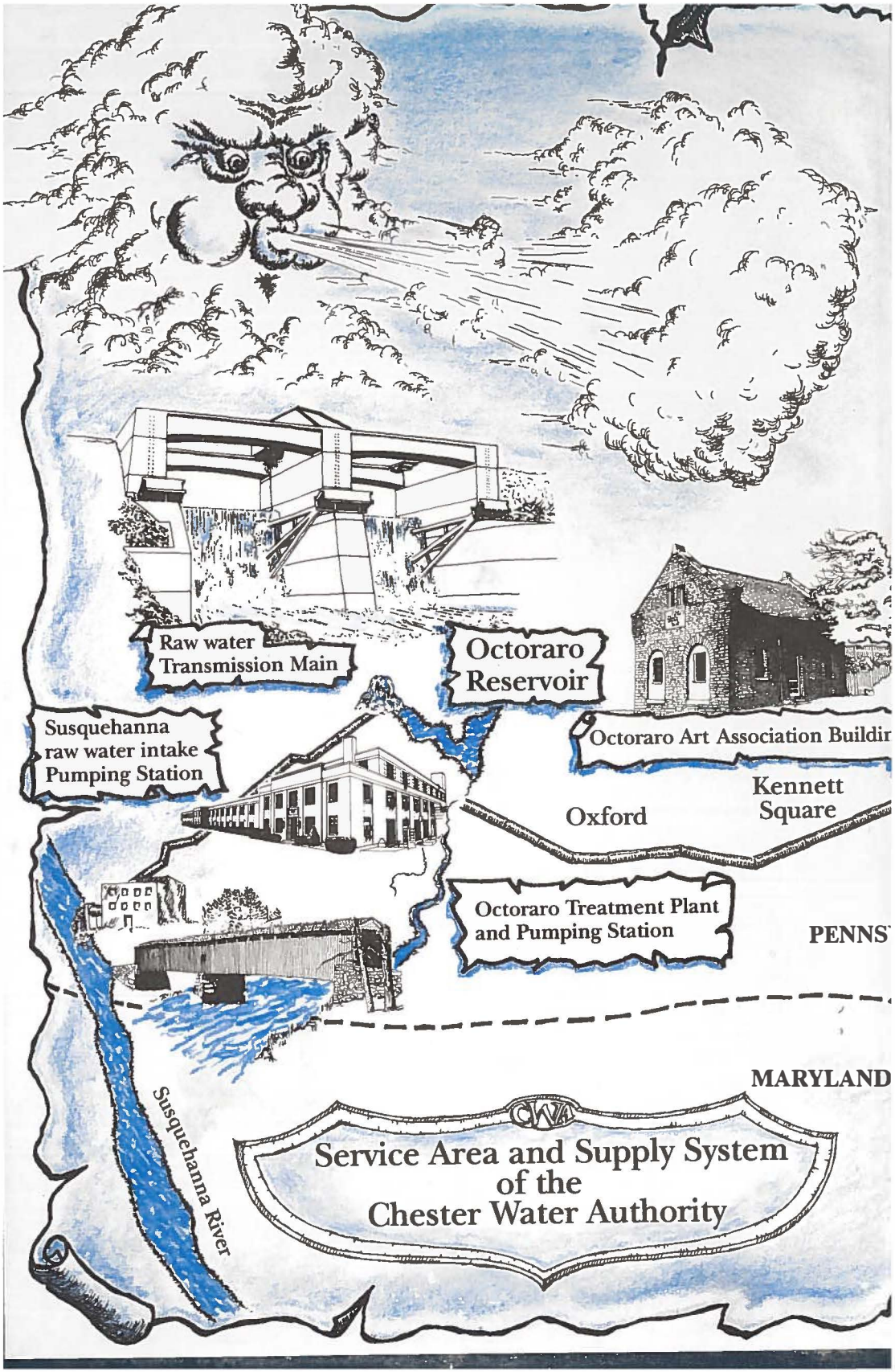
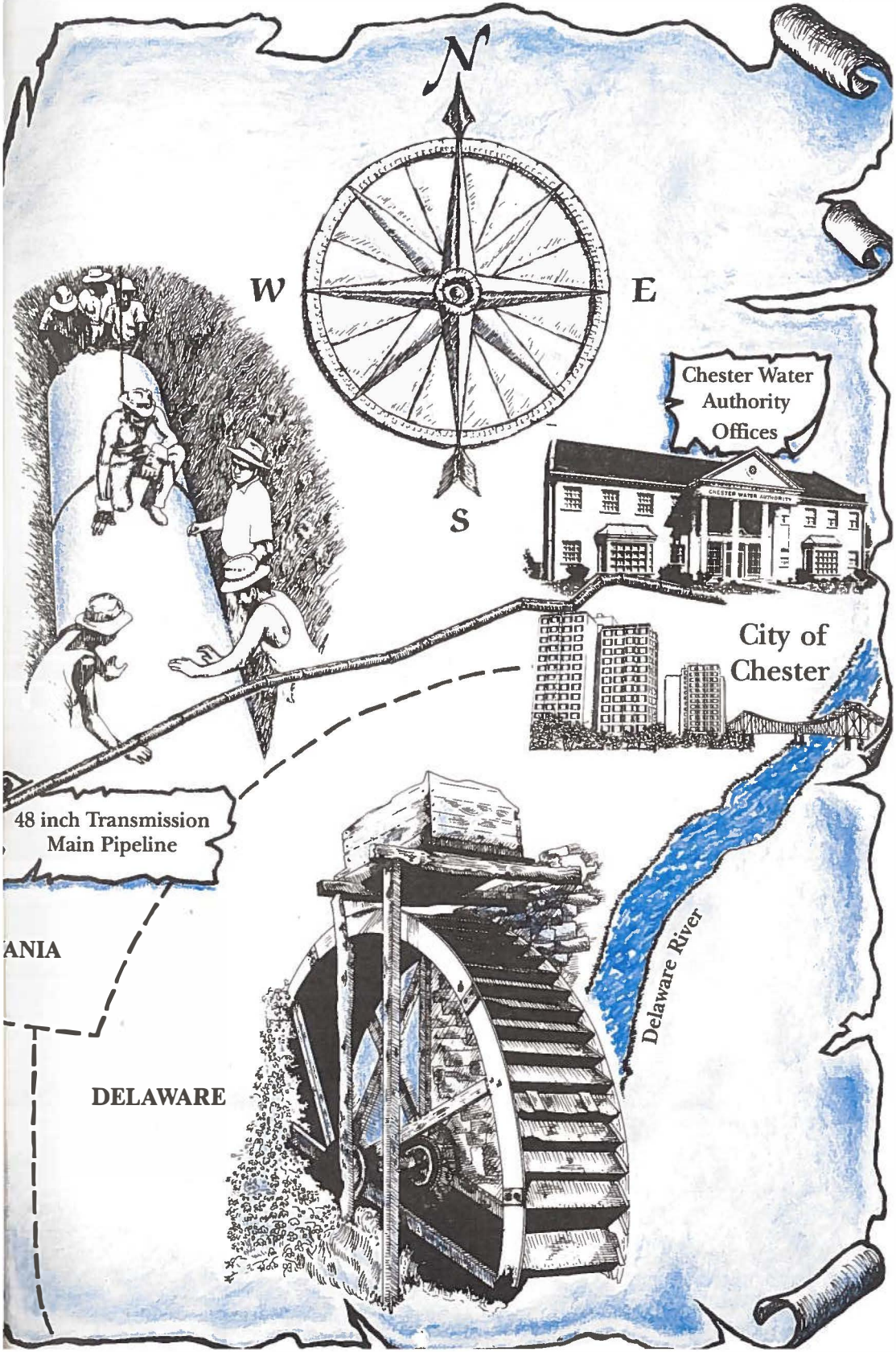
The History of Chester Water Authority 1866-1985


Raw water
Transmission Main
Octoraro
Reservoir
Octoraro Art Association Buildir
Susquehanna
raw water intake
Pumping Station
Kennett
Square
Oxford
Octoraro Treatment Plant
and Pumping Station
PENNS
MARYLAND
Susquehanna River
CWA
Service Area and Supply System
of the
Chester Water Authority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W
E
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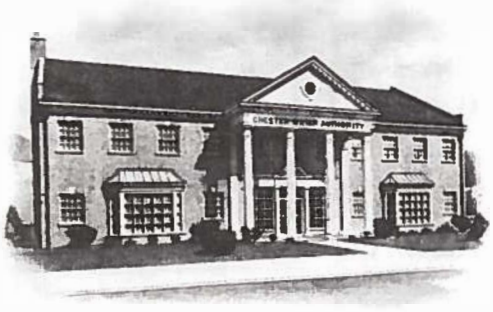
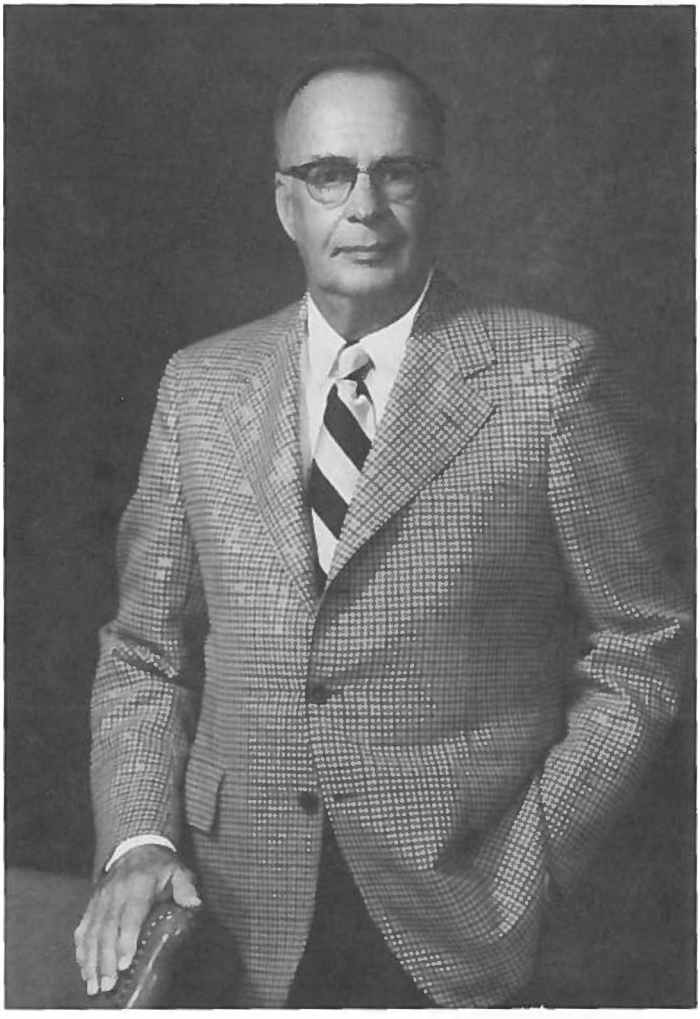
Chester Water Authority Offices
City of Chester
48 inch Transmission Main Pipeline
ANIA
DELAWARE
Delaware River

The History of Chester Water Authority 1866-1985





J. Newton Pew

Chairman of the Board of Directors

Chester Water Authority

1957 – 1985

DEDICATION

This history is dedicated to the many individuals, past and present, who had the vision and business acumen to plan and bring together the many components required to develop the Water Authority that exists today, one that is highly respected in the water utility industry. The story of the Chester Water Authority documents the growth of the water company from its beginning in 1866 to the present time.

The individuals responsible for this success include the members of the Board of Directors, both past and present, and Authority staff who have faithfully carried out those policies of the Board which have proven to be so successful over the years. These policies have established a foundation which should provide for continued growth and success in years to come.

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LIST OF PHOTOGRAPHS

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ACKNOWLEDGMENTS

The preparation of this historical account of the Chester Water Authority would not have been possible without the input from the many individuals listed below. Their recollections of events which have long since passed provide a wealth of information which has been incorporated into the book.

A special debt of gratitude is owed Mr. J. Newton Pew, Chairman (deceased) of the Authority, and to the Honorable John V. Diggins for their interest and comments which have added greatly to the validity of this work. Research for this work was done by Susan I. Shiber who subsequently prepared a preliminary draft of the manuscript. Editing, organizing and rewriting of the entire manuscript was done by Peter K. MacEwen. Hope Craven and Sandra Hunt are recognized for their careful attention to the proofreading of this work.

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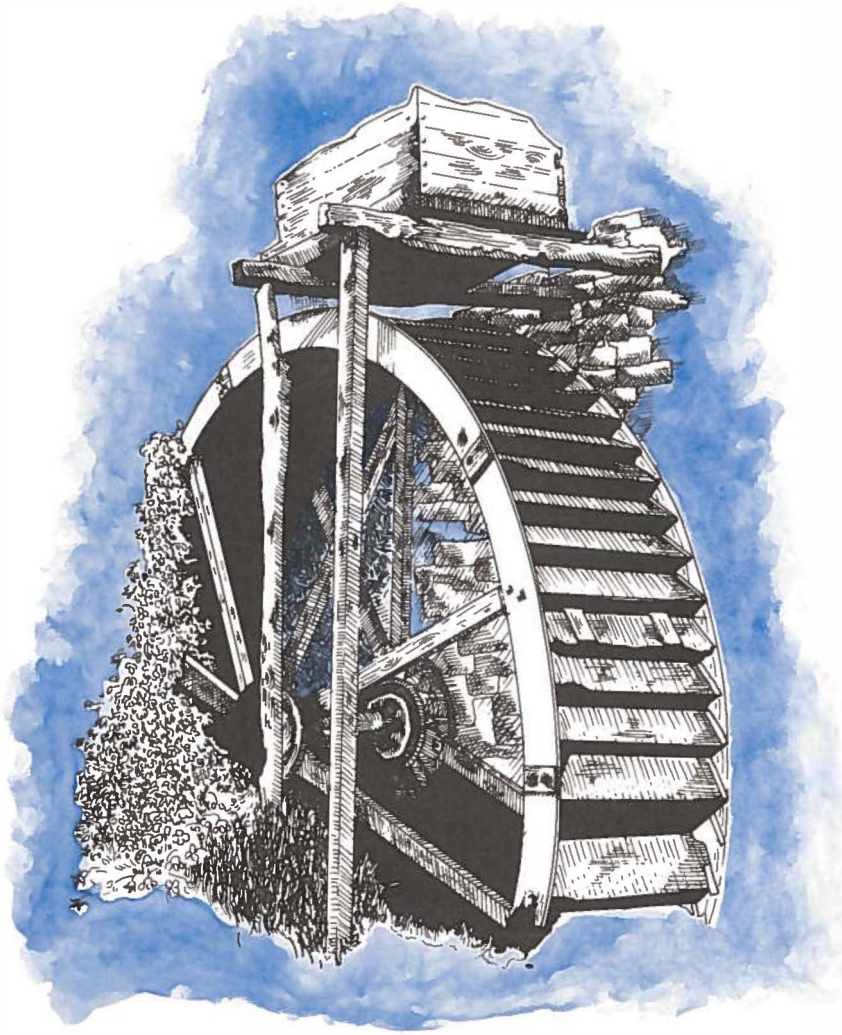
Other Sources of Information:

History of Delaware County by Henry Graham Ashmead
Historical Sketches of Chester by Henry Graham Ashmead
History of Delaware County, Pennsylvania
by George Smith, M.D.
Delaware County Daily Times (formerly *Chester Times*)
Delaware County Historical Society
Pioneer on The Delaware by John V. Diggins
This Fabulous Century – Time Life Series
Philadelphia Inquirer

"History balances the frustration of how far we have come. It teaches us tolerance for the human shortcomings and imperfections which are not uniquely of our generation, but of all time."

Lewis F. Powell, Jr.



INTRODUCTION

At no time since the first humans inhabited the earth has water flowed without significance. It has been essential during every age of development, during every period of history, during every man, woman and child's lifetime. Water has made the wheels turn, the crops flourish, the world survive.

The story that is unfolded here tells of water in modern times from pre-industrial revolution to the highly technocratic 80s of the 20th century. As man learned more about harnessing the enigmatic streams and rivers of his various regions, he was able to gain greater power, produce more goods and improve his quality of life. But reaching that point of increased ease wasn't so facile. Struggles occurred—struggles over nature, struggles over man.

As America grew, its need for major sources of water supply arose and often created havoc, and, of course, more struggle. Chester Water Authority, which traces its history to 1866, was one of the early pioneers in the waterworks industry. It overcame much adversity and grew into a pillar of American progress and old-fashioned Yankee ingenuity.

Today, the Chester Water Authority can look back with pride at its many accomplishments. It can chuckle at the folly of its early days, glow in satisfaction at its solutions to some very tough problems and generally feel good about its reputation and national renown.

The Chester Water Authority is a regional authority providing a water supply to a population of 130,000. It is located in Southeastern Pennsylvania in Delaware and Chester Counties. Its facilities span a distance of 55 miles from the Susquehanna River to the Delaware River. In addition to its residential and industrial customer bases, the Chester Water Authority wholesales its product to six water utilities.

The sources of Chester Water Authority's supply are the Octoraro Reservoir near Oxford, Pennsylvania, in Lancaster County and the Susquehanna River. This reservoir and dam represent one of the major steps in the Authority's history. The Octoraro filter plant and pumping station have a capacity of 45 million gallons of water per day.

An auxiliary pumping station at the Octoraro Plant with two 900 H.P. diesel or electric-driven pumps has a capacity to pump 24 million gallons per day to Village Green in Aston Township in the event of an electrical power failure at the Octoraro Treatment Plant. There is also a 150 KVA diesel generator in this station that will provide power to operate portions of the Octoraro Treatment Plant.

From the Octoraro Treatment Plant and Pumping Station, the water travels in 42-inch diameter prestressed concrete pipe approximately 4.5 miles to Oxford, where two 2.5 million gallon tanks are located. These tanks are used to control the flow of water through a 48-inch main which extends east from Oxford a distance of 35 miles to Village Green Tank Farm located in Aston Township, Delaware County. From there, the water is delivered by gravity and the use of pumping stations to 29,000 residential and industrial customers.

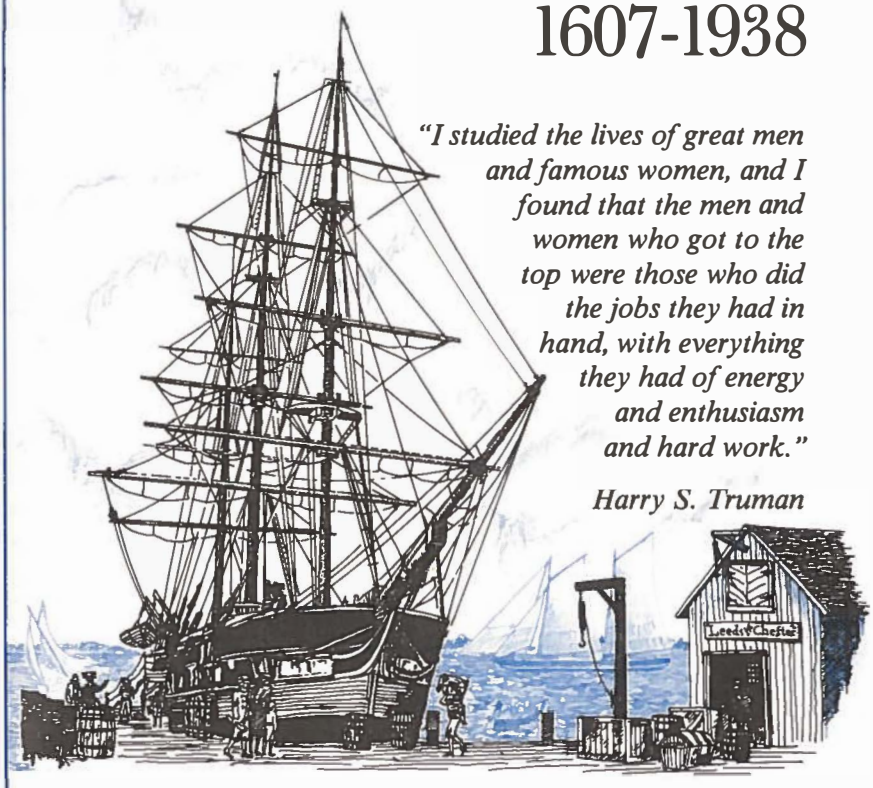
Part I

Early History

1607-1938

"I studied the lives of great men and famous women, and I found that the men and women who got to the top were those who did the jobs they had in hand, with everything they had of energy and enthusiasm and hard work."

Harry S. Truman



1
Chester's Role in Early American History

Just two years after Jamestown, Virginia, was settled in 1607, an English navigator named Henry Hudson first saw the beautiful waters of the Delaware River and Bay. Continuing in his quest for a northern passage to the East Indies, he discovered the namesake of Lord Delawar on August 28, 1609, as he sailed his now famous Half Moon from Cape Cod toward Virginia.

Other ships and navigators passed by the Delaware in the next years, but no record of settlement can be traced before 1623 or 1624 when a ship named Catelina Tricho carried a group of men and women to settle along its banks. They soon departed, however, and went on to a more rapidly growing colony later to be called Manhattan.

As more and more seamen explored the emerging country, it was soon learned that whales were in abundant supply along the Delaware. The large mammals, though, provided a poor source of oil and a profitable business seemed impossible.

As years passed, there were various attempts by potential colonists, primarily Swedish, to launch a community within the present boundaries of Delaware County, but it wasn't until 1642 that a permanent settlement existed. The territory, headed by John Printz, a Swede, was actually the first settlement in Pennsylvania. The Indian village of Meco Ponacka that eventually became the city of Chester was originally called Printzdork.

