

THE FOURTH ANNUAL REPORT

OF THE

COMMISSIONER OF HEALTH

OF THE

COMMONWEALTH OF PENNSYLVANIA

1909

PART I



HARRISBURG:
C. E. AUGHINBAUGH, PRINTER TO THE STATE OF PENNSYLVANIA
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sealed, and no raw river water shall be pumped into the water works system except in the case of emergency fully warranting such action, in which case the water company shall immediately notify the local health authorities and the State Department of Health.

SIXTH: Accurate detailed reports of the operation of the water works shall be kept on blank forms satisfactory to the State Department of Health and copies thereof shall be filed with the State Department.

SEVENTH: If at any time in the opinion of the Commissioner of Health, the water works or any part thereof or any water furnished thereby shall have become prejudicial to the public health, then such remedial measures shall be adopted by the water company as the Commissioner of Health may advise or approve.

EIGHTH: There shall be an attendant at the filter plant whenever the same is in operation.

NINTH: The drainage from the filter plant shall, if ever required by the Commissioner of Health, be otherwise disposed of than into the creek.

TENTH: The water company shall maintain a sanitary patrol of the drainage area above its several intakes near the source of Howe Run and reports thereof shall be filed with the State Department of Health. An inspection shall be made of the picnic grounds at least once every day that they are occupied and of every other occupied estate on the drainage area, if any is ever established, at least, once every month; and the water company shall see that proper receptacles for sewage are provided at all such picnic ground and occupied estates or lumber camps, and that these receptacles are used and properly maintained to prevent any contamination whatsoever of the surface waters of the drainage areas. Any neglect on the part of any owner or individual to comply with sanitary regulations shall be promptly reported by the company to the State Department of Health. The presence of any infectious disease on the drainage area shall also be promptly reported by the company to the State Department of Health.

ELEVENTH: It is expressly stipulated that this permit shall not be considered as authorizing the water company to supply water to the public other than in its charter territory.

Harrisburg, Pa., February 23rd, 1909.

NORTH LONDONDERRY TOWNSHIP, LEBANON COUNTY.

Londonderry Water Company.

This application was made by the Londonderry Water Company of the village of Palmyra, North Londonderry Township, Lebanon County, and is for permission to extend its main in said village and to increase its source of supply by the building of a new dam.

Palmyra is a village situated in the central portion of North Londonderry Township on the Philadelphia and Reading Railway, sixteen miles east of Harrisburg and nine miles west of Lebanon. The town is also connected with Harrisburg and Lebanon by trolley lines. The main portion of the town lies between the Philadelphia and Reading Railway and the Berks and Dauphin Turnpike, and the turnpike is well built for a mile west of Railroad Street.

The present population is about twenty-four hundred. In nineteen hundred it was fifteen hundred; in eighteen hundred and ninety, one thousand, and in eighteen hundred and eighty, seven hundred. Judging from present conditions, the future growth will probably be proportional to that of the past.

Palmyra is comparatively level, lying about four hundred and sixty feet above sea level and about two and a half miles from the Swatara, Quittapahilla and Killinger Creeks. The two latter are both tributaries of Swatara Creek. The greater portion of the town drains southwesterly into the head waters of Spring Creek which flows into Swatara Creek, and the small portion of the eastern end of the village drains into Killinger Creek, thence to Quittapahilla Creek.

It is a residential and manufacturing community, and well-built town. The streets are not paved but are reasonably broad and most of the sidewalks are cement. The dwellings as a rule are of wood, substantially constructed with ample yard space. The village is electrically lighted by a plant located at Annville.

The principal industries of the town are as follows: Palmyra Knitting Mills, Palmyra Planing Mills, Carpenter Box Factory, Kreider Shoe Factory, Palmyra Wood Working Company, Kreider Knitting Mills and the J. Landis Shoe Factory. These industries give employment to about five hundred and seventy-five people.

There are reported to be no sewers in the town. Nearly all the newer houses have modern conveniences connected with cesspools, while the greater portion of the residences have outside privies. As the soil is a sandy clay and the underlying formation in the vicinity of the village is limestone, a general method of disposing of sewage is to excavate to rock and uncover a crevice, into which the sewage is discharged. The street gutters show no kitchen drainage.

