





ROYAL COMMISSION ON WATER SUPPLY WITHIN THE LIMITS  
OF THE METROPOLITAN WATER COMPANIES.

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MINUTES OF EVIDENCE

TAKEN BEFORE

HER MAJESTY'S COMMISSIONERS

APPOINTED TO INQUIRE INTO THE SUBJECT OF THE

WATER SUPPLY

WITHIN THE LIMITS OF THE

METROPOLITAN WATER COMPANIES;

WITH

INDEX TO THE MINUTES OF EVIDENCE LAID BEFORE THE  
COMMISSIONERS.

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VOLUME II.

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Presented to Parliament by Command of Her Majesty.

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ROYAL COMMISSION ON WATER SUPPLY WITHIN THE LIMITS  
OF THE METROPOLITAN WATER COMPANIES.

LIST OF WITNESSES EXAMINED BY THE COMMISSIONERS.

Name.	Description.	Date.	Vol.	Page.	Question.
Alexander, Hugh	Chief Sanitary Inspector of the Parish of St. Leonard, Shoreditch.	May 9, 1898	I.	440	8781.
Arnold, Sir Arthur	Alderman and Ex-Chairman of the London County Council.	April 25, May 2, 1898	I.	397	7669.
Banbury, Frederick George, M.P.	Trustee and Manager of the Stock Exchange.	July 18, 1898	I.	638	13,698.
Bigwood, James	Chairman of the Parliamentary Committee of the Middlesex County Council.	June 27, 1898	I.	553	11,452.
Binnie, Sir Alexander	Chief Engineer to the London County Council.	January 17, 18, 24, 31, May 16, 23, June 6, November 15, 1898, and January 30, 1899.	I. and II.	61; 457; 83; 317; 589	846; 9,209; 16,926; 23,113; 30,213.
Bonnor-Maurice, Edward Arthur.	Solicitor to the Chelsea, Grand Junction, East London, and Southwark and Vauxhall Water Companies.	March 14, 1899	II.	589	30,213.
Boulnois, Edmund, M.P.	Chairman of the West Middlesex Waterworks Company.	February 13, 1899	II.	415	25,622.
Bowles, Henry Carrington Bowles.	Governor of the New River Company.	January 23 and 24, 1899	II.	282	22,260.
Bramwell, Sir Frederick, Bart., F.R.S.	Past-President of the Institutions of Civil Engineers and Mechanical Engineers.	December 13, 1898	II.	197	20,298.
Bryan, William Booth	Engineer to the East London Waterworks Company.	November 7, 14, and 15, 1898; January 31, 1899.	II.	19; 43; 344; 450	15,362; 15,881; 23,888; 9,073.
Cadoux, Gaston	Chef de Bureau at the Prefecture of the Seine.	May 16, 1898	I.	450	9,073.
Clayton, Francis Stephen	Governor of the Chelsea Waterworks Company.	February 27, 1899	II.	490	27,457.
Collins, Ernest	Distributing Engineer to the New River Company.	November 7, and 15, 1898; March 7, 1899.	II.	3; 73; 554; 537	15,013; 16,700; 29,225; 11,128.
Collins, John	Member of the Board of Works for the Whitechapel District.	June 20, 1898	I.	537	11,128.
