

## Supplement to HISTELEC NEWS No.32 April 2006

### " Electricity In Bath 1890 – 1974" (Part IIa)

*by the late William E. Eyles*

*Continuing the story from the last issue of our newsletter of the Bath Undertaking with the first section of the second part from William Eyles booklet, published in 1974.I apologise that it has been necessary to break Part II into two sections due to its exceptional length.*

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#### **PART IIa - Public Ownership - Bath Corporation**

##### **Immediate Problems and Expenditure**

Bath, although not the first place to install electric lighting, was certainly among the few Cities and Towns who were pioneers in this field. It is apparent therefore that the Corporation had acquired a plant and distribution system, which was installed at a time when generating and distribution equipment was very much in the experimental stage. Furthermore, not only had the Council a duty to provide an efficient system, but one which was capable of extension because, unlike the Company who were concerned only with the central area of the City, the Corporation's limits of supply were, by the terms of the Provisional Order, the whole of the City of Bath. In addition, the use of electricity was now gradually growing in popularity. Hence, some months before the 'take over", Mr. Hammond was requested to proceed with the necessary plans, specifications and estimates for the new plant etc. which would be required. This he did and among his recommendations was one "that gradually a Low Tension distribution should be laid throughout the area, lighted and fed from transformers in the streets, the transformers at present fixed on the consumers' premises to be gradually taken out". New plant and equipment required, included two new boilers and accessories; steam alternators, steam and exhaust pipes, etc; cables, culverts and transformers and building transformer stations; overhead 15 ton travelling crane and arc lamps and posts, etc.

In addition to the equipment it was found necessary to expend money on alterations and extensions to the buildings and on foundation works. For instance, it was discovered that the wall between the engine and boiler house at the river end was in a very bad condition and it was feared that when excavations for the engine foundations commenced the girders supporting the wall would give way and the wall fall in. Also it was necessary to extend the roof of the engine house as well as the roof of the boiler house to cover the new boilers. If the ratepayers felt they were having to dig rather deeply into their pockets for this new enterprise it is hoped they felt some measure of relief by the remarks of Mr. Hammond contained in his supplementary report of 12th September 1896, when he said "if my recommendations be adopted the City of Bath will possess first-class works, an extended system of distribution, and on the whole a good paying property which should not require further capital spent upon it for some years unless indeed the popularity of the improved supply leads to an abnormal accession of business of a profitable nature, a consummation devoutly to be wished."

This expression of optimism as to expenditure of further capital did not, however, bear much fruit, at least for some considerable time.

By the end of August, 1897 the Council had received Government sanction to spend £50,378 on the undertaking (including purchase) and in 1898 this was increased by a further sum of £4,452 for the purpose of completing improvements to the buildings and in respect of sundry items, plus £445 the cost of the issue of Stock. The expenditure did not remain without further increase very long. In 1899 when all the bills had come in it was found that the expenditure and commitments had exceeded the amount so far authorised to be spent by £7,395 1s 8d. At the same time, it was decided to extend the mains (to Grosvenor, Upper Bristol Road, Marlborough Lane, Cavendish Place, Lansdown, etc.) at an estimated cost of £8,245 to extend the Low Tension system at an estimated cost of £2,500 and to complete the equipment of the Works and for other matters including cutting off the remainder of old High Tension connections at an

estimated cost of £5,859. 18s. 4d. Furthermore, up to this time it had been the practice to have the coal required at the Works left at the Great Western Railway Company's Goods Depot (nearly a mile away) and to cart it from there to the coal stores in the Company's arches adjoining the Electricity Works. Now it was proposed to construct a coal chute direct from the railway into the Company's arches involving the provision of twelve 8 ton Hopper coal wagons, the estimated cost of making the chute and providing the wagons etc being £2,000. The total cost of these items was nearly £26,000 and in respect of which the Government authorised an expenditure of £25,900. Therefore since "take over" (1897) till the end of 1899 the Corporation had committed itself to an expenditure of £81,175. There was soon, however, still further expenditure to be faced.

