoque prohibui a vobis imbrem, cum adhuc tres menses superessent usque ad messem, *et plui super unam civitatem*, et super alteram civitatem non plui; pars una compluta est, et pars super quam non plui, aruit."

AMOS.—Pars Altera, Sermo II. "*Biblia Sacra juxta Vulgate*" (A. C. Fillion, Paris, 1887).

The best literal translation is found in Sir Lee Brenton's version as follows :—

"7. Also I withheld from you the rain three months before the harvest : *and I will rain upon one city*, and on another city I will not rain : one part shall be rained upon, and the part on which I shall not rain shall be dried up."

"*The Septuagint Version according to the Vatican Text, translated into English by Sir L. C. Lee Brenton, Bart., 1884.*"





## EAST LONDON WATERWORKS.



ANY years after the completion of the New River, the Lee was laid under contribution for supplying also the East of London.

The East London Waterworks originated with the Shadwell Waterworks (1669) and the West Ham Waterworks (1747), but these were absorbed by the East London Waterworks Company, incorporated in 1807, which obtained Parliamentary Authority to supply an area of some 140 square miles, of which 118 square miles were in Essex, marching with and lying immediately to the east of the New River Company's territory in Middlesex and Herts. For many miles the Lee formed the boundary line between the two Companies, and the new Company became an important rival for the waters of that river. Indeed, such are the mutations of time that in the days of the Water Board the East London District has had to succour that of the New River, and a scheme to amalgamate the two Districts for administrative purposes is now under consideration. So far, however, as the ancient rivalry was concerned, a deed was entered into between the two Companies, dated 9th November, 1815, defining their respective limits with mutual covenants, and the River Lee Water Act, 1855, settled the rights of the Companies on the following basis :—

First 5,400,000 gallons a day must be left for the purposes of the Navigation. Then the New River Company could take 22,500,000 gallons a day. Then the East London Company could take the same quantity. And the surplus belonged to the two Companies *pari passu*.

The effect of the transfer of both undertakings to the Water Board in 1904 was to vest in that Board the whole flow of the Lee subject to the 5,400,000 gallons a day reserved for the navigation.

The original works of the East London Waterworks Company were situate on the banks of the Lee at Old Ford, where in 1808 four reservoirs were constructed, with a total area of 11 acres. These reservoirs were filled by gravitation from the river when the flow was pent up during spring and neap tides. The storage was sufficient for a week's supply, and it was usual to allow the water to remain in the reservoirs for a time so that it might "deposit its feculence and become clear."

In 1829 the Company obtained an Act enabling them to remove the intake to Lee Bridge, about three miles higher up the valley, and to construct a reservoir there.

In 1852 and 1853 other Acts were obtained, authorising the removal of the intake still farther up the river, the construction of reservoirs at Walthamstow, filter beds at Lee Bridge, and an intercepting cut on the west side of the valley to prevent polluted water from entering the river above the intake.

Additional reservoirs were sanctioned in 1867 and the intake once more removed up stream, and in the same year an Act was passed enabling the Company to obtain an auxiliary supply from the Thames.



In 1893 a scheme showing the capability of the Lee to yield additional water was laid before the Royal Commission on Water Supply by Mr. William Booth Bryan, who was then the Engineer to the Company and is now the Chief Engineer of the Water Board. This scheme showed a chain of reservoirs extending northwards up the Lee Valley from Walthamstow to Enfield Lock ; it included the construction of six new reservoirs and the raising of the level of an existing one by nine feet. In the following year Parliament authorised the construction of the first instalment of this scheme, and in 1897 a second instalment was sanctioned ; all these have been finished and in use for some years. In 1900 the Company acquired powers for the completion of the scheme by constructing the last two and most northerly of the series, with a capacity of 5,400 million gallons, and though they proceeded to acquire some 1,000 acres of land for the purpose, the decision of Parliament in 1902 that the London water undertakings should be transferred to the Metropolitan Water Board unavoidably delayed the construction of the works, and it was not until the 11th April, 1908, that the first sod of the Chingford Reservoir was cut by Mr. E. B. Barnard, the present Chairman of the Board, who was at that time Chairman of the Works and Stores Committee.

In addition to their reservoirs the Company had 11 wells in the Lee Valley, yielding in 1911-12 nearly 4,000 million gallons per annum.



### CHINGFORD MARSH.

The East London reservoirs authorised in 1900 were to be constructed on the Common Marsh which is said to have been used by the Commoners of Chingford for the pasturage of their cattle from the days of the Conqueror down to 1906, when the common rights ceased on the acquisition of the land for waterworks purposes. Prior to the cattle being permitted on the Marsh they were marked by the Marsh Reeve or the Assistant Marsh Reeve. The accompanying photograph taken on the occasion of the last official "marking" on 13th August, 1906, depicts the ancient Marsh Gate and Box now demolished. It also shows leaning against the Marsh Box and covered with a straw hat, Josiah Jessop, the last of the Marsh Reeves ; whilst William Rumble, the Assistant



Marsh Reeve, is seen in the centre of the picture holding the marking iron against the horse. (\*) The occupiers of land in the Marsh had certain rights of cutting grass there, and this and the pasturage were regulated by the following Rules drawn up and agreed to in the Old Vestry for the guidance of the Commoners and Reeves :—

- (1) The opening day for cutting grass in the Marsh is June 24th ; all occupiers of land in the Marsh, or their representatives, must be on the marsh on June 24th, so that the Reeve may trail—*i.e.*, mark the land in their presence. For this trailing they pay the Reeve the sum of fourpence an acre. The payment for marking is double if the occupiers request that the trailing be done after the appointed day.



CHINGFORD MARSH GATE.

- (2) The occupiers of land in the Marsh have the right to carry their hay across any grass that may be between their own piece of land and the road, so long as no wilful damage is done.
- (3) The changeable land in the Marsh is allotted each year by the Marsh Reeve. Boundary posts, provided by their owners, to mark the limits of each property, are fixed by the Reeves at a charge of sixpence for each post.
- (4) The Common Marsh is open to the Commoners for grazing from August 13th to April 6th.

\* This photograph and the copy of the Marsh Rules have been courteously supplied by Mr. Bruce Cook, of the School House, Chingford.



- (5) Any householders, who reside in the parish, have the right to turn cattle on to the Common Marsh in Chingford.
- (6) Commoners may turn out only their own cattle. One horse or two cows may be turned out for every four pounds rental.
- (7) Cattle are marked by the Reeves on the 13th day of August, and on other days by appointment. The charge for marking is fourpence for each animal.
- (8) The animals which may be turned out to graze on the Common Marsh are cows, calves, bulls under six months old, mares, geldings, and colts under twelve months old. The following animals may not be turned out on the Common Marsh: entire horses, bulls, bullocks, donkeys, geese, pigs, sheep, nor any animals suffering from disease.
- (9) Cattle found on Common Marsh that are not properly marked are pounded by the Reeve in the parish pound on Friday Hill. The owner pays to the Reeve two shillings for each animal that is pounded.
- (10) The Marsh Reeve and the Assistant Marsh Reeve are elected annually at the Easter Vestry Meeting.
- (11) The Marsh Reeve should present at the Easter Vestry Meeting a list of the Commoners who have used the Common Marsh during the previous year, and the number of animals turned out by the Commoner.

Suitable compensation being first made to the Commoners, their ancient privileges have now been thrust aside by the sterner necessities of the utilitarian age, and the scenes of lush grass and grazing cattle are for the most part already converted into "land covered by water," as the lawyers phrase it. There are not wanting those who claim that the great lake thus formed will be a by no means displeasing feature in the landscape when the stern contour of its banks is relieved and beautified with trees and shrubs and the roll of the seasons has effaced the newness of man's handiwork. And who shall deny that the aquatic life soon to be gathered at this sheet of water will form an interesting and valuable addition to the fauna and flora of the neighbouring Forest. In a few years' time there will be many a place less pleasing than Chingford Lake, when—

The year's at the spring,  
And day's at the morning;  
Morning's at seven;  
The hill side's dew-pearled;  
The lark's on the wing;  
The snail's on the thorn;  
God's in His heaven—  
All's right with the world!

—*Robert Browning.*



## CHINGFORD RESERVOIR.



It is now time to describe in detail the great engineering achievement of the Board's Chief Engineer, Mr. William Booth Bryan, Mem. Council Inst. C.E., in the construction of the Chingford Reservoir. This is the most northerly of the reservoirs which Mr. Bryan proposed to the Royal Commission on the Metropolitan Water Supply, and the last but one of those reservoirs to be constructed.

Many of the engineering details are given in the annexed Plates, whilst the photographs afford views of the chief features which strike the eye.

In constructing reservoirs in the provinces the object in view is usually accomplished by placing a dam across a moorland valley. Such a solution is not practicable in the case of London, for the reason that suitable valleys are non-existent, or are inadequately supplied with water. The alternative is to seek out a tract of land upon a bed of impervious clay and contiguous to a river of adequate flow. This tract of land is then enclosed with a waterproof wall of clay or puddle many feet thick, extending downwards to a watertight union with the underlying clay, and upwards to a height above the top water level of the intended reservoir. This wall of clay is then supported on each side with a sloping bank of earth, the internal bank being covered with stone, brick or cement in order to resist wave action. Into the reservoir thus constructed, water is pumped from the adjacent stream, and is stored until such time as it is required for consumption, whereupon it is conducted to filter beds and then pumped to the consumers. Such in outline is the method adopted at the Chingford Reservoir.

The extreme length of the reservoir at water line is 1 mile 1,190 yards, and it has a capacity of about 3,000 million gallons; the area occupied, including banks, is about 500 acres; the top water area is 416 acres, and the length of the embankment  $4\frac{1}{2}$  miles. A short embankment has been thrown across the centre to prevent excessive wave action during high winds. This embankment has three openings giving free access for water to each side.

The main banks of the reservoir contain about 2,400,000 cubic yards of earth, &c., of which 253,000 cubic yards are of puddle, *i.e.*, clay. The inner banks are lined with about 105,000 square yards of concrete and brick paving.

The reservoir will be filled from the northern end with water pumped from the River Lee. This water will be stored in the reservoir for a considerable period during which purification processes of great value will take place by the agency of natural forces, and after this the water will flow through regulating towers into a tunnel, and then along a channel nearly two miles in length to the existing distributing basin adjoining the Chingford Mill Pumping Station, and thence by existing channels to the chain of reservoirs, twelve in number, constructed under the earlier Acts of the East London Waterworks Company and shown on Plate I. The outlets from these reservoirs are connected to a wide, open channel about 2,100 yards in length, which conducts the water to the beds at Lee Bridge, where it is filtered and thence pumped into the district.



A reference to Plate I. will show that the River Lee ran longitudinally through the site of the actual reservoir works. The River has accordingly been diverted into the new channel three and a half miles long, shown on Plate I., and extending from a point north of the reservoir near to Enfield Lock, to the Chingford Mill Pumping Station. This diversion was one of the first parts of the work undertaken, and has been of the greatest utility during the construction of the reservoir, since it efficiently carried off all the winter floods and saved the reservoir works from inundation.

An intercepting channel  $3\frac{1}{4}$  miles in length has also been constructed for the purpose of collecting surface water from the eastern side of the valley and discharging it to waste into the River Lee below the intakes.

In its journey of two miles from the reservoir to the distributing basin the stored water is therefore protected from pollution by the intercepting channel on the east and the river diversion on the west.

In substitution for the old and inconvenient Lee Valley Road, which was covered with water in flood time, a new road has been constructed across the valley between Ponders End and Chingford, and is carried by bridges over the River Lee diversion, the outlet channel, and the intercepting channel. Occupation bridges have also been constructed across those waterways at various points.

### THE "HUMPHREY PUMPS."

The pumping station is at the north end of the reservoir, and unusual interest attaches to it by reason of the fact that the pumping plant employed is unique in water-works construction, consisting as it does of an installation of "Humphrey Pumps," in which the action of the internal combustion cylinder is directly applied to the raising of water. The pumps have been designed by the inventor, Mr. H. A. Humphrey, M.Inst.C.E., of the Pump and Power Co., Limited, and constructed by Messrs. Siemens Brothers Dynamo Works, Limited, of London and Stafford.

The great economy of these pumps results from the employment of the internal combustion principle, and as the explosion takes place in direct contact with the water to be lifted, there are no transmission losses, and the apparatus is of the simplest possible construction.

Each pump may be looked upon as a gas engine and pump combined, but without piston, crosshead, connecting rod, crankshaft, flywheel, bearings, gearing, or stuffing boxes. All these parts found in ordinary pumps are dispensed with in the Humphrey pump.