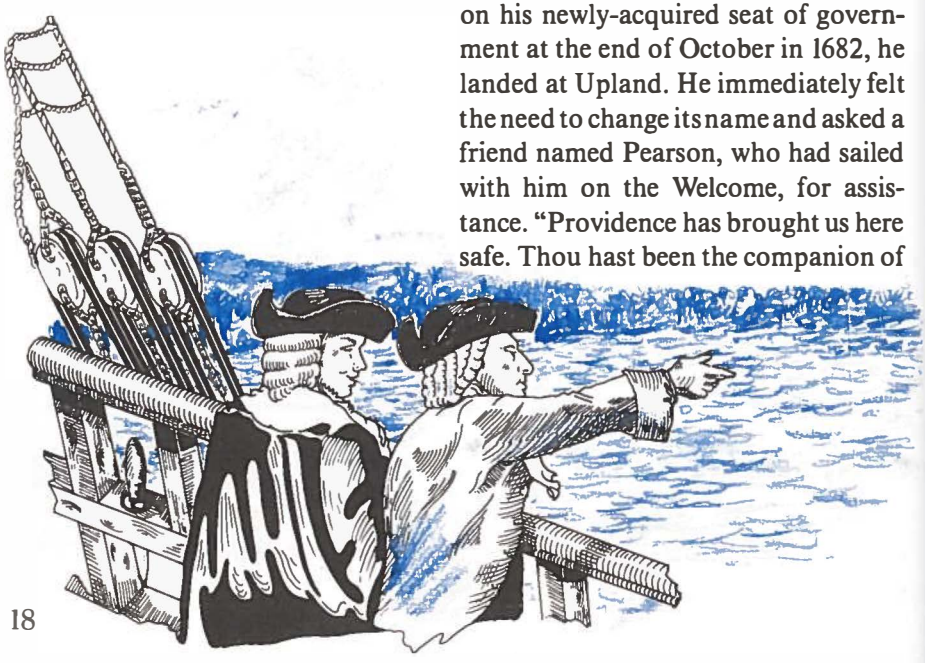
During the next 25 years, the colony established itself and suffered struggles similar to those being experienced by

other settlements in the new world. Bitter battles continually flared up between the Swedes and the Dutch. But the colony survived and continued to grow. England subsequently controlled the area. Printzdork, the parcel of land situated on the west side of the Delaware River between two creeks, became the property of Robert Wade, a wealthy English Quaker in the late 1660s. Its new name was Upland.

In the late 1670s, William Penn, an English Quaker born just two years after the first settlement on the Delaware was established, was given a grant of land from Charles II to pay off a crown debt owed to his father, Admiral Sir William Penn. This, of course, became the Commonwealth of Pennsylvania.

At the same time the Quaker influence was becoming more prevalent in the colonies, and meetings began to be held in villages along the Delaware. The first recorded Friends meeting in Upland was held on November 11, 1681, at the home of Robert Wade. Each month, a different location was selected for the gatherings, and those held at the Wade house later became known as "Chester monthly meeting." Other Quaker heads of families who lived in this future area of Chester and its environs, prior to William Penn's arrival, were Roger Pedrich, Morgan Drewet, William Woodmanson, Michael Izzard, Thomas Revel, Henry Hastings, William Oxley, James Browne, Henry Reynolds and Thomas Nassiter.

When William Penn first set sight on his newly-acquired seat of government at the end of October in 1682, he landed at Upland. He immediately felt the need to change its name and asked a friend named Pearson, who had sailed with him on the Welcome, for assistance. "Providence has brought us here safe. Thou hast been the companion of



my perils. What wilt thou that I should call this place."

Pearson replied without hesitation, "Chester, in remembrance of the city from whence I come."

Thus, the oldest town in Pennsylvania became known as Chester, named for an English town occupying the site of an old Roman military post (Castra is Latin for camp). Within weeks, Penn had laid out the original three counties—Chester, Philadelphia and Bucks. (The original Chester County became Delaware County in 1789.)

The practice of acknowledging deeds in open court commenced in 1683. It was then that application was made for a highway to lead into Chester. The same year Chester Mills was erected on Chester Creek to both grind corn and saw wood. A complete sawmill was added later.

By 1690, crime was on the upswing in Chester. Persons of ill repute had smuggled their way into the area with the early settlers or had come from neighboring counties where they had been denied residency because of misdeeds. Punishment for these early misdemeanors ranged from 39 lashes well laid on the criminal's bare back for stealing 14 dressed deer skins to banishment from the county for collusion with a horse thief.

By the early 1700s, Chester was thriving and setting about to establish community customs and flourishing enterprises. Two Annual Fairs and a Weekly Market were community traditions. The "Bake House" and several granaries were erected around 1700 by Jasper Yeates.

In 1713, William Penn, plagued by debt and declining health, attempted to sell Pennsylvania to the Queen of England for 12,000 pounds. He became partially paralyzed before the contract was finalized, however, and remained the commonwealth's proprietor.

In 1724, the Colonial Court House was built in Chester. It was one of the most substantial buildings of the time and subsequently became "the old Court House" when a similar edifice was erected in Media.

The next few decades were those of growing, learning, building and becoming pathfinders. Chester, like its neighboring towns and villages, was finding out how to establish a new nation, a nation of promise, freedom and comfort for its future generations.

Of great significance to both those future generations and Chester Water Authority was the establishment of free education in the city by Joseph Haskins in 1770. His will, dated December 3, 1769, provided for the "building and erecting of a schoolhouse or schoolhouses or other edifices for teaching and instruction and edification of youths therein."

The site selected by Haskins was a 100-foot square lot at the southeast corner of Kings Road and Back Street. Today, those streets bear the names Fifth and Welsh.

The original school, built on what is now Chester Water Authority headquarter grounds, was a two-story red and black-faced structure. It was classified as a charity school under the law of 1802. In 1875, the city's first high school was established on the site. In 1886, another school was erected next to the original building and Haskin's school became a grammar school only. The original cornerstones from these schools are located on the present Chester Water Authority property and are identified with a plaque.

Chester and its surrounding villages continued to pace its growth at a steady gait. The stalwart residents survived the Revolutionary War and went on to soothe their wounds by rebuilding and looking ahead to life in a country of freedom led by its first president. We're free of England, at last, was a cheer that resounded from the banks of the Delaware and pumped vigor into an historic urban renewal program.

Maritime trade burgeoned as the century turned and grist mills, textile mills and quarries provided goods and jobs. Another war with England (the War of 1812) was survived and the toiling folks continued to build their villages and towns. Agriculture and light industry prevailed as the greatest source of income to the area.

In 1814, the Delaware County National Bank was established in Chester, then the county seat. Shareholders numbered 187 and capital was recorded at $104,700.

The nation was just getting its feet wet and learning how to deal with the enigmas of politics. By 1839 when Martin Van Buren was in the White

House, new political parties were popping up at a phenomenal rate. People proudly (or sometimes secretly) declared themselves Whigs, Federalists, Anti-masons, Republicans, Democrats or even Abolitionists.

It was a challenging period, a fascinating period—indeed one of dramatic impact. That impact is still evidenced today in Chester, a city that is so richly steeped in the history of the birth and building of the country.

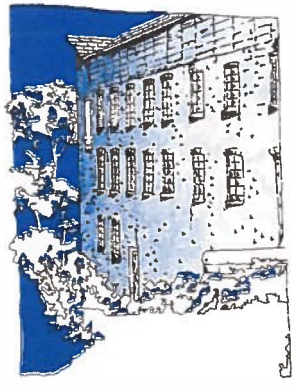
2
The Struggle for Water

In the late 1840s, Chester was still a rather sleepy town. Its population hadn't reached 10,000 and industry, though definitely on the upswing, was relatively light. The hotel or tavern business, actually, was the most successful enterprise of the day.

Political dignitaries and government officials spent much time in Chester, the oldest county seat in Pennsylvania. However, in 1847, a bill was passed by the legislature to hold an election to determine a possible new location for the county's governmental quarters. A bitter battle ensued and the county seat was relocated to newly-erected buildings on the poor farm at Providence. That site today is the Borough of Media.

The city didn't suffer from its loss. People from Philadelphia still travelled the great distance to enjoy fishing and shooting in Chester's wooded, stream-abundant thickets.

It was during this period that a bustling change began. The first textile mill in Chester opened for business in the former Fourth and Market Street jail. Soon more and more mills and factories chugged and revolved awakening the entrepreneurial spirits of many to buy farm after farm for future industrial development.



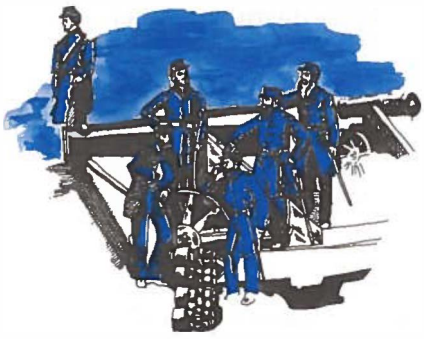
By 1850, the population had doubled, exceeding 20,000. The rapidly expanding census count coupled with industrial growth caused an equally increasing concern over water acquisition. It was no longer feasible to use

springs and wells. The demand was simply too great. It seemed appropriate that a water works should be developed.

James Campbell, a prominent and energetic businessman, encountered profound problems in his quest for sufficient water to keep his mill boilers supplied with steam. He spent a great deal of money sinking wells in the yards of Pioneer Factory and Henry Clay Mills, Broad and Mechanic Streets.

Every effort was made to establish a private water company in 1853, but the project met with little response. Only a handful of people were willing to subscribe and the few thousand dollars pledged was a small fraction of what was needed. The project failed. In fact, gas power preceded water by 10 years. Chester Gas Company illuminated its first building, the Delaware County National Bank, in 1856.

The critical need for a water company continued, but was circumvented by the Civil War. In 1861, there were 22 Union and 11 Confederate states. The south was staunch in its cries of secession unless the north ceased its interference with slavery. The Union states were just as adamant in their beliefs.



Chester, like every other city and town north of the Mason-Dixon line, gathered in frenzied patriotism. Delaware County Union Rifles was formed and camped on capitol grounds in Harrisburg. Union Blues, another military group, also joined in pursuit of the northern cause.

Four years of war, pillage and strife prevailed with both sides standing strong behind their principles. The confederacy, however, began a steady downward climb, after losses at Gettysburg and Vicksburg. On April 9, 1865, they surrendered at Appomattox Courthouse.

The end of the war brought many changes to America. Chester was still without paved streets, sewers, electricity or water supply. The necessity for the latter became even greater than in the past. Industry was gaining in activity and many of the mills were erected at points too far south for ease of water transport. Shipbuilding, too, was introduced along the river in Chester. Times were busy and demands were not to go unnoticed.

In addition to industrial demands for water, private citizens, as well, were voicing their concerns over the lack of a public company. Well water had developed a peculiar taste and wash days were, all too often, being delayed when cisterns and rainbarrels were empty.

Finally, in April 1866, an act of Assembly was obtained empowering the city of Chester to build a waterworks, if a majority of the property-holders voted in favor of the act. An election was held which resulted in the Middle and North Wards refusing to ratify the act, while the South Ward adopted it. But the want still existed; and as the city extended, and became more compactly built, the danger from fire increased and rendered it imperative that some action be taken at once.

Another act was drawn up on March 2, 1867, which authorized the councilmen of the South Ward of the city of Chester to erect a waterworks. It was accepted April 15th of that year, and the first board of directors was formed. This first board was comprised of Amos Gartside, William Ward, William A. Todd, William B. Reaney, and William G. Price. Amos Gartside was elected president; William Ward, treasurer; William A. Todd, secretary. It was decided that the Delaware River was the surest source from which to draw water for the city. Isaac S. Casin, who had been chief engineer of Philadelphia, was selected to prepare plans and specifications and to supervise the construction of the works. Joseph R. T. Coates and Robert Gartside received the contract for the building of the works, and water was pumped for the first time on the evening of July 1, 1868, into a 1.5 million gallon reservoir located on Concord Road at Pusey Street. The contract was completed that October, and the facility, after a professional inspection by Chief Engineer Graeff, was accepted by the board.

The original capacity of the pumps was 800,000 gallons per day. In 1878 additional pumping equipment was placed in service with a capacity of 2.5 million gallons per day. This plant was located at the foot of Franklin Street which is now called the Authority's Front and Fulton Street distribution facility, a 10-acre site adjacent to the river.

3
A Waterworks at Last

On June 17, 1868, less than a month before water was in the Concord Street Reservoir, the board elected H. C. Eyre as superintendent of the new water company. His salary was set at $950 per year.

The first known conflict which faced the early waterworks was with the gas company over the laying of pipes. Correspondence went back and forth to Samuel Crozer who at the time was also a past (1864–1865) president of the Delaware County National Bank. The situation, although never formally noted, was apparently resolved to allow water pipes to be laid adjacent to the gas pipes. The waterwork's act of incorporation did, in fact, give the board power to lay pipes in any part of the city of Chester.

The earliest iron pipes, a combination of 6, 8, 10 and 12-inch, were laid on 5th Street to Upland and up Upland to Broad Street. The cost was $1.00 per foot to be paid for in one year at an interest rate of 6 percent per annum.

During this first year of operation (1868), much activity occurred. A portion of the company's mill property was rented to American Peat Company at an annual fee of $1,600. The lease expressed that "nothing detrimental to the water shall be allowed to enter therein." Another rental that year was to Kelly and Montgomery to be used for dying purposes.

As in any new venture, everyone was on edge and concerned that all procedures were correct and all decisions sound. The first board, of course, had no history to rely on, no past experiences. Thus, every question was debated and each resolution backed by detailed research, whenever possible. One of these questions kept coming back again and again. The board was unsure of the strength of the structure at the new

reservoir. On September 29, 1868, the dilemma was resolved by the following letter:

"I have made a careful examination of the reservoir (Concord Street) recently built for your waterworks with view of forming an opinion upon the question which has arisen as follows: Is the additional thickening made to the embankment over that originally contemplated a fit and safe substitute for the puddled wall and the interior of the bank as at first designed and shown upon the drawing presented and approved by the committee before the commencement of the work? I feel perfectly satisfied that when the materials of the embankment are made, its limited height above the nominal surface and the small size of the contemplated puddled wall is considered, you have in the additional embankment more than the substitute for the proposed puddled wall, and that it is sufficient to insure the safety of the reservoir as long as it has proper attention paid to it. I wish it to be understood that this opinion is not a general one applying to all reservoirs, as no universal rule can be applied to such work on account of the very different materials and circumstances which may attach two individual cases and situations, but I do believe that with the materials, locations and dimensions, and circumstances attending this particular case, no further precautions than those that I was informed were used are necessary in the construction of a suitable and safe reservoir.

Very respectfully yours,

Fred Craft
Chief Engineer, Department of Waters"

At the same meeting, a report was made that the waterworks was ready to supply water in a quantity that may be required by consumers to extinguish fires.

By the end of 1868, the status of Chester's waterworks was excellent. At that time there were:

5,967 feet of 12-inch pipe running from the pump to the reservoir.
6,099 feet of 6, 8 and 10-inch pipe in the South Ward.
5 fire plugs and 71 stop valves in the South Ward.

6,982 total feet of pipe in the Middle Ward.
8 fire plugs and 20 stop valves in the Middle Ward.
1,504 total feet of pipe in the North Ward.
2 fire plugs and 1 stop valve in the North Ward.

This totalled 20,552 feet of pipe, 15 fire plugs and 92 stop valves throughout the city. The total cost was reported at $34,733.46 for pipe, $825 for the fireplugs, and $2,464 for stop valves.

There were 67 connections made that first year. The number of gallons pumped into the basin from August 8 until October 31 was calculated at 6,721,625 or 81,000 gallons per day.

With expenses mounting and activity at full swing, the board was eager to begin collecting revenue from consumers who had finally gotten their wish for a fully operational waterworks. They agreed that quarterly payments were to be made to the superintendent at his office on 3rd Street (below the bridge). Unpaid rents exceeding 20 days would be charged an additional 5 percent and, if still unpaid the following month, water use would be ceased and $2.00 would be charged to detach the ferrules. No water would be furnished until all payments were up-to-date.

After 16 months of operation, the company reported expenses of $6,762.97; interest, $12,506.70; wages, $8,428.07; water rents, $912.00 and safety taxes, $150.80. A net loss of $26,634 was recorded.

4

The Joy and Agony of Growth

America was a nation on the move. Changes were occurring that would shape the country for decades to come. One of the most monumental events took place at Promontory Point, Utah, in 1869. The tracks of the Central and Union Pacific Railroad lines were joined making a journey of 3,000 miles from coast-to-coast only seven days long. Prior to that, it took an adventurous traveler a full month of railroad and stagecoach travel to reach New York from San Francisco. If a wagon train was employed, the trip exceeded five months and a half year was required if the trip was made by windjammer. "The railway," exclaimed President James A. Garfield, "is the greatest centralizing force of modern times."

The railroad enabled transcontinental commerce to flourish and residents of farms and cities to more easily see the rest of the country. Big city ideas came chugging into small towns like Chester via railcar. By 1898, U.S. trains carried 800 million tons of goods or half the world's freight. Between 1870 and 1900, 60 percent of all steel manufactured in the country went into rails.

Chester was keeping pace with the nation's growth, and in addition to the P&B Central Railroad, shipbuilding was a major source of employment and revenue. In 1871, a large shipyard, Pennsylvania Ironworks, established in 1859 by Thomas Reaney of Philadelphia, was purchased by John Roach. It became The Delaware River Iron Ship-Building and Engine Company and soon gained a prominent reputation throughout the United States and Europe. The "City of Peking" and the "City of Tokyo," two of the largest vessels built in this country, were constructed by the firm for Pacific Mail Steamship Company. Ships were also built for the federal government as well as the govenment of Spain. Presidents, including Rutherford B. Hayes,

and renowned dignitaries gathered in Chester to marvel at the workmanship of John Roach's company.

As shipbuilding thrived in Chester, other industries were spawned as a result. Some of the companies launched were Sauville Spar-Yard, Frick's Boat Yard, Chester Iron-Works and many more shipyards.

One of these early industries was textiles which were first manufactured by James Campbell who owned Pioneer Mills located in the heart of the city. Another successful textile firm was Eddystone Manufacturing Co. Ltd., which became one of the country's first million dollar companies. Other early textile and textile-related firms were American Dyewood Company, Keokuk Mills, Phoenix Cotton-and Woolen-Mills, Continental Mills and Mohawk Mills. There were also Irving and Leiper Manufacturing Company, the Victoria Mill, the Arasapha Mill, Chester Dock Mills, Patterson Mills, Sunnyside Mills, the Algodon Mills, Yeadon Mills, Lilley & Son's Manufacturing Company, Chester City Mills, S.A. Crozer & Sons Chester Mills, Lincoln Manufacturing Company, The Stotesbury Mill, Bowers Mill and Aberfoyle Mfg. Co.

Chester was quickly becoming one of the busiest and most productive industrial sites in the world. It boasted of not only shipbuilding and textile manufacturing, but other thriving industries,

as well. Some of these were: Morton and Black's Sawmill and Axe Factory, Cora Mat and Matting Works and Chester Edge Tool Works, which was established by John C. Beatty, the namesake behind Beatty Tools, which were lauded all over the world for quality and superior precision. His company later became the Black Axe Factory.

The list of early businesses goes on and on. It includes: Riverside Dye-Wood Mills, Combination Steel and Iron Company, Eureka Cast Steel Company, and Robert Wetherill Company (presently known as Wetherill Plant of Sun Shipbuilding and Dry Dock Company). Also on the roster are Chester Steel Casting Company; Phoenix Iron-Works; Chester Sugar House; Color-Works; Chester Chemical Works; Taylor's Carriage Works; Stack's Carriage Works; Oche Trees Carriage Works; Lukens Grist Mill; Stroud and Company's Planing Mill; Penn Street Planing Mill; Miller Cox's Sash Mill; Hamilton's Box Factory; Price's Brick Yard; Delaware River Steel Co. and Penn Steel Castings and Machine Company.

All this industrial activity was as essential to the growth of the waterworks as the waterworks was to business and industry. The cogs and wheels were kept spinning by the constant flow of water from the reservoir. In 1870, alone, $79,508.38 had been expended on construction and $10,835.14 for real estate.

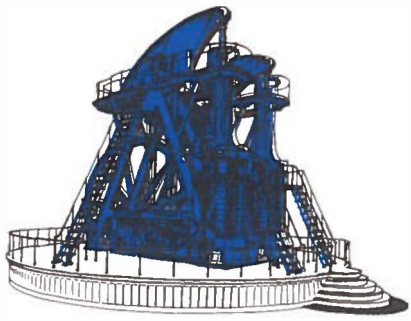
By January of 1872, it was evident that more revenue was necessary in order to keep pace with growth of the water company and operational expenses. After much discussion and soul searching, the board agreed that, although they needed a 100 percent increase in water rents to meet annual interest and operating costs, they would request a 50 percent increase to avoid consumer confrontation. The same year, however, a fee of $35.00 per hydrant per annum was levied on the city.

Although the staff and board of the waterworks did their best to keep things running smoothly as the company grew, they met with problems along the way. As early as 1872, consumers were complaining that the water was muddy and tasted strange. Superintendent Eyre directed customers to let their hydrants run in order to obtain clear water. He pointed out that the flow had to be kept running day and night in order to clarify the muddy water from the Delaware.

The water company continued to build and grow and its offices moved to West 3rd Street. The rent for the fireproofed quarters was $75.00 per year. In 1873, Archibald Crozer was hired as an engineer. His salary was $15.00 per week.

While Chester continued building its stellar reputation as a thriving industrial giant, the country's excitement centered on its centennial celebration. From the time the first chimes were heard January 1, 1876 'til the year closed in December, celebrations were held coast-to-coast. The most spectacular commemoration of all was held in Philadelphia. The Centennial Exhibition, which opened on May 10, 1876, was praised by newspaper reporters throughout the United States. The *New York Times* proclaimed, "In it were fair ladies gorgeously attired, plain work women from workshops and factories, cooks and servant-maids, dandies in broadcloth, western farmers in homespun, workmen fresh from their benches—rich men and poor men all mingled together. There never was a more good natured crowd. It was an honor to the country that produced it."

It was a magnificent fair which spread through 180 exhibits situated on 450 acres of exhibition grounds. There were displays from 25 foreign countries: jewelry from India, a new strange-looking vehicle from England called a bicycle, porcelain from Germany, textiles from France, and 6,000 living silkworms, diligently spinning silken threads.



The ingeniousness of Americans was highly conspicuous. Seen in Machinery Hall was the Corliss 1500-horsepower steam engine, the biggest and most powerful in the world. Near that was a machine called a typewriter on which an operator, for 50¢, would bang out a letter for any visitor.