#### Extension to Works

In consequence of the growing demand for electricity and the filling of the original Works with new and additional plant, it was realised that before long the space would become very limited and not able to cope with requirements, and negotiations took place between the Corporation and the owners of the Wharf adjoining the Electricity Works with a view to its acquisition for the purposes of the Undertaking. These negotiations were however not successful. Then on 14th December 1900 the Wharf as well as other adjoining properties were put up for sale by public auction and the Corporation were successful in purchasing, at the total price of £4,000, (1) Nos. 8 and 8a Dorchester Street immediately adjoining the Electricity Works (Lot 3 on the Plan) which consisted of a dwelling house and offices, stables, lofts, warehouses and the Wharf in the rear known as the Kingston Wharf then in the occupation of Messrs. Gerrish and Co., River and Canal Carriers and (2) No.9 Dorchester Street (Lot 2 on the Plan), which comprised a dwelling house and shop, warehouse, shed, yard and Wharf in the rear then in the occupation of Messrs. Bladwell and Co., Builders Merchants. The property was subject to a Lease, which did not expire until Michaelmas 1905 but the Corporation thought it probable that they would not require possession until that date. The Government duly sanctioned the expenditure.

The properties comprised in Lot 1 (The Full Moon Hotel and a Newsagent and Stationer's shop) already belonged to the Corporation and the offer to sell in this case was for the remainder of the term of a 75 years' lease from the Corporation from 25th December 1844.



**Fig.4 Plan of properties in Dorchester Street 1900.**

#### Electrical Engineer

In February 1901 Mr. G.F. Metzger tendered his resignation from the post of City Electrical Engineer which took effect the following month. There were 65 applicants for the appointment and the successful applicant was Mr. Francis Teague, M.I.E.E., at that time Electrical Engineer to the Corporation of Paisley. His appointment in Bath carried a salary of £350 per annum.

#### Minor Breakdowns and Failures in Supply

From the time the Works were taken over down to the autumn of 1901 the Corporation were fortunate enough to escape any serious interruption of the supply either for public or private lighting, but there were many cases of failure for short periods and in certain districts. For instance, on 17th September, 1899 there was a breakdown in the street lighting from 7.45 p.m.

till daylight similar in character to a breakdown earlier in the year, the cause being a short circuit on the cable leading from the main into a lamp post. Mishaps of this kind said the Engineer, occurred at extreme changes of weather and temperature. During changes from excessive heat to wet, from wet to frost, from frost to muggy and from muggy weather to extreme heat the cables were seriously affected. Breakdowns of this nature had been more frequent in past years and whilst the manufacture of cables and methods of jointing had been improved upon the improvements up to now had not been sufficient to prevent mishaps of this kind altogether. However, following the September breakdown Callender Cable Construction Co. Ltd. offered to lay the cable necessary to remake the whole 88 services from the existing mains free of charge and to give a three years' guarantee of efficient working, the Corporation paying only the cost of excavation and reinstatement. In the following year, on 1st and 3rd March, there were disturbances in the supply due to moisture getting into some of the service boxes and these, between 300 and 400 of them, had to be filled with solid bitumen. Then on 29th September, 1901 one of the new alternators put in under Mr. Hammond's direction broke down in consequence of the burning out of a segment of the armature the second time it had happened within a month.

#### Serious Breakdowns

On Monday 18th November 1901 a serious breakdown occurred at the Works when, due to arcing, the old switchboard was badly damaged and the mains failed in many places. Supplies were returned gradually but a complete cessation of supply became necessary on Sunday 24th November in order to complete connections to a new switchboard then only recently installed. On the following Wednesday there was an explosion on a switch of the new switchboard causing the destruction of the panel and the fittings on the back of it and resulting in a complete stoppage of all lighting both public and private. A second failure occurred on the new switchboard on 30th December when a switch failed to break the arc and was speedily destroyed.

#### Committee Relieved of their Duties

To say the least of it the members of the public as well as the City Council were now very much alarmed in consequence of the breakdowns and failures in supply, so much so that the Council decided to turn the Committee, who had the conduct of the Electricity undertaking out of office and to sit themselves as the Electric Lighting Committee. They also appointed a Committee of six members to conduct an enquiry into the whole history and future conduct of the Electric Light Works with power to call in professional assistance. In addition a Management Committee of nine members was appointed for the purpose solely of superintending the carrying on of the Electric Lighting undertaking from day to day whilst the enquiry was being conducted.