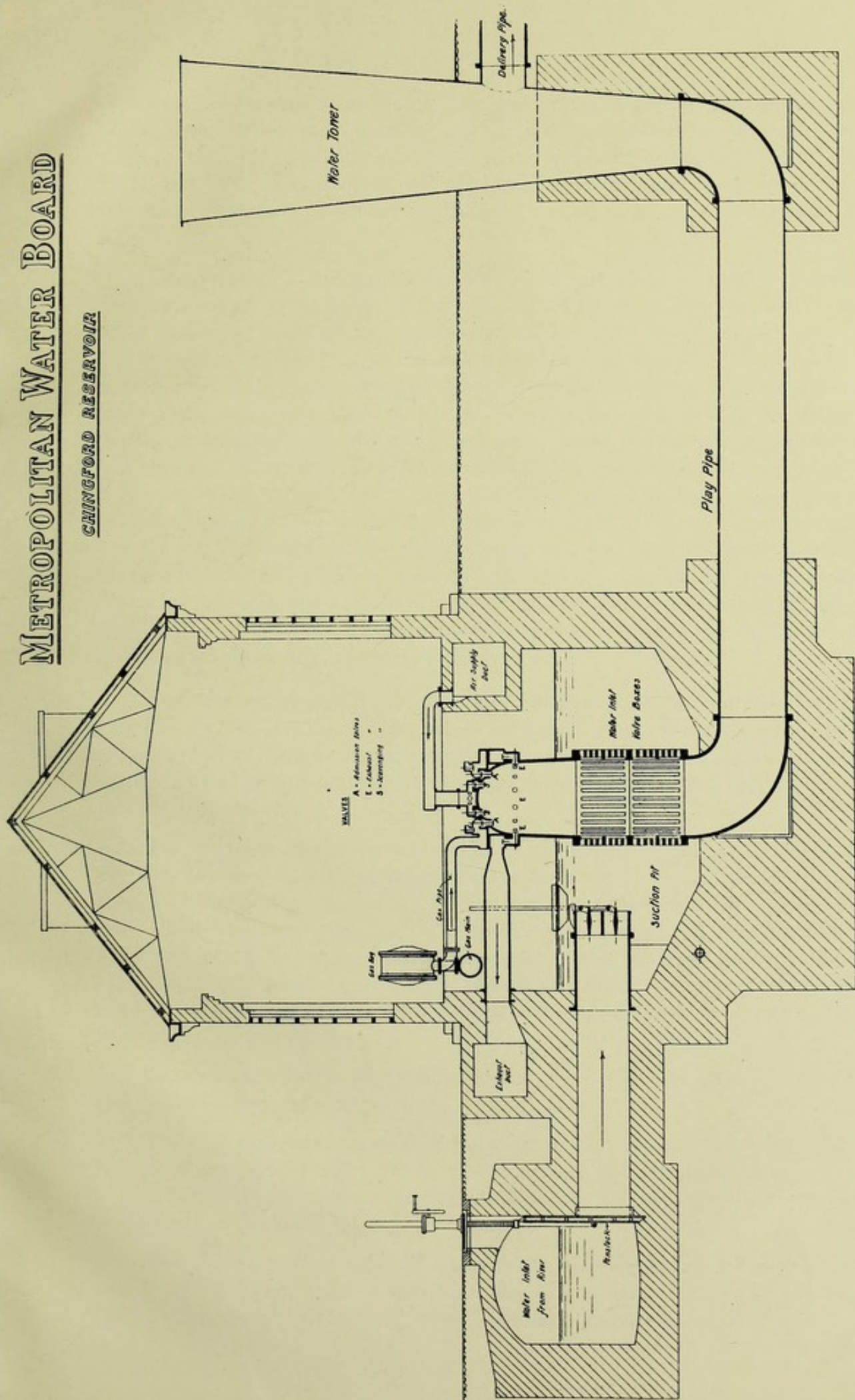
The five Humphrey pumps erected at the Chingford Reservoir include four large units and a smaller one. Each large unit is capable of delivering 40 million gallons of water per day. The small pump is of one-half that capacity, and the total installation will therefore deliver 180 million gallons per 24 hours.

The action of the pump can be best understood by picturing a horizontal pipe, connected by two bends at its ends with a vertical closed top combustion chamber and an open top water tower respectively. The parts thus connected are nearly full of water, forming a heavy mass or column, which is made to oscillate under the action of the



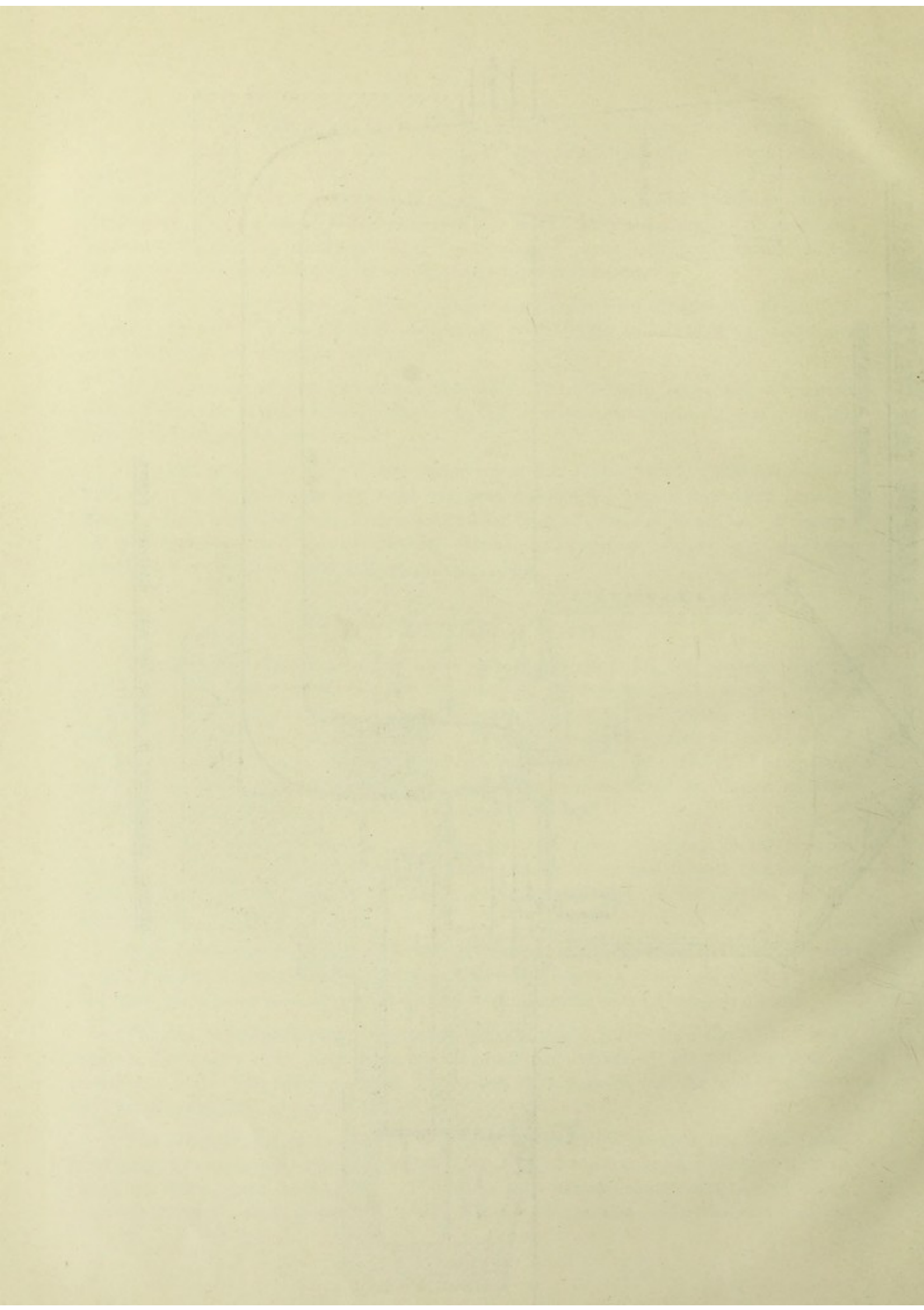
# METROPOLITAN WATER BOARD

## CHINGFORD RESERVOIR



GENERAL ARRANGEMENT OF ONE OF THE FIVE HUMPHREY PUMPS.







explosion. This oscillation is quite free, and occurs in such a manner that the movement of the water causes the intake of a fresh combustible mixture, the compression of the mixture, the explosion and expansion which give the power stroke, and the exhaust of burnt products. There are thus four primary movements of the water during each cycle, two being from the combustion chamber towards the tower and two in the opposite direction.

The success of the pumps is due to the use of the momentum acquired by the moving mass of water, for it is this momentum which enables the outward swing of the water under the action of an explosion to continue after the expansive force of the gases has finished, and thus to draw in scavenging air and to cause the intake of fresh water from the low level during the first outward stroke. On the first inward stroke, which takes place under the head to which the water has been lifted, the column of water is allowed to acquire velocity and momentum while merely exhausting the burnt gases, and then the momentum is utilised to compress a cushion of scavenging air imprisoned in the top of the combustion chamber above the exhaust valves. Energy is thus stored in the compressed cushion and this cushion expands, giving the second outward stroke, and again it is the momentum which is relied upon to carry the water column far enough to draw in behind it a fresh mixture of gas and air. The second return stroke now takes place and the explosive mixture is compressed, and once more, owing to momentum, the compression pressure far exceeds that which would be due to the static head of the liquid and thus permits a high thermal efficiency.

The only working parts are the valves, and of these the admission valves for combustible mixture and the exhaust valves for burnt products are placed in the combustion chamber, and the valves for admitting fresh water are placed circumferentially round a vertical valve box situated between the combustion chamber and the bend which connects to the horizontal pipe.

To give some idea of the size of one of the larger pumps, it may be mentioned that the combustion chamber and valve box are both 7 ft. diameter, and the bend connecting them with the horizontal pipe is 7 ft. diameter on one face and 6 ft. diameter on the other face. The horizontal pipe is 6 ft. diameter throughout, and the vertical tower at the other end gradually increases in the shape of an inverted cone until it is 15 ft. diameter at the top. If a person passed from end to end inside the apparatus, he would find a perfectly clear and unobstructed waterway, and it would look more like a big empty pipe than a piece of machinery.

On each explosion in one pump 12 tons of water will be taken out of the river Lee and delivered into the Reservoir.

The best popular conception of the apparatus is that of a huge swinging pendulum, formed of the mass of water, which moves to and fro, but always in such a manner that at each cycle 12 tons of water leave the apparatus at the high level, while 12 tons of fresh water enter at the low level to take its place.

The pumps can be stopped and started instantaneously by merely controlling a switch on the electric ignition circuit, so that it is possible to have all five pumps at rest one moment and yet all working at full load half a minute later.



The reservoir, river diversion, bridges, roads, pump house, cottages, and other buildings and works were designed by the Water Board's Chief Engineer, Mr. William Booth Bryan, Mem. Council Inst. C.E., and have been constructed under his supervision by Messrs. Charles Wall, Limited, Contractors to the Board.

The cost of the works amounts to some £550,000.

#### WATER SUPPLY STATISTICS.

Statutory Area	-	-	-	-	560 square miles.
Population supplied	-	-	-	-	6,629,165 at census of 1911.
Storage	-	-	-	-	13,000 million gallons.
Filters	-	-	-	-	169 acres.
Daily supply	-	-	-	-	244 million gallons.
Mains	-	-	-	-	6,334 miles.
Fire Hydrants-	-	-	-	-	63,218.
Engines	-	-	-	-	270, of 41,195 total horse power.

The population supplied is nearly a million more than the total population of Australia and New Zealand, and represents 15 per cent. of the population of Great Britain and Ireland. It will be seen that the magnitude of London's water supply is almost that of a nation rather than a community.

The average daily supply (244 million gallons) would twice fill a tank the size of Trafalgar Square ( $2\frac{1}{2}$  acres) and the height of Nelson's column. The average supply per head per day in 1911-12 was  $36\frac{1}{2}$  gallons. In the summer it reached  $42\frac{1}{2}$  gallons, or more than a barrel of good water every day for every man, woman and child in a population of nearly 7 millions. The supply to each house every day would weigh nearly a ton.

A circumstance peculiar to the London water supply, as compared with that of the great provincial cities, is that, whereas these cities for the most part derive their supplies from reservoirs on elevated uplands, whence the water flows to the consumer by gravitation, the London supply comes from sources lower than the ordinary ground level, and therefore every pint of it has to be raised by powerful pumps to the service reservoirs, whence the water flows to the consumer; which means in effect that this vast quantity of water is raised every day in the year to a height equal to that of the Nelson Column in Trafalgar Square. And notwithstanding, the Londoner gets his water of a quality beyond exception at a price which does not exceed  $1\frac{1}{4}$ d. for 100 buckets full.

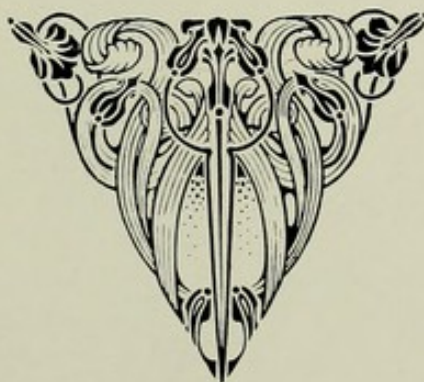
#### INCREASING CONSUMPTION.

The functions of the Water Board are not, however, confined to merely maintaining this daily supply. It is incumbent upon them to keep the supply equal to the increasing demands. This increase is not solely attributable to the growth of population. There are other influences at work. Thus the Board have abolished the charges for water closets and baths, and there is no reason why every small house should not have its bath, to the advantage and comfort of the occupants and the profit of the public health.



