

H. Williamson



Ashton-under-Lyne, Stalybridge and
Dukinfield (District) Waterworks
Joint Committee



1870 - 1950

80 Years of
Progress



OFFICIAL OPENING
of
Ashway Gap and Brushes Filter Extensions



A Souvenir

*Prepared to commemorate the
Official Opening of Ashway
Gap and Brushes Filter
Extensions*

ASHWAY GAP - MAY 4th 1950
BRUSHES - - MAY 3rd 1951

The Ashton-under-Lyne, Stalybridge and Dukinfield
(District) Waterworks Joint Committee

MEMBERS OF THE JOINT COMMITTEE AS AT
MAY 1951

Representing Ashton-under-Lyne:

Alderman CHARLES ARNOLD
Alderman JOHN HADFIELD, J.P.
Alderman JAMES ROBERT HOWARD, J.P.
Alderman JAMES QUINTON MASSEY, J.P.
Alderman EDWARD MEEKS
Councillor J. W. WHITWORTH, J.P.
Alderman THOMAS HAGUE, J.P.

Representing Stalybridge:

Alderman JOHN PORTER
Alderman JOSEPH SYKES, J.P. (Chairman of Finance)
Councillor THOMAS KENWORTHY
Councillor ABEL SIDEBOTTOM, J.P., C.C.

Representing Dukinfield:

Councillor CHARLES NAYLOR FITTON
Councillor ALBERT HITCHEN
Councillor JAMES HOWARD (Mayor of Dukinfield)

Representing Mossley:

Alderman FRANK DYSON, M.M. (Chairman)
Councillor EDGAR BOTTOMLEY

Representing Audenshaw:

Councillor ROBERT NEWTON, J.P. (Deputy-Chairman)

Secretary and Chief Financial Officer: H. W. OULTON, A.C.I.S.

Engineer and Manager: M. T. B. WHITSON, B.Sc., M.I.C.E.

1870 - 1950



Old-time Water Carrier

INTRODUCTION

This Souvenir places on record the 80 years of progress of a municipally-owned water undertaking. The Ashton-under-Lyne, Stalybridge and Dukinfield (District) Waterworks Act of 1870 formulated the first attempt in this country to establish the business of water supply on a regional basis.

1845 - 1870 — Years of Conflict

Genesis of the Joint Committee

Behind the dry legal phraseology of an Act of Parliament there nearly always lies a story of conflict. The 1870 Act was no exception.

In 1845 the Manchester and Salford Waterworks Company had promoted a Bill for the abstraction of water from Swineshaw Valley, and there had been an immediate and violent reaction to the scheme.



Swineshaw Brook

The Engineer responsible explained the failure of the Bill in the following words:—

“No reasonable Compensation would satisfy the greedy Stalybridge millowners, and very unwillingly I determined to relinquish the scheme of 1844, which included Swineshaw on the River Tame. The Swineshaw Brook, which formed the nucleus of the scheme, is still the finest stream as to quality and quantity of spring water, in proportion to the area drained, with which I have become acquainted in any part of the same geological formation.”

The opposition, however, did not only arise from the millowners; the towns of Ashton and Stalybridge saw in this Scheme a serious threat and impediment to their development.

The construction of the four reservoirs in the Swineshaw Valley between 1864 and 1870 by the Corporations of Ashton and Stalybridge was proof of the joint anxiety to secure a reliable supply and prevent encroachment by other towns. These reservoirs were hardly completed when another danger appeared.

1845-1870 — Years of Conflict

In 1869 Oldham and Mossley lodged separate Bills with Parliament for the purpose of impounding water in the Greenfield and Chew Valleys.

It is again necessary to quote contemporary opinion in order to recapture the atmosphere in which these water battles were conducted. The *Ashton Reporter* of May 1st, 1869, had this to say:—

“We congratulate our readers on the frustration of the nefarious attempt of the Oldham Corporation to take possession of the whole gathering ground of the Tame in Saddleworth, and hence deprive the populations of Ashton, Dukinfield and Stalybridge of their legal and natural source of supply of clear water.

“Probably in the whole history of water robbery no equally important case was ever before Parliament.”

In refusing the Oldham application, Parliament directed that a comprehensive scheme for the supply of water in the Tame Valley be submitted in the following Session.