On March twenty-second, eighteen hundred and eighty-three, letters patent were granted to the Londonderry Water Company to supply water in Palmyra, Lebanon County, for a term of thirty years, or until March twenty-second, nineteen hundred and thirteen. The greater portion of the residences and manufactories are supplied with water furnished by the Londonderry Water Company. The supply is obtained from three sources, and a reservoir supplied by well, spring and surface water, is

located at each source. The reservoirs will be designated as Number One, Two and Three, corresponding with the three sources. The supply at the first source is augmented by the surplus from the Early reservoir by means of a two inch pipe. All the reservoirs are interconnected by a four inch equalizing mains which connect with the distributing system.

In eighteen hundred and fifty-three, Martin Early purchased land north of the town for the purpose of supplying water to the citizens. It is said that he received a grant from the Legislature for this purpose, but no record of such act can be found. The source of supply was located in a small valley about one mile north of the Berks and Dauphin Turnpike, on the east side of the extension of Railroad Street. At present it consists of a brick reservoir about twenty feet long, ten feet wide and about five feet deep, having a capacity of about seventy-five hundred gallons. This reservoir is fed by a drilled well in the bottom. The elevation of this reservoir is five hundred forty-seven and five-tenths and the intersection of Railroad Street and the turnpike four hundred and seventy-five, giving a head of seventy-two and five-tenths feet.

There are several abandoned wells, the water from which was formerly pumped into the reservoir by wind mills, but the well in the bottom is the only one now in use. The reservoir is covered with a brick arch, several feet of earth and is protected from surface drainage. There is a school house with outside privies about four hundred feet north of this reservoir and considerably above it, but the surface drainage goes to the road. A church and cemetery situated approximately six hundred feet north of the reservoir are on the opposite side of the dividing ridge. The water from this reservoir was delivered through about sixty-one hundred feet of two inch main, laid in Railroad Street, Broad Street, College Street and the turnpike.

The first supply installed by the Londonderry Water Company was located at the southwest corner of the extension of Railroad Street and a cross road leading to Anville. This supply is about seven hundred feet nearer town than the Early supply and consists of a masonry reservoir fifty-two feet long, twenty feet wide and seven and a half feet deep, the top of the wall being at elevation five hundred and sixteen, giving a storage capacity of fifty-eight thousand and five hundred gallons. This reservoir has a tight bottom, is covered by a wooden roof with ventilators and protected from surface drainage by trenches and embankments, but its location at the corner of the roads renders it liable to some pollution from road-wash in case of heavy rains, if the embankments and ditches are not kept in good repair. The reservoir is supplied by a covered well north of the Anville Road and west of Railroad Street. A small water course passes within ten feet of this well and within five feet of the west wall of the reservoir. The well is reported to be covered with large stones and about four feet of earth. Surface water from the road and drainage from the above school-yard probably flow over this well during storms. The reservoir also receives the overflow from the Early supply by means of a two inch pipe laid from the Early main opposite the reservoir and overflows through the lower reservoir at the third supply. A four inch main connects this reservoir with the distribution system. Midway between this reservoir and the town another four inch main is laid through the fields easterly to the other supplies.

In nineteen hundred and three, the Londonderry Water Company purchased the Early supply and had at that time about sixty consumers. The company drilled a one hundred foot well just north of the reservoir, but as no water could be obtained without pumping, the well was abandoned.

In nineteen hundred the company secured an additional supply about one mile east of the first. This supply is located on the north side of the Anville Road about sixty-three hundred feet northeast of the town. The reservoir here located is roofed over with slate and provided with ventilators. The bottom is shale rock and contains several springs which contribute to the supply. The reservoir is one hundred and eleven feet long, twenty-five feet wide and seven feet deep, the top of the wall being at elevation five hundred twenty-three and two-tenths and the overflow five hundred and twenty-two and seven-tenths. The capacity below the overflow is one hundred and thirty-five thousand and three hundred gallons, but it is reported that this capacity is not available owing to the fact that this reservoir is connected by a four inch main with the reservoir of the third supply, which reservoir overflows at about a ten foot lower elevation. This reservoir has five sources of supply, rain water from the roof, springs in the bottom said to be a principal source, a dug well and two drilled wells. It is connected with the main leading from the first supply by about forty-eight hundred feet of four inch pipe laid through the fields about one thousand feet south of and parallel with the Anville Road. The dug well is located above the reservoir, is not protected from surface drainage and is within five feet of the water course which drains the small valley above the reservoir. The water from this well is rarely used and then only by means of a syphon. A six inch wood plug, drilled well two hundred and eighty feet deep located about two hundred feet northwest of the reservoir discharges continuously through a one inch pipe into the reservoir and is apparently not subject to surface pollution. The other drilled well, located about two hundred feet northeast of the reservoir, is six inches in diameter, four hundred feet deep and the water can be utilized only by pumping, except at times of very high water when it overflows directly into the reservoirs. A frame pump house built over this well contains a small vertical boiler and a Downie vertical well pump having a capacity of eighty gallons per minute. This plant is operated in very dry seasons only.