## NEW WORKS REQUIRED.

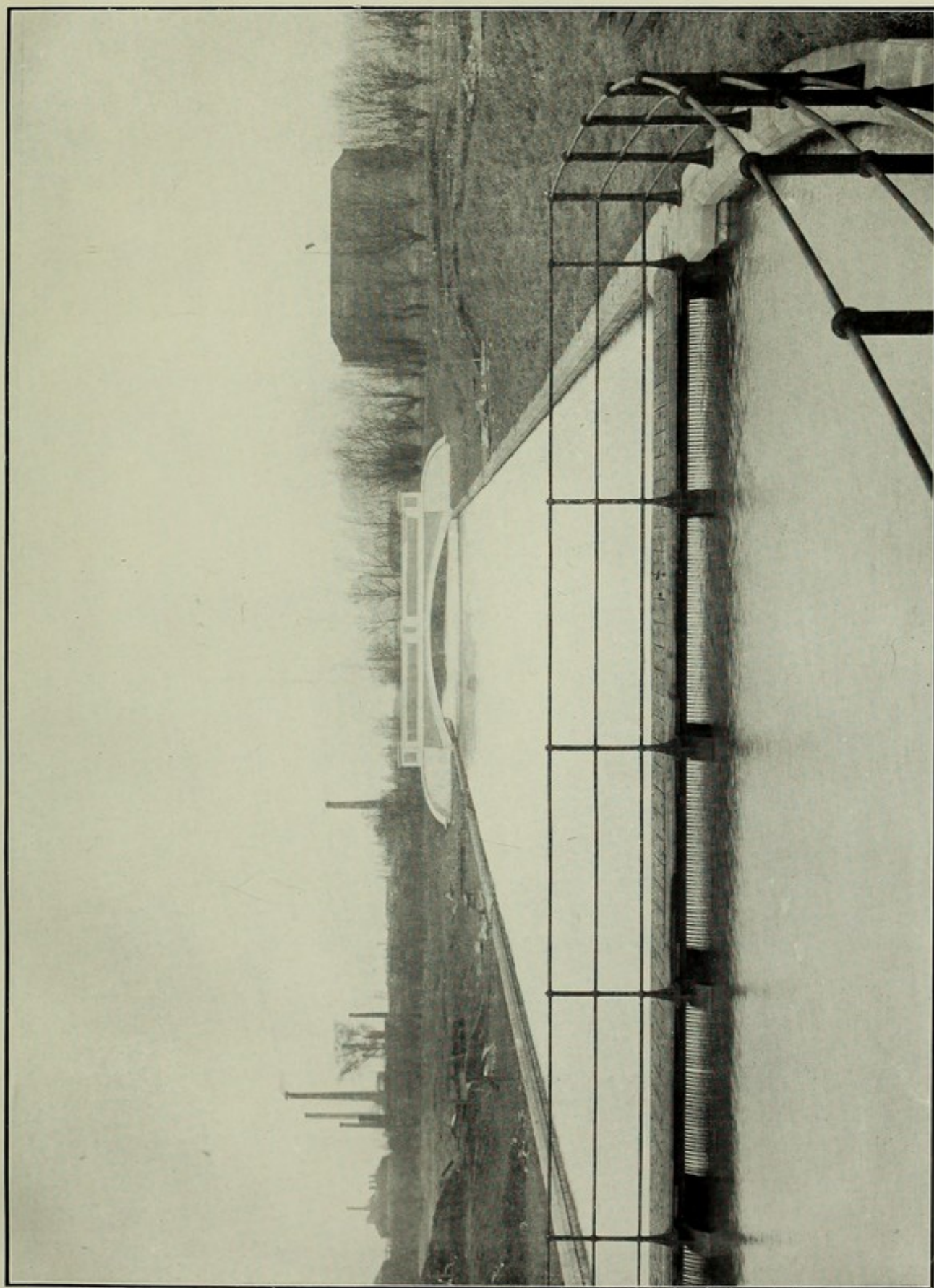
The task of keeping pace with this ever-increasing demand necessarily involves constant capital expenditure. This has already amounted to nearly £3,000,000 since the waterworks passed under public control in 1904, and has added 50 per cent. to the storage capacity by raising it to 13,000 million gallons. The Board are now occupied with the building of two other reservoirs at Littleton, in the Thames Valley, which will again increase their storage by 7,000 million gallons, at a cost of £1,600,000, being part of a loan of £4,100,000 for the execution of works and the purchase of lands authorised by Parliament in 1911. Powers are also possessed for a further reservoir at Staines, and for the final one in the East London Company's Lee Valley scheme; whilst sanction is being sought in the present session of Parliament for various works in Kent. Those hasty critics who somewhat unkindly attribute the deficiency in the water fund to inadequate management, rather than to more legitimate causes, are prone to ignore this indispensable outlay on new works, with its attendant heavy charges for interest and sinking fund, added to the interest on the enormous sums awarded to the Companies on the public acquisition of their undertakings, plus the ever increasing burden of local rates, and the diminution in the Board's income arising from the Parliamentary revision of their water charges in the year 1907. Let it always be remembered that expenditure on reservoirs has a two-fold value, since it not only enables water to be held in reserve against emergencies of drought or otherwise, but the impounding of the water for a suitable period has been proved to be of the utmost value as a purifying process and a sure protection against the risk of water-borne disease.











CHINGFORD RESERVOIR.  
INTAKE FROM RIVER LEE.







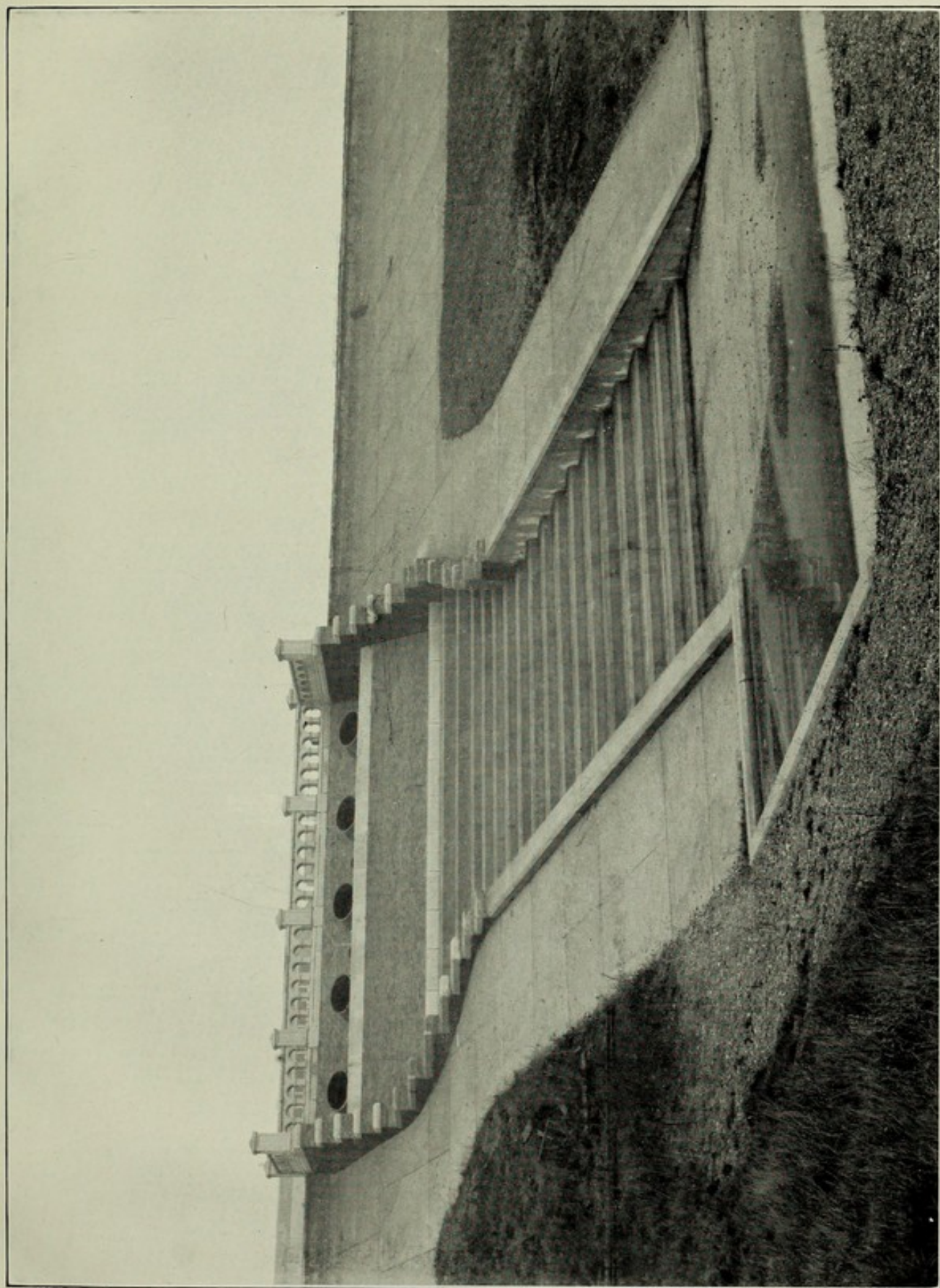


CHINGFORD RESERVOIR.  
PUMP HOUSE.







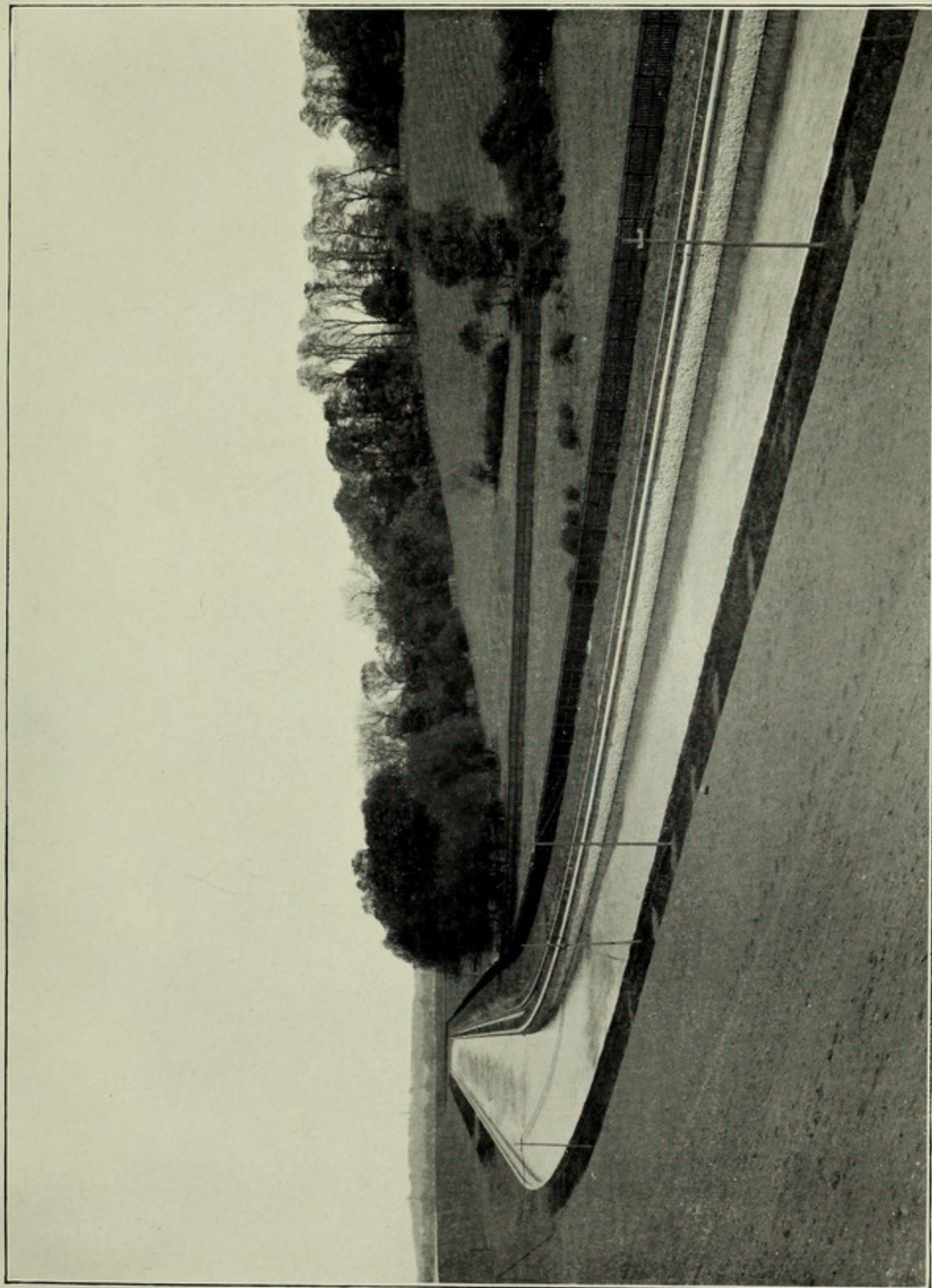


CHINGFORD RESERVOIR.  
INLET PIPES AND WEIR.