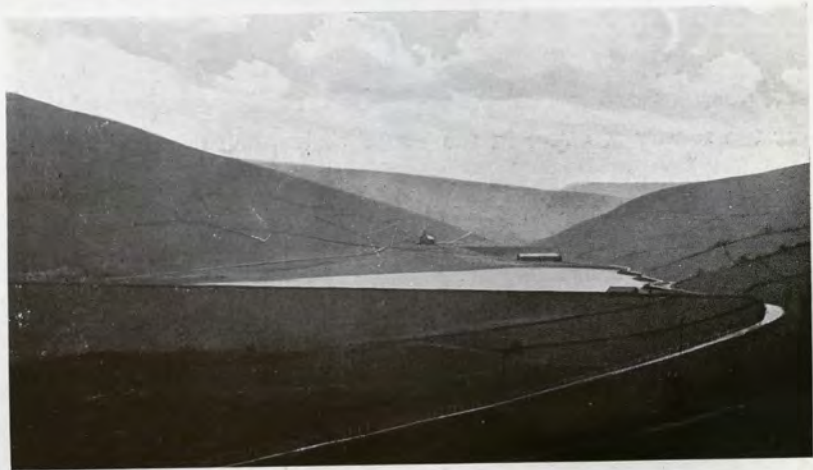
It will be seen, therefore, that the 1870 Act of the Committee is not just the “dry as dust” enactment appearing on the Statute Book.

Construction of the Swineshaw Reservoirs



*Brushes and
Walkerwood*

Walkerwood



YEARS
1864-1870

The Swineshaw or Brushes Valley lies about two miles due east from the centre of Stalybridge, and was renowned for the quality of its water as far afield as Manchester.

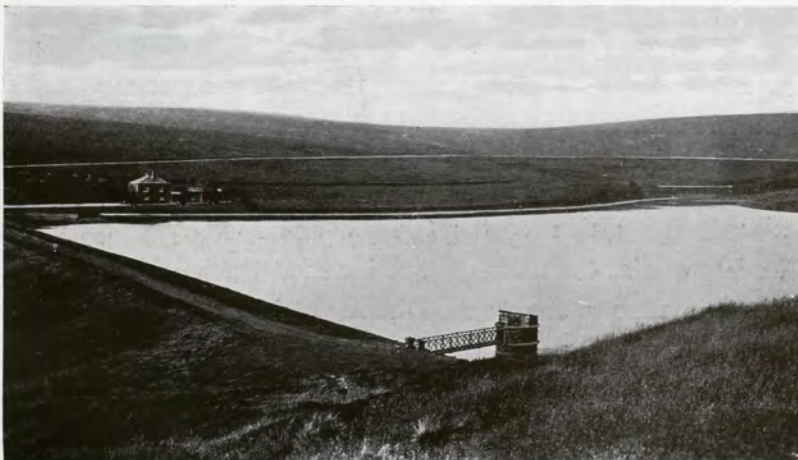
Customs and habits die hard, however, and in S. Hill's book on *Bygone Stalybridge* he records one verse of a song in praise of local wells which was composed about 1864, at the time when the Ashton and Stalybridge Joint Committee had embarked on the construction of the four Swineshaw Reservoirs.

There is a note of mild reproof in the lines:—

“ The Brushes with its rising ground
With reservoirs will soon abound,
Its brooks and streams are good, I know,
But nowt like th' pump in Yorkshire Row.”

Construction of the Swineshaw Reservoirs

*Higher
Swineshaw*



*Lower
Swineshaw*

The two Boroughs concerned in the reservoir scheme were then no more than seventeen years old, and it will be appreciated that the work was the first of any great magnitude undertaken.

It is also to be noted that the trade in the district was at that time suffering from the effects of the American Civil War, and the works were undertaken by direct labour, under the provisions of the Public Works (Manufacturing Districts) Act of 1863.

In spite of construction difficulties and some anxiety arising from leakages at the Lower Swineshaw Embankment, the works were completed and the water turned into the Stalybridge and Ashton mains on the 30th September and 1st October, 1869.

Construction of the Greenfield & Chew Valley Reservoirs



Chew Reservoir

YEARS 1870-1914

Several drought years followed the completion of the Swineshaw Reservoirs, and it was realised that the growing demand for water could only be met by the construction of further reservoirs.

As previously mentioned, the action of the Oldham and Mossley Corporations hastened the formation of a larger Joint Committee which included Dukinfield, and which was empowered by Parliament in 1870 to supply the Districts of Mossley, Hurst, Stayley and Uppermill.

Audenshaw was later included in the Joint scheme by a Special Act of 1908.

The 1870 Act, in addition to making provisions for the construction of the Greenfield and Chew Valley reservoirs, laid down that an arbitrator be appointed to resolve the difficulties of amalgamation.

The 1879 Arbitration is a classic example of the valuation of waterworks, and the differences of opinion which existed between the Combining Authorities as to the transfer value of old works such as Knott Hill Reservoir, Dukinfield Higher and Lower Reservoirs, and even the recently-constructed Swineshaw Reservoirs, led to an expenditure of £22,000 in Legal and Engineering fees.