Small water courses from a five acre watershed flow near these wells in close proximity to the reservoir and several feet above its water level. The reservoir is protected from direct surface drainage, but it is probably that considerable surface water filters into it through the shaley soil. The watershed above it is farming and wood land and is not polluted except by such fertilizers as are used on the ground. Picnics have been held on the wooden ridge at the head of this valley, but this practice has been discontinued and the timber is now being removed. About two hundred feet east of the reservoir and on the opposite side of the water course are farm buildings, pigpens, et cetera, but it is not probable that they can cause any pollution. It is proposed to purchase some additional land at this site for the purpose of protecting the supply from surface drainage. It is reported that the springs in the bottom will fill the reservoir in about forty hours if the outlet is closed. On March thirty-first, nineteen hundred and four, the water company purchased a tract of land extending from the top of the ridge across the Annville Road and the railroad to High Street. This tract is approximately two thousand feet wide at the upper end, one thousand feet wide at the railroad and contains about one hundred and forty acres, some of which has been sold for manufacturing sites.

The portion of the tract selected for a new supply lies in a valley north of the Annville Road about two thousand feet east of the first supply. The supply consists of nine driven wells of various depths which have been drilled along two water courses which unite above the reservoir. These wells were put down during nineteen hundred and four and nineteen hundred and five.

There are two reservoirs, one rectangular in shape with a shale rock bottom, the other formed by an earthen dam with concrete wall on the inside and shale rock bottom.

The lower rectangular reservoir is located near the road along the line of the water course and is one hundred and seventy-six feet eight inches long, fifty feet wide and seven and a half feet deep, the top of the wall being at elevation five hundred and fourteen and eight-tenths and the overflow at five hundred and thirteen and seven-tenths. The capacity is four hundred and ninety-seven thousand gallons. This reservoir is provided with overflow and blow-off pipes and is connected with the four inch main connecting reservoirs Number One and Two by a four inch main.

The main reservoir, about forty feet north of this reservoir, is formed by a three foot concrete wall, built across the valley, having a height of about twenty feet in the center and two hundred and thirty feet in length. The top of this wall is at elevation five hundred and thirty and two-tenths. At one end is a spillway eight feet long and six inches deep. Below this wall is an earth embankment, the top of which is about four feet below the top of the wall and thirty feet wide at this elevation, sloping to the north end of the rectangular reservoir. At the time of inspection, the water level was about ten feet below the top of the well. There is considerable leakage from the shale rock at the toe of this dam. The reservoir formed by this dam covers about one and five-tenths acres, has a capacity of two million five hundred thousand gallons to the spillway level and is intended to collect surface water for use in emergencies. Two pipes are built into the reservoir, one near the top and one near the bottom. The upper one discharges into the lower reservoir and the lower one also discharges into the lower reservoir and is used as a blow-off.

From the lower reservoir a four inch pipe was laid through the dam northerly along the bottom of the upper reservoir, terminating in a four inch by four inch by four inch "Y" branch near the upper end of the reservoir. It was reported that this "Y" branch was plugged and that the only water entering the lower reservoir was the leakage in this "Y" branch the back water from the reservoir Number Two and the leakage from the dam. This leakage apparently amounted to as much as the flow into the upper reservoir. From these "Y" branches it is intended to extend four inch lines to two small collecting reservoirs, one at the foot of each water course along which the wells are drilled and into which the flow from these wells will eventually be piped.

A small earthen dam has been built across the water course running northeast from the reservoir. This well is about twelve feet high and ten feet wide at the top with an approximate slope of one to two on the down-stream embankment.

The driven wells, nine in number, located along the beds of the two water courses, are from ninety-five feet to six hundred feet in depth and from six to eight inches in diameter.

Three of these wells are located along a water course running northeast from the reservoir. One of these is reported to flow all the year and two only in the spring and fall. These wells are open at the top or closed by loose stones and wooden plugs. One inch pipes are inserted in the top of the casing or through openings in the sides and the water flows out by gravity or is syphoned. These one inch pipes are laid in shallow trenches or on top ground and are taken up in the winter to prevent freezing. At present the water from them flows down the water course and filters through the earthen dam into the main reservoir.