Other wonders seen in Philadelphia during that wonderful centennial year were the steam-powered thresher-separator, one of the only 3,000 telephones in the country, the Otis elevator, and electric arc lights from Paris which pre-dated Thomas Edison's invention by three years.

America was thrilled with its progress in the 100 years since it fought for freedom and had become an independent nation. It was a country caught up in the exhilaration of competition and free enterprise. There were those who firmly believed all good was derived

from success and profit while others just as fervently felt that too much avarice and competitive drive would mark the nation's downfall. Looking objectively at both sides, a highly respected writer of the time, Mark Twain, wrote: "Nearly every man has his dream, his pet scheme, whereby he is to advance himself socially or pecuniarily. It is a characteristic which is both bad and good, for both the individual and the nation. Good, because it allows neither to stand still, but drives both forever on, toward some point or other which is ahead, not behind or at one side. Bad, because the chosen point is often badly chosen, and the individual is wrecked; the aggregation of such cases affects the nation, and so is bad for the nation."

Most Americans ignored Twain's complex philosophy. Optimism ran high and nearly everyone was convinced that his or her goal was, without question, in reach. And why not—after all a soap peddler from Philadelphia named William Wrigley, Jr. became a wealthy man when he created and successfully launched a national craze by selling almost everyone his candy-flavored novelty called chewing gum. August Brentano an immigrant newspaper and magazine vendor, saved his money and by 1876 was the owner of a half-million dollar bookstore on New York's Union Square. There were thousands of heroes to emulate as America began its second century.

And so the country continued in its path to becoming the industrial leader of the world. Chester, of course, was instrumental in helping America successfully reach that goal. On September 7, 1876, the *Chester Daily Times* published its first issue to report on the news of the city and the country. It sold for one penny.

As the city grew, the waterworks, too, kept right in step. The waterworks earliest recorded meter was installed in 1876 at the home of L. Ladonis, a customer who had complained that his water-rent bill was too high. In order to satisfy Mr. Ladonis, a meter was put in to accurately assess his water usage. Additional meters were added the following year.

By 1879, the waterworks had added a Wetherill steam pump which met with everyone's satisfaction. Earlier models had been tried and returned. The company's engineer, however, could not operate the new

machinery, and was replaced by W. F. Cutler. The same year, the board incorporated committees to assist in pertinent matters affecting the company. The committees and their chairs were: Finance, Robert Anderson; Public Property, Robert Chadwick; and Communications, W. Cutler. An auditor, George Harlenshead, was also added.

Almost ten years after the nation's centennial, the South Ward Waterworks was continuing to flourish and grow to meet the needs of its expanding customer base. That year (1885) a report of equipment showed:

Fire Hydrants	1,825
Wash Paves	329
Water Closets	292
Basins	296
Stables	40
Fountains	10
Urinals	15
Motors	1
Bar Rooms	6
Meters	2
Standpipe for Railroad Engines	3
Small Boilers	3

The following year, a pamphlet of rules and regulations was prepared. An abbreviated version of the edicts is interesting to note:

Rules and Regulations - 1886

1. The supply of water is part of the contract with every person who takes the water and every such person by taking the water agrees to be bound thereby. All applications for the introduction of water into any premises, or for the extension of any pipe for the conveyance of such water, shall be made in the handwriting of the applicant upon the books of the company or with the written consent of the owner, or agent if the applicant be a tenant, and must state fully and truly all purposes for which the service is required.
2. All water rents shall be due and payable in all cases in advance on the first day of January and July of each year and the interest on the pipe on the first day of January of each year of the preceding year. A discount of 5% will be allowed on all bills paid within one month of the time that they become due. In default of payment within three months of such time, that is, by the 31st day of March and the 30th day of September of each year, the supply of water

will be shut off without further notice. When the water is shut off with such a cause, it shall not be allowed to flow again until all arrears are paid. There will be additional charge of $4.00 for expenses.

3. Applications for the use of water for building purposes must be made upon the books of the company in the handwriting of the applicant.
4. No abatement of the water rent shall be allowed by reason of disuse or diminished use or vacant premises unless notice thereof in writing shall have geen given at the office of the superintendent at the time of such disuse or vacation, etc.
5. When application is made in due form for the use of water for building or other purposes, ground must not be broken in the streets and with the permits for the same must be issued and all service pipes for public or private use shall be of material approved by company and all necessary fixtures connected therewith shall be intended.
6. Wherever two or more parties are supplied from the same service pipe, upon default of payment or neglect or refusal to comply with the published rules of the company by said parties, the company reserves the right to shut off the supply of water.
7. No private service pipe for the supply of water to any of the parties not upon any of the lines of pipes laid by this company shall be allowed without the proper application and the issuance of a special permit in the form prescribed by the company.
8. No owner or tenant of any premise supplied by this company will be allowed to supply water to other persons or families.
9. No addition or alteration whatsoever in or about any public or private pipe shall be made by any person without permission first in handwriting from the company.
10. In case of fraudulent misrepresentation on the part of the applicant, or use of water not embraced in the application or bill, or of willful or reasonable waste of water, the company reserves the right to forfeit the payment and shut off the supply immediately upon the discovery of such fraudulent use or waste.
11. Wash paves will not be allowed unless the water is used for other purposes in the premises and must not be permitted to run to waste or to be converted into jets or for washing down the gutters upon neighboring premises.

12. The company will at all times, upon the proper application being made in the form prescribed, be in readiness to tap and to make insertion of service pipes on one day's notice at their office from the plumber doing the work.

13. No hydrant will be permitted on the sidewalk or in the front area and, if standing in the yard or alley attached to dwellings, will not be permitted to run when not in actual use.

14. When hydrants in yard or kitchen are furnished with screw nozzles, they shall be considered and treated in the bill as hydrant and wash pave combined and the charge made accordingly.

15. No yard, garden or jet shall be used longer than four hours daily four months in each year without a special permit.

16. The company reserves the right at all times to shut off the water for repairs, extensions for necessary works, for non-payment of the water rents, or for neglect or refusal to comply with the rules and regulations.

17. When the water is shut off from any service pipe for non-payment of rent or for non-compliance to the rules and regulations, the same will not be allowed to flow until the delinquent shall be paid. All injuries to service pipe or street mains caused by careless or by negligent repacking or filling of mains for private drains or sewers or for other purposes, shall be chargeable to the person causing such injury. The expense of repairing the same may be recovered by such person.

18. Any person who shall travel on the walks or upon any of the grounds or the reservoirs without the consent of the company to trespass upon or to travel over the embankments of said river reservoir or who shall willfully injure any engine or machine, reservoir pipe or structure whatsoever, or who shall willfully or maliciously waste water from any plug or hydrant, any person so offending will, upon conviction, be subject to the penalties prescribed by law for such offenses.

19. The company will not be responsible for any damage done to any boiler or water pave by the stoppage of the supply of water at any

time unless said boiler or wash pave is provided with a check or vacuum valve kept in perfect working order.

20. All supplies of water will be furnished subject to the rules and regulations. It is the duty of every person supplied to prevent unnecessary waste and to answer, at all reasonable times, all proper inquiries made by the company.

21. No one will be permitted to use water from any private service pipe, hydrant or wash pave for building or other purposes foreign to those for which the permit was originally granted without making proper application.

22. The company reserves the right to revise and alter any special contract for use of water and at any time when they deem that the interest of the company demands such a revision.

23. Meters used by consumers must be approved by this company and at the expense of the party or parties introducing them and placed in position by them must be at all times under the supervision and control of the company or its agents.

24. All water rents must be paid by the owners of the premises. A copy of the foregoing rules of the company will be furnished to every consumer and to everyone making application for supply of water.

During this period, consumers were required to pay the following rates:

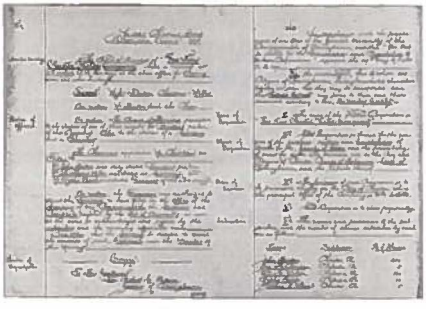
Hydrant in yard or kitchen	$8.00
Baths	$6.00 each
Wash paves of every description	$6.00
Basin and pantry	$4.00
Basin and chamber	$2.00
Water closets and urinals (self-closing)	$7.00
Water closets and urinals (other descriptions)	$4.00
Small dwelling—one room and floor hydrant	$4.00
One room and one-story kitchen	$6.00
Stores	$5.00 to $10.00
Barber shops (one chair)	$10.00 each
	(additional chair $2.00)
Drug stores	$10.00
Bakeries	$6.00
Livery and other stables	$2.00 to $10.00

Public buildings	$10.00 per hydrant
	$6.00 per basin
	$10.00 to $20.00 per water closet
Public schools	$6.00
Laundries	$6.00
Printing offices	$10.00
Offices	$3.00 to $8.00
Hotels, saloons, restaurants	$3.00 to $20.00 per item

Other businesses, such as mills, foundries, shipyards, dye houses, bottling establishments, railway stations and manufacturing facilities were assessed special rates based on the number and character of openings and estimated consumption of water.

New Chester Water Company

In 1885, the company officially became the New Chester Water Company. A corporation was formed and approved by the Commonwealth of Pennsylvania. John Dutton of Chester plus George H. Christian and William H. Miller, both of Philadelphia, were elected as directors. Capital stock, listed at $20,000 was divided into 400 shares at a par value of $50. Shareholders were the three directors as well as Tycho Buck and Joshua K. Lamb.



A new engineer named George Christian, originally with Norwalk Gas & Light Company, Norwalk, Ohio, was hired that year. His assignment was to lay 18 miles of city mains with three miles of supply mains and install two pumping stations with connecting pipe to the reservoir and filter bed at a cost of not less than $200,000. His salary request to accomplish these duties was two percent of that amount in cash and ½ percent in bonds. The same year the company investigated the water of Ridley and Chester Creeks and pursued a possible water supply to Eddystone.

It was a busy year and the goals were high for rapid progress of the New Chester Water Company. An agreement was reached with Jay Malcolm Peters of Boston, Massachusetts, to purchase and pay for land and water privileges to erect an improved water system with a capacity to supply the city of Chester and surrounding boroughs in Delaware County with water from Ridley and/or Chester Creeks.

Peters, in turn, subscribed for 3,700 shares of capital stock at $10 per share. His payment was to be $185,000 in cash and $250 in first mortgage bonds of the company payable in such time of varying interest.

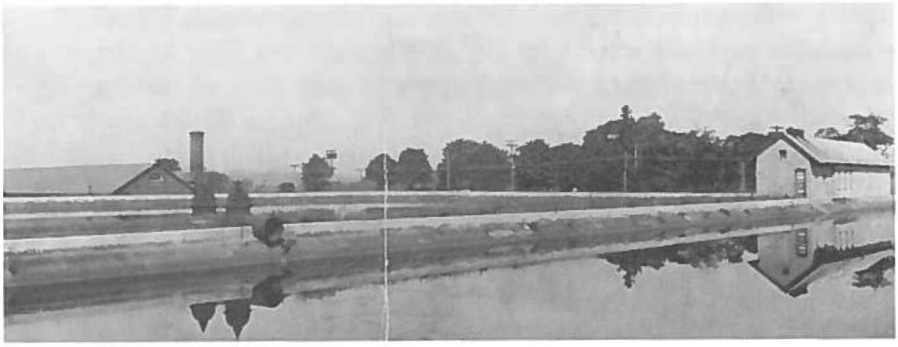
Because of all these changes and agreements plus the transfer of bonds from one company to another, it was agreed that the South Ward Water Board could resume control if the New Chester Water Company did not perform as promised. In addition to the vow to modernize the system, the new company also agreed to lower rates rather than raise them!

By 1887, a New York firm, Samuel R. Bullick & Co., was contracted to erect the New Chester Water Company's proposed water system. At that time, capital stock was increased from $500,000 to one million, to increase, but not exceed, $500,000 in bonds to be secured by a mortgage on all its property, real and personal, its rights, privileges and grants. Later on, however, an increase of indebtedness was instituted to meet the rising cost of construction and complete the proposed project.

Growth was continuing. Pipe was laid in Eddystone, Upland and Morton Avenue. The company was intent on collecting rents on time and saving revenue through internal cost-cutting procedures, better organization and follow-up with vendors for improved performance of pumps and similar equipment. The bustling water company was on the upswing and worked at full speed through the end of the century, despite a gloomy depression deeply felt in Chester in 1893.

In 1899, times were not bright for the New Chester Water Company. A law suit had been filed by the citizens and businesses to provide pure, properly filtered water to its consumers. A portion of this suit states:

"The New Chester Water Company, the defendant, has a pumping station on the banks of the Delaware River within the limits of the said city. With two reservoirs at Harrison's Hill some



distance outside of the city limits, it has mains and pipes laid in the highways, streets and alleys of the said city and its suburbs, and has been furnishing and supplying water for public and domestic use, including the use by manufacturing establishments to the said city and its inhabitants and the suburbs of said city since 1887, up to and including the present time. The said New Chester Water Company derives its water supply as furnished by it to your orators (customers)—the city and the citizens of the said city and suburbs—solely and alone from the waters of the Delaware River, and the said defendant company has not heretofore nor does it now properly filter or otherwise improve the character and quality of said water furnished your orators—the city and citizens of the said city—either before pumping the same from said river to the reservoirs for passing the water from the reservoirs into the supply pipes or main. The New Chester Water Company has not furnished and does not furnish the supply of pure and wholesome water for the use of your orators—the city and citizens of the city—but on the contrary, the water furnished has been and is muddy, impure and unwholesome, and unfit for use in domestic manufacturing and for other purposes...

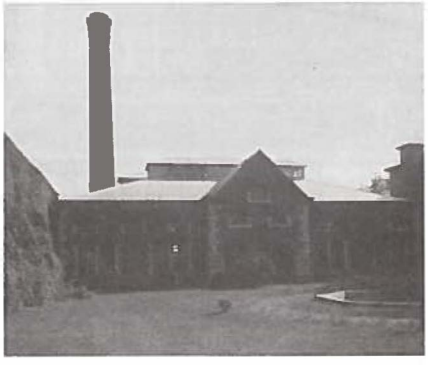
"Pray, your honor, to hear, inquire and to determine as to the impurity and unwholesomeness of the water supply that is furnished. Your orators to the city and the citizens of the said city of Chester and suburbs by the said New Chester Water Company to make such order in the premises as may seem just and equitable and to compel the said corporation, the New Chester Water Company, to correct the faults complained of by your orators."

In order to improve quality, the water company immediately proceeded with construction of Basin B and lined its reservoirs with a combination of 4-inch concrete and 1-inch asphalt. Water improved and, although the law suit went on for a number of years, it was never formally recalled as closed or settled.

The century turned on a highly optimistic view from 45 states and 75,094,000 people. When President McKinley addressed Congress on December 3, 1900, he proudly proclaimed, "At the outgoing of the old and the incoming of the new century, you begin the last session of the Fifty-sixth Congress with evidences on every hand of individual and national prosperity and with proof of the growing strength and increasing power for the good of Republican institutions."

A balanced governmental budget was a common occurrence and, in fact, in 1900 the Treasury reported a $46,380,000 surplus of income over expenditures. People were content despite the fact that the average American worker earned only 22 cents per hour. But then, that worker could buy sirloin steak for 24 cents a pound and a turkey dinner for 20 cents. If he saved enough, he could even be one of 8,000 Americans who owned an automobile at an expenditure of about $1,550.

Prosperity and peace were the words on folks lips everywhere from Chester, Pennsylvania, to the farmlands of Missouri and the sparsely-populated cities and towns in California. The country was optimistic and self-confident, intent on grabbing onto every dream and making it reality. Hard work and determination moved the country to a position of leadership among the world's industrial powers.



Chester was right at the top of this power as its industries burgeoned and prospered. The New Chester Water Company was proud of its role in the growth of the city and strived to maintain quality service to its consumers. In 1903, city officials and friends proudly joined water company employees to inaugurate the company's new filter

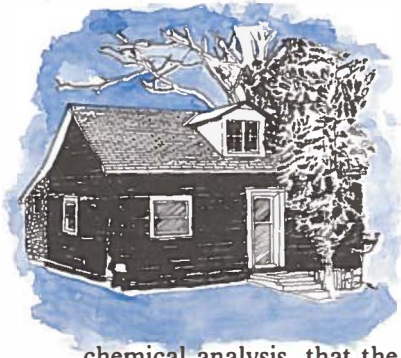
plant. The installation of the new filter plant, located at Front and Franklin Streets, made the Chester Waterworks a complete and efficient system.

During these early years of the 20th century, the company purchased several small water concerns to enable it to provide water and service to everyone who requested it. These purchases include Penn Water Company, Upland Water Company, Linwood Water Company's franchises and property and the franchises and property of Eddystone Water Company, as well. At this time, also, (November 7, 1906) all property and stock ownership of the South Chester Water Company was assumed by the New Chester Water Company.

In 1906, a new form of bond and stock certificates was presented by the water company. The bonds were ordered to be printed by the Security Bank Note Company at a cost of $825 for 1,750. A book of 250 stock sheets was ordered from the same company for $80 and 50 copies of the deeds of trust were printed, as well.

The following year, activity began in Lower Chichester and Marcus Hook. In 1908, a charter was secured for territory between the company's reservoirs in Brookhaven and the Edgemont Water Company's service area. Improvements were made including the addition of concrete bottoms to an original basin.

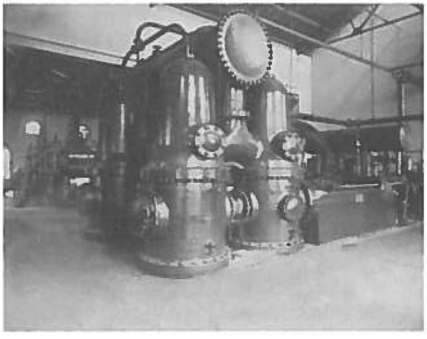
On March 23, 1908, a decree from the State Board of Health prohibited the distribution of raw water into any mains. In order to comply with the mandate and conduct weekly bacteriological tests on the water, the New Chester Water Company erected a small cottage on its property adjacent to the reservoir. From then on, a man was in attendance at the filter house at all times. (At the time of this writing (1984) Mr. Ed Gebhart, a retired CWA employee, still resides in this cottage.)



As the company proceeded with its testing, in 1909, it determined, through chemical analysis, that the water was fit for all purposes. The only problem was a heavy increase of salt and chlorine which prompted the Board of Health to urge the company to find a new source of supply.

This problem, though not ignored, did not dampen the spirits of the booming company. It saw great growth ahead and geared up to meet it. A large silk mill went up that year in Marcus Hook and both

the Tidewater Company and Roach's Shipyard had been reorganized. The Rover Soap Works was purchased by Scott Brothers of Philadelphia and Baldwin Locomotive Works had plans to extend its operation into Eddystone. All this activity promised more people, more houses and more need for water service. The company felt very good about the future as it opened the doors of a new filter plant in 1909 at a cost that feel below budget—$2,600!



To meet the increasing demand, 42-inch intake pipes were installed and a 10-million-gallon pump complete with two 600-horsepower boilers and a new pump house were added in 1910. The cost of the project exceeded $199,000. In addition, many repairs and improvements to the existing system were made that year and construction on a new pump house progressed.

The pleas for a new source of supply didn't let up, despite improvements. An extremely dry period in 1910 caused the water to be brackish and the requests gained momentum.

The company continued to seek methods of improvement to satisfy consumers and the State Board of Health. This, coupled with growth, kept both the staff and board busy.

By 1911, customer count was up to 8,875 and pumpage was reported at 1,250,000,000 gallons or 3.4 million gallons per day. There were 217 public hydrants and 54 private ones. An expenditure of $21,544.48 was reported for extensions and betterments to the pipe system. This was necessary because of Chester's involvement in a large street paving program which required each utility company occupying any streets to be paved to lay its mains and connections at all street crossings prior to paving. This program continued into 1912 taking expenditures up to $179,629.65. The same year, the company purchased a new office building through Fidelity Bank.

Growth continued over the next two years with particular emphasis in the Marcus Hook area. The increase of manufacturing, there, resulted not only in the addition of pipe and main for added revenue, but in pollution problems as well. Heavy rains and thaws that year only aggravated the situation.

In 1914, the company's engineer visited water plants in Erie and Chicago to learn of viable solutions. It was determined that a new

purification plant had to be erected to correct the situation. Daily testings proved that this solution was sound. But, as in the past, taste and odor problems returned and the company was consistently urged to find a new source of supply.

A tragedy occurred on June 28, 1914, at Sarajevo in Bosnia (Austria) which shaped events for years to come for the entire world. Heir apparent to the Hapsburg monarchy, Archduke Franz Ferdinand, and his wife were assassinated. Their murders sparked serious trouble between Austria and Serbia. The German government promised to support Austria and Hungary and tried unsuccessfully to restrain Austria from Serbian intervention. On June 28, Austria-Hungary declared war which eventually involved all the great powers of Europe.

On April 2, 1917, President Woodrow Wilson reluctantly, but with grim determination, called for a declaration of war against Germany. His goal was to make the world safe for democracy. "We have no selfish ends to serve. We desire no conquest, no dominion. We seek no indemnities... no material compensation," he stressed.

The United States, though wholly unprepared for war, entered it with the zeal and fervor that took the nation from wilderness to industrial leadership in less than 150 years. By June 1918, the country was in full production for the business of war. Factories worked around the clock and food dealers transferred tons of groceries to American troops.

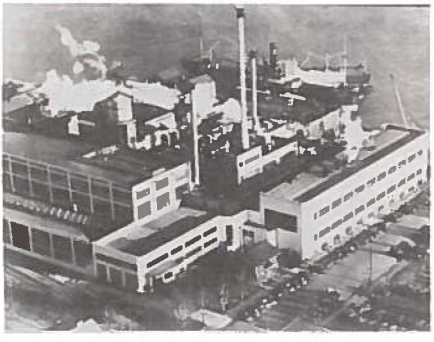
The victory came on November 11, 1918, with the Treaty of Versailles being finalized the following year. In contrast to the millions of lives lost by Europeans during the bitter conflict, 116,516 American soldiers died—more than half of them from disease.