Construction of the Greenfield & Chew Valley Reservoirs



*Greenfield
Reservoir*

*Yeoman Hey
Reservoir*



Greenfield Valley

Under the powers granted them in the 1870 Act the Joint Committee constructed Yeoman Hey Reservoir between 1876 and 1880, and the Greenfield Reservoir between 1897 and 1903.

Chew Valley

The Reservoir in Chew Valley is the last major work to be completed by the Joint Committee, and was constructed between 1907 and 1914.

It is one of the highest supply reservoirs in the country, the top water level being 1,600 feet above the sea.

Water Purification



*An early attempt
at Water Treatment
(Liming Plant at
Lower Swineshaw)*

*Experimental
Filters
1909*

Improvements between 1912 and 1951

It took the Joint Committee exactly 50 years to construct the works already described, and to secure for the consumers in the area a sufficient quantity of water to meet the worst conditions of drought.

There had been, however, during this period, a growing concern as to the quality of the water provided. The water from the moors of Swineshaw and Greenfield, whilst being of a high bacteriological standard, was chemically unsuitable for supply without treatment. Its acid nature caused the lead of service pipes to be taken into solution, and there were many cases of lead poisoning.

An attempt to improve the state of affairs was made in the Swineshaw Valley, where lime was added to the water, but this could only be considered as an emergency measure, and in 1909 three experimental filters were erected at Ashway Gap.

The excellent results obtained from these led the Committee to arrange for the filtration of all water to all districts.



Water Purification

*Ashway Gap
Filter House
1912*

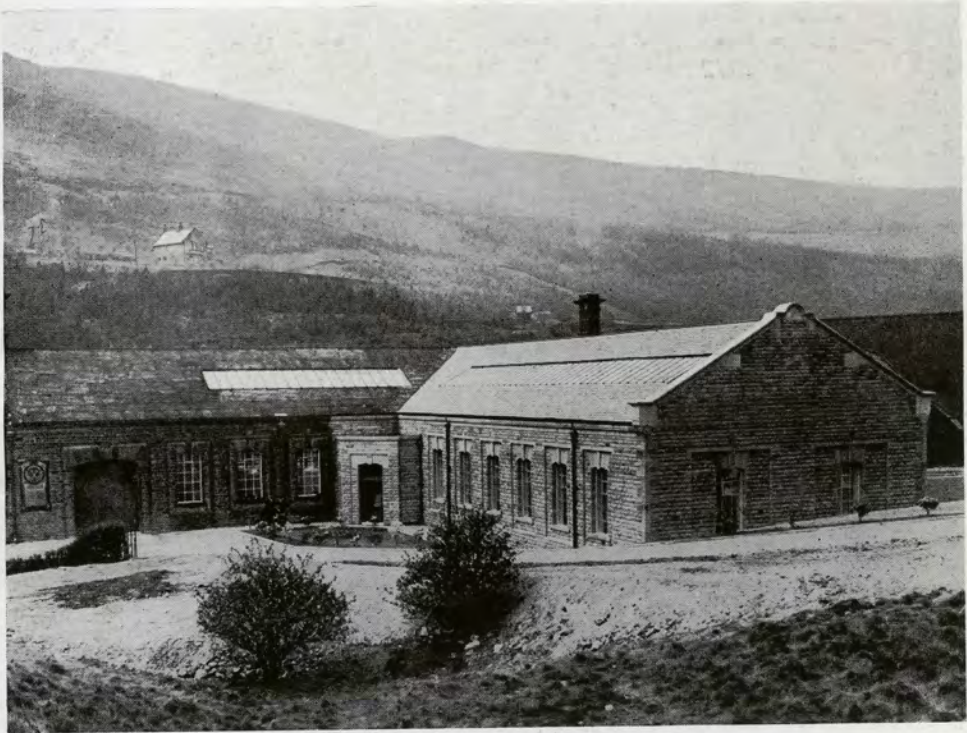


*Brushes
Filter House
1912*

Ashway Gap and Brushes Filter Houses

These filtration plants were opened in 1912, and have since provided the districts with a first-class water, alkaline in character and hence non-corrosive, sparkling in appearance, and of excellent bacteriological purity.

Water Purification



Ashway Gap Filter House Extension

At the time of the construction of the Ashway Gap and Brushes Filter Houses, the daily consumption of water was 3,000,000 gallons.

Between the years 1912 and 1945 this figure had increased to 4,500,000 gallons, with the result that the filters were working at such an increased rate that the high standard of purity could not be maintained. It was, therefore, decided to increase the capacity of each filter house by the addition of 10 pressure filters.