Corble, George	Clerk to the Lea Conservancy Board.	March 7, 1899	II.	558	29,368.
Courthope, George John	Chairman of the Parliamentary Committee of the Kent County Council.	July 4, 1898	I.	592	12,513.
Cripps, Henry Lawrence	Parliamentary Agent to the London County Council.	November 22; December 6 and 13, 1897.	I.	1	1.
Crookenden, Isaac Adolphus	Secretary of the East London Waterworks Company.	February 6, 1899	II.	366	24,392.
Crookes, Sir William, F.R.S.	Water Analyst to the Metropolitan Water Companies.	January 17, 1899	II.	254	21,462.
Deacon, George Frederick	Late Waterworks Engineer to the Corporation of Liverpool.	May 2 and 9, 1898	I.	413	8,177.
Dewar, Professor James, F.R.S.	Water Analyst to the Metropolitan Water Companies.	January 17, 1899	II.	262	21,710.
Dewey, William Francis	Clerk to the Vestry of St. Mary, Islington.	May 9, 1898	I.	436	8,681.
Dickinson, Willoughby Hyett	Chairman of the Water Committee of the London County Council.	February 23; March 7 and 14, 1898.	I.	245	4,643.
Dickson, Alexander	Secretary of the Kent Waterworks Company.	February 28; March 6, 1899	II.	516	28,171.
Dixon-Hartland, Sir Frederick, Bart., M.P.	Chairman of the Thames Conservancy	March 6, 1899	II.	537	28,684.
Dyke, Sir William Hart, Bart., M.P.	Chairman of the Kent Waterworks Company.	February 28, 1899	II.	511	28,103.
Eaton, Edward Michael	Civil Engineer	January 16, 1899	II.	247	21,391.
Evans, Sir John, K.C.B.	Vice-Chairman of the Hertfordshire County Council.	July 11, 1898	I.	626	13,433.
Francis, Joseph	Engineer to the New River Company	November 15, 1898; January 24, 1899.	II.	80; 301; 271; 540	16,807; 22,756; 21,950; 28,775.
Frankland, Sir Edward, K.C.B., F.R.S.	Official Water Analyst	January 17; March 6, 1899	II.	540	28,775.
Gill, George Henry	Secretary of the Chelsea Waterworks Company.	February 27 and 28, 1899	II.	498	27,727.
Goldney, Gabriel Prior	Remembrancer to the Corporation of the City of London.	March 28; April 18 and 25, 1898.	I.	354	6,541.
Gomme, George Laurence	Statistical Officer of the London County Council.	February 14, 15, and 21, 1898.	I.	179	3,058.
Groves, Charles Edward	Chemist to the Thames Conservancy	January 23, 1899	II.	275	21,998a.
Hack, Richard	Engineer to the Chelsea Waterworks Company.	November 15, 1898; March 7, 1899.	II.	71; 549; 568	16,630; 29,033; 11,855.
Halsey, Edward Joseph	Chairman of the Surrey County Council	June 27, 1898	I.	620	13,214.
Harris, Frederick Ernest	Treasurer of the County Borough of West Ham.	July 11, 1899	I.	620	13,214.
Haward, Harry Edwin	Comptroller of the London County Council.	January 31; February 1 and 7, 1898.	I.	132	2,242.