#### Pertinent Observations by Mr. Teague

Following the breakdowns, Mr. F. Teague, the City Electrical Engineer, lost no time in putting on record his views of the situation. On 1st January 1902 that is before the Enquiry Committee made their report, he made a report to them which expressed his feelings in no uncertain terms. Mr. Teague thought that when the Undertaking was acquired the Corporation should have remodelled the Works on strictly modern lines; that a little courage and foresight would have prevented what could only be regarded as a gross waste of capital and that the best system to meet the conditions in the City was that known technically as the low tension, continuous current, three-wire system. Alternating current supply to consumers was, he said, steadily but surely being abandoned in favour of continuous current. If Mr. Teague expected his views to earn the disfavour of Mr. Hammond and Mr. Metzger then he was not disappointed.

#### Committee of Enquiry

The Committee of Enquiry appointed by the Council made the most searching investigations into the whole of the management of the Undertaking from the time of taking it over and also as to the steps to be taken to put the Works upon a satisfactory basis. In this connection they consulted Mr. E. Manville of 29 Great George Street, Westminster, an eminent expert in electrical engineering. The Committee summarised the results of their findings thus :-

- 1) That the recent breakdowns were the result of the defective system in use at the works, and were caused principally by the failures in the mains and switchboards.
- (2) That the whole of the high-tension mains laid up to the end of February 1901 are of an obsolete type, the value of concentric cables having been fully established for many years previous to this date.

- (3) That the switchboards are bad in design and should have been replaced some time ago.
- (4) That these failures were not a necessary incident of electric light production, and might have been avoided.
- (5) That with properly equipped works and capable management, electric lighting is a safe and profitable investment, and is being carried on successfully by numerous public bodies in various parts of the country.

#### Report of Mr. Manville

Mr. Manville's report, dated 22nd January 1902, was a long and most comprehensive document. It was obvious that at the time he made it (only a few years after the introduction of electricity into the City) that much progress, with consequential changes in opinion, had been made in the matter of generation and supply. He thought that the numerous breakdowns, which had taken place had been caused by a system of the arrangement of mains coupled with the non-parallel running of the dynamos and the consequent switching off and on of the alternating current circuits from the current supply. Although he said, it was true that the two large engine alternators (Darby and Joan) had given a certain amount of trouble in working owing to faults in the construction of both engines and dynamos, these troubles had been comparatively few and far between and would not have interfered materially with a general satisfactory service, had it not been for the continual breakdowns upon the mains. Mr. Manville recommended the adoption of extensive additions to the plant with a view to providing for the supply of direct continuous current in the central parts of the City at least and the adaptation of the alternating current system for the outlying districts. Up to this time all the plant in Bath had been of the alternating high pressure type with some low tension network mains in the central area. The works suggested by Mr. Manville involved an expenditure of £70,000. This was an expenditure the Council did not feel disposed to face at that time and following 'a conference with Mr. Manville and Mr. Teague it was decided that an expenditure of £13,371 would enable the Corporation to tide over the next winter's load. They certainly did not want a repetition of the experience of last winter. Accordingly, the Council sought Government sanction to spend a further sum of £25,000 made up of the £13,371 above referred to, (which included the cost of the provision of two 250 KW steam dynamos, motor alternator, etc.); plus £433 2s 8d for service mains, meters, etc., and a sum of £11,195 17s 4d in respect of commitments of the Corporation mostly for mains extensions. The sum actually sanctioned was £24,900, which now made the total investment of the Corporation in the Electricity Undertaking £110,075, i.e. £81,175); £4,000 for the purchase of the Dorchester Street premises and the £24,900 now sanctioned.