Water Purification



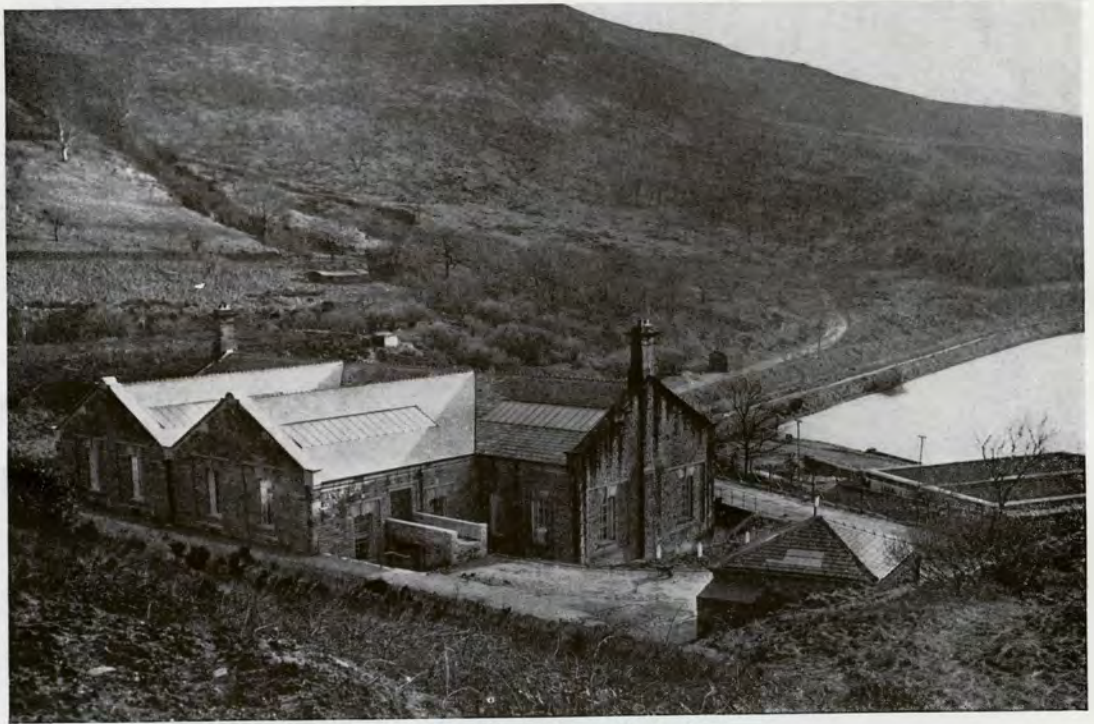
10 New Pressure Filters at Ashway Gap

The high standard of workmanship in the existing houses set the Committee a problem, since the new work had to fit in with and match the old work as nearly as possible.

The Ashway Gap Extension was opened in May, 1950, and the Brushes Installation will be opened in May, 1951.

The Committee have taken the opportunity to commemorate the occasion by the preparation of this Brochure.

Water Purification



Brushes Filter House Extension

The site for the extensions at Brushes presented considerable difficulties. The outlet works of Brushes Reservoir prevented extension on two sides, and the Brushes Service Reservoir on the third.

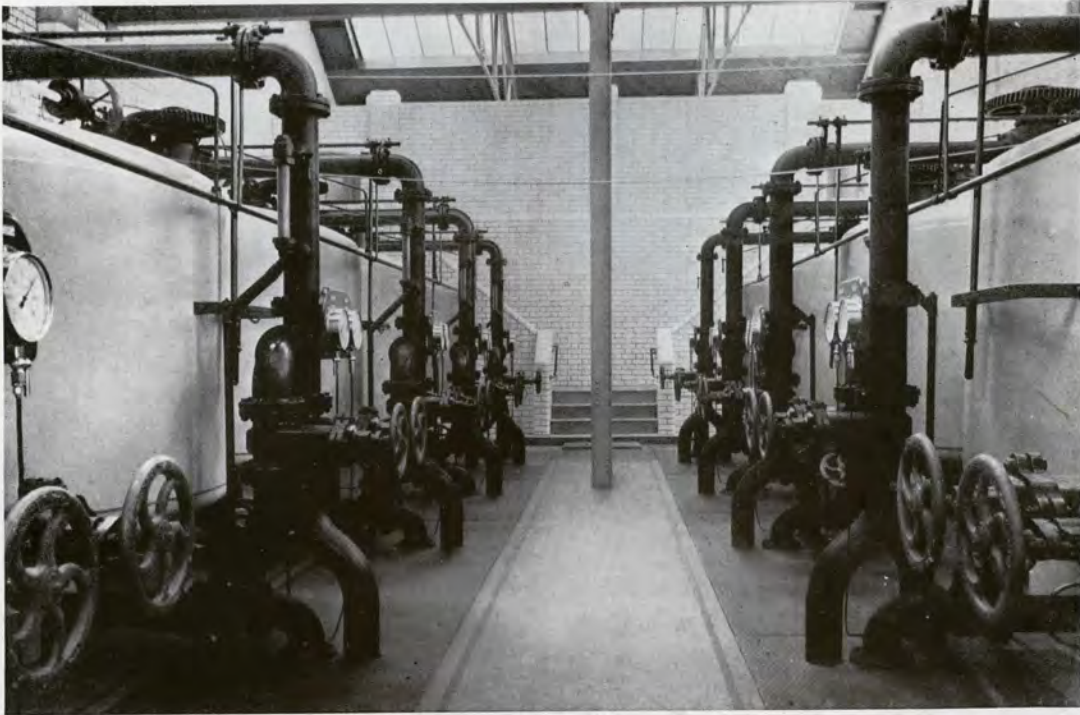
It was therefore necessary to cut into the toe of the reservoir embankment, and to secure the safety of the reservoir a concrete retaining wall was constructed in a close timbered trench, and allowed to set for two months before attempting to remove the earth between the wall and the old filter house. Much of the Ashlar stonework and walling was fashioned from salvaged stone taken from Portland Street, Manchester—a product of the Manchester Blitz.