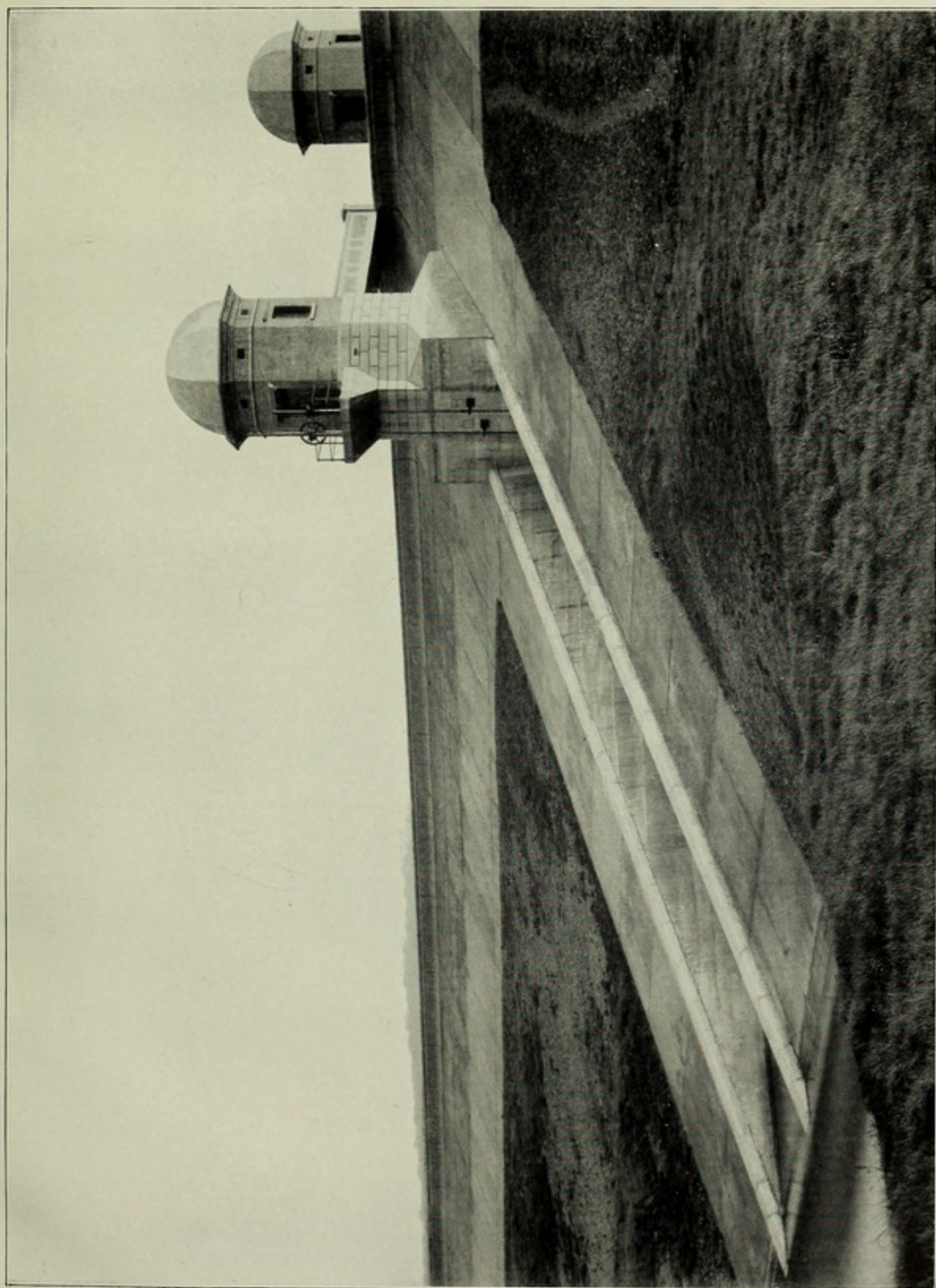


CHINGFORD RESERVOIR.  
RIVER LEE DIVERSION LOOKING NORTH FROM CENTRE OF EASTERN EMBANKMENT OF RESERVOIR.







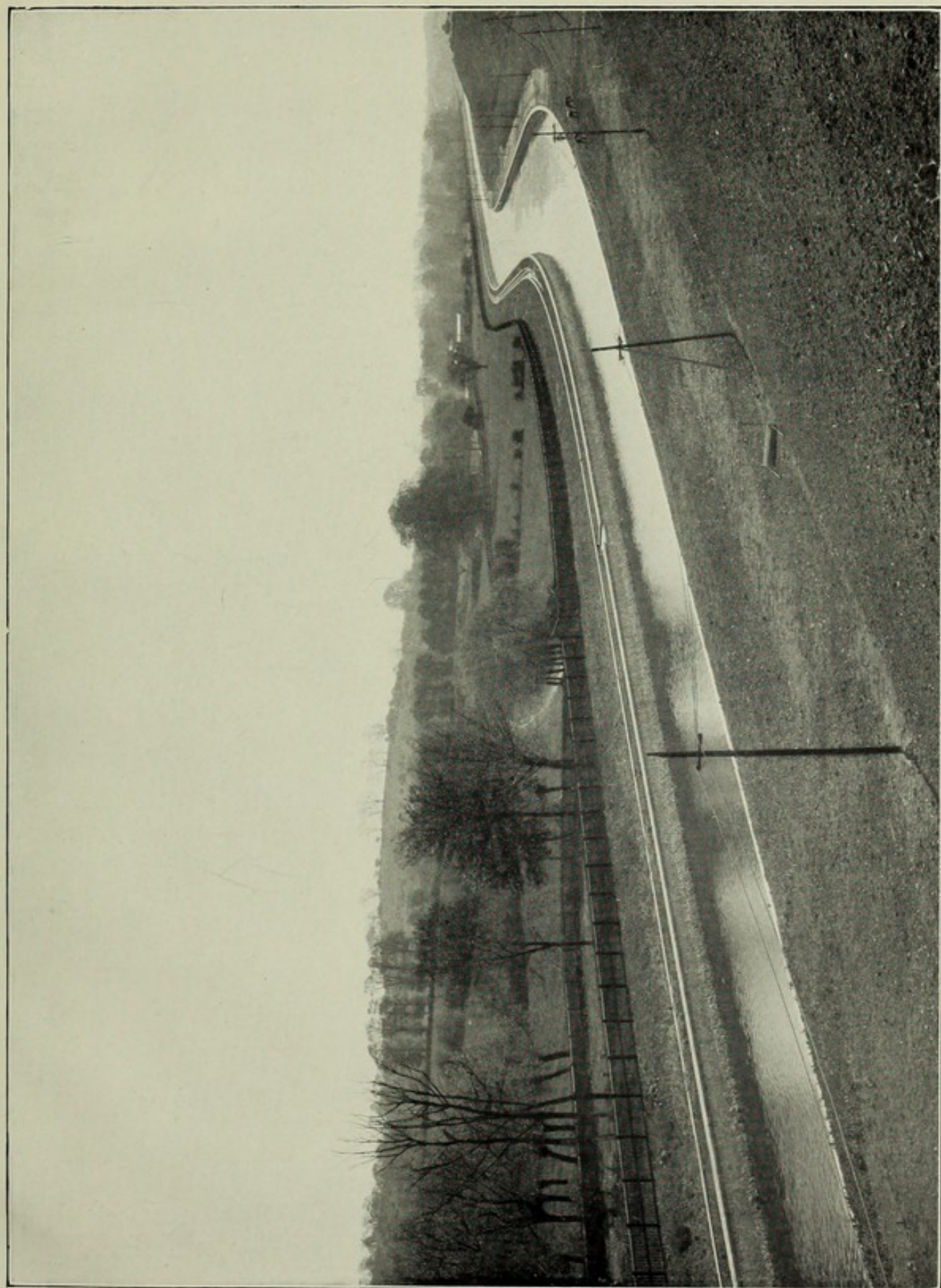


CHINGFORD RESERVOIR.  
FOREBAY AND OUTLET TOWERS.







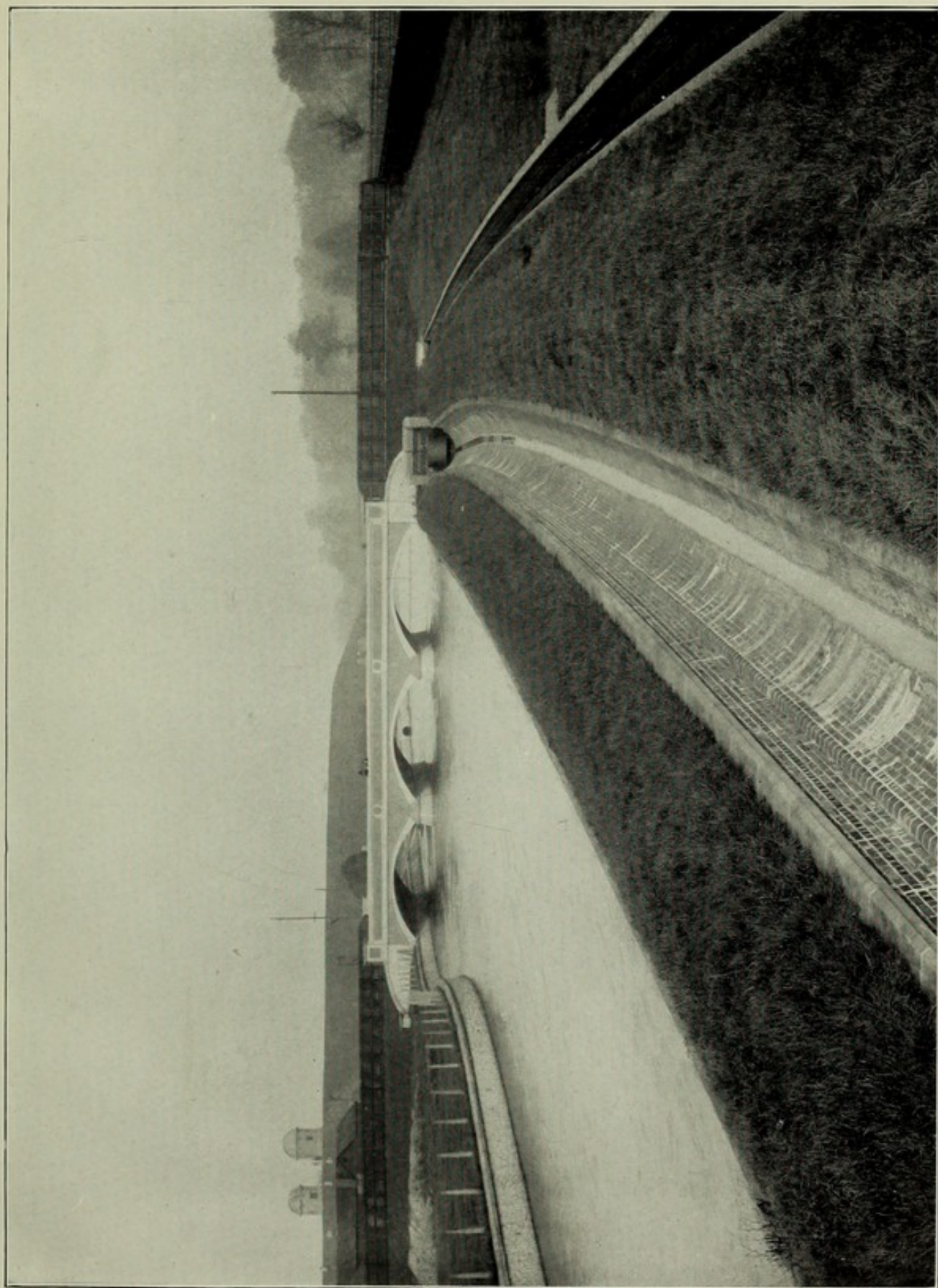


CHINGFORD RESERVOIR.  
RIVER LEE DIVERSION LOOKING SOUTH FROM CENTRE OF EASTERN EMBANKMENT OF RESERVOIR.