#### Suggestion that the Works be sold or leased

During the progress of the investigations of the Enquiry Committee much public attention was drawn to the question of the City's electricity Supply and a section of the community advocated the disposal by the Corporation of their control of the Undertaking. Approaches were made by some persons who were desirous of acquiring it and the Committee recommended the Council to authorise them to receive detailed tenders for the purchase or hire of the Works with the result that two offers were made to take a Lease of the Works. One was from Sir Hiram Maxim Electrical and Engineering Co. Ltd., and the other from the Standard Electric Tramways Ltd., a Company then about to lay electric tramways in the City and district, but the Council decided to retain the Works under their own control.

#### An Electric Light Committee re-appointed

On 18th March 1902 the Council decided that the Enquiry Committee and the Management Committee be amalgamated so as to form one Committee. It was known first as the Electric Joint Sub-Committee and shortly afterwards as the Electric Lighting Committee. The Council were thus now relieved from sitting themselves as the Electric Lighting Committee.

#### Problems ease and business increase

The City Council had now been in possession and complete control of the electricity undertaking for a matter of only six years and during that time, they certainly found many problems to face. They had borrowed just over £110,000 to buy the Undertaking and keep it going with the aid of additional equipment; they had had breakdown upon breakdown in the supply; they had consulted different experts to advise what best was to be done and even gone to the extent, because of public opinion, in obtaining tenders to sell or lease the Undertaking. However, they were convinced that this was a trading undertaking, which should show prosperous results and acting on advice from Mr. Manville and Mr. Teague they had at least started to lay the foundations of a more modern system of supply. Following the troubles,

which were experienced during the winter of 1901-2, they had succeeded in the following winter in keeping the Works running without any serious breakdowns and without serious complaint from the consumers. Increase in demand for the supply of current meant, of course, increase in expenditure and such was the growing demand that in 1903, following a further report from Mr. Manville, the Council expended £30,000 for further extension of plant and the provision of buildings on the Kingston Wharf site adjoining the Works.

Although the lease of the Wharf did not run out until 1905, as previously mentioned, the Corporation were able to buy out the leasehold interest in the Wharf for £400.

#### Unsolicited Offers to take over the Works

In the early part of 1903 the question of the disposal of the Undertaking was again forced upon the Corporation. Without any invitation from the Council, or indeed from the Electric Lighting Committee, offers to take the Works over were submitted first from the Bath Electric Tramways Ltd., and then from the Promoters of the Somerset and District Electric Power Bill. After consideration of these two offers a very small number of members of the Council were in favour of public tenders being obtained for the leasing of the Works but there was an overwhelming majority of members who decided not to entertain any further proposals for the disposal of the Works either by leasing or otherwise.

#### Water Softening Plant

The water used for steam raising purposes was taken from the River Avon. Not only was the water hard, but it contained a large amount of matter in suspension and proved a source of great trouble to the boilers, feed heaters, etc. Difficulty was experienced in removing the scale from the tubes of the boilers. Hence in 1903 a water softening plant was installed at the Works at a cost of £320.

#### Threatened Competition

In the 1902-3 Session a Bill was promoted in Parliament for the formation of a Company to supply electricity both for power and lighting purposes over a very wide area in parts of the Counties of Somerset, Gloucester and Wiltshire the area including both the Cities of Bath and Bristol - it was entitled the "Somerset and District Electric Power Bill". Numerous Petitions were lodged against the Bill by those local authorities and other bodies, which would be affected by it if it became law. The City of Bath naturally was amongst those who opposed the Bill and representatives from the Corporation attended and gave evidence before the Select Committee of the House of Lords. It was contended on behalf of the Corporation that they were giving and could give a suitable supply of energy and that the plant which had recently been provided together with additional plant then being acquired would afford exceptional facilities for the supply of energy for power at a very low price. At that time the charges for current varied between 4d and 5d per unit according to the number of units consumed and at 2½d per unit for heating and power.

Although, in common with the City of Bristol, the Corporation were unsuccessful in getting Bath entirely excluded from the ambit of the Bill alterations were made by the Select Committee, as well as subsequently by arrangement with the Promoters in consideration of the Corporation withdrawing all further opposition, which secured for the City all the safeguards thought necessary to protect the interests of the Undertaking.