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Name.	Description.	Date.	Vol.	Page.	Question.
Hawksley, Charles	Civil Engineer	December 19, 1898; January 16, 1899.	II.	212	20,640.
Hervey, Matthew Wilson	Engineer to the West Middlesex Waterworks Company.	November 15, 1898; February 14, 1899.	II.	66; 435.	16,467; 26,089.
Hills, Henry George	Clerk to the Wandsworth District Board of Works.	May 9, 1898	I.	445	8,918.
Hollams, John	Solicitor to the Associated Metropolitan Water Companies.	November 7 and 8; March 13, 1899.	II.	20; 570.	15,386; 29,716.
Hunter, Walter	Engineering Director of the Grand Junction Waterworks Company.	November 8; December 12 and 13, 1898.	II.	35; 181.	15,686; 19,913.
Ivey, William	Mayor of the Borough of West Ham	July 11, 1898	I.	615	13,070.
Johnston, Andrew	Chairman of the Essex County Council	July 11, 1898	I.	606	12,872.
Kidd, Charles Newman	Chairman of the Dartford Urban District Council.	July 4, 1898	I.	600	12,702.
Knight, Sir Henry	Chairman of the Southwark and Vauxhall Water Company.	November 8, 1898; February 6 and 7, 1899.	II.	29; 373.	15,542; 24,567.
Knight, Thomas Leonan	Chairman of the East Ham Urban District Council.	July 11, 1898	I.	624	13,349.
Latham, Baldwin	Civil Engineer	March 13, 1899	II.	583	30,051.
Lecte, William Chambers	Clerk to the Vestry of the Parish of St. Mary Abbots, Kensington.	June 20, 1898	I.	531	10,988.
Littler, Ralph Daniel Makinson, C.B., Q.C.	Chairman of the Middlesex County Council.	June 13 and 20, 1898	I.	508; 545.	10,454; 11,244.
Lockwood, Lieut.-Col. Mark, M.P.	Chairman of the East London Waterworks Company.	January 30 and 31, 1899	II.	337	23,657.
Lubbock, Sir John, Bart., M.P.	Alderman and Ex-Chairman of the London County Council.	March 14 and 21, 1898	I.	310	5,713.
Marriott, William Kenaz	Chairman of the Barking Urban District Council.	July 11, 1898	I.	621	13,267.
Martin, Howard	Chairman of the Water Committee of the County Borough of Croydon.	July 4, 1898	I.	576	12,027.
Middleton, Reginald Empson	Civil Engineer	July 18 and 25; November 22, 28 and 29; December 5, 12, 1898.	I. and II.	658; 87.	14,212; 17,007.
More, Charles James	Engineer to the Thames Conservancy	January 30, 1899	II.	329	23,378.
Morris, William	Engineer to the Kent Waterworks Company.	November 15, 1898	II.	77	16,733.
Mullen, Robert Gordon	Clerk to the Guardians of the Bromley Union.	July 4, 1898	I.	603	12,830.
Murphy, Shirley Forster	Medical Officer of Health for the Administrative County of London.	May 2, 1898	I.	414	8,077.
Musgrave, Christopher George	Chairman of the Leyton Urban District Council.	July 11, 1898	I.	624	13,373.
Norman, Frederick Henry	Clerk to the Bromley Urban District Council.	July 4, 1898	I.	602	12,793.
Plant, Alfred	Accountant to the East Ham Urban District Council.	July 11, 1898	I.	622	13,307.
Parkes, Thomas Farmer	Engineer to the Lambeth Waterworks Company.	November 8, 1898	II.	41	15,841.
Randell, Reginald Maurice Henry.	Chairman of the Water Committee of the Beckenham Urban District Council.	July 4, 1898	I.	596	12,582.
Restler, James William	Engineer to the Southwark and Vauxhall Water Company.	November 7 and 8, 1898; February 13, 1899.	II.	15; 39; 403.	15,277; 15,807; 25,280.
Searle, James	Clerk of the New River Company	January 24, 1899	II.	298	22,616.
Smith, Urban Armstrong	Surveyor and Engineering Adviser to the Hertfordshire County Council.	March 13, 1899	II.	572	29,736.
Stoneham, Allen	Official Auditor	July 18, 1898	I.	653	14,065.
Tendron, Frederick	Chairman of the Grand Junction Waterworks Company.	February 14 and 20, 1899	II.	440	26,263.
Waring, Arthur Thomas	Chairman of the Dartford Rural District Council.	July 4, 1898	I.	601	12,733.
Watney, Theodore	Chairman of the Water Committee of the Borough of Richmond.	July 4, 1898	I.	586	12,336.
Weeden, Henry	Vice-Chairman of the Ilford Urban District Council.	July 18, 1898	I.	635	13,615.
Whitaker, William, F.R.S.	Late Senior Officer on the English Staff of the Geological Survey.	March 7, 1899	II.	546	28,928.
Whiter, Salter	Chairman of the Croydon Rural District Council.	July 4, 1898	I.	592	12,191.
Whitmore, Charles Algernon, M.P.	Alderman of the London County Council.	March 21 and 28, 1898	I.	334	6,109.
Whittingham, Walter Basden	Chairman of the Water Committee of the Essex County Council.	July 11, 1898	I.	613	13,015.
Wilkins, Harry	Secretary of the Lambeth Waterworks Company.	February 20, 21, and 27, 1899.	II.	450	26,570.
Wybroo, Frank Henry	Secretary of the West Middlesex Waterworks Company.	February 14, 1899	II.	424	25,834.