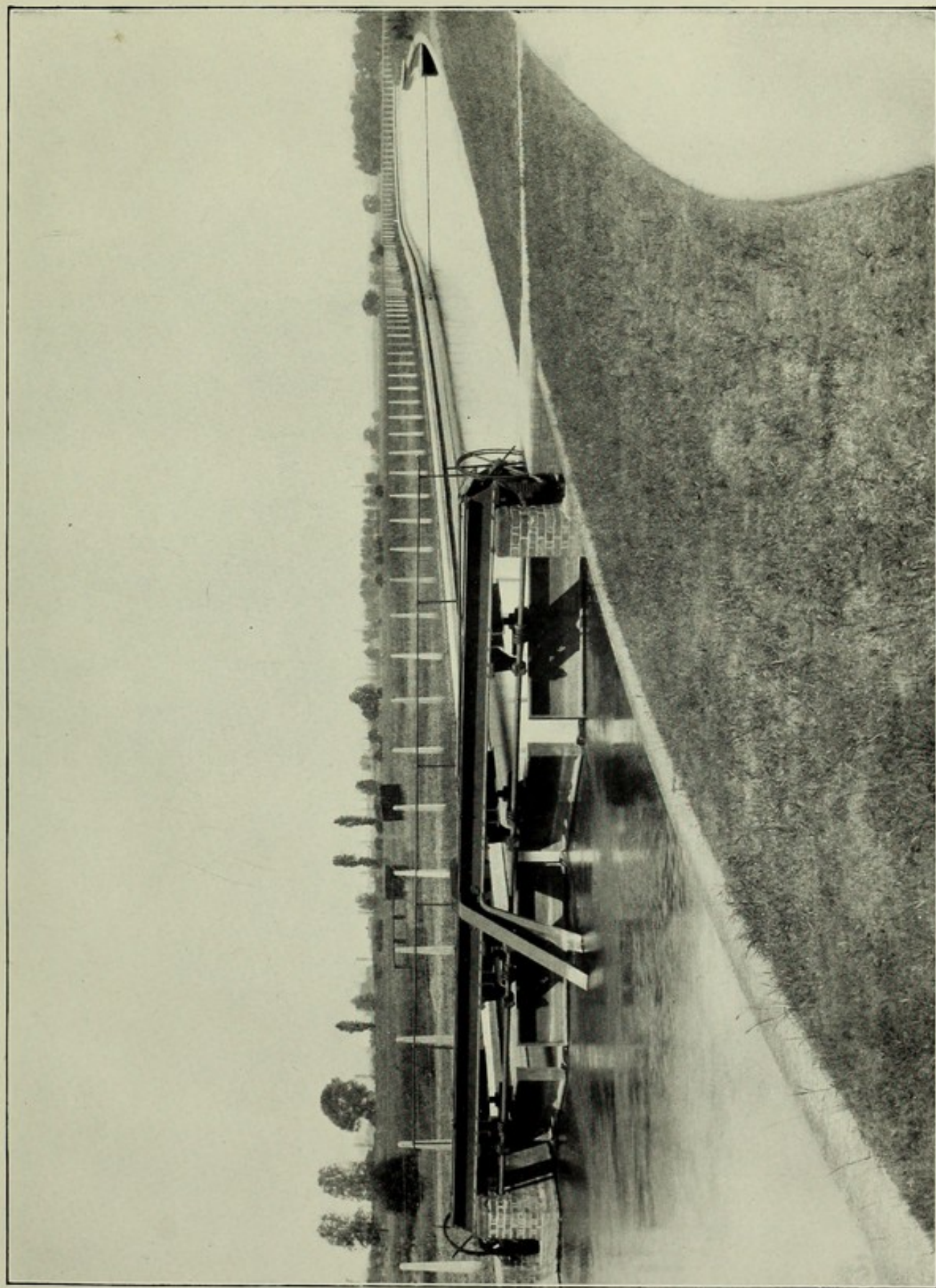


CHINGFORD RESERVOIR.  
RIVER LEE DIVERSION, ROAD BRIDGE, OUTLET CHANNEL AND INTERCEPTING CHANNEL.







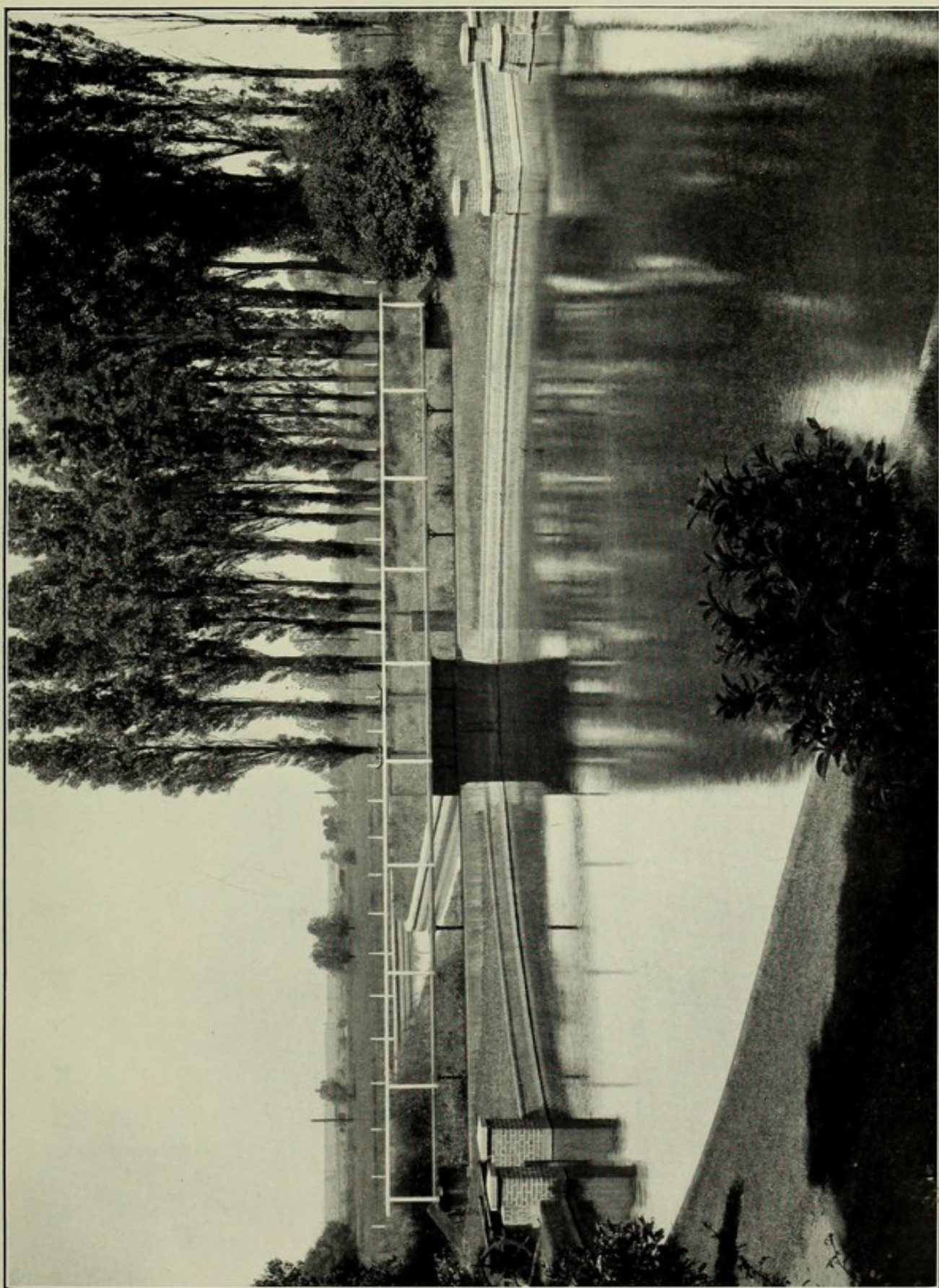


CHINGFORD RESERVOIR.  
BALANCE GATES AT SOUTH END OF RIVER LEE DIVERSION









CHINGFORD RESERVOIR.  
DISTRIBUTING BASIN AT END OF OUTLET CHANNEL.



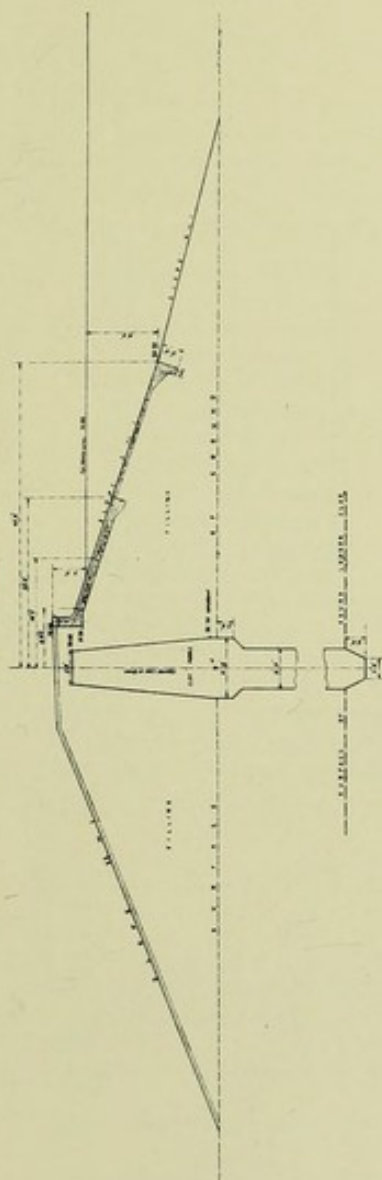
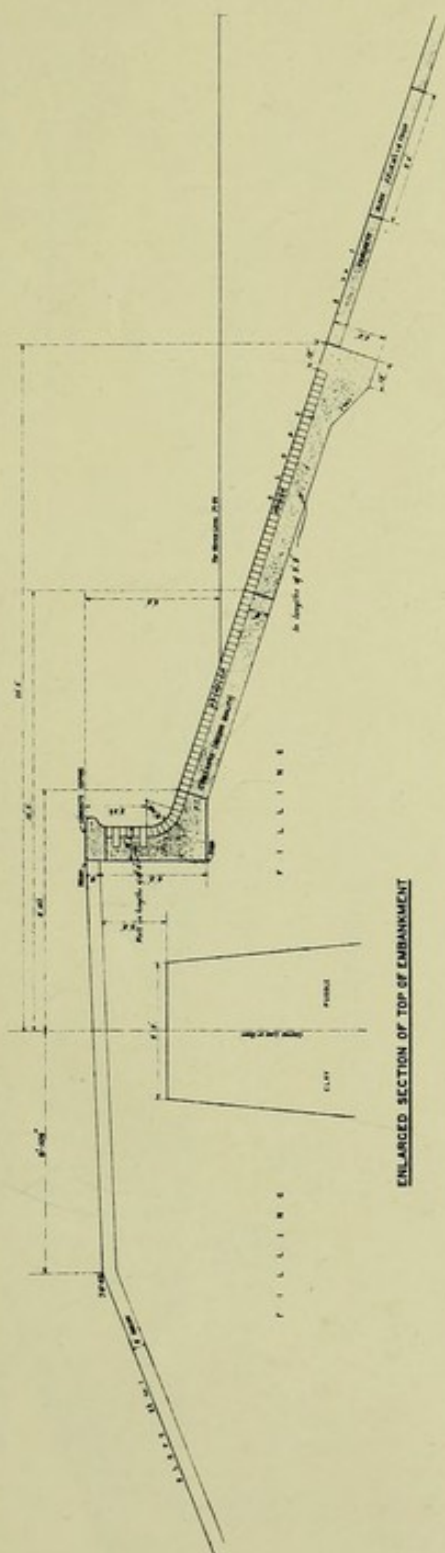




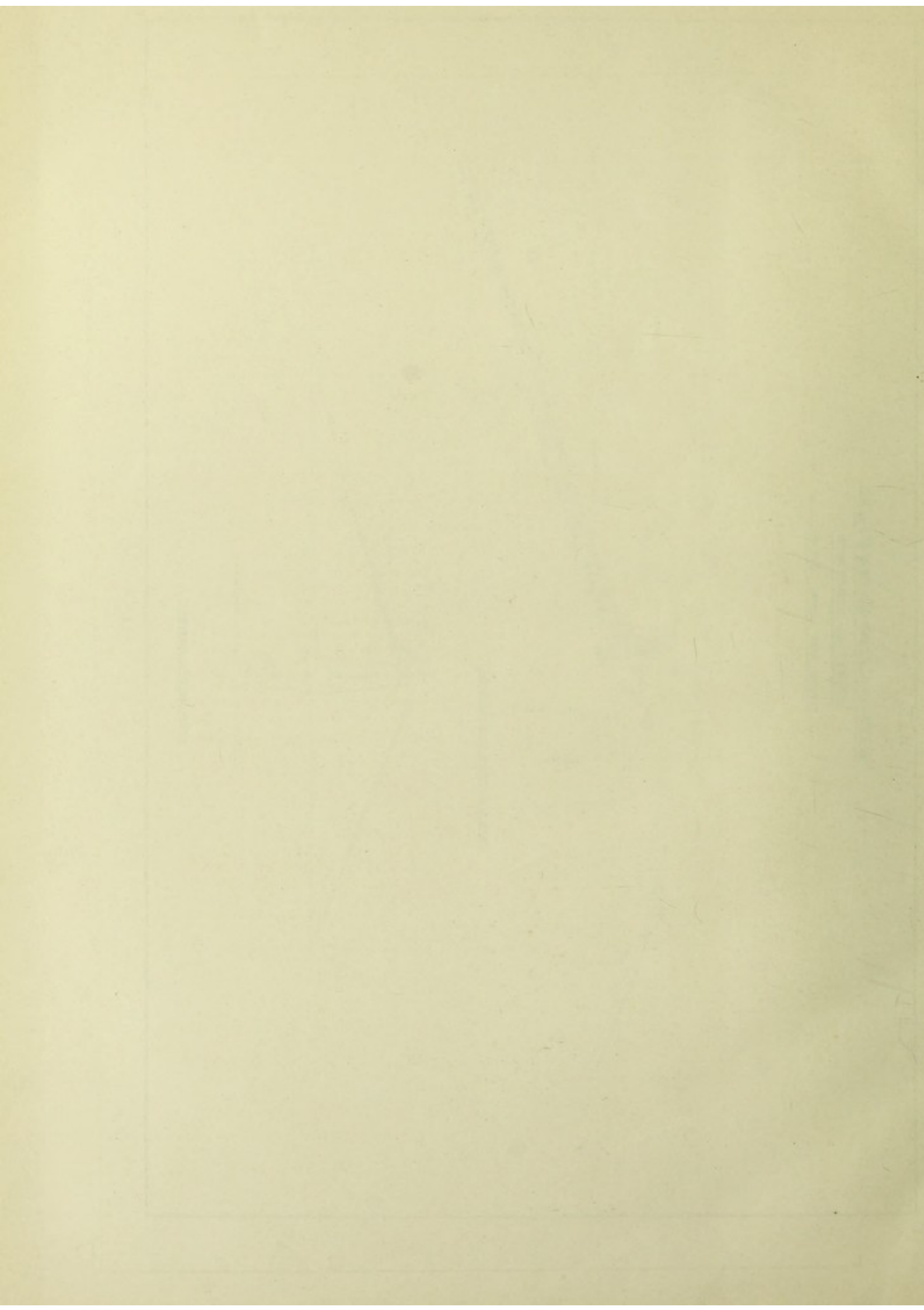
**METROPOLITAN WATER BOARD.**

CANNONFORD RESERVOIR.