The First World War reinforced America's industrial power. Business and industry boomed during the war years and the United States became the most powerful country in the world economically, probably militarily, too. Chester, heavily industrialized, played a valuable role during this period. By this time, the city was fully electrified and nearly all streets were paved. Three railroads served Chester and two shipping lines carried freight on the Delaware to Philadelphia, Wilmington and Baltimore. Petroleum refining was emerging as a new and vital industry in the area.

Chester's shipbuilding prowess was sought during the war. The former site of Roach's Shipyard was taken over by the Harriman family who had gained recognition as developers of the Union Pacific Railroad. The new yard, called Merchants Shipbuilding Company, took on the business of building standard steel ships for the government at a rate of one per month during the war years. At this time, Sun Shipbuilding Company was well on its way to becoming the greatest commercial shipbuilder in the nation and one of the foremost in the world.

In addition, steel mills were going full blast and textile mills were constantly buzzing. Baldwin Locomotive Works (later Baldwin-Lima-Hamilton) worked round the clock to meet demands for its products. Remington Arms Company and Eddystone Ammunition Company were established, the former supplying Enfield rifles to the British government. Other companies that kept fully productive during this frenetic period include: General Steel Castings Company; Westinghouse Electric Corporation; Philadelphia Quartz Company; American Viscose Company and Baldt Anchor, Chain and Forge Company (later named Boston Metals Company).

Scott Paper Company was growing at a rapid rate, and by 1918 all its activities were centered in Chester. The company that had been formed by two brothers (E. Irvin and Clarence) in 1879 as a paper jobbing business to provide wrapping paper and bags to business, had grown to a manufacturing titan, turning out millions of rolls of toilet and facial tissue, paper towels and similar products.



The New Chester Water Company served its customers well as business and industry flourished. But, as in any company, there were problems. A dilemma met by the water company in the winter of 1918 resulted from a fire at a meat packing business, John B. Buckley Company. The media reported that frozen fire hydrants prevented adequate protection. Actually only one hydrant was frozen, but to combat future problems, positive drainage connections were made from the hydrants

to the city sewer system. Along the same lines, 2,000 meters were frozen that year and had to be reset at the curb. The same year, work on a new filter plant at the Front and Franklin Streets property scheduled for completion, was delayed due to extremely cold weather. They also had a problem obtaining priority certificates to allow them to purchase and receive materials necessary to build the plant.

Problems usually come in large doses, which was the case at the water company that year. Top quality coal was nearly impossible to acquire in necessary quantities and blowers had to be installed to implement burning.

A resident of water company property, Mrs. Shepard, reported that two of her cows had died from drinking waste water from a nearby filter plant. She asked for $250 damages, but accepted $150 and granted permission to run water over her property during 1918. The taste problem, unfortunately, was still a major issue among consumers and the company consistently attempted to determine causes and devise remedies to the situation. That year, they began to treat water as it left the filter plant at Harrison Hill instead of before filtration.

Because of labor shortages during the war, the company decided to increase wages. To accurately describe the times and attitudes which seem highly unusual today, it is important to note the wording on a poster which was tacked on a pole at the water company's pumping station. It offered colored laborers 39½ cents per hour for inside work at a chemical plant in Newark, New Jersey. Transportation was to be furnished and free quarters with lights and heat would be given to the workers.

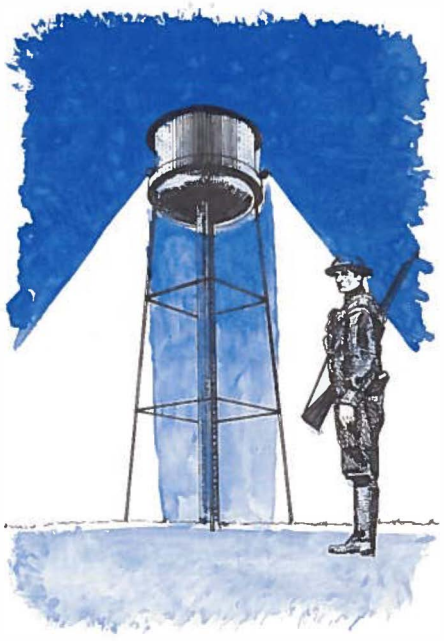
That year, the water company raised its wages to increase the availability of labor. Street and meter depart-

ment workers went from 30 cents to 32 cents per hour while laborers at the purification plant were raised from 27½ cents per hour to 30 cents.

To meet the rising production, many companies requested increased water supply. One of these firms, Aberfoyle Manufacturing, used about 35 to 40 million gallons of Chester water supply per year. In order to justify the expense of additional lines and increase fire protection as well, the company requested that Aberfoyle commit to using 135 million gallons per year. They instead, agreed to pay for part of the installation.

During the war, watchmen were carefully regulated at the company's wharf area. No one was permitted to enter the property without a pass which contained a photograph. These orders were strictly enforced by government officials, and a number of officers of the company and guards were sworn in as deputy sheriffs. Guards and illumination were also added at the reservoirs and pumping stations.

Despite shortages of labor, construction work progressed on new lines in Upper Chichester Township. The Emergency Fleet Corporation announced plans to construct 1,100 houses on two separate tracts in the Chester area. The water company, at government request, began their construction to meet the future demand for water.



Post-war construction mushroomed and the water company kept up with the flurry of building activity. It was quite a task to properly maintain pressure, supply an adequate amount of water, build new lines, improve and add on to the waterworks system and continuously seek methods to combat the nearly always present taste and odor problem. In addition, a severe epidemic of typhoid fever slowed work and caused grief throughout Chester and the rest of the Delaware Valley. The company had its hands full, but indefatigably forged on to consistently match the rapid progress of the city. Pumps were added, lines constructed and a new filter plant completed in 1920. Improvements made to economize and enhance productivity included installing grates to preserve precious coal.

As the company grew, it added modern equipment, such as dictaphones and adding machines. Employees received turkeys or $5.00 at Christmas and work continued at a healthy rate for the years following the war.

Keeping close pace with the water company's growth was the relentless taste and odor problem. Periodically every year, ads were run by the local Board of Health advising all water company consumers to boil their water before using it. The company steadfastly kept at its task to improve the situation. They added chemicals, deleted chemicals, tested and re-tested. No one was more dedicated to eliminating this troublesome taste than the water company. Typhoid outbreaks occurred each year, and although these epidemics had little or nothing to do with the water, which was actually totally pure, the thought that it did regularly entered consumer's minds.

The country, at the time, was striving to catch up with modern times while maintaining traditions which were fast giving way to the necessities of an industrialized nation. Optimism wasn't quite as high as in the days prior to World War I, but people still had very good times.

In the roaring 20s, Chester was a center of fun and lively party times. There were lovely shops, wonderful movie theatres and dance halls. Long-time residents, such as present board members James A. Aldridge and Alexander V. Osowski, fondly reminisce about the proverbial 'good old days.'

"I'm glad I grew up in Chester," says Osowski. "We had so many activities at our disposal. We moved into a neighborhood as one of the only Polish families. We would get all dressed up to go to the dances back in those days. Some of the big bands were Benny Goodman, Kay Kaiser, and Artie Shaw. It was more expensive to get in to see one of the big bands than it was to go to a ballroom. Les Brown and Jimmy Dorsey were also entertainers back then. In some of the big theaters, before the main feature was shown, they would have a big band. Then the repeal came which knocked off all the speakeasies. We had one at Front and Fulton. There was a big band playing and you could get a pitcher of beer for $1. Bathtub gin was alcohol cut with water. We sure had lots of fun," he smiles.

"Chester is home to me," adds Osowski. "I worked in the shipyard for 20 years. In my younger days, after I got out of school, I went right into Sun Ship and, after I got out of there, I went into the tavern business thinking I would get rich quick, but I didn't. I got out of the business after 2–3 years. We had five movie houses that would get first-run movies. There is not one movie house in Chester now."

At the beginning of the decade (September 10, 1921), Chester experienced one of the worst, and certainly the saddest, accidents in the city's history.

The footway on the north side of the Third Street Bridge over Chester Creek collapsed and threw about 100 persons into the stream, causing 25 deaths. The water company had two pipelines crossing the bridge, a 10-inch located on the top of the main girder at the curb line about three inches above street level which was entirely exposed, and a 12-inch suspended beneath the footway on the south side of the bridge. Due to the serious accident, the company was notified by the highway commissioner of Delaware County that the pipe must be removed in order to relieve the south portion of the structure from its weight. The highway commissioners did, however, consent to a relocation directly over the main south girder of the bridge similar to the location of the 10-inch line on the north side. This relocation was made at a cost of between $600 to $700.

At Christmas that year, the superintendent, Mr. Walker, suggested that each employee be given life insurance, a trend being established by many organizations. Equitable Life Insurance Company covered each employee for 75 cents per month for a $1,000 policy. The amount of the policy was dependent on length of service.

Even in those halcyon days, the rate of fuel was raising its costly head as the single largest expense facing the water company each year. Calculations showed coal to account for 17 percent of total operating expenses. In addition to cost, periodic strikes by coal workers caused delivery delays and demanded adequate stockpiling for future use.

On June 4, 1922, Dr. Jay L. Forewood, president of the company, died. The executive committee unanimously adopted this tribute:

Dr. Jay L. Forewood has been connected with the New Chester Water Company practically since its incorporation. Having been elected the director and president of the company in May 1885 and serving in both of those positions continuously until the day of his death. He was at all times very keenly aware of

all of the affairs of the New Chester Water Company. All his efforts were given toward the success and best interests of the organization and he always discharged his duties with a faithfulness and zeal. His high standing in the community and his unclenching honesty and integrity had always been a valuable asset to the company, and his loss is deeply mourned. His associates desire to put on record the deep sense of loss which they, as well as the New Chester Water Company, have sustained.

As the taste and odor problem persisted, more and more time was devoted to studying increasing industrial pollution problems as well as the source of supply. These studies covered the Delaware up to Philadelphia and the Schuylkill River, a serious point of pollution. Several float observations were made to determine the tidal movements and the length of tidal travel. Many chemical and bacterial analyses were taken. The purpose of all this was to compile data which would exclusively demonstrate the self-purification of the stream and the great oxidizing power of the river to destroy sewage discharged into it in Philadelphia resulting in its practical elimination before it reached Chester.

The drought of 1922 was said to be one of the worst in the history of the State Weather Bureau. Hundreds of water companies throughout the country experienced its devasting effects. Chester, though certainly tormented by the severe dry period, had no serious consequences. In fact, the quality of water reached its highest level of superiority and the taste and odor problem was negligible.

A new property at Front and Franklin Streets was added to the water company's assets in 1922. The site, purchased from the Pennell estate, included four brick houses which were in very poor condition. They were well-built, however, and repairs plus the addition of heat, electricity and plumbing made them ideal homes to rent to employees or others.

In addition to running its waterworks and keeping up with growth—and—problems, the company was determined to add revenue in the form of rents of this type and through prudent cost cutting. An excerpt from one of Mr. Walker's reports in 1923 illustrates this and gives a feeling of the era:

"Several months ago the horse, used in assistance in cutting of the grass around the Harrison Hill Reservoir and the adjacent properties, died. Power of some force was needed for the cutting of this grass because of the large area. It is believed that a small tractor can be used to better advantage for this work and can be operated at less expense than a horse. Mr. Coburn, the attendant at the reservoir, has worked out a scheme by which the tractor can be used in conjunction with an arrangement of mowers to cut the grass on the steep slopes of the reservoir banks thus requiring only one man instead of two men by hand operation. When not in use at the reservoirs, the tractor could be used to considerable advantage in some other operations. The price we were quoted is $547.50 for a Ford tractor."

Growth continued through the 20s and new sections of the city, such as Highland Park, were added. Homes were also popping up along Wilmington Post Road. Industry, though slower in its development than in the past, represented adequate business and the water company worked diligently to supply service to all.

Despite hard work and dedication, foul tastes and odors in the water were evident over and over again. Board member Osowski lived through this period and still grimaces at the memory of tap water.

"The water smelled terrible, " groans Osowski. "We drank more spring water than anything else. You could wash in it, and even though thoroughly treated, you still could not drink it because of taste and smell. Philadelphia water was good compared to what we had in Chester. You could see why the water tasted and smelled so bad because the Delaware River was polluted. I used to swim in it and always had oil on me! When you got past Eddystone Creek, the water changed color. The only

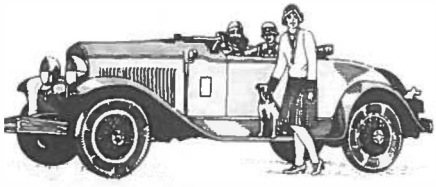
people who did not complain about the condition of the water were the people who were selling spring water. Even the Water Authority wouldn't drink their own water; they drank spring water," he concludes.

In the mid-20s a business depression hit Chester causing a substantial decrease in the water company's revenue. It was, thus, essential to raise rates and adopt service charges. Revised regulations and rates were written in accordance with the American and New England Waterworks Association. There were complaints concerning the increases and a lawsuit followed which was subsequently settled by compromise. The water company agreed to certain changes as follows:

1. No water will be charged to actually put out a fire.
2. The ready-to-serve charges for fire meters will be fixed at one-third of the charge of the general service meters instead of one-half of the charge.
3. The charge for each city fire hydrant will be reduced from $50 to the former charge of $46 per year.

By 1925, brighter days were dawning. Ford Motor Company acquired the Merchant Shipbuilding Company to erect an assembly plant. The plant actually opened its doors in 1928. Baldwin Locomotive Works was expanding and industrial activity was once again mushrooming. Optimism was at a much-welcomed high level. Almost everyone in Chester felt ebullient and confident that the city was about to embark on one of the greatest business booms in history.

The times were changing. Industry and frenzied business activity were portending coming crises. But who could see it? How could they when everyone thought they could be rich. During the period from 1921 to 1929, America's gross national product soared from $74 billion to $104.4 billion. Laborers' wives were affluent enough to wear silk stockings and their husbands sped about in fancy Niagara Blue Roadsters or Arabian Sand Phaetons.



During this period of high living and soaring fantasies, changes were taking place at the water company. At a special meeting held at Fidelity Bank Building, Philadelphia, on September 14, 1927, a monumental occurrence was recorded. Acting as chairman of the meeting was A. K. Little. Walter A. Culin acted as secretary. The secretary

presented written notices of resignation by every member of the board. Those who resigned were: H. Ashton Little, chairman; Isaac S. Walker, president; H. Boardman Hopper, treasurer; Walter Godley, assistant treasurer; Samuel K. Reeves, secretary; Sarah E. Murphy, assistant secretary; H. Ashton Little, vice president. On a motion duly motioned and seconded, the resignations were unanimously accepted. Nominations were then made to fill vacancies: president, B. T. Cheneries; assistant to the president, C. F. Kenzle; vice president, A. W. Cuttyback; vice president, Isaac S. Walker; secretary, Walter A. Culin; treasurer, Walter A. Culin; assistant secretary, W. F. O'Brien'; assistant secretary, J. P. Shaw, Jr.; assistant treasurer, W. F. O'Brien' assistant treasurer, J. P. Shaw, Jr.; assistant treasurer, E. F. C. Parker. These men were unanimously elected to fill the offices.

At the same meeting, a waiver of notice, signed by the new officers explains the drastic mass exit. The waiver states:

"We, the undersigned, being all the directors of the New Chester Water Company, a Pennsylvania Corporation, do hereby severally waiver all notice required by statute or otherwise of the time, place, or purpose of a special meeting of the board of directors thereof and do hereby consent that the same be held at the office in the Fidelity Bank Building in Philadelphia, Pennsylvania, on September 14, 1927, at 2:00 p.m. for the purpose of acting upon a proposed contract between this company and Pennsylvania Water Service Company to be dated September 16, 1927. Whereby this company agrees to execute an adherence mortgage covering all of its properties and franchises to the New York Trust Company dated August 1, 1927, and in consideration of Pennsylvania Water Service Company paying the funded debt of this company forthwith and making other agreements for the benefit of this company, for the purpose of authorizing the execution of the proposed adherence mortgage of this company to the New York Trust Company to be dated August 1, 1927, covering all the properties and franchises of this company, for the purpose of repealing the bylaws of the company, for the purpose of authorizing the indebtedness of the company from $3 million to $50 million, for the purpose of calling special meetings of stockholders to convene at the offices of the company on September 14, 1927, to take action on the proposed increase of indebtedness of the company and for the purpose of authorizing the officers of the company to make withdrawals on the accounts of the company and to borrow funds on behalf of the company.

And we do further consent to the transactions of any and all other business that may properly come before the meeting or at any adjournments thereof."

Under its new administration, the company's name was officially changed to Chester Water Service Company. Meetings were moved to Harrisburg and a more corporate attitude was assumed.

Just two years later, the blue skies and sunshine being experienced by many were replaced by one of the blackest periods in American history. The stock market crash on October 24, 1929, brought the nation to a screeching halt. Many people lost everyting but their lives. On Wall Street, every wall was wet with tears, it was sadly said.

President Hoover, eager to put the country back on its feet and restore confidence, announced, "The fundamental business of the country, that is production and distribution of commodities, is on a sound and prosperous basis."

The hard-working folks of Chester, like their contemporaries coast-to-coast, attempted to regenerate the zeal of earlier years. But the raging fires of enthusiasm were fleeting flickers as the city entered a new decade.

Though not as wide-eyed innocent as before, hard work and determination were undaunted by the economic travesty. Chester painstakingly plunged on to rebuild and restore its community.

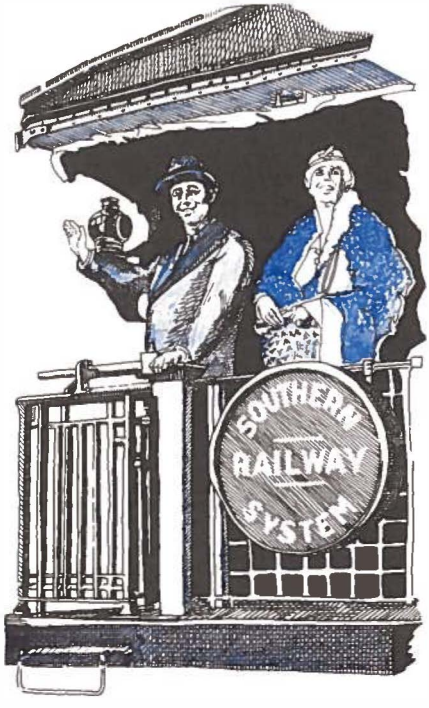
Not surprisingly, the water company was not only plagued by the travails of its consumers brought on by the stock market crash and early days of the depression, but with its same taste and odor problems, as well. In 1931, the board agreed with Mayor Peoples and City Council that rate reductions would be effected if a new source of water was not developed. James L. Rankin, counsel for many of the complainant industries, was instrumental in bringing action to force the water company to this position.

Rankin was a self-appointed consumer advocate and industrial watch-

dog who rallied to many local causes. Numerous citizens found him to be a continuous thorn in the side of progress, while others respected and admired his commitment to issues he felt were in need of improvement. He particularly rankled political leaders and was a constant adversary of Delaware County's number one political mover and shaker, John J. McClure. McClure did not hold office, but was powerfully influential in deciding who did.

Despite the havoc caused by the odor and taste of the water and the fury raised by the water company's critics, it maintained its quality service and continued to operate efficiently. The company's principal office was moved from Harrisburg to Wilkes-Barre for purposes of board meetings and similar business.

The company's objective, however, was to have an even smoother running system—an organization unprovoked by complaints and criticisms. To accomplish this goal, the company entered into an agreement with Utility Staff Service Corporation of New York City, on September 1, 1932. Utility Staff Service (USS) was contracted to furnish and render management services. USS was responsible for supervising the performance, purchases, activity, financial work and overall day-to-day routine of Chester Water Service Company. For these services, the water company paid USS $79.12 per month plus expenses.



The month following the new services contract, the board agreed to assist former employees in distress. The depression was causing growing hardship throughout the nation, and Chester was not untouched by the worst economic debacle in the county's history. The officers of the water company were authorized to spend up to $250 to provide relief to former employees. The donations were to be given at the greatest discretion to prevent loss of pride.

In March 1933, Franklin Delano Roosevelt was sworn in as the 32nd President of the United States. He entered the office on the day after the

banking system in the United States had collapsed. His cool optimism and personalized brand of leadership stirred the country out of its apathy and stimulated the action necessary to bring it back to its feet. There are those who criticized the new President's dictatorial character which caused considerable problems to business and industry. But the nation, wallowing in fear, was totally devoid of confidence. It took a man like Roosevelt with his "New Deal" and clear, deliberate messages to put spark in the fire again. Will Rogers described the situation very well:

> *"America hasn't been as happy in three years as they are today, no money, no banks, no work, no nothing, but they know they got a man in there who is wise to Congress, wise to our so-called big men. The whole country is with him, just so he does something. If he burned down the capitol, we would cheer and say, 'Well, we at least got a fire started anyhow.'"*

A month after Roosevelt took office, perhaps buoyed by his spirit, the water company decided to discontinue the services of Utility Staff Services and localize operations. Amendments were made to the bylaws and the company confidently forged ahead.

In the early and mid-30s, greater interest in the water company was exhibited by city officials. Rumors regularly were heard that the city was going to buy the water company. One critic of the impending purchase was James Rankin who, in his inimitably dour manner, was convinced a sale of this sort had to result in collusion. By 1938, in spite of his objections, wheels were set in motion to investigate methods to activate the sale.