## LIST OF WITNESSES IN VOLUME II.

Date.	Name.	Description.	Page.	Question.
THIRTY-SECOND DAY. November 7, 1898	Mr. Ernest Collins	Distributing Engineer to the New River Company.	3	15,013
	Mr. James William Restler	Engineer to the Southwark and Vauxhall Water Company.	15	15,277
	Mr. William Booth Bryan	Engineer to the East London Waterworks Company.	19	15,362
	Mr. John Hollams	Solicitor to the Associated Metropolitan Water Companies.	20	15,386
THIRTY-THIRD DAY. November 8, 1898	Mr. John Hollams	Chairman of the Southwark and Vauxhall Water Company.	24	15,457
	Sir Henry Knight	Engineering Director of the Grand Junction Waterworks Company.	29	15,542
	Mr. Walter Hunter	Engineer to the Southwark and Vauxhall Water Company.	35	15,686
	Mr. James William Restler	Engineer to the Lambeth Waterworks Company.	39	15,807
	Mr. Thomas Farmer Parkes	Engineer to the Lambeth Waterworks Company.	41	15,841
THIRTY-FOURTH DAY. November 14, 1898	Mr. William Booth Bryan	Engineer to the East London Waterworks Company.	43	15,881
THIRTY-FIFTH DAY. November 15, 1898	Mr. William Booth Bryan	Engineer to the West Middlesex Waterworks Company.	62	16,380
	Mr. Matthew Wilson Hervey	Engineer to the Chelsea Waterworks Company.	65	16,467
	Mr. Richard Hack	Distributing Engineer to the New River Company.	71	16,630
	Mr. Ernest Collins	Engineer to the Kent Waterworks Company.	73	16,700
	Mr. William Morris	Engineer to the New River Company.	77	16,733
	Mr. Joseph Francis	Chief Engineer to the London County Council.	80	16,807
	Sir Alexander Binnie		83	16,925
THIRTY-SIXTH DAY. November 22, 1898	Mr. Reginald Empson Middleton.	Civil Engineer	87	17,007
THIRTY-SEVENTH DAY. November 28, 1898	Mr. Reginald Empson Middleton.	"	105	17,569
THIRTY-EIGHTH DAY. November 29, 1898	Mr. Reginald Empson Middleton.	"	125	18,193
THIRTY-NINTH DAY. December 5, 1898	Mr. Reginald Empson Middleton.	"	147	18,934
FORTIETH DAY. December 12, 1898	Mr. Reginald Empson Middleton.	"	169	19,519
	Mr. Walter Hunter	Engineering Director to the Grand Junction Waterworks Company.	181	19,913
FORTY-FIRST DAY. December 13, 1898	Mr. Walter Hunter	"	190	20,163
	Sir Frederick Brumwell, Bart., F.R.S.	Past President of the "Institutions of Civil Engineers and Mechanical Engineers."	197	20,298
FORTY-SECOND DAY. December 19, 1898	Mr. Charles Hawksley	Civil Engineer	212	20,640
FORTY-THIRD DAY. January 16, 1899	Mr. Charles Hawksley	"	232	21,077
	Mr. Edward Michael Eaton	"	247	21,391
FORTY-FOURTH DAY. January 17, 1899	Sir William Crookes	Water Analyst to the Metropolitan Water Companies.	254	21,462
	Professor James Dewar	"	262	21,710
	Sir Edward Frankland, K.C.B., F.R.S.	Official Water Analyst	271	21,950
FORTY-FIFTH DAY. January 23, 1899	Mr. Charles Edward Groves, F.R.S.	Chemist to the Thames Conservancy	275	21,998a
	Mr. Henry Carrington Bowles	Governor of the New River Company	282	22,260
FORTY-SIXTH DAY. January 24, 1899	Mr. Henry Carrington Bowles	Governor of the New River Company	296	22,571
	Mr. James Searle	Clerk of the New River Company	298	22,616
	Mr. Joseph Francis	Engineer to the New River Company	301	22,756
FORTY-SEVENTH DAY. January 30, 1899	Sir Alexander Binnie	Chief Engineer to the London County Council.	317	23,113
	Mr. Charles James More	Engineer to the Thames Conservancy	328	23,378
	Lieut.-Col. A. R. Mark Lockwood, M.P.	Chairman of the East London Waterworks Company.	337	23,657