TYPICAL BANK CROSS SECTIONS.





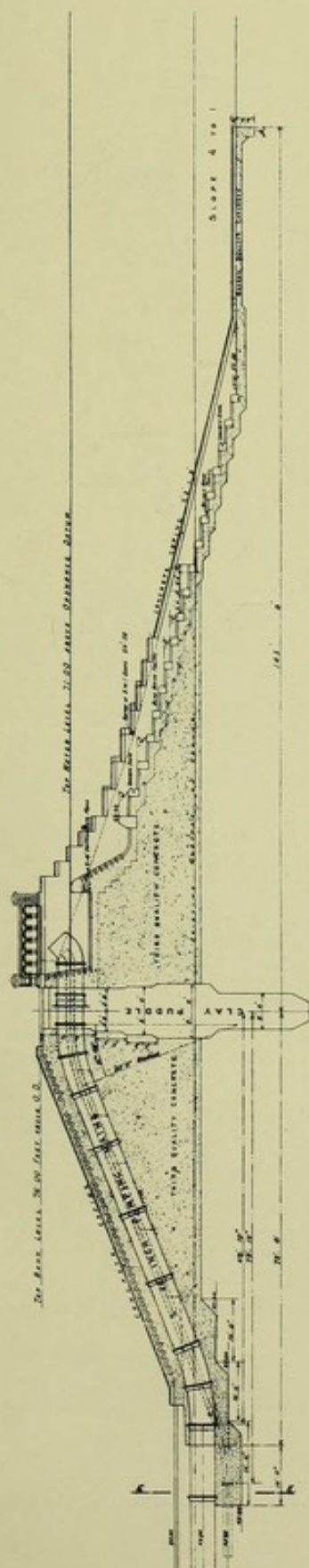




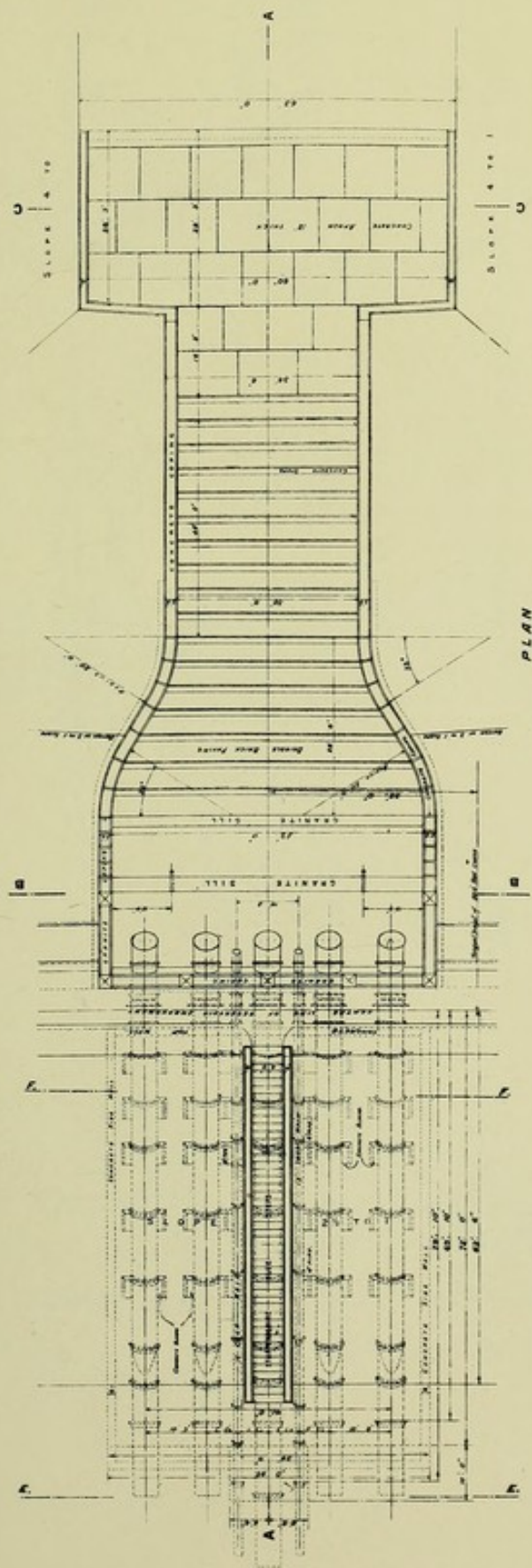
# METROPOLITAN WATER BOARD.

## CHINGFORD RESERVOIR.

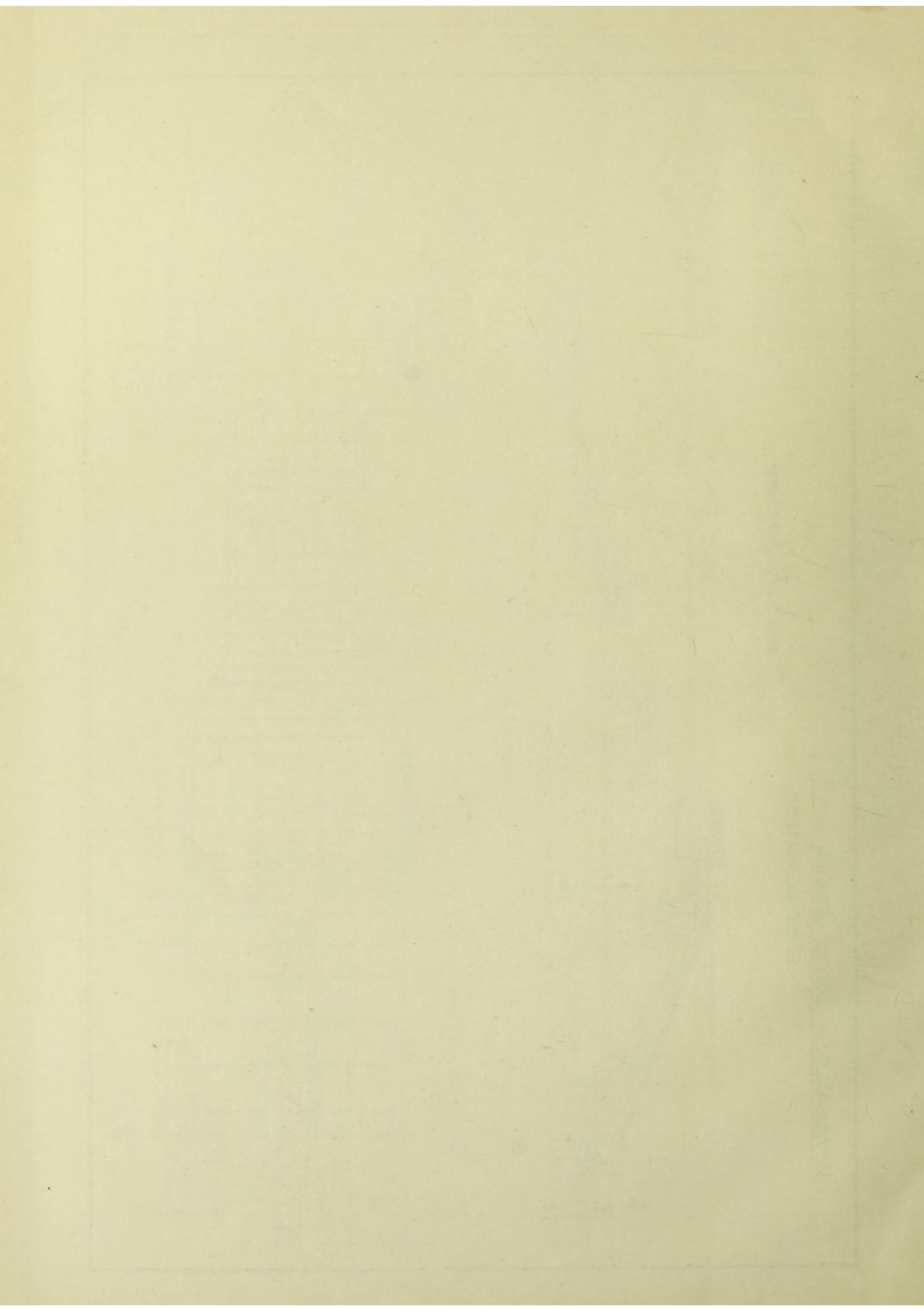
### INLET TO RESERVOIR.



### SECTION ON A.A.





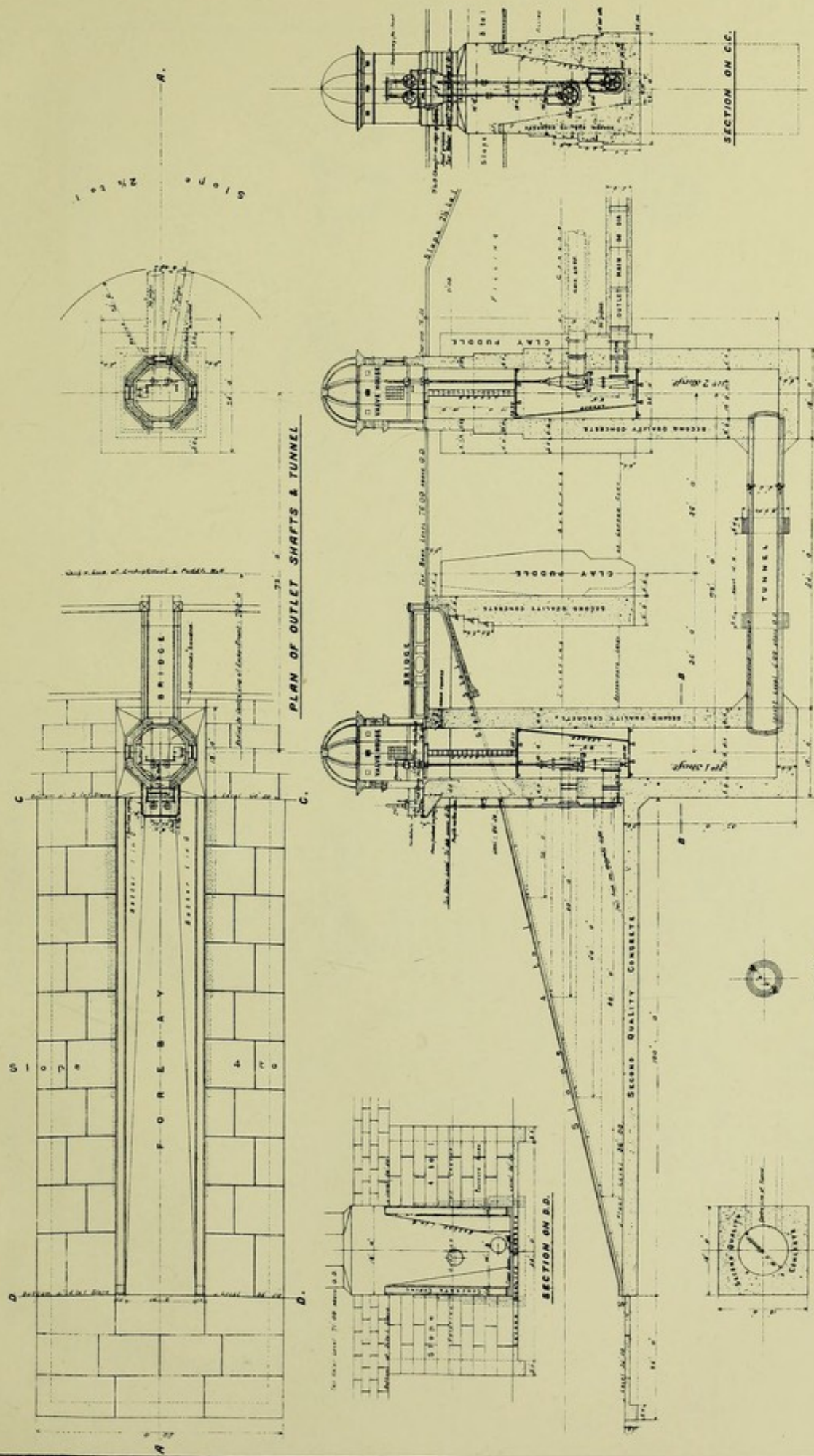




# METROPOLITAN WATER BOARD.

## CHINGFORD RESERVOIR.

### OUTLET SHAFTS & TUNNEL.



SECTION ON A.A.