Six wells are located on or near a water course extending northwest from the main reservoir. These wells are operated in the same manner as the others. Two of them were conducted to a concrete box four feet deep. This box was used as a supply for the farm house on the property of the company, east of the lower reservoir, but its use has been discontinued.

The wells in this supply are subject to some pollution from surface water but the entire supply should be considered as a surface water supply. A small potato patch adjoins these wells to the east and the watershed above this supply is principally farm land with a little wood land at the top of the ridge. This watershed has an area of about sixty-five acres, possibly one-half of which is owned by the company. The farm buildings of Daniel Galebach are situated on the dividing ridge about three-eighths of a mile northwest of the present dam. All the drainage from these buildings appears to be to the opposite side of the ridge and can, therefore, cause no pollution of the supply. The drainage from the farm buildings on the company's land all passes below the reservoirs.

A four inch main from this supply connects with the mains from the other supplies at a point about eight hundred feet south of the reservoir. From this junction point an eight inch main is laid to the corner of High and Franklin Streets where it connects with the distribution system. There are about thirty-two hundred feet of two inch, eighty-five hundred feet of four inch and fourteen hundred feet of eight inch pipe in the lines connecting the reservoir with the distribution system.

Main reservoir Number Three, being lower than Number One and Number Two, is kept nearly full all the time. The elevation of the overflow five hundred three and seven-tenths in Number Three is all that can be counted on for pressure in the town. The elevation of the ground at the corner of Railroad Street and the turnpike is about four hundred and seventy-five, giving a head of thirty-eight and seven-tenths. This head varies from day to day according to the height of the water in the reservoir.

The distribution system consists of two, three, four, six and eight inch mains which have been laid from time to time as the growth of the town demanded. There are five fire hydrants on the system, but these are not used except for filling street sprinklers and flushing the mains. No blow-offs are provided. The system contains thirty-two hundred and eighty feet of two inch, ten thousand two hundred and twenty feet of three inch, seven thousand seven hundred and sixty feet of four inch, thirteen hundred and fifty feet of six inch and nine hundred and twenty feet of eight inch pipe, making a total of twenty-three thousand five hundred and thirty feet or four and five-tenths miles. The total length of pipe in the distribution system and supply mains is thirty-six thousand six hundred and thirty feet, or about seven miles.

The consumption is stated to be approximately seventy thousand gallons per day, about twenty thousand gallons of which are used for industrial purposes. The total number of consumers is given at two thousand, making a per capita consumption of thirty-five gallons daily.

The typhoid fever epidemic of thirty or forty cases, in the fall of nineteen hundred and five, was variously attributed to the use of well water, the ice supply and the water supply. Since nineteen hundred and five, little or no typhoid fever has occurred.

The proposed extensions consist of one thousand feet in the Hummelstown Road west of the town, eleven hundred feet in Cherry Street, fourteen hundred and thirty-two feet in Maple Street, fourteen hundred and twenty feet in Oak Street, twenty-eight hundred feet in Franklin Street, fourteen hundred and twenty feet in Green Street, thirteen hundred and ten feet in Penn Street and eight hundred and twenty-two feet in the turnpike east of the town, making a total of eleven thousand three hundred and four feet or two and one-tenth miles.

About eight hundred feet of the extension in Cherry Street has already been laid and this, together with the extensions in Franklin Street and the eastern end of the turnpike, will supply about twenty-five double houses proposed or under construction. The extension in the turnpike west of the town is for the purpose of supplying twenty-five single houses now using well water. These extensions with three hundred feet more on Cherry Street, making twenty-nine hundred feet, were all that were originally applied for, but the company decided to apply for the others mentioned as the streets named are being laid out and the land will be opened for building purposes.

The new dam is to be located about two hundred feet south of the present dam and thirty feet north of and parallel to the Annville Road. It is the company's intention to build across the rolling valley at this site a solid rectangular concrete dam, the breast of which will be three hundred feet long and four feet thick. Three foot wing walls will extend northerly at either end at slightly obtuse angles, the one at the west end being thirty feet long and the one at the east end one hundred and twenty-five feet long. Throughout its length of four hundred and fifty-five feet this dam will be carried down to hardpan. This depth, it is stated, will average from twelve to eighteen feet. Neither a spillway nor reinforcements nor embankments of any description are shown on the plan. The elevation of the crest of the dam will be five hundred twenty-one and eight-tenths, this being seven feet above the top of the wall of the lower reservoir and forty-six and eight-tenths feet above the corner of Railroad Street and the Berks and Dauphin turnpike in Palmyra.