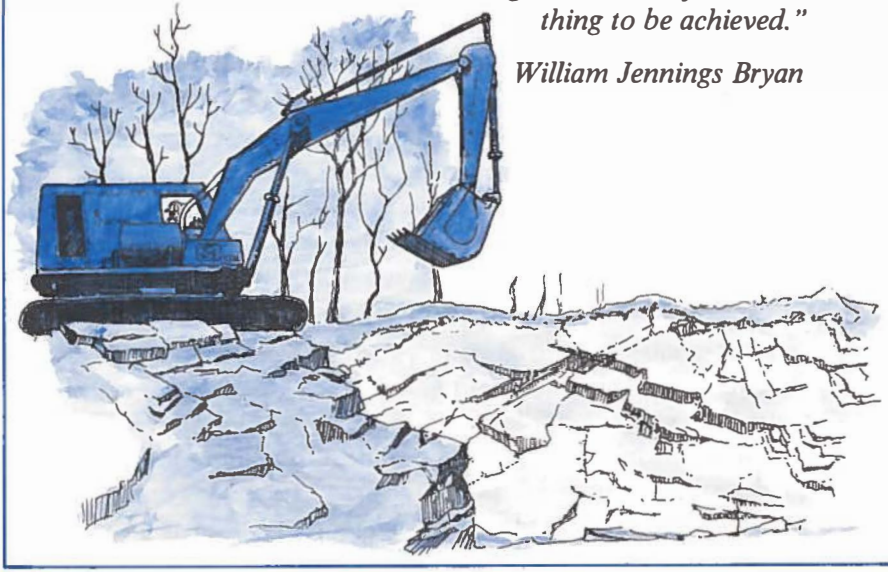
Part II

The Developing Years

1939-1950

"Destiny is not a matter of chance, it is a matter of choice; it is not a thing to be waited for, it is a thing to be achieved."

William Jennings Bryan



5
A Municipal Authority is Born

The people of Chester and its officials were firmly convinced that the water they were drinking (or more aptly were not drinking) had to be improved. Longtime residents recall standing in line at local springs to fill jugs with sparkling, wonderful tasting water. Actually, the foul-tasting, odoriferous water spilling from their taps was far more pure and safe than the spring water. But people just didn't care or, if they cared, they weren't convinced that something that tasted so bad could be more pure than spring water.

Judge John V. Diggins, longtime resident and local dignitary, recalls, "The water smelled bad. It made rings around the bathtub, rings around cooking pots. It was a horrible situation," he exclaims.

Another native, Chester Water Authority solicitor, Arthur Levy, remembers the water being unpalatable when he was a child.

> *"I have vivid recollections as a child of my mother, from time-to-time, heating the water in order to eliminate the repugnant taste. It had a somewhat, as I recall, metallic taste to it. I also distinctly remember, as a consequence of that, every family in our neighborhood in Chester visiting Chester Park every week to acquire water from the park's spring. They used to line up with their large single gallon or five gallon containers and that was the way the average family attempted to solve the problem."*

If the city could purchase the water company, everyone would be satisfied, it seemed. Work could begin on seeking a new source of water. The water company would be locally managed and better financed. The Municipal Authority would have a viable water company as an asset. It seemed ideal, but certain regulations prevented the city from an out-and-out purchase. But through careful study and research, a solution was reached.

A Municipal Water Authority was created on July 6, 1939. The first act of the Authority was to purchase the existing water company. This sale was rendered possible through an amendment entered into city legislature that allowed the water company's stock to be purchased by a group headed by John McClure. The Municipal Authority, in turn, bought the stock from McClure et al. The second set of sellers (McClure's group) made a profit of close to $250,000 which incensed Rankin when he learned of the sale.

As a result of growing skepticism and protest, criminal charges were brought against McClure, his partners, city council, all involved lawyers and the president of the water company. All were acquitted. A civil suit against McClure and his contemporaries ordered them to repay the $250,000. This decision, however, was reversed because the court found it to be a perfectly legal transaction.

In order to satisfy municipal requirements for purchase of the water company, it was necessary to have a report prepared evaluating the water system. This preliminary report to the city, which is represented in total, outlines the status of the water company at the time of purchase by the newly formed Chester Municipal Authority.

In a meeting of the new organization held December 8, 1939, Clifford H. Peoples, chairman of the Chester Municipal Authority, led the election of new officers. Those elected were: Edward D. McLaughlin, William J. McDowell, vice presidents; John T. Ross, treasurer; William P. Lear, secretary; and Peoples, president.

At the same meeting, Chester Water Service Company immediately transferred all stock and the title to all properties of the Chester Water Service Company to the Chester Municipal Authority. It authorized the issuance of bonds of the Chester Municipal Authority in the amount of $5,910,000 for the purpose of financing the cost of acquiring common stock and the payment of all indebtedness of the Chester Water Service Company. The total purchased involved the waterworks itself, 141 miles of water mains and 597 fire hydrants.

The stock was broken down as Aston Water Company, 50 shares of capital stock with a par value of $100 each; Chichester Water Company, 100 shares of capital stock with a par value of $100 each; Edgemont Water Com-

pany, 50 shares of capital stock with a par value of $100 each; Providence Water Company, 50 shares of capital stock with a par value of $100 each; and Upper Chichester Water Company, 50 shares of capital stock with a par value of $100 each.

The decade was about to end and enthusiasm was once again returning. Business and industry were pulsating at a more vigorous gait and the future looked promising. It's interesting to note that in that same year (1939) Rennie Dodd was appointed chemist and bacteriologist of the water company. His own personal enthusiasm would take him far in the company.

As the city of Chester and its fledgling municipally-operated water company prepared to enter a new decade, threats of war were crying out too loudly to be ignored. Germany was plundering its way through Europe and America was wisely readying its own defense.

6
Political Struggles Prevail

As the city of Chester entered 1940, it, like much of America, was rather complacent about the controversies brewing in Europe. The people were proud of their buying power, said to be the greatest per population of any comparable district in the USA. Home owners totalled 65 percent of the population and 40 percent of the residents were classified as middle income while 3 to 5 percent fell in the upper brackets.

Of the 65,000 population, 15 percent was black, 15 percent a variety of other ethnic groups such as Polish and Lithuanian, and the rest was made up predominantly of Irish, German and other Anglo-Saxon groups. Judge Diggins fondly recalls delivering a German language newspaper as a boy in the 5th ward.

Chester was a mecca of enjoyment and comfort. People had money to spend and enjoyed certain luxuries of life. The three movie theatres were very popular and, early in 1940, residents lined up to see the wonderfully romantic film of the old south, *Gone With The Wind.* There were bands to hear and dances to attend. Lovely shops lined city streets and thrived as residents maintained ample spending habits. No one seemed to worry too much about what was ahead, although many zealous Republicans voiced repeated concern over Roosevelt's impending plans to run for a third term as President.

The Chester Municipal Authority was operating under the leadership of E. F. Muser. The Chairman who replaced Clifford Peoples was William J. McDowell. Net income for the year 1940 was recorded at $177,060.60.

By 1941, the people of Chester were becoming more aware of the threat of war. The Republican convention, held in Philadelphia the

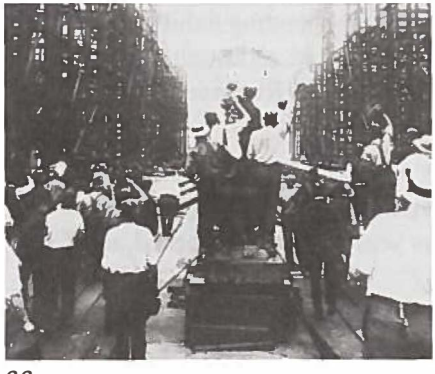
year before, had concluded with the launching of a little known Hoosier dark horse candidate named Wendell Wilkie. Wilkie's broad smile and enthusiasm, however, were no match for Roosevelt's charisma and appeal to the American majority. FDR had vowed not to send troops overseas to fight foreign wars and everyone wanted desperately to believe his promise.

By December 7, 1941, though, all hopes for peace were shattered by the Japanese attack on Pearl Harbor. Chester joined the rest of the country in preparing for war. Men and women throughout the city unified forces to represent the United States allies. The War Department had instituted the greatest recruiting drive in the nation's history and by VJ Day, it had put nearly 16 million people in uniform.

Many construction plans had to be curtailed during the war which created problems for the water company. The taste and odor problem prevailed and was a constant dilemma and cause for frequent attack by the media and self-appointed watchdogs such as attorney James Rankin.

In 1941, the water company's chemist, Rennie Dodd, was named Executive Manager. (His first year's salary was $6,000.00 with an increase of $500 the second year.) The board was led by Ralph F. Swarts during this period. (In 1943, he was replaced by Dr. Stoddard P. Gray.) James Rankin was often a source of discussion at meetings, meetings that all-too-often ended in frustration.

It was a time of war and the water company, as other industries, was involved in coming to the aid of national defense. At the same time, it was losing manpower necessary to continue with plans to meet increasing needs and it was unable to adequately attack the persistent taste and odor problem.



Rankin, although small in stature, was a monumental member of the community and known by everyone as a result of repeated queries and demands

for investigations of any number of municipal, industrial or business concerns. He was a grim man and not known to smile much, but he undoubtedly believed in what he did. Today, he might be compared to Ralph Nader who champions the consumer. Then, he was not thought of in quite the same manner Nader is. He, too, just like modern consumer advocates, often jumped the gun, but he continued in his pursuit of personal protection of nearly everything.

Dodd, his staff and the board were aware of the water's quality. It was far safer to use and drink the municipal water than that pumped at local springs and streams. The water was properly filtered and purified. Spring water wasn't, but people's tastes prevailed and newspaper warnings continuously mandated consumers to boil Chester Municipal water before using it. What could be done? Not much until after the war.

It was a period fraught with anguish for the Chester Municipal Authority. Complaints were unending. Investigations were rigorously sought. No matter what they did it seemed to be met with challenge and animosity. Costs were rising as a result of the war, yet they reduced residential consumer rates by 5 percent in September of 1943. While they praised customers for conserving water during wartime, they secretly wondered if the preservation was more taste-related than patriotic. The only real asset was the loyalty of employees. They had fully accepted all challenges and met obstacles head on with hard work and determination. That was worth everything to management and board alike.

7
A Taste of Wormwood

Harry S. Truman, a haberdasher from Independence, Missouri, took over as President upon Roosevelt's death early in 1945. The long war was finally at its end. But by the time World War II was officially declared over by the signing of surrender September 2, 1945, the Chester water problem had worsened despite dogged efforts to prevent offensive odors and tastes. The jubilation of victory and troops returning home put a temporary halt to complaints, but the cessation was short-lived.

"You would rather choke than take a drink," says Kathryn Peak, a former accounts payable supervisor with Chester Water Authority. "It was so salty, you just couldn't drink it. And other times, you couldn't pass a glass past your nose, the odor was so bad."

Miss Peak began her tenure with the water company in 1945 as a laboratory technician and retired in 1980. It was at the height of the city wide outcries for improved water and she remembers how hard they worked to alleviate the situation.

"That was my argument to foes of the water. I told them they were very lucky to have pure water and not to worry if it was palatable."

Michael Churi, retired controller and auditor for the Water Authority, who joined the company in 1942 recalls:

"You could almost smell something rotten in the water. It was similar to rotten leaves. I remember seeing signs in all the good restaurants: Our coffee is made with well water, not Chester Municipal Water!"

"Only the beer made with that water was good," laughs Cliff Rainey, formerly with the *Chester Times*. "Old Chester Brewery beer

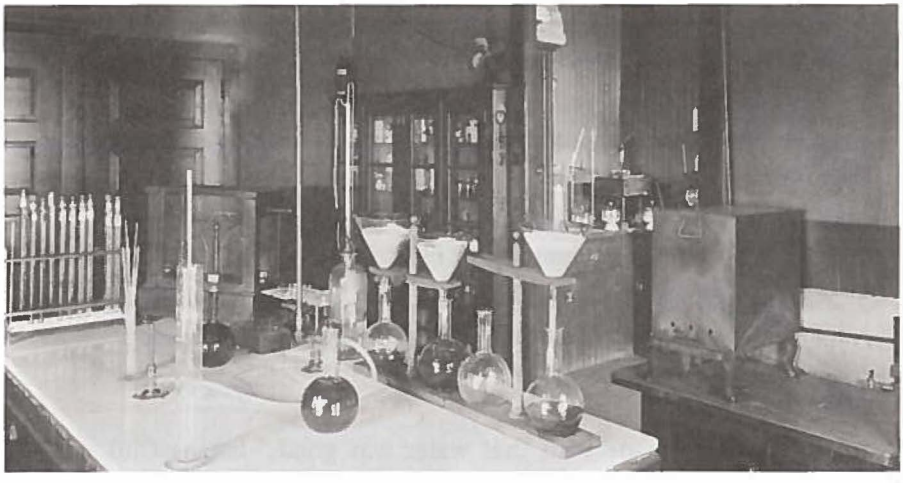
was known all over the country for its good taste, but the water by itself just wasn't palatable," says Rainey.

Although complaints and cries of outrage seemed to go on ad infinitum, board chairman (1957 - 1985), J. Newton Pew, remembers the situation being taken as a matter of course. "The water was terrible and you put ice in it to kill the taste. It came out of the dirty Delaware and tasted horrible, but it wasn't dangerous. It was taken for granted that people would go to the spring for water."

But when the war ended and construction activity regained its former vigor, consumers were no longer content to take the sad water situation for granted. The water company was heavily involved in upgrading the system and looking for ways to relieve its increasing load. A year earlier, arrangements were made to purchase water from Media's system to combat an overload problem.

It seemed futile to continue present methods of dealing with the taste and odor. They repeatedly looked to new sources and found them unsatisfactory. The purification methods worked for awhile, but the offensive taste and odor always returned.

Hope Craven, secretary to Peter K. Mac Ewen, Executive Manager and Chief Engineer and his predecessor, Victor Appleyard, recalls an experience shortly after moving to the area from New York in 1945. "I was referred to a wonderful hairdresser in Chester but was shocked when I went to her because of the odor of the water. When my hair was finished, it smelled so bad I had to go home (Swarthmore) and wash it again."



Leo O'Connor, who as a youth helped survey the site of Chester Municipal Authority's Octoraro reservoir, remembers: "At the time, regulations were set to allow 50 parts of salt per million parts of water. In the summer, Chester Water's salt concentration was as high as 1200 parts of salt per million! The Philadelphia sewage treatment plants at the time were not as satisfactory as they should have been and this, too, caused a problem in Chester. Heavy industry, as well, was a big factor in the contaminant problem along the Delaware, Chester's source for water."

Because of these problems they were unable to control, coupled with the frustration of providing excellent service and improvements to the system with no positive response from the public, the Authority felt it was time to go outside for help. The war was over. It was evident that building and baby booms were ahead. They could no longer make excuses for the unceasing taste of wormwood.

8
Bright Times Ahead

Early in 1945, the Chester Municipal Authority board agreed that outside consulting engineers were needed to research every possible source for a new water supply. Albright & Friel, Inc. of Philadelphia were called in to investigate the situation. The engineers didn't need much time to determine that the Delaware River had to be abandoned as a source of supply. Its ever present pollution and salinity intrusion made it an impossible body of water for use by consumers and industry.

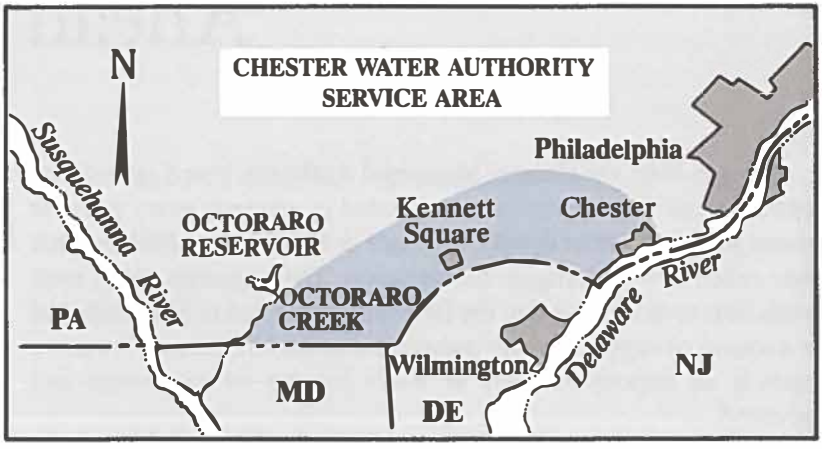
In the course of their research, the engineers, under the direction of Francis S. Friel, the firm's president, studied various streams as possible sources for Chester's water supply. Three of these were Crum Creek, used by Philadelphia Suburban Water Company, and Ridley and Chester Creeks, both used by Media Water Company.

All three bodies of water lacked ample drainage. Crum Creek's drainage area totalled 21.3 square miles, while Ridley and Chester exhibited areas of 18 square miles each. Another possible source, the Brandywine Creek, was committed to Wilmington, Delaware, and unavailable for additional usage by another authority.

By September 17, 1945, Albright & Friel had completed their investigation and dropped the big surprise. Chester Water Authority would have to go 40 miles west to find an appropriate source of supply. The Octoraro Creek, which forms the boundry between Chester and Lancaster Counties, provided all the necessary elements for a source of water supply to take Chester Water Authority well into the turn of the Century (2000) and beyond.

In reaching their final conclusion, the engineers had pursued all possible solutions to the given problem and had thoroughly studied all

previous reports made by the water company. They even re-examined the Delaware and sought viable methods of eliminating pollution, but it was impossible. Other surface water sites were explored, but when test wells were bored throughout the area, it was learned that the geological formation of the earth beneath this section of Pennsylvania was not the type which collects large quantities of surface water. Watersheds of the Red Clay, White Clay and Big Elk creeks proved to provide insufficient supplies.



Thus, the recommendation was made. Octoraro Creek it would be with its 139.6 square miles of drainage area. It was a beautiful, quiet pastoral fisherman's paradise, and offered the best available raw water supply in the area. It even had a past history as a water source when the Pennsylvania Railroad (PRR) had established a subsidiary Octoraro Water Company at Pine Grove in about 1906. Water rights from there to the McCrea pumping station, which is on the west branch of the Octoraro east of Quarryville, were owned by the railroad.

A low dam stored a sufficient amount of water to be pumped in the charming gray stone pumping house to the coal and water wharf on the main-line of the railroad at Coatesville. The development of the diesel locomotive made this water supply less valuable. The Pennsylvania Railroad was actually eager to sell its water rights to Chester Municipal Authority at a very reasonable price.

The railroad had originally purchased water rights on the Octoraro in 1905 for $356,138. Several thousand additional dollars had been invested in the construction of the dam and pumping station. Although PRR negotiators said the property was valued at $600,000, they sold their rights to Chester Municipal Authority for $233,000! For this sum the Water Authority was entitled to:

1. Water rights and physical property of the Octoraro Water Co. between McCrea pumping station and the Susquehanna River.
2. A low intake dam at Pine Grove immediately below Tweed Creek.
3. A water pumping station at Pine Grove.
4. A 12-inch cast iron force main between Pine Grove and McCrea.
5. Approximately 3,000 acres of land.

The Water Authority was ecstatic. This marvelous new source of supply would produce twice the volume of water presently being delivered and its potential capacity would exceed seven times present volume. It was a long awaited dream come true.

Chester had a great deal to look forward to in the years ahead. Houses were being built at a near phenomenal rate and Delaware County was among the highest ranking areas in home ownership in the nation. Automobile production was also on an upward swing and Chester residents were experiencing the joys of new car fever.

Television was a remarkable new addition to Chester homes. In 1947, the World Series was telecast for the first time and a former vaudevillian, Milton Berle, reigned for years as Mr. Television. By 1949, Americans were buying 100,000 television sets per week.

Perhaps, though, the biggest source of anticipation for Chester residents at this time was the impending water supply. They would no longer be the butt of bad water jokes or have to apologize for the taste and smell of their water to visitors from other areas. They would actually be able to go to the tap and pour a glass of water-and drink it without grimacing. A smile for a glass of water! Could it really be true?

A sad event occurred to dampen the otherwise buoyant spirits of the time. Rennie Dodd succumbed to a self-inflicted gunshot. It was never determined what caused him to take his own life, but numerous sources reported he was harrassed over investigations into personal spending habits. It was never found, however, that he had misappropriated any municipal authority funds. He was thought by all to be a fine, responsible citizen and an excellent manager of the Chester Municipal Authority.

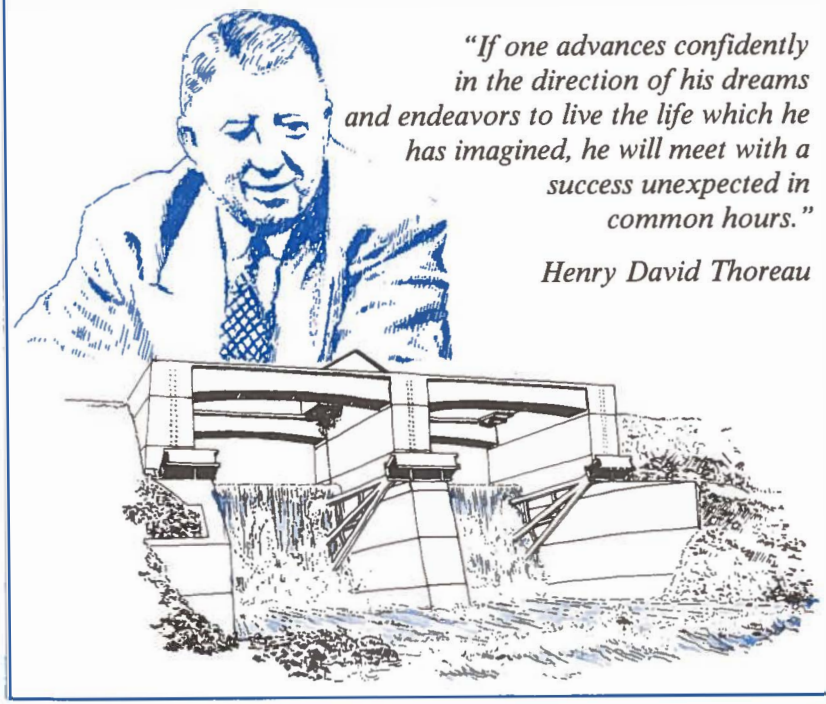
Clarence Conner replaced Dodd as the Authority's Executive Manager in 1948. Conner was well-known in Chester as a politician and member of the Delaware County Commission. The tall redhead, called "Red" on occasion, was instrumental in bringing all the pieces together to complete the Octoraro project. He was named Man of the Year by the Chester Businessmen's Association in 1951 for his indefatigable work on the project. Conner was well known by all his associates as a forceful, dynamic man—a man who got every job done. His employees respected his pertinacity. It made them more committed to completing each task.