The arrangements for the handling of chemicals used in the filtration process have been improved. These were previously stored in a cellar in the old filter house and then carried to the dosing tanks.

In the new house a chemical storage floor has been constructed above the turbine operated chemical pumps, and the chemicals which are received at lorry height can be fed by means of chutes into the dosing tanks below.

Provision has also been made for offices and laboratory. The extensions here and at Ashway Gap have been completed by direct labour.

Water Purification



Ten Pressure Filters

The new house contains 10 pressure filters made by Messrs. Bell Bros., of Denton, and the arrangement is similar to that at the Ashway Gap extension.

Each filter is 8' 0" diameter and has a capacity of 5,000 gallons per hour when operated at a filtering rate of 100 gallons per square foot of sand surface per hour.

The chemicals required for assisting the removal of colour and suspended matter in the water, and for removing acidity, are added by means of turbine operated pumps, the speed of which is governed by the quantity of water passing through the filters. The removal of the impurities retained in the sand bed during the filtering process is obtained by reversing the flow through the bed whilst mechanically operated raking arms are rotated through the bed.

The sand in each filter shell is washed in this manner when the pressure loss across the bed indicates a certain amount of blockage. This operation is usually necessary every two days and takes about 10 minutes for each filter.

The original filter house, constructed in 1912, cost £15,000 for 18 filters, compared to £25,000 for the 10 filters of the extension.

Installation cost in 1912 was, therefore, £833 per filter, and in 1950, £2,500 per filter.

These figures show that the cost of installation at the present day has been just three times as much as the cost in 1912.

Water Purification



*Knott Hill
Reservoir*

*Ozone
Plant*

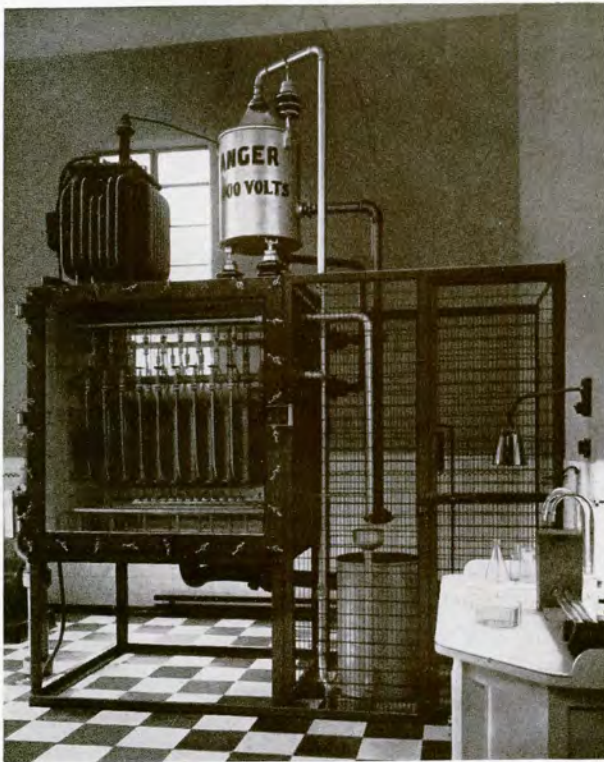


The Reservoirs and Works owned by the combining authorities prior to 1870, and which were the subject of the arbitration of 1879, have been incorporated in the general system of supply.