The Act, as passed, contained a section that if within two years the Company had not substantially commenced their work and if within four years they had not provided a sufficient generating station, the Board of Trade could, in certain circumstances, order that their powers should cease. The Company, however, for reasons best known to themselves, did not take any steps under the powers which had been given to them by the Act.

#### Bath Rural District

Prior to the passing of the Somerset and District Electric Power Act the Corporation were supplying energy (apparently without statutory authority) to three Parishes outside the City boundary situate in the Bath Rural District. At the time the Council could see that it was probable that at no distant date a large part of the Rural District would be included in the City and so they decided to serve a Statutory Notice upon the Rural District Council of their intention to apply for an Order enabling them to supply that District. The Council suggested a conference between the Electric Lighting Committee and the District Council on the matter but the District Council took no notice of the suggestion. In view of this and the fact that an extension at that time would be for the convenience of residents in the Rural District and, it was thought, of no financial advantage to the Bath ratepayers, no further action was taken on the

proposal. In the following November (1903) the Rural District Council themselves gave notice of intention to apply for power to supply electrical energy and were successful in obtaining an Order. The Bath Rural District Council Electric Lighting Order 1904 - after which the City Council made no important extensions in the Rural area.

In December 1907 the District Council applied to the Board of Trade for another Order. The purpose of this was to extend the term of their 1904 Order for a further period of two years and to transfer their powers to Mr. E. Schenk (who was then negotiating for the purchase of the Corporation's Undertaking as mentioned later). The Corporation lodged objections and the Order was not proceeded with.

#### Mr. E. Schenk and the Corporation

In November, 1906 Mr. Ernest Schenk representing a syndicate which was stated to have acquired the rights of the Somerset and District Electric Power Act (referred to previously) and the Western Electric Distributing Corporation (the latter being a Company with certain powers of supply in a district in the neighbourhood of hut not including Bath) approached the Corporation on the subject of the purchase by him of the Bath Undertaking with a view to its forming a nucleus of a large Undertaking to be established under the Somerset Power Act.

Protracted and complex negotiations followed this new offer extending in fact over a period of nearly three years. Briefly the events which followed may be summarised as follows:- On 26th February 1907 the Council agreed to accept Mr. Schenk's offer to purchase, the main features of the agreed terms being that he should pay to the Corporation in cash before 31st October 1907 the purchase money (the amount then undetermined) which represented the actual capital cost of the Undertaking plus a sum of £2,000 the expenses incurred by the Corporation in obtaining the Bath Electric Lighting Order. In addition he was to pay, on or before 31st December 1908, a cash bonus of £10,000 with a further bonus of £10,000 (or a free supply in perpetuity of electric energy for lighting the public buildings of the Corporation to the value of £450 per annum as soon as the Undertaking became vested in his Company in perpetuity). The Town Clerk, however, doubted whether the Board of Trade would sanction a sale in perpetuity having regard to the provisions of the Electric Lighting Act 1888 which gave Local Authorities the power to re-purchase their Undertakings at the end of 42 years from the date of their authorising Orders. At a later date the doubt expressed by the Town Clerk was confirmed because the Board of Trade indicated that their sanction to a sale in perpetuity was not likely to be forthcoming.

In the following July Mr. Schenk asked for an extension of time within which the purchase was to be completed and it was agreed that he should make a deposit of £2,500 in consideration of the date for completion being extended from 31st October, 1907 to 31st March, 1908, which sum was to be regarded as part of the purchase money if the purchase was completed. At the same time the Council agreed to substitute allowances for a free supply of current to the value of £500 per annum each for the two bonuses of £10,000 each. Mr. Schenk, however, later found that he would be unable to complete his financial arrangements before 31st March, 1908 and in the latter part of 1907 he approached the Corporation with a view to substituting for the cash payment of the purchase money instalments in the nature of rent over a period of years.