By far the largest capital project ever completed by Chester Municipal Authority was the construction of Octoraro. As Chester settled down to a revitalized postwar era and entered the 50s, it was with heady aspirations of a bright future ahead, and certainly one boasting pure sparkling water in every home. That was something they had never before known.

Part III

Dawn of a New Era

1951-1980



"If one advances confidently in the direction of his dreams and endeavors to live the life which he has imagined, he will meet with a success unexpected in common hours."

Henry David Thoreau

9
The Mighty Octoraro

The 1950s brought about confusion among Americans. Though confident World War II was long past, they feared what was ahead as they plunged somewhat reluctantly into "cold war" in Korea. They built air raid shelters and talked nervously about H-bombs and Russia's impending threats to world peace.

But they also came to the rally of new diverse heroes such as Martin Luther King, Jr., who championed negro civil rights, and James Dean, a soulful-eyed actor who became a symbol of inner conflict and rebellion among American youth. Sports heroes included Willie Mays, baseball superstar, and a new magazine, *Sports Illustrated.*

Kids played with hoola hoops and went to 3-D movies. Everyone watched television and laughed at the foibles of Ozzie and Harriet, Lucille Ball, The Honeymooners, Little Beaver Cleaver and the Anderson Family led by a "knows-best father." It was a decade of paradoxes—fear of Russia and the bomb juxtaposed with sugar and spice situation comedies.

In Chester, the lifestyles were not much different from those in thousands of middle class cities and towns that dotted America coast to coast. But as Chester stepped into the 50s, one thing was different. They were welcoming the gift of water—pure water that tasted delicious—wonderful water that could be used right from the tap—precious drops of liquid that just couldn't be taken for granted by a city that had waited for 30 years or more to have good, palatable, usable water in their homes.

The anniversary edition of the *Chester Times,* September 7, 1951, featured the Chester Municipal Authority and the Octoraro development. An excerpt from the article researched and written by retired

reporter, Fred Echelmeyer, describes the course of events from the purchase of the water rights from PRR to the near completion of the project:

"From this start it was still a long financial and engineering haul to get Chester its new water supply.

Under the leadership of Rennie I. Dodd, who became executive manager in 1942 when E. Fred Muser died, representatives of the various civic service and labor organizations and the press had the great plan explained.

There was not one dissenting voice. The cost was to be $9,200,000. It was to be financed by subsequent bond issues, issued against revenues from water service.

After completing the purchase of the PRR property, the CMA then had to get permission from the Public Utility Commission of the state for the use of the water, and further negotiations had to be carried out with the State Water Power and Resources Board, and the State of Maryland, because the dam would effect the water flow in that area.

Meanwhile the directors empowered their solicitor, Ellwood J. Turner, to start the purchase of farm lands adjacent to the Octoraro, to provide for the basin to be eventually flooded, and procure an isolation strip of land between the proposed lake and the habitations to insure against contamination.

The first move was made shortly after the public announcement of the plan on October 1, 1946. Just 20 days later the CMA increased its water rates 51 percent, to be effective November 1, 1946.

A ripple of discontent followed this move, but the desire for water was wide spread, and the people realized that to get it would cost money.

Land was purchased through local agents in the Oxford area to prevent speculation because of the proposed water project.

When the problem reached the State Water Power and Resources Board in March 1947 opposition came from an hitherto unexpected source.

The Octoraro Sportsmen's Club of Oxford and the Chester County Federation of Sportsmen's Clubs opposed the application.

Their complaints of the destruction of a veritable sportsman's paradise failed to keep CMA from getting state approval for the project.

The engineers divided the project into the following general tasks:

1. *Building an impounding dam across the Octoraro to trap some 2.8 billion gallons of water.*
2. *Erecting a pumping station and filtration plant at the breast of the dam.*
3. *Building a reservoir on the highest land around, Oxford Summit, to get sufficient height to have the new water flow by gravity to Chester.*
4. *Building a pipeline from Oxford Summit to Chester.*
5. *Enlarging the reservoir capacity of Harrison Hill Reservoir.*
6. *Making what changes are necessary to the existing water distribution system in the Chester Consumer's area to take on the new supply.*

There was another problem, that of money. A bond issue had to be fashioned for advertisement immediately.

Without recording each bond issue, and giving its detailed processing, let it suffice that the Chester Municipal Authority did not construct the new water supply for $9,200,000.

Rising material and labor prices from 1945 to 1951 brought the cost to $14,800,000. All this money was supplied by bond issues, and at the present time (1951), there is an outstanding indebtedness of about $18,000,000.

This included the money borrowed to purchase the old water company back in 1939. The valuation of the plant today (1951) is nearly $24,000,000.

To assure sufficient returns from water rates to maintain an adequate borrowing capacity to make these outlays, the CMA increased its rates again January 1, 1949, this time 28 percent.

The announcement of the rate increase came late in 1948 and touched off a legal controversy that placed the entire water project in legal doubt and held up the completion of the development from 10 months to a year.

At this time Clarence L. Conner, former chairman of the Delaware County Commissioners, had been executive manager for over a year. He assumed his new post after the death of Rennie I. Dodd on his farm in Concord Township during the summer of 1948. Conner took over October 1 of that year.

James L. Rankin, local attorney, challenged the rate increases and filed two bills, in the county courts.

One was a bill in equity and the other on the law side of the court to restrain the Chester Municipal Authority from activating the rate increases.

Action came just as CMA was planning a new bond issue to get funds to build the pipeline, a sum of $5,700,000. Rankin asked the court to order the authority to return the extra money derived from the high rates, on the basis that the water charges were unreasonable and excessive.

Solicitor Turner, who had been a pioneer in the development project after taking over his chores from D. Malcolm Hodge, had since died, and J. H. Ward Hinkson was officiating as solicitor.

Hinkson went to bat for CMA, and a legal controversy started that did not end until Judge Henry G. Sweney of the Delaware County Court of Common Pleas had handed down a decision in favor of CMA, until the court en banc supported Sweney, the State Superior Court claimed it valid, and the State Supreme Court refused to accept Rankin's appeal. This last and final clearing action came on October 4, 1949.

This was the green light for the floating of the bond issue, and a casual review of the actions of subsequent board meetings shows how progress was made on the tremendous program.

Costing $1,482,442, the huge impounding dam neared completion by the end of September 1949. The million and a half dollar filtration plant was finished a few months before.

One of the biggest meetings held was the day the bidders collected to vie for the 40-mile pipeline contract. Twenty-two contractors turned out.

Six companies combined for the low bid of $4,931,598. The pipe was to be concrete, supplied by the Lock Joint Pipe Co. of East Orange, NJ, at $3,067,268.

Some mention should be made of the engineering difficulties and problems that faced CMA engineers in their huge task.

Of the three tremendous tasks facing the engineers, perhaps the most spectacular was the construction of a dam across the Octoraro Creek. This was the basic operation, and one undertaken immediately.

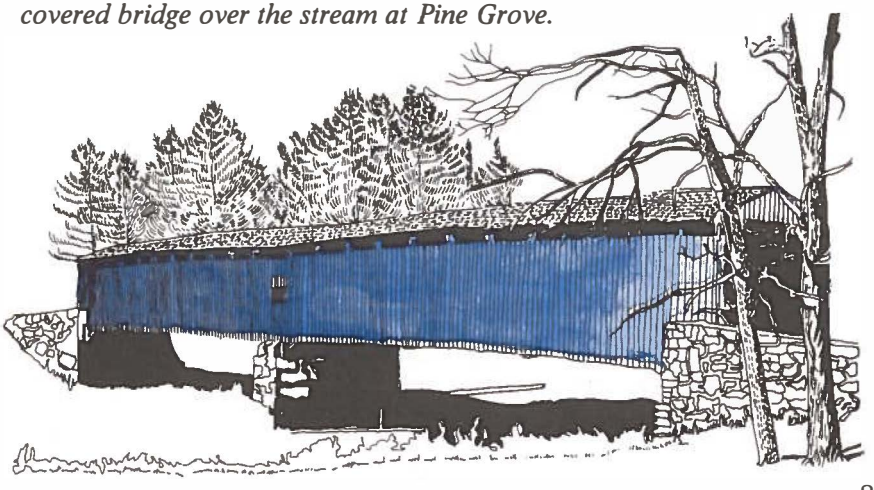
Plans called for an earth impacted barrier... to be composed of 290,000 tons of concrete, earth and rock. It had to join Chester and Lancaster counties, and form a 600-acre Lake in a meandering, two-pronged formation up the east and west branches of the Octoraro.

G. M. Brewster & Sons had the contract for the dam and spillway at a cost of $1,469,632.60, and they began their test borings in the quiet little valley west of Oxford on April 29, 1948.

First they cut off the tip of a granite hill which bounded the borders of the Chester County Girl Scout Camp Tweedale at the junction of the Octoraro and Tweed creeks.

The Octoraro was diverted and a temporary bridge thrown across, while 80,000 cubic yards of rock were excavated.

Upon this foundation the 50-foot "tainter gate" anchorages, intake pipes and spillway were erected. Tomorrow worked within sight of yesterday, as the workmen erected the giant structure a few hundred yards off the old double-span wooden covered bridge over the stream at Pine Grove.



The "tainter gates" are an improved version of the old type of spillway gates used for centuries. The difference was in their curved structure, permitting strength to combat the pressure of millions of gallons of water with a relatively small amount of structural material.

These gates, each weighing 75 tons, are operated by electricity. Against the failure of power, however, two gasoline emergency engines were mounted on the top of the housing structure, and should these fail, hand winches were provided.

This was to protect the homes and areas downstream through a fringe of Pennsylvania and down into Maryland to the Susquehanna from innundation should a great flood threaten the impounding structure.

Stretching across the creek valley, the dam emplacement proper was fixed by the engineers. It is 600 feet long. The structure was pinned on a thin line of interlocking steel piling which provided the core of the dam and prevents seepage through the giant barrier.

Upon this backbone, the giant earthmovers placed foot levels of specially chosen clay. Over this layer pounded sheepsfoot rollers, a type of steamroller, (although in modern times activated by diesel engines), with a series of heavy blunt projections on the cylinder.

Time after time these machines pounded the layer until it was packed into a six-inch veneer. Then another foot layer would be spread and pounded thin.

Eventually the dam took shape. At the base of this blunted triangle in cross section, the dam was well over 200 feet wide. It rose 55 feet until its apex was capped with a 20-foot wide road leading from the Lancaster County side to the gate anchorage on the Chester County side.

The face of the dam was riprapped with granite rocks to guard its surface from water and debris action. The downstream slope was also faced with some rock, and later honeysuckle was planted there to slow down erosion and rain water action.

When completed, the dam was an imposing structure, the gate housing and the two curved steel doors flanked on one side by the huge stone-studded barrier itself. For many months, however, the Octoraro had to run placidly through the open gate structure until the valley area intended for flooding was cleared. The gates were closed and the lake filled in the spring of '51.

Thousands of dollars were paid to contractors to move or demolish and cart away the debris of some 40 homes, cottages, barns, chicken houses and other farm structures in the area.

Every tree, shrub, fence or thicket had to be cut down to at least one foot height or removed entirely before the lake could be permitted to form.

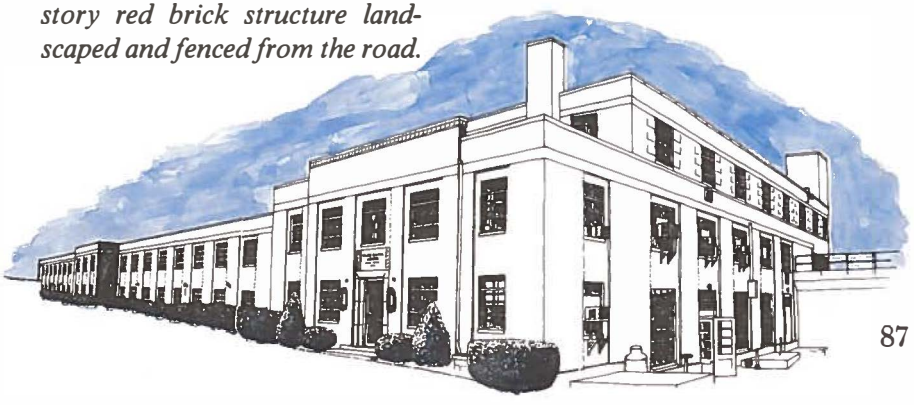
While this work was in progress the Progressive Builders, Inc. were at work about 1300 feet away around a ridge that formed the Lancaster County shoulder of the dam.

Here was constructed the filtration plant, settling basins and pumping station of the new water project. About 750 feet up the Pine Grove Road from the old wooden bridge, Dr. Stoddard P. Gray, chairman of the CMA board, turned over a gilded shovel full of earth on April 29, 1948.

In this cow pasture earth movers swarmed and soon an excavation 200 feet square and 75 feet deep was scraped out of Lancaster County. These holes provided the space for the gigantic settling basins for the filtration plant.

The cost was $1,388,369. Huge forms were made, and the entire area was made permanent with concrete that was specially cured to meet the water conditions of the future.

By October of 1948 the plant was 15 percent completed. September 7, 1951, waiting for the word to commence pumping water to Chester, the building is complete, an attractive three-story red brick structure landscaped and fenced from the road.



The engineers were faced with the problem of piping the water from Oxford to Chester...

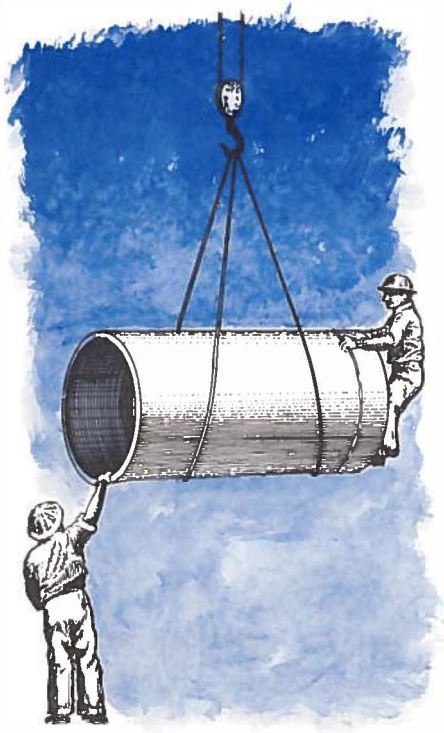
It was necessary for the CMA to gain rights of way through the countryside from Oxford to Chester. The pipeline proper was laid out to cover 40 miles at first, and at present it is 38 miles with two miles of connecting pipe additional.

Scores of agreements were reached with property owners to permit the pipe to be laid across their land. This with the land problems CMA had in procuring areas in the lake basin made a big task.

In the latter case agreements were made to exchange some farmland with farmers who had made a livelihood in the Chester and Lancaster Valley along the Octoraro for many generations.

In very few cases was the Authority required to start condemnation proceedings because negotiations broke down.

The selection of the pipe depended upon the lowest bid on the contract. As previously stated, the contract was awarded to the Lock Joint Pipe Co.



Specialists in making concrete pipe, the concern estimated it would need 12,000 sections of pipe 48 and 42 inches in diameter. To handle this project the company erected a special fabricating plant at Kennett Square at a cost of $100,000.

The Berlanti Corp. won the contract for placing the pipe in the ground and sublet the contract to Charles H. Smith & Sons, Inc. The last section of the pipe was placed in the ground at Village Green on July 9 of this year (1951).

The third project was reservoir storage space. The contract for the two areas, one at Oxford Summit and the other at Village Green, was let to several concerns, but the company supplying the new covered containers was the Preload Corp.

Calling their product "prestressed concrete tanks," they fashioned huge cylinders of concrete, wrapped with miles of high test steel wire, coil after coil, from bottom to top. In this manner great pressures are held with minimum structural support.

Capping the tanks the company built a dome on wooden scaffolding.

The top skin is made of concrete reinforcing steel gridwork with a skin of concrete up to six-inches deep. At the end of the pouring and curing, again the steel wire-wrapping technique is called into service. By tightly-wrapping the rim, the dome is stressed upward, off the supporting forms, and remains intact without any interior trussing.

At the time of construction, they were said to be the largest of such tanks in the world. Two were placed at Oxford Summit with a joint capacity of five million gallons of water, and four each of 10 million gallons capacity were built at Village Green on property acquired by CMA.

The work was not completed yet, however, with new pressures, a different basic source, and the desire to make the entire city equally available to the new water, CMA decided upon a huge renovation and extension program under the city streets.

First phase of this work was started November 22, 1950, when a contract was awarded to install a 20-inch cast iron feeder main on Edgmont Avenue from Welsh to 6th Streets; in Market Street from 6th to Front Streets, and from Market to Fulton Streets.

A 12-inch cast iron main was slated for 6th Street from Sproul to Welsh Streets.

Additional feeders were placed along Front Street (20-inch main), 2nd Street and Post Road between Fulton Street and Washington Street in Marcus Hook.

An 18-inch main was laid along Concord Road from Dutton Mill Road to Chichester Road to divert the new water to the West End and the Marcus Hook Region."

The eagerly-awaited Octoraro filter plant was placed in operation on Thanksgiving Day, November 22, 1951, over a month ahead of schedule. Conner had promised a Christmas launching of the new system, but company and crews worked against the clock to grant Chester a day to truly be thankful for.

The town was in a frenzy that day as close to 10,000 exhilarated residents greeted the $14,800,000 water supply. A recap of the event was reported by the *Chester Times* the following day:

"In a gigantic salute, the ceremonies came to a smashing climax with more than 75 volunteer Chester firemen erecting an eight-jet curtain of Octoraro water on the ball field behind the Deshong Art Gallery, while pyrotechnical engineers filled the black skies with ear-splitting bombs and colorful rocket displays.

Judge Henry G. Sweney, of Delaware County Court of Common Pleas, told the throng that water meant new life for the city, and pointed out that the initiative shown by the CMA board held a lesson to the city fathers.

He emphasized that there was a great need for planning and growth in the city and county, and pointed to such local problems as parks and recreation, traffic congestion, crowded schools and the need for civic pride and morale as fertile fields for vision and courage upon the part of all officials.

Thousands gathered at Deshong Park as much as an hour and a half before the ceremonies commenced. The smartly uniformed Chester Elks Band, under the leadership of Marlin O'Neal, formed at the Elks Home at 5th and Welsh behind a special color guard composed of Chester Policemen.

Leading the short but impressive parade was Chester Chief of Police and the Municipal Authority board of directors.

Judge Sweney said that Chester was taking a real stride forward 'with the opening of the valves that will release to its people and its industries new water, and we, the citizens, will accept this new advantage without too much thought about the real planning and work which went into this accomplishment.'

He said that 'new water means new life for Chester.' He spoke of the handicaps of industry in this area due to the salt in the water. He also stressed the possibilities of an epidemic from a polluted supply, and said that the new water points a lesson.

He stressed the need for planning and growth and lauded the vision of the local authorities in this step forward.

He lauded the work of the church of all faiths, and sounded a note in the communities... Churches for the future in these words.

'The coming of new water to Chester is not the end of accomplishment for us. It is just the beginning. It points the way to a more brilliant future. What future shall be is in the hands of the people of this community. Citizens participation in matters of public importance is our best guarantee of home rule, of freedom,' he declared.

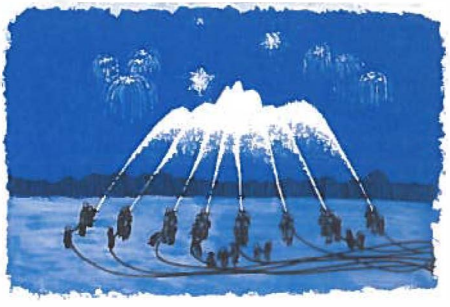
Then Judge Sweney ended with these words of commendation.

'On behalf of the people of Chester, we tender our sincere thanks and congratulations to the managers of our Chester Municipal Authority, to its solicitor, J. H. Ward Hinkson, and to its able executive, Clarence L. Conner.'

As Mr. Link's fervent prayer died on the air, Mr. W. A. Price stepped to the microphone and casting aside his usual reserve and dignity, yelled, "Take it away, Pecks."

This was the signal to First Assistant Fire Chief James A. "Pecks" Devlin to have his firemen erect their wall of water.

A huge search light that made up part of the unit of the Evening Bulletin *which joined the* Chester Times *and the city in saluting the new water supply, threw a shaft of light across the ball field, and eight huge streams of water shot into the air.*



Well behind the water, on the hill at the edge of Deshong Drive above Ship Creek Woods, the fireworks zoomed skyward. For about 15 minutes the horizon was punctuated by brilliant pyrotechnic bursts and loud detonations.

The crowd cheered, some babies cried at the noise, the fire sirens of the city blasted 15 raucous hoots, the sound truck played popular music, and the throng went wild with excitement.

All too soon the entire affair was over, and a bright 'good night' in lights originated at the launching platform of the fireworks display.

There were many interesting occurrences around the elevated platform where Reg Beauchamp, MC of the Bulletin *staff, held forth.*

Price singled out the five original purchasers of the Chester Municipal Authority water property who were present for the occasion. They were former Mayor Clifford H. Peoples, Edward D. McLaughlin, John T. Ross, William P. Lear and William J. McDowell, councilmen in 1939 when the Authority was formed.

Honored in death were the late Rennie I. Dodd, executive manager when the new project was formulated; former State Representative Ellwood J. Turner, former solicitor; and Thomas F. Feeley, a former board member of the Authority.

Alfred G. Hill of the Chester Times *was co-chairman with Price on the committee on arrangements, but illness prevented him from attending.*

Dr. Stoddard P. Gray, chairman of the CMA board, was honored by having the privilege of raising the national emblem as a rocket smashed the air and the Elks Band played the national anthem.

The crowds were stacked deep in the park, disappearing into the darkness on the edge of the park. The entire force of the traffic department of the Chester Police Department under Capt. Joseph Denmark and Sgt. Howard Winfree was on hand to maintain order.

At 6:30 p.m. promptly Edgmont Avenue between 12th and 9th was closed off to traffic, and Hanley and Moya fire companies moved in their 1000-gallon pumpers. Lines were run across to the field.

The firemen manning the hoses got the first official bath in the new Octoraro water, as the cascades of liquid fell on them. Luckily the weather was mild enough and their discomfort was to some extent lessened.