In the case of the Knott Hill Reservoir, which was constructed in 1835 by the Ashton Waterworks Company, its use as a service reservoir holding filtered water derived from the Greenfield Valley, has led to serious difficulties, due to rapid growth of animal and vegetable life. This Reservoir is the main source of supply for the town of Ashton, and prior to 1937 had caused the Committee anxiety because of the continued complaints received from water consumers in the area. The decay of the vegetable growths in the Knott Hill water gave rise to taste and odour problems, and after an extensive investigation it was decided to ozonise the water.

Water Purification

*Covered
Service Reservoir
(Knott Hill)*



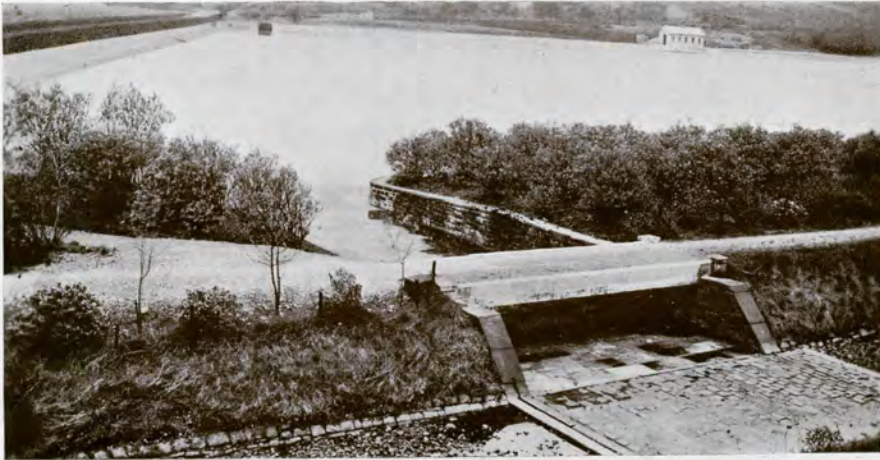
*Ozone
Generator*

In 1935 this was a pioneering act on the part of the Committee, since ozone had only been applied in two localities prior to this, and even in these installations the problem was purely one of sterilisation, and not control of taste and odour.

Subsequent experience of ozonisation at Knott Hill has proved the Committee to be correct, and although the method is more expensive than chlorination, the results obtained justify this expense. When the ozone plant was constructed the opportunity was taken to provide covered

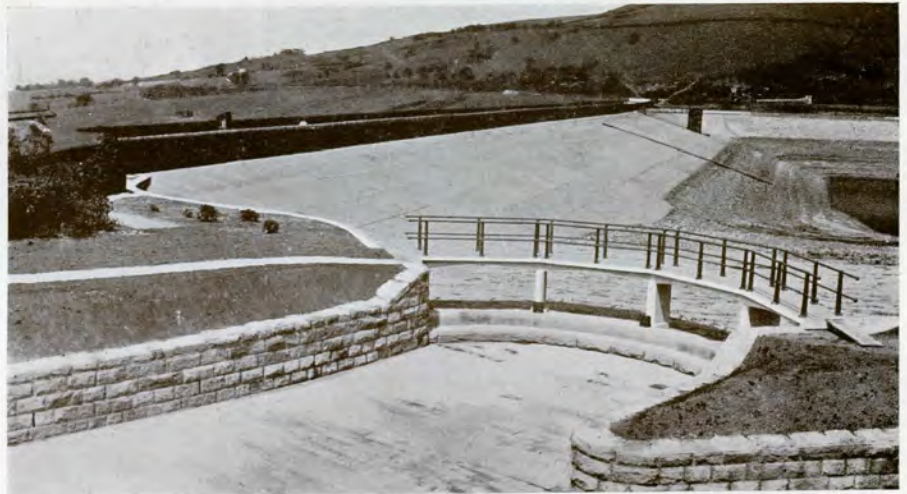
storage capacity, so that both the ozonised and the filtered water from Greenfield could be safely accommodated without risk of further contamination.

Reservoir Improvements



*Walkerwood
Overflow
Constructed
1864*

*Reconstructed
Overflow*



The passing of the Reservoirs (Safety Provisions) Act of 1931 made it necessary for the Committee to consider the safety of the various embankments, and following the Statutory inspection required under this Act, various works of improvement have been undertaken.

Swineshaw Valley

The four reservoirs in the Swineshaw Valley, being of the earliest construction, did not measure up to modern standards with regard to the discharging capacity of the overflows.

Reservoir Improvements



Brushes Floodwater Tunnel

Swineshaw Valley *continued*

The arrangements for the disposal of flood water have been altered at Higher Swineshaw, Brushes and Walkerwood Reservoirs, in accordance with the recommendations of the Floods Investigations Committee of the Institution of Civil Engineers.