This alternative proposal called for a new line of thinking as a result of which the Council on 20th May 1908 approved revised terms, agreed by Mr. Schenk, which provided (1) for the purchase money to be £162,939 (now determined) representing the actual capital cost of the Undertaking, together with a sum of £2,000 the cost to the Corporation in obtaining their Order. The purchase money was to be paid in the following manner: £22,500 on the signing of the Agreement and the balance by thirty annual instalments of £7,550 each. Mr. Schenk had also to supply the Corporation free electrical energy to the value of £1,000 per annum in substitution of the cash bonuses previously referred to.

The transfer of the Undertaking was to be by way of a Lease commencing on 31st March 1908. Provision was made that if the Lease was not taken up within one month from the date of the consent of the Board of Trade or if the consent of the Board was refused or not obtained before 29th September 1908, the Corporation could rescind the Contract. Also, that should the Board refuse consent to the transfer in perpetuity Mr. Schenk's Company could promote a Bill in Parliament which would if passed by Parliament authorise the Corporation to transfer in perpetuity thus over riding the provisions of the Electric Lighting Act 1888. There were numerous other provisions dealing with the proposed transfer but as they were more in the nature of details it is not considered they call for specific mention here.

An Agreement embodying the foregoing terms was exchanged on 1st June 1908 and a deposit

of £22,500 duly made by Mr. Schenk to the Corporation. Then followed an application to the Board of Trade for their approval who, in a letter dated 18th November 1908, said "that after consideration of all the circumstances of the case the Board have decided not to sanction the proposed transfer". No reasons were given for their decision.

The Corporation were now in the position of having the right to rescind the Contract which they did. They had also to deal with Mr. Schenk's money, which they were holding, i.e. £22,500 paid as a deposit and £2,500 paid for an extension of time in which to complete, which latter sum, of course, Mr. Schenk should now forfeit. Before they could hand back the £22,500 they were served with a Garnishee Order which made it necessary for them to pay into Court £1,257 4s 10d as part of the £22,500, the balance then due to Mr. Schenk being paid to him following the meeting of the Council on 4th May 1909. As to the £2,500 the Council decided that this money, less £233 6s 5d for expenses should he used to discharge the then debit on their Electricity revenue account. So after about three years of negotiations to sell, the Corporation were still in possession of the Electricity Works.

#### A Note of Sadness

On Sunday, 14th January 1906 a small child by name Reginald Fry, fell into the River Avon near the Electricity Works and two employees at the Works, Mr. James A. Gibbons and Mr. George Wood made a gallant attempt to save the life of the child. The Electric Lighting Committee recorded its admiration for their gallant conduct and expressed deep regrets that their attempt resulted in the death of Mr. Gibbons, whereby a brave citizen had been lost to the City and an old and valuable member of the staff to the Electricity Department. The Committee decided that a tablet recording the particulars of this noble effort by two members of the staff should be affixed in a suitable position at the Works as a permanent record of this heroic deed.

#### Further Electricity Bills in Parliament

At the beginning of 1909 notification was received by the Corporation that two Bills had been deposited by the Parliamentary Agents acting for Mr. Schenk, namely the City of Bath Electric Supply Bill (the intention of which was to get Parliamentary confirmation to the Agreement made between the Corporation and Mr. Schenk previously referred to) and the Somerset and District Electric Power Bill. Mr. Schenk endeavoured to urge the Corporation to associate themselves with these two Bills but the Corporation thought that, in view of the definite attitude of the Board of Trade, who had refused the transfer of the undertaking to Mr. Schenk, they could not take up a position, which would place them in opposition to the Board and that if the Bills were promoted then they would oppose them.

As to the Somerset Power Bill the Corporation's Parliamentary Agents, acting on instructions, opposed an application by the Promoters asking for Standing Orders of Parliament to be dispensed with in this case. The opposition was successful and in consequence the Bill could not be proceeded with. Then Mr. Schenk, apparently with his customary persistency to obtain control of the Works asked if the Corporation would be prepared to negotiate for a new Agreement. This the Corporation would not do, and shortly after this the City of Bath Electric Supply Bill, in which he was so interested, was withdrawn.