Engineers from Albright & Friel of Philadelphia who masterminded the technical details of the new project were on hand as was Alfred Estrada, vice president of the concern.

Many other business, industrial and civic leaders were present also. It was a great show for a great event in a city that may be feeling its potential greatness for the first time in the 20th century.

With rare modesty the men who were largely responsible for the entire celebration, Clarence L. Conner, executive manager of the Chester Municipal Authority, and the members of the CMA board, took no part in the program or limelight.

Dr. Gray did raise the flag, and he alone was shown to the throng. J. Harold Hughes and Mrs. Hughes, Mr. & Mrs. Frank G. Andrews and George F. Dougherty quietly took seats on the stand behind the art gallery, and listened like the other citizens."

It was a momentous year—1951. A new water supply, bright optimism and happy consumers at last. In addition, plans were set in motion for the renovation of the Water Authority's 5th and Welsh Street headquarters and its Front and Fulton Street pumping station was soon to be a part of history. In anticipation of increased revenues, the board also announced a decrease in rates to become effective January 1, 1952. Net income for the year 1951 was reported at $109,735.44.

10
Growing Strong

The growing up years for Chester Municipal Authority and its new Octoraro plant were important and vital to the Authority's history. Part of that value revolves around the people of the area.

The site of the Octoraro was nestled in rich, beautiful farmland and bountiful fishing acreage. No one is happy when their land is usurped for public *or* private enterprise. The residents were sturdy stock who took pride in their land and its serenity.

One of these people was a relative "newcomer" to the area. Charles Carlson wanted a quiet, inspirational spot to settle and paint. He needed a location near New York and Washington so he could easily meet with publishers of his many art books. He had been in South America as a government lecturer and had lived in the nation's capitol, as well. Though world-travelled, he took to the Village of Oxford like the proverbial duck to water and, with beret cocked, settled in with his wife to become one of the community's most outstanding and certainly colorful citizens.

Carlson was responsible for organizing an art club in the community which moved its meetings to the original PRR pumping station on the water authority's Octoraro grounds. The Octoraro Art Association has thrived over the years with Mr. Carlson as instructor. Each fall the Association holds a Picture of the Year Party which includes an exhibit of paintings by the members and a sumptuous buffet supper. Paintings are judged, traditionally by the Authority's Executive Manager and his wife and the Chief of Treatment and Pumping and his wife; awards are made and "best" in show is given to the Authority as the annual rent for use of the stone pump station built in the early 1900s. These paintings have been hung in the Authority's Administration Building since approximately 1955 resulting in a

sizable gallery of oils and water colors. The decor of the office is greatly enhanced by this colorful array of scenes and still lifes. Carlson, the eccentric and mirthful artist made fast friends with water authority executives and created many illustrations and paintings for the company's annual reports and headquarters. His friendship helped the authority gain greater acceptance in their new community, and the authority, in turn, aided in Carlson's many projects, such as an annual art competition and various exhibits.

As this friendship began to take shape in Oxford during the first year of Octoraro's operation, Chester residents were delighted with the results of the new system. Everyone was a lot happier in 1952. The rates had been reduced and the product was improved, a perfect combination for consumers. Water authority employees were enrolled for the first time in the federal government's Social Security program and plans were moving along smoothly for added construction to meet increasing demands.

Dr. Gray, board chairman, passed away in December of 1952. He had served as chairman for 10 years and was deeply missed by board and water authority associates. His board vacancy was filled by Peter Murphy. The chairmanship was assumed by Frank G. Andrews.

Peter Murphy for over 30 years served on the Board of Directors of the Authority from January 13, 1953 until June 16, 1983 at which time he resigned due to health problems. During the 1950s Pete Murphy served one term in the Pennsylvania House of Representatives representing the Chester District and its citizens in Harrisburg. Murphy is a colorful man who still retains some of his original Irish brogue and the corresponding Irish wit to go with it. One matter that Murphy was quite serious about was the Chester Water Authority and the need to maintain the credibility of the Authority at it highest level. At this writing Pete Murphy is retired and continues to live in Chester and on occasion he will call the Authority to

find out about the latest activities in which he was always so interested.

During the early 50s work continued at a steady pace at the Octoraro site. Construction continued to accommodate the growing customer load. In 1953, alone, 627 consumers were added to the system bringing its total that year up to 23,214. The same year, the water authority assumed the cost of an employee retirement program to supplement social security benefits.

The Superintendent of Production at the new Octoraro Treatment Plant and Pumping Station was Kenneth Armstrong. He was an Iowa University graduate with a M.S. in Chemistry and had been with the Chester Municipal Authority since 1942. He had extensive experience in water treatment in both North and South America and, when the Octoraro Treatment Plant was completed in 1951, Armstrong was the individual who was responsible to get the plant started and running. He retired in 1961 and in the words of Clarence Lloyd, who worked under Armstrong starting in 1950, he was an outstanding water treatment plant superintendent.

One of the initial projects at the Octoraro was the planting of trees. Hugh W. Hetzer, retired superintendent of production at Octoraro, smiles as he remembers the trees.

"We used to plant about 30,000 trees per year and that went on for quite a number of years. The Octoraro was ringed with evergreens to prevent falling autumn leaves from deciduous trees from getting in the reservoir to cause taste and odor problems. We planted spruce, Boston fir, Austrian pine and red pine," says Hetzer.

In 1952, Chester celebrated with the rest of the nation when Dwight David Eisenhower was elected President. Most people in Chester felt that America had come home as the broad-grinned 40-year army veteran took office. Even his opponent, Adlai Stevenson, admitted, "I like Ike, too!"

And so times became more settled. People took up golf, Ike's favorite sport, and women imitated Mamie's famous bangs. Backyard barbecues blazed and everyone marvelled at Marilyn Monroe's beauty.

By 1956, Chester Municipal Authority operations were at the highest level in the history of the company. In 1955, the demand exceeded the filter capacity at the Octoraro treatment plant. For many weeks during the dry season that year, these filters produced 22 million gallons of water per day. Average production at the time was 18 million.

Consumers were continuing to be added and production was up by 16 percent from 1954 to 1955. It was evident that a program to meet increasing needs was of the utmost importance. But rates had recently been reduced by 12 percent in order to keep a promise made in 1949, the year rates were increased to supplement costs related to planning and construction of Octoraro. Now tariffs were at 1948 level.

The demand for water was so great, however, that the authority board felt confident net income wouldn't be affected. So they launched a program to enlarge mains in various areas throughout the system and to expand the filtering plant. With the expansion, the plant would increase its daily production capacity from 18 million gallons to 30 million. Revenue bonds were sold for $1,431,000 to finance the new projects.

The impending 1957 completion of the addition to the filter plant enabled the Water Authority to negotiate a 5-year contract with the Philadelphia Suburban Water Company. Beginning in 1957, the neighboring company would purchase a minimum of 740,000,000 gallons of water each year at the current rates of 1956. Projected revenue from this agreement was calculated at $110,000. Early in 1957, the Water Authority began work to connect its system to Sun Oil Company. The busy oil company required five meters.

Frank G. Andrews passed away March 30, 1957. His term as chairman of the board of Chester Municipal Authority, though short, was a fruitful one. He was active during a period of tremendous growth and was instrumental in the progress of the company during his tenure.

J. Newton Pew

Andrews' board vacancy was filled by J. Newton Pew, who was subsequently named chairman in 1957 and went on to serve on the board for over a quarter of a century, until his death in 1985.

Mr. Pew, a navy veteran of World War II, was president of the Delaware County National Bank (later Southeast National) and active in numerous civic affairs. He came to Philadelphia from Pittsburgh as a youth when his father joined his cousins in the operation of Sun Oil Company.

Shortly after the war, Pew joined the Delaware County National Bank as a cashier. By 1950, he was Executive Vice President and in 1952, the economics scholar was named President.

Mr. Pew's style of leadership for 28 years as Chairman of the Board has resulted in a professionally managed organization which is well recognized in the water utility industry. Mr. Pew, as Chairman of the Board, had always insisted on the Board establishing broad policy and then seeing that those policies are implemented and carried out by delegating authority through an executive manager who, in turn, delegates to a fully qualified staff of professionals. In this manner the day-to-day operations of the Authority are carried out by staff and reports are made to the Board of Directors at the regular monthly meetings.

The same year Pew joined the Chester Municipal Authority board, another change was made. The first woman member was added. Mrs. Frances P. Donahoo stepped into the unexpired term of Lt. Col. Clarence J. Starr, board treasurer and a member since its inception in 1939. Mrs. Donahoo, wife of Chester health officer, Dr. Harry C. Donahoo, was also a member of the school board. She was elected assistant secretary-treasurer.

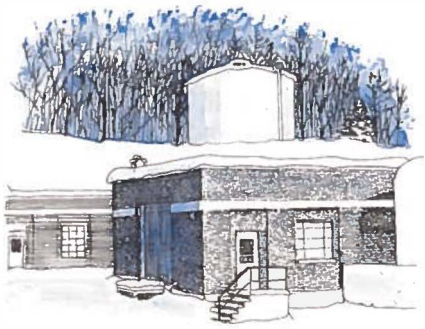
By June of 1957, the new filtering plant addition was complete. In addition to a normal 30-million-gallon per day production capacity, the expansion enabled the plant to produce up to 37.5 million gallons per day.

There's often much truth to the superstition that if things are running too smoothly, beware of bad times ahead. The new filtering plant addition was in full operation, net income was up 33.9 percent over a five-year period despite rate reductions and a severe drought during the summer of 1957 had not required restrictions on water consumption. The Octoraro Lake had fully taken care of all consumer needs and Chester Municipal Authority achieved nationwide respect within the industry.

But the winter of 1958 proved to be disastrous for the Water Authority, particularly the employees at Octoraro. Three feet of snow

fell very straight and very fast with no wind to circulate it. The electrical wires at the plant were broken under the snow's heavy weight.

"It was a grueling time," recalls Dick Sutton. "We had no way to operate the pumps or machinery to treat the water. We lost one-half of our supply of water to Chester. At the time, there were 10 employee houses on-site and these homes were without power for over a week. We had no kerosene stoves, so it was bitterly cold. Fortunately, we got the power at the plant restored in 24 hours, so employee families were able to take turns staying there until the homes were livable."



Clarence Lloyd remembers working round the clock to keep water flowing. "Several of us worked for 24 hours 'til the power was restored. We operated a small, one cylinder, hand generator to keep the water out of the sump pumps and prevent it from building up under the plant. We just moved from one sump pump to the next all night long," he says.

The crisis was taken in stride and work went on as usual. But the board management was looking to the future as they prepared for the 60s. They had seen a steady increase of water consumption. In fact, in the decade since the Octoraro site was purchased, consumption had increased about 50 percent.

That incident prompted a study conducted by Albright & Friel. It proposed that the standby pumping station at the Pine Grove filter plant be equipped with two dual drive, diesel engines and electric motor pumps, each capable of pumping 12-million-gallons of water daily.

The study showed that water consumption demands would exceed the exisiting supply by 1966. The engineers recommended construction of a $1,755,000 project to increase pumping and storage facilities. They suggested a standby pumping station at the company's Pine Grove filter plant, construction of two 10-million-gallon steel storage tanks at Village Green and the purchase of additional land adjacent to the filter plant for future extension of filter facilities.

The standby equipment could be operated electrically, they said, but in case of power failure or other emergencies could be run by diesel

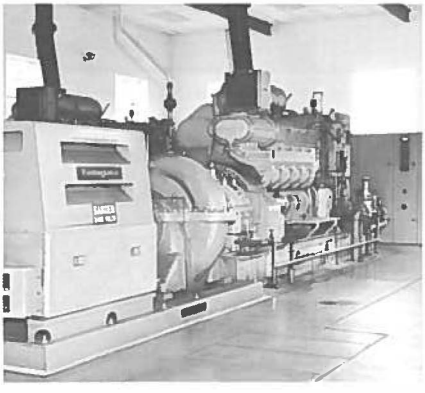
engines to keep water flowing. In addition, they recommended auxiliary generator equipment to be used in conjunction with the diesels to provide some electrical power for the plant independent of power lines if necessary. The pumping station recommended by the engineers was to be designed to permit installation of a third standby pump at a future date if required.

At the time of the study (1959), the Water Authority's storage facilities totaled about 52.5 million gallons of water—40 million gallons in four storage tanks at Village Green and 12.5 million gallons in Harrison Hill reservoir.

In the event of a breakdown in the pumping system at Pine Grove, the present storage capacity was sufficient to meet water consumption demands for 2½ days.

Immediate addition of two more storage tanks, with a total capacity of 20 million gallons at Village Green, plus future addition of another two tanks to increase total storage there to 80 million gallons, was recommended. Albright & Friel estimated that the filter plant would reach capacity by 1968 or 1969 when it was expected about 12 million gallons daily capacity would have to be added to keep up with water consumption demands.

The engineers suggested nearby land be purchased in preparation for anticipated expansion of filter plant facilities at some future date. Looking into the future, Albright & Friel estimated further extension of supply and purification facilities would be required and suggested construction of a second dam upstream from the present dam to increase the safe yield of the Octoraro Creek to 50 or 60 million gallons daily.



A decision was made early in 1959 to proceed with an expansion program which would cost nearly $3 million. When complete, Chester Municipal Authority would have a four-day reserve supply of water.

The year began with construction optimism and ended with a tax fight. City Council proposed a 10 percent tax on Chester Municipal Authority's gross receipts, the first tax of its kind to be levied in Pennsylvania. Executive Manager Conner and the board's solicitor, J. H. Ward Hinkson, agreed that a challenge to the legality of the tax

was in order. The city's purpose in waging the new tax was to prevent the need for imposing local income tax or increasing sewer rentals. The municipal water tax was expected to bring the city about $190,000. Conner explained the authority's position in a newspaper article:

"Gross revenue of the Authority will run about $1,900,000 this year and the CMA expects nearly $500,000 net revenue out of this, Conner added.

The Authority now uses surplus funds to buy back its own bonds or investment in government bonds when none of the CMA bonds are available. Thus, the surplus is used to reduce the bond debt or to earn interest for the Authority rather than remaining idle.

Although the proposed tax will reduce the CMA surplus, the Authority will still repurchase as many of its bonds as possible while cutting down on investment in government bonds."

The results of the tax battle favored Chester Municipal Authority. City Council agreed to drop the proposed tax and continue cutting operating costs and capital expenditures to absorb the $190,000 loss in anticipated revenue. The tax was declared illegal by President Judge Henry G. Sweney and when reopened on appeal, it was dismissed by Delaware County Court of Common Pleas with the tax ordinance declared null and void.

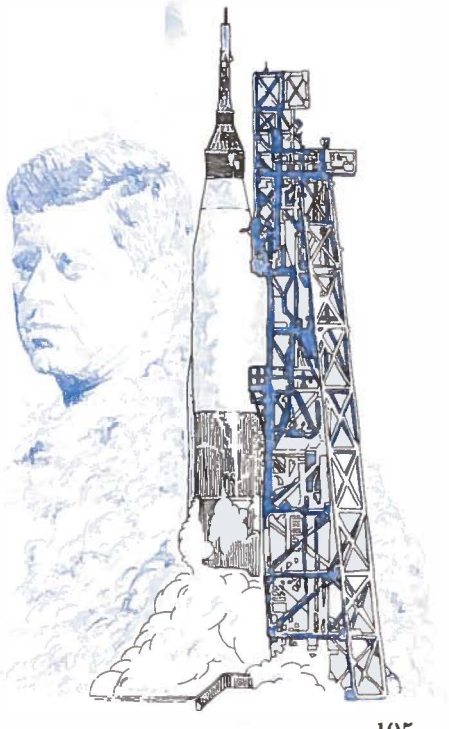
Another challenge had been met and won. Now the Chester Municipal Authority looked toward greater challenges and even more success ahead.

11 Profit and Progress

The 60s were fresh and new, and its youth were dedicated to doing something constructive—something worthwhile for mankind. A dynamic new President, John Fitzgerald Kennedy, was in the White House, the youngest man ever to hold office. His words echoed the sentiment of the country.

"We stand today on the edge of a new frontier—the frontier of the 60s, a frontier of unknown opportunities and perils, a frontier of unfulfilled hopes and threats."

The threats and hardships seemed worthwhile. Young and old alike joined the Peace Corps, held hands in social sit-ins and peace marches and paused to pray for world unity and an end to needless war.

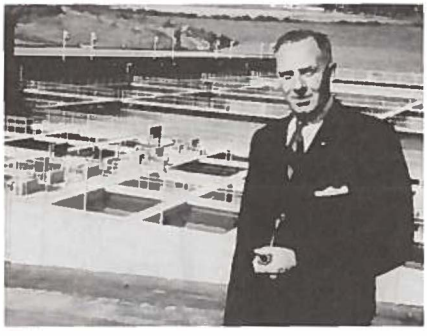


It was an age of new technology and imagination-boggling events. On May 5, 1961, Alan B. Shepard, Jr. soared 116 miles into the ionosphere aboard the Mercury Capsule Freedom 7 for 15 minutes and 22 seconds. That first flight in space by man reached a speed of 5,100 miles per hour. Shepard's flight was quickly followed by Virgil I. Grissom who barely escaped drowning after a near-disaster splashdown. On February 20 1962, John Glenn became the first American to orbit the earth.

The residents of Chester began to experience the changes of the 60s. Some of the former comaraderie was ebbing as young and old, black and white saw different viewpoints, but most people felt changes were necessary to progress.

In 1960, Chester Municipal Authority experienced a grave loss. Clarence Conner, Executive Manager since 1948, passed away. His many friends, employees, business and political associates were deeply saddened by the loss. Michael Churi, who had worked closely with Conner for years, remembers him as the finest man he ever knew.

"He was a great executive. He had tremendous foresight and really knew how to get any job done. He was largely responsible for the Octoraro project. He wasn't afraid to tackle any problem, no matter how large. And he usually succeeded in solving it. He was just a master at his job."



Victor A. Appleyard joined the Chester Municipal Authority as Executive Manager. He subsequently became the Authority's first Executive Manager and Chief Engineer. Prior to coming to Chester, Appleyard was with the Philadelphia Water Department. He was a graduate engineer from Tufts University and brought a wealth of technical knowledge and experience with him.

One of Appleyard's earliest tasks was to organize and map out the system. Hope Craven, his secretary, remembers him setting out to build up the engineering department.

"A lot of the information about the Authority was merely in people's heads," says Craven. "He went to staff members, like Ed Gebhart, who knew where every valve and pipe was. Armed with this information, he prepared maps. It was very smart, because who would know those details after someone was gone if it wasn't on record?"

Another project instigated by Appleyard was the move from one side of 5th and Welsh Streets to the other. The site of the former Starr,

Hoskins and Harvey Schools was purchased in 1961 for $75,000. The school buildings were demolished that year and construction of the modern two-story administrative, engineering and commercial quarters began in 1962. The company had simply outgrown its existing offices and projected growth plans did not permit use of the small headquarters any longer. Total cost of the project including purchase was estimated at $265,000.

As 1963 drew to a close, Authority employees were settling into their new offices. The building with its popular drive-in bill paying window promised to provide officers, employees and customers with highly functional facilities far into the future.

The company continued to organize its maps and charts of the underground distribution system. The records were scheduled for completion by 1966. More modernization came in the form of a two-way mobile radio system. In his message to stockholders Chairman Pew looked to the new system to provide the most up-to-date means of communication within the organization and to improve employee efficiency, provide better service to customers and handle emergency situations more expeditiously. The company, in addition, began investigating means to increase its source of supply to meet demands of the next 25 years.

Nineteen-sixty-three was a tragically memorable year for the United States. President Kennedy was struck down by an assassin's bullet on November 22nd in Dallas, Texas, while the world watched the travesty on television. The event set the stage for coming years of violence and fear as once bright faces turned dark and sullen out of confusion and regret for what they saw happening all over the world.

The times were more solemn and Chester joined the rest of the nation in its hopes that Lyndon Baines Johnson, a rough-talking

Texan, could turn the tide of tragedy back to the optimistic promises of a new frontier made by Kennedy.

As they set about trying to be normal again, residents of Chester experienced an old familiar malady—the bad taste and odor of their tap water. "Oh no, not again," was the common cry among consumers.

The problem was a result of an unusually hard winter. Frost was so deep that the water was unable to filter through the earth, and instead ran off the surface, carrying with it leaves and minerals into streams feeding the reservoir.

The reservoir was frozen to a thickness of 16 inches. It held in all the gases which created the bad taste and odor of the water.

Hugh Hetzer recalls the incident because it occurred shortly after he joined the Authority. "There are many dairy operations on the watershed, and they spread manure on their fields as long into the winter as they can. The ground froze so solid that year that the manure just stayed and in the spring it all washed into the reservoir which caused the horrendous odor. The water was very pure. It just smelled bad," says Hetzer.

A combination of chemicals including potassium permanganate and the natural change of the reservoir's characteristics resolved the problems. Quality control was always a matter of course with Chester Municipal Authority, not just during problem periods. Chemical and bacteria tests at the time were run as often as every two hours round the clock each year.

Chester Municipal Authority celebrated its silver anniversary in 1964. There was a great deal to be proud of. The Octoraro was proving to be a powerful and nearly problem-free source of water. Industry leaders from throughout the country were looking at the thriving Chester system with respect and admiration.

A new booster station, begun that year at Village Green Tank Farm in Aston, was near completion. It would serve a high ridge on the border of the Authority's service area for a projected growth of 2,000 new customers.

Net income was up from $900,102 to $968,660, a substantial increase. The rise was attributed to reductions in operating expenses and high interest rates through investments.

Customer demand had increased so rapidly that the Authority found it necessary to plan expansion of the entire system. By 1966, the projected increase in source of supply was expected to be adequate enough to provide for demands until 1990. An initial bond issue of approximately $4.5 million was set aside to pay for stage one of the expansion program.