The photograph showing the Walkerwood Overflow, as constructed in 1864, can be compared with that showing the reconstructed overflow. The new overflow can deal with at least ten times the quantity of water.

Work of a similar nature was carried out at the Higher Swineshaw Reservoir. At the Brushes Reservoir the Flood Water Tunnel, 5' 0" high and constructed in dry stone rubble, is being replaced with the concrete Tunnel shown above.

Reservoir Improvements



*Discharge Chute
Yeoman Hey
Bye-pass*

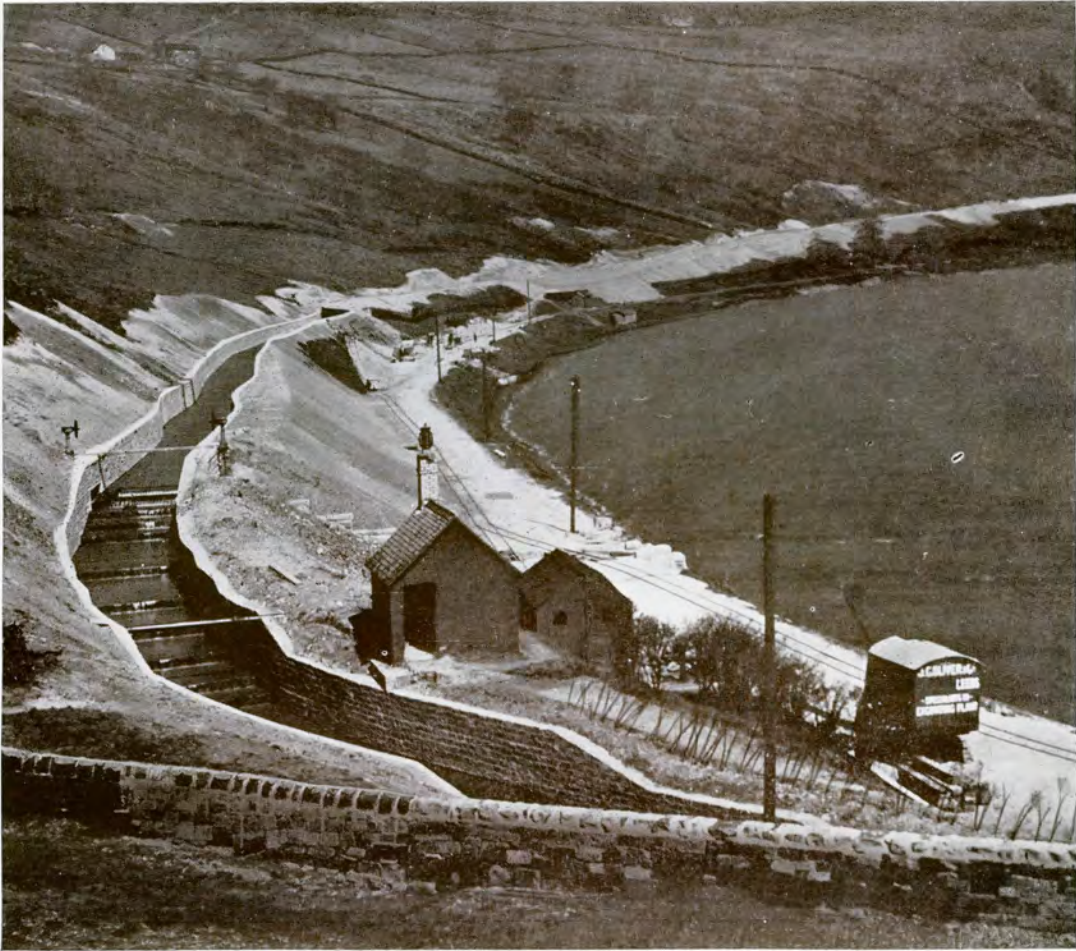
Greenfield Valley

As if to commemorate the passing of the Reservoirs (Safety Provisions) Act, a storm of unprecedented severity swept the Greenfield Valley on September 4th, 1931. Three-and-a-quarter inches of rain were recorded in nine hours.

Subsequent investigations of the storm showed the necessity for the construction of flood relief works, which would put the safety of Yeoman Hey embankment beyond any doubt.

A flood water course was constructed between 1932 and 1935, capable of by-passing flood water discharge from the Greenfield Reservoir. This water course also serves the purpose of preventing discoloured water during heavy storms from entering the reservoirs, and it has been possible during the years since the completion of the work to maintain a water of greater purity in the Yeoman Hey Reservoir, which can be more easily and economically treated at the Filter House.

Reservoir Improvements



Greenfield Valley Byewash

The photograph shows the flood water course as it approaches Yeoman Hey Reservoir embankment. Some idea of its capacity can be given by stating that it could fill Yeoman Hey Reservoir (capacity 205,596,000 gallons) in 24 hours.