SECTION THIRD TUNNEL

SECTION THIRD SHAFTS ON B.B.

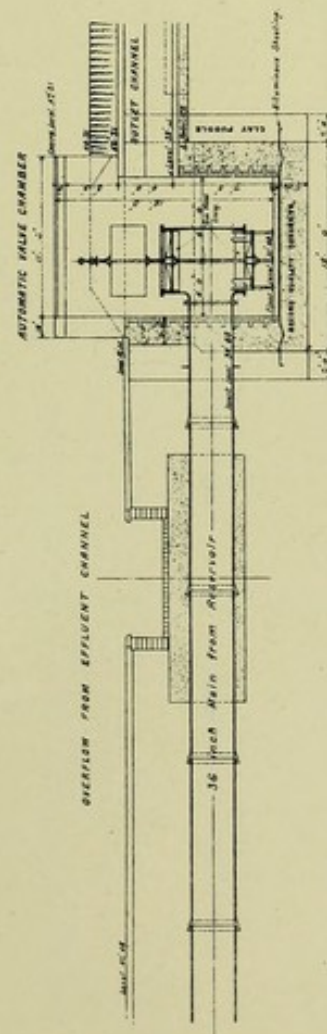
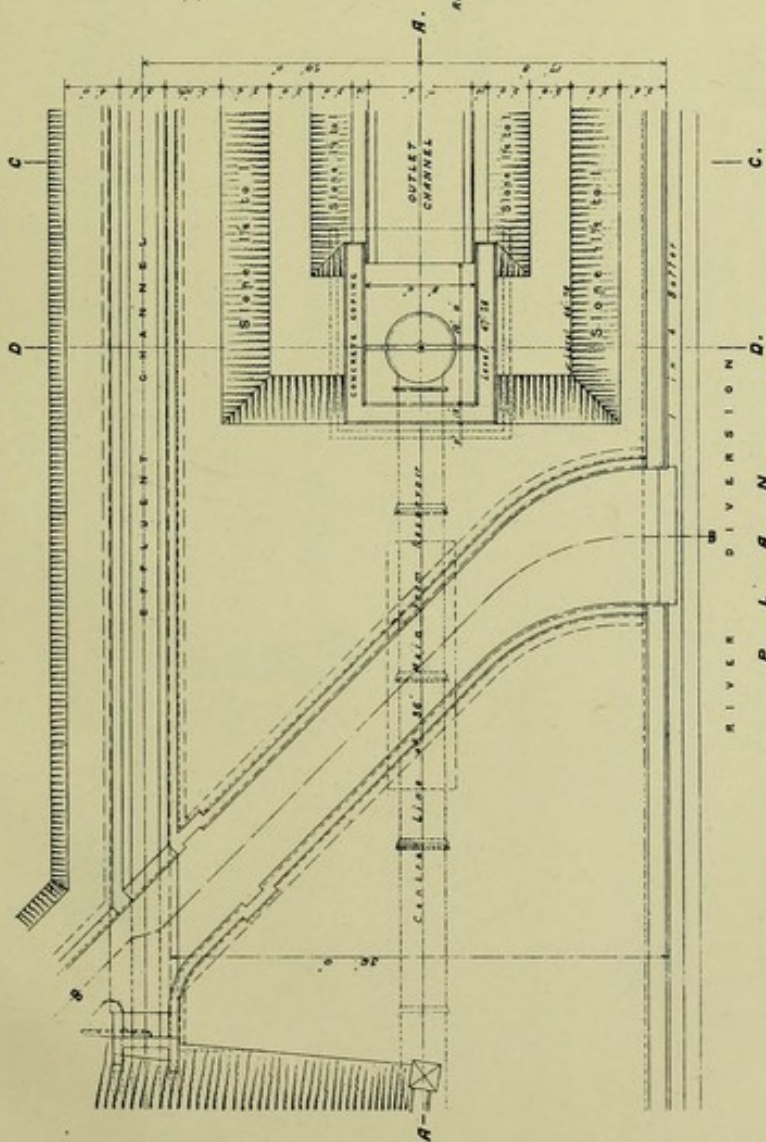






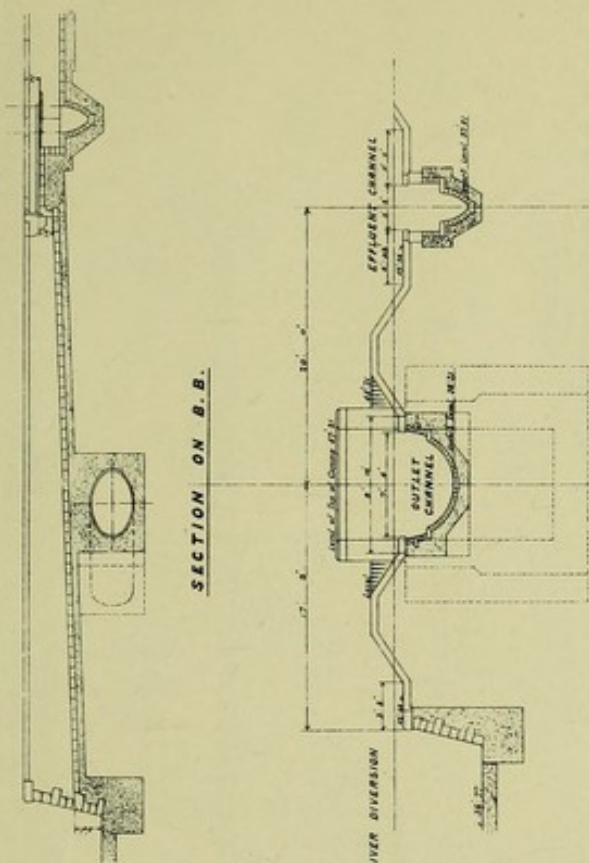
# METROPOLITAN WATER BOARD.

## CHINGFORD RESERVOIR.

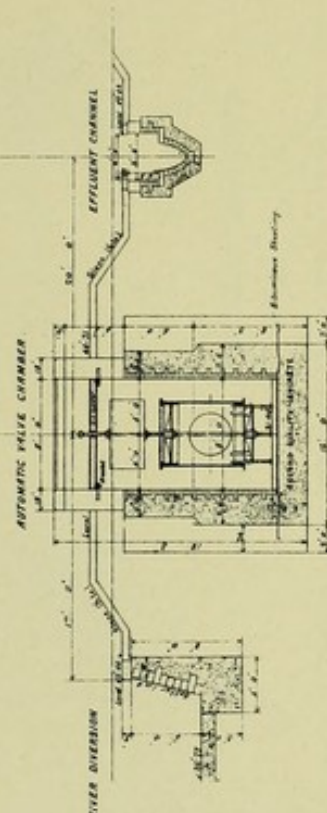


SECTION ON A.A.

# OVERFLOW FROM EFFLUENT CHANNEL AND AUTOMATIC VALVE CHAMBER AT COMMENCEMENT OF OUTLET CHANNEL.



SECTION ON B.B.



SECTION ON C.C.

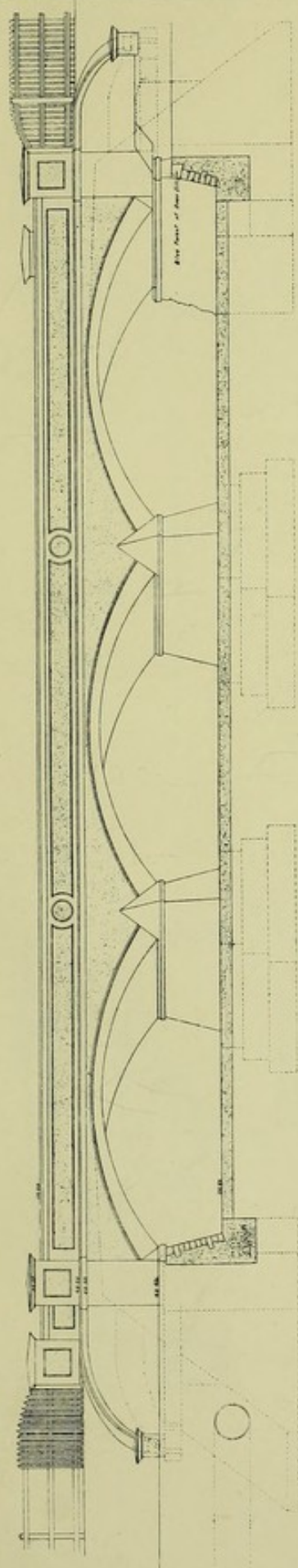




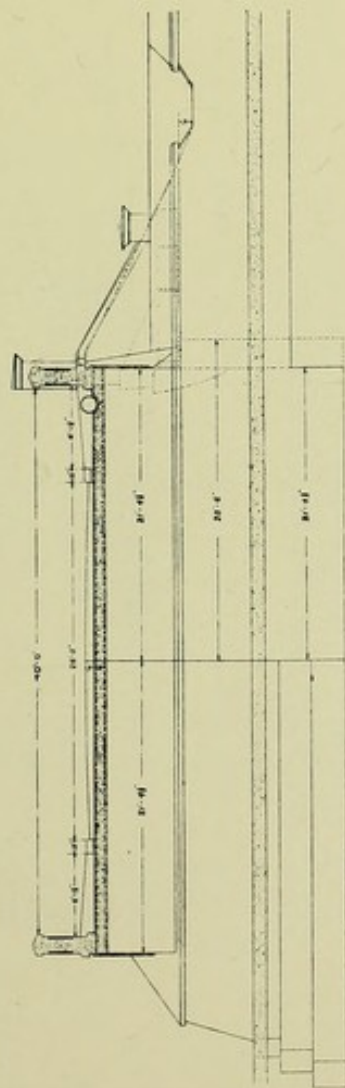
# METROPOLITAN WATER BOARD.

## CHRYSTOPHER RESERVOIR.

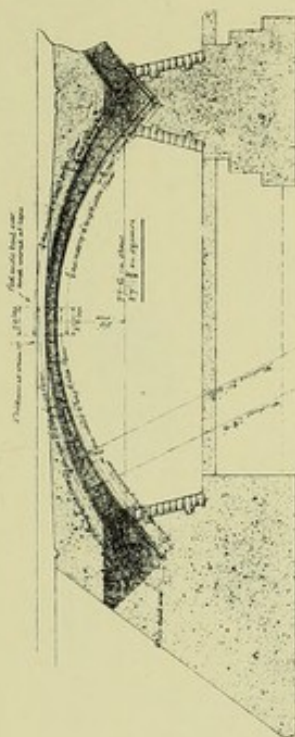
### PUBLIC ROAD BRIDGE OVER RIVER LEE DIVERSION.