#### Extension of Area of Supply

In 1909, the Corporation again turned their attention to the question of extending their area of supply having in mind no doubt the extension of the City boundaries a matter which at that time was under active consideration. They accordingly decided to seek an Order to amend the Bath Electric Lighting Order of 1896 so as to enable them to supply electricity within such portion of the Bath Rural District as was within a distance of three miles from the Guildhall. The District Council were agreeable to support the proposal provided some payment was made to them by way of reimbursement of the expenses they incurred in obtaining their 1904 Order (previously referred to) and the City Council said they would give them £100. The Order applied for by the Corporation was duly made by the Board of Trade and confirmed by Parliament in 1910 and upon the District Council Electric Order being revoked the Corporation paid the promised £100. The Corporation now had statutory powers to supply electricity within a prescribed area outside the City.

#### First Experience with a Diesel Engine and Generator

Since 1905 there had been deficiencies of varying amounts in each year's working of the Undertaking and when the accounts for 1911 were made up they revealed a deficit of £1,196. Economies had already been effected by various means including the installation of mechanical underfeed stokers etc., so in 1911, the Corporation, looking for some additional way to effect an

economy, thought that the generation of electricity, other than by means of steam driven plant, should be tried. Hence it was decided to install a Diesel oil engine and Generator capable of generating 450 KW at a speed of 250 r.p.m. The cost of the engine and generator was £5,451 and with the necessary ancillaries, including fuel storage tank, etc. came to a total of £7,500.

Although this new type of generator had been tried with success in other places, Bath did not enjoy a very happy experience with its first venture. Delivery was promised by November 1911 but it was December 1912 before the engine was installed and then because of its performance, it had to be written down from 450 to 340 KW. The Contractors reduced their price to £4,240 3s 4d and paid the Corporation £1,730 by way of compensation for delay in delivery and for loss of economies. A new date 31st March 1913 was then fixed for completion, but it was the 17th October following before the engine and generator could be run on load.

The engine at last completed and running resulted in a claim by the Corporation for further compensation for delay and for loss of economies as well as a Petition from residents in Manvers Street complaining of annoyance from vibration alleged to be caused by the engine. In the following year (1914) it was agreed that the only amount to be paid by the Corporation for the engine should be £1,575 instead of the original price of £5,451. Then, owing to the difficulty in obtaining fuel for the engine during the first World War, the Corporation sold it to a firm in Chile for £4,250.

#### Another Offer to Buy the Undertaking

In January 1914 yet another offer (this time from a gentleman in Exeter) was received to buy the Undertaking. The Committee, no doubt having fresh in mind their experience with Mr. Schenk, quickly replied that they were not prepared to ask the Council for authority to enter into any negotiations - and neither did they.

#### Suggested Hydro Electric Station

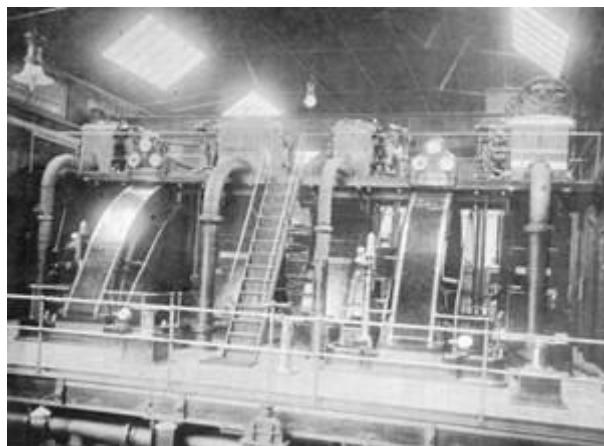
When in 1921 a suggestion was made as to the practicability of utilising the water power at the City weir for the purpose of generating electricity the Council decided to engage the services of Mr. S.E. Britton, M.I.E.E., etc., of Chester to prepare a report upon the proposal. Mr. Britton made his report, a very informative and comprehensive document on 29th September 1922 in brief he did not anticipate that any unusual difficulties in connection with the mechanical, electrical or civil engineering work would be encountered and expressed himself as confident that the utilisation of the water power at the weir for the generation of electrical energy would be a sound commercial proposition.