The selection of water is made at the highest step shown in the photograph, where a weir situated and so designed that normal clear water will drop into a course leading to Yeoman Hey Reservoir, and discoloured flood water will pass across the weir to be discharged into Greenfield Brook.

Publicity to Inform the Consumer



In the early days there was no need to publicise the Joint Committee's work. The water consumer, recalling the anxious times when water was cut off from 6 p.m. to 6 a.m. in times of drought, required no reminder of the value of water. Many had known how heavy water can be when carried in buckets for distances of two or three hundred yards.

Even when the quantity was assured by the construction of reservoirs, the quality was often the subject of unwelcome publicity for the Committee.

With the construction of purification plants, the last major cause of criticism vanished, and the consumer has settled down to a wasteful acceptance of his water supply.

Publicity to Inform the Consumer

This is not a criticism of the water consumer. When a commodity is readily obtainable and cheap, the tendency has always been to use it in quantities far in excess of proper requirements.

A Water Authority must, in these days, try to obtain the confidence of the consumer by a judicious use of methods designed to inform him of the story behind the tap. The Joint Committee has in the past ten years adopted such a policy, and the photograph of a stand at a local exhibition explains this story by means of illustrations, diagrams and apparatus.

A story which has cost £1,300,000 is worth the telling.

And what does the consumer pay for this 80 years of construction and endeavour?

The water rate stands at the same level to-day as it did in 1923. This 27 years with no increase is a tribute to the manner in which the Authority has carried out its obligation to supply a pure and abundant supply.

In these days of soaring prices and costs, it is refreshing to know of one commodity which, although of inestimable value, is still available at a price which cannot upset the budget of the poorest home.

Source of Supply

The water supply to the districts is obtained from upland gathering grounds lying to the North-East of Ashton-under-Lyne, and situated in the Pennine Range of hills some 5 to 6 miles from that town. The following Table gives full particulars of the gathering grounds, the reservoirs controlling them, and the storage capacity, etc., of each reservoir.

Catchment Areas, Reservoirs and Storage Capacity.

Name of Reservoir	Gathering Ground	Top Water Level above Ordnance Datum	Max. depth when full	Capacity when full	Area of Top Water	Holding Capacity per Acre of Top Water
	Acres	Feet	Feet	Gallons	Acres	Gallons
Impounding Reservoirs:						
*Chew Valley—						
Above Res.	830					
Below Res.	900	1,600	72	206,000,000	39-000	5,282,000
Higher Swineshaw		957	53	168,908,000	26-176	6,452,000
Lower Swineshaw		871	33	55,500,000	12-798	4,336,000
Brushes	1,300	649	44	52,165,000	8-060	6,472,000
*Walker Wood		588	61	202,084,000	27-027	7,477,000
Greenfield		892	62	101,686,000	12-456	8,163,000
Yeoman Hey	1,170	768	65	205,596,000	26-731	7,691,000
Service Reservoirs:						
Knott Hill		589	44	64,000,000	14-021	4,564,000
Dukinfield No. 1		491	24	17,500,000	3-169	5,552,000
Dukinfield No. 2		491	24	17,500,000	2-977	5,878,000
Totals	4,200			1,090,939,000		

Statistical Information

The following financial table shows the growth of
the Undertaking between 1870 - 1950

Year Ending March	Capital Value of Undertaking	Revenue Income	Revenue Expenditure including Rates and Taxes	Rates and Taxes Only	Net Income Divisible amongst the Constituent Authorities to meet their Separate Loan Charges
	£	£	£	£	£
1879	161,452	18,857	3,622	541	15,235
1890	663,160	30,052	4,308	557	25,744
1900	724,295	38,115	5,891	801	32,224
1910	867,556	43,151	17,611	6,927	25,540
1920	1,005,181	50,137	35,094	18,866	15,043
1930	1,091,286	83,476	44,500	22,660	38,976
1940	1,224,159	100,922	66,561	34,746	34,361
1950	1,320,469	132,165	103,494	40,547	28,671

Statistical Information

Construction Costs of Schemes mentioned in the Brochure

Swineshaw Works	£ 160,000
Greenfield Reservoir	58,000
Yeoman Hey Reservoir	96,670
Chew Reservoir	165,000
Filters (Ashway Gap and Brushes)	32,167
Filter Extensions (Ashway Gap and Brushes)	50,000
Knott Hill Improvement Scheme:	
Ozone Plant	3,500
Service Reservoir and Bye-pass Main	11,629
Yeoman Flood Water Course	23,701
Walkerwood Overflow and Spillway	5,760
Higher Swineshaw Overflow and Valve Shaft	2,208
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	£608,635
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