The water-works system was begun in eighteen hundred and fifty-three as a gravity supply from wells and springs but its later development has made the system practically only a surface water supply. The watersheds are in general in fair condition. Caution by the water company in the use of fertilizer should be exercised to protect the supply from pollution.

The present dam has for its main object the saving of leakage from the existing dam Number Three. It is apparent that all of the water needs to be conserved. Palmyra is in a thriving condition and increasing in population and the time may not be very far distant when a very much greater source of supply will be demanded than that now owned by the water company. Another fact is significant, namely, that the main reservoir affords such little pressure in town that fire protection is out of the question. The consumption of thirty-five gallons per capita daily is low. It is evident that extension additions and improvements to the water works system will be called for if Palmyra continues to grow. Meantime it is the purpose of the company to husband its present works and sources of water to meet the demands for service which are made upon it by the villagers.

It is easily possible for the company to maintain a patrol of the watershed and to prevent pollution of that portion of its supply coming from its surface waters.

More important to the public than the healthiness of the water, in the plans proposed, is the element of structural weakness. It is by no means evident from the information at hand that the dam proposed will be safe when the water has been permitted to fill up the pool in the back of the dam. The dam would be decidedly unsafe and a menace to human life. If it is the intention of the water company to strengthen the dam by placing earth embankments below it there is no evidence of this in any plan or data now before the State Department of Health.

In view of the foregoing circumstances, it has been determined that the proposed extensions and additions to the water works system will not be prejudicial to public health and the same are hereby and herein approved and a permit granted therefor, subject to the following conditions and stipulations:

FIRST: The water company shall maintain a sanitary patrol of the watersheds above its sources of supply and report promptly to the State Department of Health the existence of any stream pollution, nuisance or menace on said watersheds. And the company shall provide or see that proper receptacles for sewage are provided at all occupied estates on said watershed and that such receptacles are used and maintained in a proper manner to prevent any contamination whatsoever of the waters supplied by the company to the public. The proper plans for the disposal of sewage shall be provided and put in use before additional storage facilities are used.

SECOND: At the close of each season's work the water company shall file plans in the office of the State Department of Health of any additions to its pipe lines made during the year together with any other information in relation thereto which may be required, in order that the Commissioner of Health may always be informed of the extent of the water works system and the public use thereof.

THIRD: If at any time in the opinion of the Commissioner of Health the water works system or source of supply or any part thereof has become prejudicial to public health, then such remedial measures shall be adopted as the Commissioner of Health may advise or approve. The water shall be filtered if necessary.

FOURTH: The water company shall keep records of the operations of its water works system on blank forms satisfactory to the State Department of Health and copies thereof shall be filed in the office of the Commissioner of Health.

FIFTH: The water company before building the proposed dam shall submit revised plans for a structure sufficiently stable and proper in design to obviate any possibility of failure. A disaster caused by the breaking of a weak structure such as is the new dam might deprive the town temporarily of its entire public water supply and compel the citizens to resort to local springs and wells polluted by sewage and precipitate a wide spread epidemic. It is essential in the interests of public health that the proposed dam shall be properly designed and such proper plans shall be submitted to and approved by the Commissioner of Health before the water company begins the work of construction thereof.

Harrisburg, Pa., August, 6th, 1909.

PENBROOK, DAUPHIN COUNTY.

Extension Water Company.

This application was made by the Extension Water Company of the borough of Penbrook, Dauphin County, and is for permission to construct water works for the supply of water to the public within said borough.

It appears that the Extension Water Company was chartered originally as the Penbrook Water Company on August eighteenth, nineteen hundred and two, for the purpose of furnishing and supplying water to the public in the borough of Penbrook, but the name was changed to the Extension Water Company, notice of such change being filed in the office of the Secretary of the Commonwealth on February twenty-eighth, nineteen hundred and five. For some reason this charter was not sufficient to answer the purposes of the present owners in consequence of which, on December first, nineteen hundred and eight, a charter was issued to the Extension Water Company of Penbrook, for the purpose of supplying water to the public in the borough of Penbrook, the source to be from Swatara Creek at Hummelstown Borough, Dauphin County, at the point where the Hummelstown Consolidated Water Company and the Rutherford Heights Water Supply Company obtained their supply, it being approximately one mile above the mouth of Beaver Creek.