The Chairman of the Electric Lighting Committee and the City Electrical Engineer made an inspection of the Hydro Electric Works then established at Chester and in their report they pointed out that in comparing conditions in Chester with those obtaining in Bath there were some advantages for generating by this method at Chester inasmuch as there was a very much greater volume of water available and a greater fall. Whilst Chester was subject to variations owing to the river being tidal, Bath would not be subject to these variations, but there were other difficulties to be met, namely those governed by the rainfall and a reduced volume of water and fall. In all the circumstances it was thought undesirable to adopt this method of production in Bath, particularly in view of the fact that the maximum load had reached a peak rendering it absolutely necessary to provide without delay increased generating capacity far in excess of anything, which could be supplied by a Hydro electric station on the Avon. The final decision of the Committee not to proceed with such a scheme in Bath met with the approval of the Council on 6th February 1923.

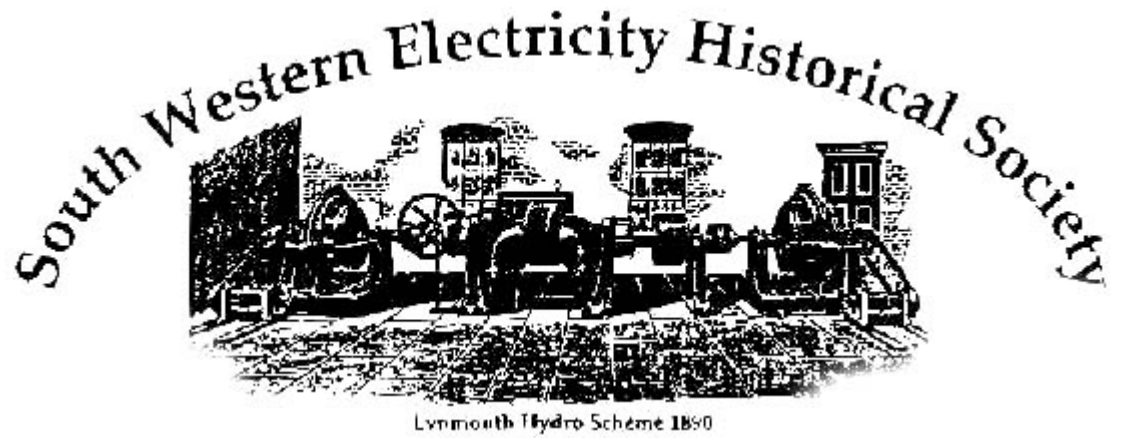
#### Turbo Generators

The Diesel engine and generator (previously referred to) being no longer available and with the annual number of B.T. units, that is Board of Trade units (currently known as kilowatt hours or "units"), required to be generated now being around three million, it was necessary for additional generating machinery to be provided in order to secure a continuity of supply. Obviously, the recent experience of the Committee with the Diesel engine was no encouragement to buy another one. With Government blessing they decided to buy, at a cost of nearly £32,000, a 1,500 KW Ljungstrom Turbo generator, which was installed and put into use in December 1921. It ran very satisfactorily and as a result of its use considerable economies were effected. In fact in 1923 the Committee were able to show a profit on the year's working of no less a sum than £12,207. This was indeed a very pleasant turn of events, because apart from a very small profit in 1918 the accounts had shown a deficiency every year since 1905. The profit of £12,207 was transferred to the Reserve Fund, which alas after 25 years of Corporation ownership, then stood at nought.

The year 1923 marked the beginning of an era of prosperity for Bath Corporation's Electricity Undertaking. If the Turbo generator had anything to do with it then it was little wonder (with the old generating plant having been in use for 20 years and upwards and regarded as obsolete) that it was decided to install another Turbo machine (1500 KW) in 1923. So successful indeed was this new type of generating plant that a third set (3,000 KW) was purchased in 1924, a fourth (7,000 KW) in 1926 and another (7,000 KW) in 1930.



**Fig.5 The Two Large Engine Alternators christened Darby and Joan**



This document comes from the  
South Western Electricity Historical Society website at  
[www.swehs.co.uk](http://www.swehs.co.uk)

This site contains all the necessary contact information you may require.

Do visit the site – you may find more items of interest.