ELEVATION  
LOOKING DOWNSTREAM



HALF SECTION THROUGH CROWN  
OF MIDDLE SPAN



PART SECTION ALONG CENTRE LINE OF ROAD

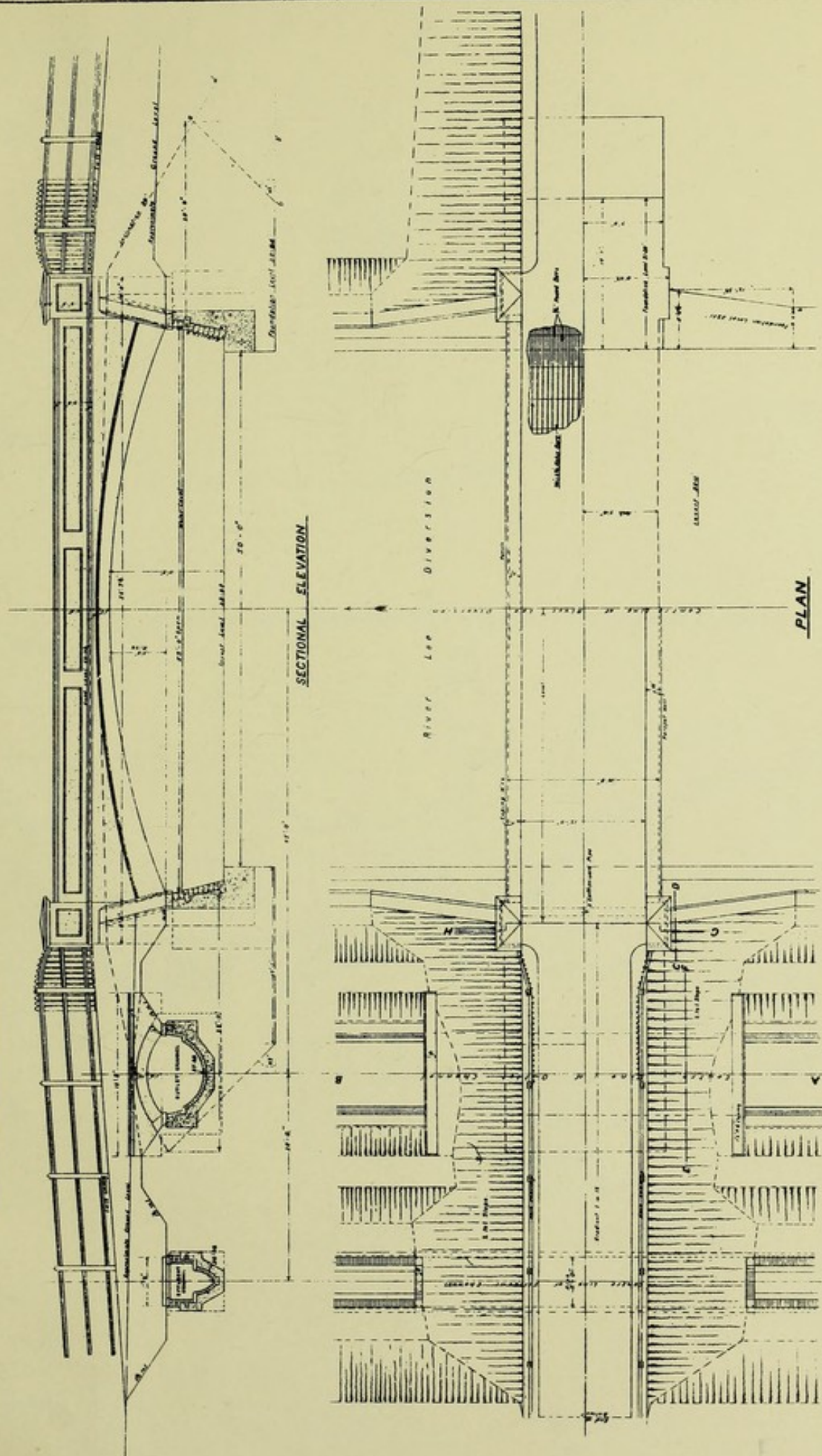




# METROPOLITAN WATER BOARD.

CHICHESTER RESERVOIR.

# OCCUPATION BRIDGE OVER R. LEE DIVERSION & CHANNELS.



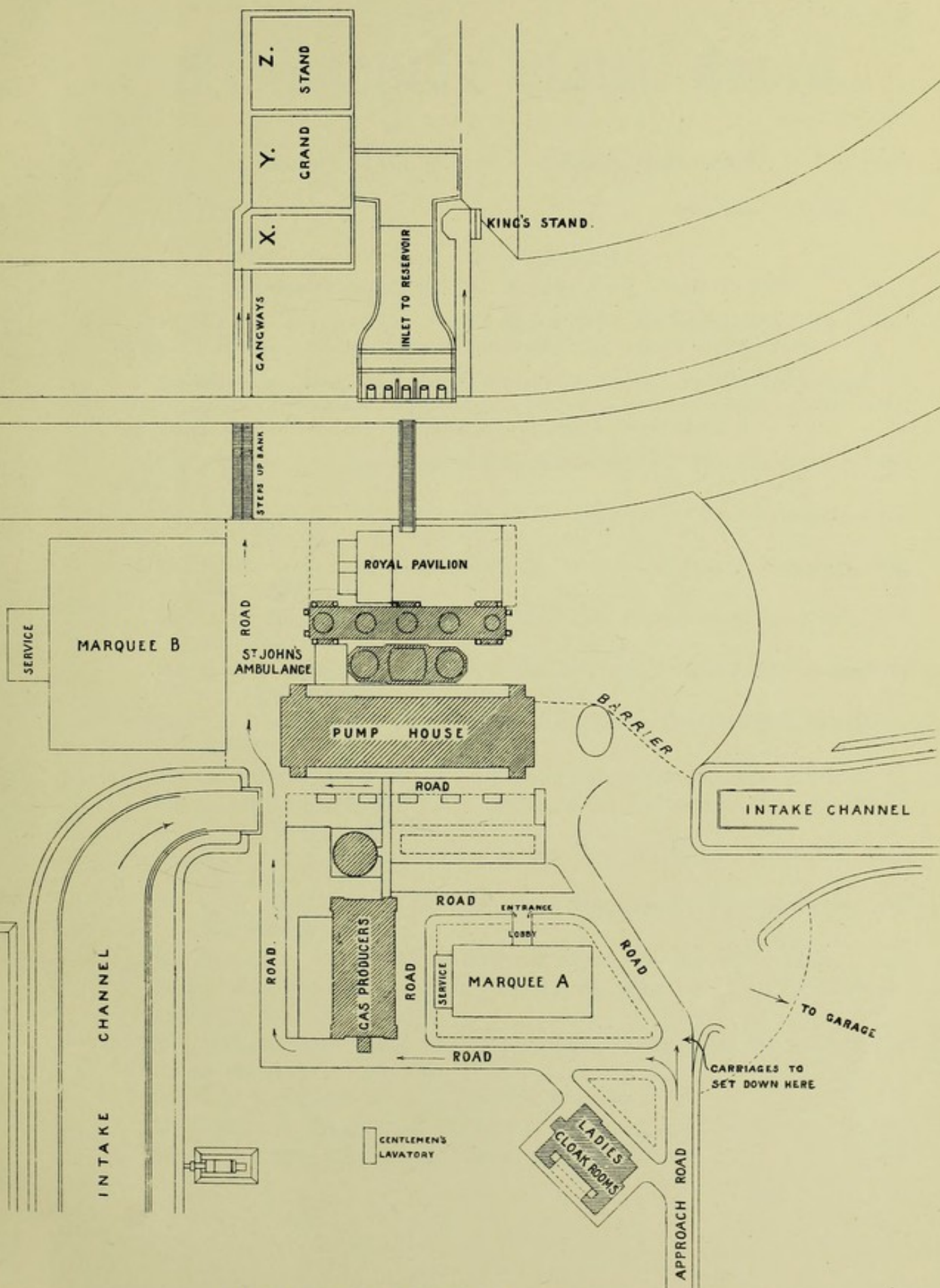












PLAN SHEWING POSITION OF STANDS &c.





# Metropolitan Water Board.

## Report of the Works and Stores Committee.

31st March, 1913.

*King George's reservoir.*

*Ceremonial opening by His Majesty King George the Fifth.*

1. We have to report that on 15th March, 1913, His Majesty the King accompanied by Her Majesty, inaugurated the Board's new reservoir at Chingford.

On arrival at Chingford Their Majesties were received by the Chairman of the Board, Mr. E. B. Barnard, who had the honour of being presented to the King and Queen by the Secretary of State for the Home Department.

The following had the honour of being presented by the Chairman of the Board :—

Mr. John Sheehan, J.P., Chairman of the Works and Stores Committee, and Mrs. Sheehan.

Mr. E. H. Tripp, Vice-Chairman of the Works and Stores Committee, and Mrs. Tripp.

Mr. C. E. Fox, J.P., Chairman of the Water Examination Committee, and Mrs. Fox.

Mr. J. B. P. Karslake, Chairman of the Law and Parliamentary Committee, and Mrs. Karslake.

Mr. C. G. Musgrave, J.P., Chairman of the Appeal and Assessment Committee, and Mrs. Musgrave.

Mr. A. H. Tozer, Chairman of the Finance Committee, and Mrs. Tozer.

Mr. C. FitzRoy Doll, F.R.I.B.A., F.S.I., J.P., Chairman of the New Works Sub-Committee, and Mrs. Doll.

Mr. F. L. Dove, Vice-Chairman of the New Works Sub-Committee, and Mrs. Dove.

Mr. E. G. Easton, Vice-Chairman of the Management Sub-Committee, and Mrs. Easton.

Mr. John Glass, J.P., Past Vice-Chairman of the Board, and Miss Glass.

Sir R. Melvill Beachcroft, Past Chairman of the Board, and Lady Beachcroft.

Mrs. G. S. Elliott.

Mr. Charles Wall (of Messrs. Charles Wall, Ltd., contractors for the construction of the reservoir) and Mrs. Wall.

Mr. H. A. Humphrey, M.I.C.E., and Mrs. Humphrey.

Mr. William B. Bryan, Chief Engineer of the Board, and Mrs. Bryan.

Mr. A. B. Pilling, Clerk of the Board, and Mrs. Pilling.



The Chairman of the Board read and presented to His Majesty the following Address :—

“ TO HIS MOST EXCELLENT MAJESTY KING GEORGE THE FIFTH

“ THE LOYAL AND DUTIFUL ADDRESS OF THE METROPOLITAN WATER BOARD,  
“ PRESENTED THE 15TH DAY OF MARCH, 1913.

“ The Metropolitan Water Board respectfully beg to express their gratitude for the gracious condescension of your MAJESTY and HER MAJESTY THE QUEEN in visiting the newly-constructed reservoir in the Valley of the Lee. Three hundred years ago the royal solicitude and financial succour of King James the First enabled the waters of that Valley to be brought by the New River from the Springs of Amwell and Chadwell to London, and it is a coincidence of great interest and a circumstance of distinguished favour to the Water Board, that in the Tercentenary of the New River YOUR MAJESTIES should graciously honour the Board by inaugurating the last and greatest of the reservoirs constructed in the Valley of the Lee for the purpose of meeting the ever-increasing demands of the Metropolis and parts adjacent for a copious supply of pure and wholesome water. In the furtherance of that purpose the Board have expended on new works at Chingford and elsewhere a sum approaching £3,000,000 since they assumed the control of the water undertaking in the year 1904, and additional works involving a further cost of £1,600,000 will shortly be commenced in the Valley of the Thames. The laying out of such large sums of public money involves many anxieties and great responsibilities ; but these the Board bear willingly, heartened and encouraged as they are by the gracious sympathy and interest of YOUR MAJESTIES. The Board most humbly pray that YOUR MAJESTIES may long be spared to stimulate and assist the local authorities of the Kingdom with ‘ the King’s most gracious love ’ for enterprises great and small in furtherance of the public weal.

“ Given under the Common Seal of the Board the day and year aforesaid.

“ E. B. BARNARD,  
*Chairman.*

“ A. B. PILLING,  
*Clerk.*”

His Majesty read the following reply to the Board’s Address :—

“ The Queen and I are very glad to be present to-day to inaugurate the Chingford reservoir and to witness the completion of this part of your enterprise.”



“It is interesting to recall the association of My Ancestor with the inception of London's water supply, when the New River was formed to carry the springs of the River Lee to the heart of the City.”

“The accomplishment of this arduous task in the year 1613 was largely due to a distinguished Welshman, Sir Hugh Myddelton, whose dauntless nature overcame unending difficulties and opposition; and the first official act of his brother, Sir Thomas Myddelton, who was elected Lord Mayor of London the same year was to perform a ceremony such as I have undertaken to-day.”

“The citizens of London will do well to remember that after three centuries they still owe a debt of gratitude to the Lee for the remarkable purity of their water supply.”

“Since the days of King James the First the problem has become immeasurably greater with the constant widening of London's boundaries and the vast increase of her population.”

“The large sums which the Metropolitan Water Board have found it necessary to spend in new works bear witness to the magnitude of their task and it is easy to realise the heavy burden which falls on those responsible for the policy and administration of such great undertakings.”

“You are justly proud of this reservoir which is a splendid monument to the energy of your officers, the skill of your engineers, and the industry of your workmen. We congratulate you warmly on the success of your labours and We shall ever follow with interest the continued progress of this important undertaking so vital to the health and well-being of the capital of My Empire.”

His Majesty subsequently unveiled the commemoration stone, which bears the following inscription:—

#### METROPOLITAN WATER BOARD.

CHAIRMAN :

EDMUND BROUGHTON BARNARD, M.A., J.P.

“This tablet commemorates the completion of the Chingford reservoir works on the 15th March, 1913, when the water was admitted to the reservoir by His Majesty King George V., Her Majesty Queen Mary being present on the occasion.

“The works were designed by the Board's Chief Engineer, William Booth Bryan, M.I.C.E., and were constructed under his superintendence by Charles Wall, Ltd.

“A. B. PILLING,

*Clerk of the Board.*”

We have also to report the receipt of a letter dated 17th March, 1913, from Lord Stamfordham, His Majesty's Private Secretary, in the following terms :—

“I am commanded to convey to you the expression of the King's appreciation of the excellent arrangements made in connection with last Saturday's ceremony for which His Majesty thanks you and all concerned.”

“The King and Queen were very glad to assist in the inauguration of the Chingford reservoir, and were much interested in seeing the wonderful works which have been constructed to carry out this great enterprise of the Metropolitan Water Board.”

As the members are aware, the Clerk of the Board prepared a most interesting handbook on the occasion of the ceremony, incorporating therein some notes on the Tercentenary of the completion of the New River. Many expressions of appreciation have reached us with regard to the excellence of the handbook, and of the whole of the arrangements so admirably carried out by the Clerk of the Board in connection with the ceremony. We believe we represent the unanimous view of the Board in suggesting that some mark of appreciation of the services of the Clerk of the Board should be placed on record, and we therefore recommend :—

That the Board do record their appreciation of the admirable arrangements made by the Clerk of the Board in connection with the formal opening of King George's reservoir.

[Adopted.]

JOHN SHEEHAN,

*Chairman.*