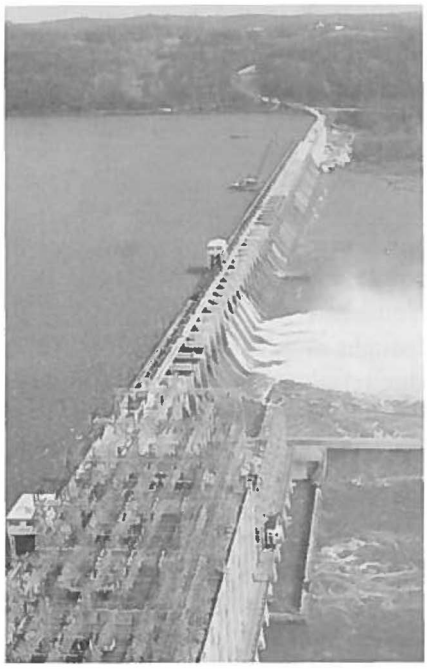
By the mid-60s the country was torn apart on the issue of Vietnam, the war no one really wanted nor could quite understand. President Johnson had promised to stay out of Southeast Asia, but seemed powerless to keep his word. Americans sought mystical and bizarre symbols for peace. Gurus, love beads and psychedelia became part of the culture and more conservative folks shook their heads in horror and regret at lifestyles they simply couldn't understand.

In Chester, problems were increasing. The once prestigious suburban middle class mecca of shops, clubs and fine restaurants was changing its facade to dirty, overcrowded apartments and street corner rowdiness.

The beginning of the city's decline is pinpointed after World War II when its housing code was relaxed. Owners of many of the fine old homes converted their properties into boarding houses for the influx of defense workers. The apartments satisfied a temporary need, but when the war ended, hundreds of workers left dozens of three-story dwellings behind. The homes had been carved into substandard housing which were unattractive to new tenants. Plus, many of these unemployed workers opted to remain in Chester which created another set of problems. No ready solutions were available and the city became a blighted area losing many of its former residents.

Chester Municipal Authority, however, maintained its bright, modern downtown offices and continued to provide the same quality service it had always been recognized for. In 1965, the company's name was changed to Chester Water Authority. It was a sensible transition because municipal authorities encompass parking lots and other city functions unrelated to water supply and service. At the same time, the Authority's life was extended to 2015, thereby permitting it to offer a supplementary 40-year bond issue.

Because of a severe five-year drought condition, in the mid Sixties Chester Water Authority and its customers became keenly aware of the value of adequate water supply. A 10-year expansion plan to combat future drought problem situations initially allowed for the withdrawal



of 30 million gallons of water per day from the Conowingo Pool of the Susquehanna River.

Expansion continued well into the 60s, and the Authority committed itself to providing the finest service and the purest product. Its largest customers included Sun Oil Company, Sinclair Refining Company, Allied Chemical Corporation General Chemical Division, Reynolds Metal Company, FMC Corporation American Viscose Division, Scott Paper Company, Congoleum-Nairn, Inc., Sun Shipbuilding & Dry Dock Company, Philadelphia Electric Company and Philadelphia Quartz Company.

A dramatic event occured in 1968. A navy jet airplane rammed into a 10-million-gallon Chester Water Authority tank in Aston. A 20-foot high wall of water washed down a hill opposite Concord Road. Fortunately no one was injured. Ed Gebhart remembers the incident clearly and feels a miracle saved lives and prevented serious injuries. "The plane hit on the left side of the tank. Trees nearby were set off like matchsticks. If there had been anyone down there, I don't know how they could have been saved," says Gebhart.

A newspaper report, in part, describes the crash:

"It looks like somebody bombed the damned thing."

The speaker was a volunteer fireman who was ankle deep in oozing mud.

All around him were chunks of concrete and twisted steel cable. He was bending over a piece of metal no bigger than a cigar box.

A few minutes before, that piece of metal was part of a sleek, shiny jet fighter plane.

Now it was wreckage.

A few minutes before, the concrete and steel cable was part of a sturdy water tank. It stood 45 feet high and had a 220-foot diameter.

Now it was wreckage.

And the volunteer fireman was standing in mud that had been dry land only minutes before.

Things have a way of changing quickly—especially when a jet plane smacks into a 10-million-gallon water tank."

By 1972 the Authority had constructed a 10-million gallon steel storage tank to replace the destroyed tank. The complete cost of the tank, associated piping and facilities destroyed approached $1 million and the Authority was reimbursed in that amount by the U.S. government inasmuch as it was a U.S. Navy plane that caused the loss.

In the late 60s television played a powerful role. With the help of a multi-million dollar campaign, Richard Nixon, who had been sorely defeated by John F. Kennedy in 1960 and by Governor Pat Brown of California in 1962, came back to soundly defeat Hubert H. Humphrey. His speechwriters, public relations counselors and makeup artists deserve equal credit for the victory.

During the same period, TV viewers were learning about the attributes of fluoride via toothpaste commercials. Tooth decay, it was proven, could be drastically reduced by the addition of the chemical.

In 1968, fluoride was added to the water purification system. Added that first year was 1.0 parts fluoride per million which was the accepted safe level and yet effective in control of dental caries (tooth decay), particularly for children.

The cost to fluoridate the system was $8,000 which included the installation of equipment at the Octoraro Reservoir. The fluoridation program was instituted later than some of the nearby systems because the Authority felt ample time was needed to study all sides of the issue and prevent any controversy from anti-fluoride groups.

Nineteen sixty-eight brought other progress, as well. A $733,435 contract was awarded for the installation of an 11-mile pipeline for the Octoraro pumping station. The pipeline,

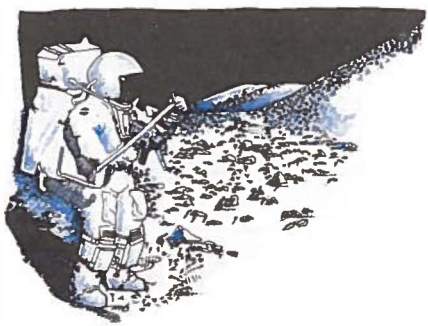
when complete, would extend from the Conowingo Basin of the Susquehanna River to the upper branch of the Octoraro Reservoir. The new line would enable the Authority to pump 60-million-gallons of water per day instead of the 30 million being pumped at the time.

Robert Naef, a Registered Professional Engineer, who is presently the Chief of Operations & Assistant to the Executive Manager, joined the Authority in 1968 and recalls many changes and improvements that have taken place in the last 16 years.

He points out that from 1951 when the Octoraro Treatment Plant was put on line until 1968, the Authority did not own or operate any pumping stations along the transmission main between Oxford in southern Chester County and the Village Green Tank Farm in Aston Township, Delaware County, a distance of approximately 35 miles. It was after 1968 that the Authority's policy was changed to provide for water service to customers along this 35-mile transmission main. Currently the Authority has many facilities and customers between the Octoraro Treatment Plant and the Village Green Tank Farm which has resulted in the Authority being recognized as a regional authority serving customers in two counties.

In 1969, Chester Water Authority purchased a pumping station and water line from Delaware County. The system was used to service Broadmeadows Prison, and would be further utilized by the Authority to provide water and service to Cheyney State College. The Authority agreed to assume the county's responsibility for supplying water to the prison in Thornbury in addition to providing the new service to the college, also located in Thornbury. The cost of the purchase was $41,364.

As the last year of the decade drew to a close, there were a wealth of memories to contemplate, some exciting, some poignant, some tragic, but all thought-provoking. Senator Robert F. Kennedy and civil rights leader Martin Luther King, had both been slain the year before. President Nixon ordered 25,000 U.S. troops to be withdrawn from Vietnam. Astronauts Neil A. Armstrong and Edwin E. "Buzz" Aldrin, Jr. actually set foot on the moon and walked its rugged terrain. Sports heroes like Joe Namath, Lew Alcindor (later known as Kareem Abdul Jabar), Mohammed Ali (pre-



viously known as Cassius Clay) and Bobby Unser were commanding millions for their athletic skills and more money yet in side ventures such as commercials and franchise sponsorships. In urban ghettoes (including parts of Chester) people were starving and turning to crime as an occupation.

"The times, they were a changing," as the popular folk song lamented.

12
Building for Tomorrow

A new decade always brings hope and promise. The beginning of the 1970s was no different. War weary Americans from coast to coast prayed for an end to the turmoil and conflict running rampant not only in far away Vietnam, but in city streets and on college campuses. Songs of peace were too often dipped in the bitter blood of controversy over ideals, beliefs—even dreams.

It has often been said that the 60s never ended until 1974 and that the 70s began in 1977. That is purely a subjective sentiment based on political leanings. Nixon's demise was, of course, in 1974 and Jimmy Carter took office in 1977. It is up to the reader to decide when a decade ends or begins.

Nineteen-Seventy proved to be no less laden with strife than the last decade. Fighting continued in Southeast Asia and fears heightened to match gunfire and bombing. Ted Kennedy, a political pillar of idealism, was shattered in his career by the drowning of a young aide in the Chappaquiddick. Penn Central Railroad declared bankruptcy and the Apollo 13 moon landing was cancelled due to a ruptured oxygen tank. What was ahead was a question no one really wanted to ask.

America had alway overcome its obstacles and gained in strength despite staggering problems. Deep down in the heart of the nation, optimism was eager to rush forth once again.

At the Chester Water Authority, progress was well underway in 1970. Money was secured, by the issuance of $2,400,000 of water revenue bonds, to proceed with stage two of the three-pronged expansion program.

The Susquehanna River Project was substantially completed and made operational in November. This modern pumping station on the

bank of the river with its ten-mile cross-country pipeline delivered 30-million-gallons per day of raw water to the upper reaches of the 2.5-billion-gallon reservoir. The increase doubled water resources and provided an adequate supply for at least another quarter of a century.

A research and development program at the Octoraro purification plant, started five years earlier (1965), proved to be satisfactory by the Pennsylvania Department of Health. It was determined that the Authority could double the rate of settling and filtration and produce high quality water far exceeding Pennsylvania's standards, as well as those of the U.S. Public Health Service. Experiments continued with a model of one of the chemical mixing and flocculation basins. These programs would result in a plant design that could double the total plant purification capacity at minimum capital expense.

Indications in 1970 were that increased water consumption in the service area would increase in the coming decade. Time and the economy would prove this projection wrong. The mayor and council of the city of Chester developed urban renewal plans and through funding from city, state and federal agencies, along with private monies, numerous major projects were started. These included the construction of a new bridge crossing the Delaware River, new library and study center on the campus of Widener University, Twin Towers—a federal housing project for the elderly, a new high school and new housing in the urban renewal program.

Although the average daily pumpage decreased from 29.602 million gallons to 28.374 million gallons in 1970, there was an increase of 264 accounts for the same period. Economic cutbacks by large industrial consumers accounted mainly for the decrease in pumpage.

An article in the *Delaware County* Times opened the new year (1971) with the question, "Can a city on the banks of the Delaware River find happiness with a water supply from the Susquehanna? For the next 20 years it can—God and the state government willing."

In July of that year, the opportunity to use water from the Susquehanna was first tested. An unusually dry period taxed the Authority's source and customers were consuming an average of 3-million-gallons a day over the Octoraro's 30-million-gallon capacity. Appleyard announced that the Susquehanna would be tapped if the drought condition continued into September.

September, however, brought another problem. Reports of contaminated water closed numerous schools and caused the health department to order water to be boiled for 20 minutes prior to use.

It was learned that the contamination stemmed from two water main breaks, one at 7th and Tilghman Streets in Chester and the other in Aston at Rosalie and Green Lanes. The pipes were flushed out and the pipes chlorinated to bring a halt to the problem.

September 1971 was an eventful period in the Water Authority's history. A severe flood brought controversy to the Authority. Pennsylvania Department of Environmental Resources found evidence of possible water contamination after the flood. The Authority immediately enhanced its already stringent sampling and testing methods and found no contamination. A final determination was never made, but cries from the state became non-existent which seemingly proves their accusation was premature.

In 1971, at the urging of Board Chairman, Mr. Pew, the Authority added an assistant to aid Appleyard in his many responsibilities. Mr. Appleyard was approaching retirement and Mr. Pew wanted to make sure that there would be an individual ready to assume the post of Executive Manager and Chief Engineer. Peter K. Mac Ewen, an engineer with extensive water supply, utilities and resouce planning experience, assumed the newly-created position in November of 1971.

Mac Ewen, a Registered Professional Engineer, had served as an engineer specializing in water resources for the Delaware River Basin Commission in Trenton, New Jersey. Prior to that, he was with the

American Water Works Service Company, Inc., Philadelphia. Mac Ewen is a civil engineering graduate of St. Francis Xavier University and Technical University of Nova Scotia and holds a masters degree in civil engineering from Stanford University with a major in water resources.

As Mac Ewen set about to familiarize himself with Chester Water Authority, unprecedented events were happening in the nation. June 17, 1972, five men were arrested for breaking into Democratic headquarters at Watergate-Hotel-Office-Apartment Complex in Washington, D.C. It was subsequently learned that the intruders had been given the assignment by the Committee to Reelect the President. Names and phrases such as 18½ minute tape gap, John Wesley Dean III, John Newton Mitchell, Harry R. Bob Haldeman, firings, resignations and on and on all became part of this infamous part of American history.

The same year, however, brought progress and enthusiasm to Chester Water Authority. It committed itself to an estimated $2.5 million water service expansion plan scheduled for completion in 1974. The project was to entail the installation of a 42-inch transmission main from the Village Green Tank Farm three miles west to Cheyney Road in Concord Township.

A second project which went into service in 1972 was the opening of a new 1½ mile line of 12-inch water main that tied the Authority's Concord booster pumping system to the Brinton Lea area of Thornbury. The section had previously been served by a well supply.

In keeping stride with the growing concern over pollution throughout the United States, a Pollution Prevention program, instituted in 1971, was 40 percent completed. Equipment was installed to automatically remove sludge from all settling basins at the Octoraro purification plant.

A four-year study of the rapid mixing facilities at the purification plant was concluded. Based on data developed on filtering, settling and mixing processes, the Authority submitted an application for a permit to have its treatment plant facilities rerated from 30-million-gallons per day to 45-million-gallons per day capacity. Research studies to determine what facilities were needed to reach a rated capacity of 60-million-gallons per day continued.

The Authority's 1972 annual report noted that residential and commercial patterns of the Chester urban area continued to undergo marked change. The city of Chester and Chester Redevelopment Authority were currently performing an active multi-million dollar renewal program embodying extensive rehabilitation of the city's central business district.

Nineteen-seventy-two was recorded as one of the wettest years of this century. The Philadelphia area was drenched with 49.31 inches of rain—7.01 inches above normal. This reduced anticipated revenues by 4 percent, with average daily pumpage increasing by only 161,000 gallons—from 28.109-million-gallons per day in 1971 to 28.270-million-gallons per day in 1972.

The Authority was commended by two agencies which conducted thorough inspections of its facilities during the year. An "approved" rating was served from the Federal Environmental Protection Agency for achieving high standards of water quality and service. Also, the Insurance Services Office, the nationally-recognized fire rating agency, awarded the company a Class III rating.

Top management was the subject of a comprehensive study in 1972 conducted by Price Waterhouse & Company. Based on their recommendations, the Authority realigned certain duties and responsibilities, resulting in the creation of a complete back-up team of thoroughly qualified young men.

On January 27, 1973, peace accords were signed by North Vietnam, the Viet Cong, the United States, and a reluctant South Vietnam. By March 27, American troops began to be withdrawn from Vietnam.

Another extremely important date that affected the lives of nearly every man, woman and child in America, and certainly every industry, must be noted—October 17, 1973. It was on that day that members of a little-known group of Arab and non-Arab oil-producing states met in Kuwait and set the wheels in motion for the Organization of Petroleum Exporting Countries (OPEC) to increase the price of oil from $2.18 a barrel to $5.12. Nothing was the same after that cataclysmic gathering.

Despite concerns brought about by the increase in the price of oil, America strived to cope as it alway had in the past. Business continued,

as usual, with adequate measures taken to conserve energy and prepare for a great dearth of oil.

Chester Water Authority was no exception as it kept pace with energy-saving programs and, in harmony, continued its progressive climb. The Authority installed over 16,000 feet of 12-inch and 16-inch water mains throughout the distribution system in Concord, Bethel and Aston townships. Additional water distribution mains were installed in the city of Chester to supply the Chester Redevelopment Authority's housing projects. Plans were completed for the relocation of water mains in Chester associated with the completion of the Interstate 95 Interchange with the Commodore Barry Bridge.

At the Octoraro treatment plant work was started to provide increased capacity for the flocculation basin. Design of a chemical facilities building was also started. The plant expansion program during 1973 cost a total of $1,900,000.

Population projections within the Authority's service area indicated that the demand for service would grow. The Authority received numerous requests for water service for large residential subdivisions and apartment complexes in addition to requests from several large national and international industries. Its expansion program would provide the capability to meet these demands. The Susquehanna River Project, of prime importance in meeting increased demands, was completed and operational. This modern pumping station with its ten-mile pipeline was capable of delivering 30-million-gallons per day of raw water to the Octoraro Reservoir, thereby doubling the Authority's raw water capacity.

The year opened with sad news. The Authority lost two special people. Board member Reverend J. Pius Barbour passed away January 5, 1974. He had been a member of the board since 1958 and its secretary since 1968. He was replaced by Attorney Robert C. Wright.

Executive Manager and Chief Engineer Victor A. Appleyard succumbed to a brief illness on Thanksgiving Day, November 22, 1973. He was praised by management and board alike for his hard work and indefatigable drive to modernize the Authority. His engineering expertise was essential in meeting the growing demands of industrial and residential consumers.

Always extremely active in the American Water Works Association, Appleyard was to have assumed the presidency of the organization the following spring. He had waited for that moment for most of his career and never ceased in his quest for the excellence required to be elected to the office. It was indeed unfortunate he couldn't live to serve, but everyone was grateful he had been granted the honor before he died.

After the death of Appleyard, Peter MacEwen was appointed Executive Manager and Chief Engineer. MacEwen had been actively involved in the day-to-day operation of the Authority and, although young for such a position of leadership at 39, he was fully capable of taking the reins. The Walpole, Massachusetts, native was eager to carry on where his predecessor left off and began preparing Chester Water Authority for a very active future ahead.

The next ten years would see a high level of activity in the area of capital expansion, personnel development, establishment of new budgeting and office procedures. In the decade to come the Authority would design and construct plant expansion facilities at a cost of approximately $11,000,000. The most important of these facilities and projects are described in the following pages. Personnel development during the 1974–1984 period would lead to an organization staffed with professionals in the areas of engineering, finance, computer science and data processing, chemistry and water resources management. This group of professionals includes seven graduate engineers, five of whom are registered professional engineers. In addition, by 1984 the Authority would have three individuals in the office with degrees in accounting and computer science. This nucleus of management personnel is backed up with fully qualified and well-trained supporting staff. With this group of personnel, the improvements between 1974 and 1984 were accomplished.

As indicated above, the next decade was to bring much progress. However, two days after MacEwen was appointed Executive Manager and Chief Engineer two gunmen entered the lobby of the Authority's office and took $600 in cash and checks at gun point from the cashiers. It was not an auspicious start for the newly appointed Executive Manager. But fortunately no one was seriously injured. Henry Coulbourn, a Customer Service Representative at the time, was pistol whipped by one of the gunmen and did suffer a mild concussion and fortunately recovered without any ill effects. Security procedures were then initiated which included the installation of alarm buttons used to notify the police in the event of a similar type problem and also,

the installation of an alarm service and burglar protection service at night by Wells Fargo. This system served the Authority well until 1979 at which time the Authority was again held up by a gunman wearing a ski mask. This time Sandra Hunt, who was filling in as the receptionist, noticed the individual coming through the front door and immediately sounded the alarm. The Chester police arrived within minutes. However, the gunman escaped before the police arrived and was later captured.

After having the Authority held up twice in five years, a recommendation was brought to the Board whereby a bullet proof glass security system would be installed in such a way as to not interfere with the flow of office traffic nor detract from the beauty of the original lobby itself. Approval was granted by the Board and this work was done and the security glass and doors are to this day in place and have remained an absolute deterrent against such holdups.

In 1974 the Authority's method of purchasing and using both lime and carbon in its treatment process was to purchase both of these chemicals in bagged form. The lime and carbon, which were purchased in 50-pound bags, were stored in and around the treatment plant and each bag had to be opened by hand and then dumped into the feeding mechanism. This procedure was both laborious, time consuming and furthermore, it created a dust problem in and around the plant which adversely affected delicate electronic control equipment.

The concept of storing this lime and carbon in a bulk storage facility was adopted and design was under way that year. By 1976 the project was completed at a cost of $750,000. The newly completed chemical storage building could store approximately a 20-day supply of lime and carbon.

The chemical building, which is located 1500 feet from the main pump station, receives lime and carbon in bulk form, that is, from a specially designed truck which is able to pump the material directly into the storage

tanks, thereby eliminating completely the dust problem that existed previously. Furthermore, productivity was immediately improved by eliminating the need to have men tearing open and dumping by hand as many as 44,000 bags of carbon and lime each year. This, of course, will result in saving of manpower as the Authority's water demand increases in years to come.

The nation also experienced much in 1974, but the results were far different. August 9, 1974, Richard Milhaus Nixon became the first President of the United States to resign from office. After lying to his staff, his supporters, his family and the nation for two years he stepped down in the throes of the Watergate scandal and ended a brilliant potential career.

One of Chester Water Authority's most stalwart employees retired in 1975—J. Edward Gebhart, Sr. He began his tenure with the company in 1949 digging ditches and repairing leaks. He was praised by management for his dedication to the job and his knowledge of the distribution system. At his retirement dinner, Gebhart said, "The best thing about this is the silent phone. For 12 straight years, even weekends and holidays, I was on 24-hour call. Even when I slept I was never really relaxed. I never was the kind of fellow to sit at a desk and tell the other guy what to do. When a water main broke, I was there first and left last. But don't make a big deal out of it. That was my job."

In 1975 a program was instituted by management whereby the older mains in the distribution system would be systematically renovated or "cleaned and lined." This cleaning and lining program was necessary because of the many miles of water main in the distribution system that were installed over 80 years ago, some of which have been determined to be 106 years old. Mains of this type have been determined by inspection to have a large amount of build-up or tuberculation on the inside of the pipe which reduces both the flow capacity of the water main and the water pressure. This in turn reduces fire flows measurably. The program as conceived included cleaning and relining approximately one mile of pipe each year at a cost of approximately one-third that of replacing these water mains. At the time of this writing the program has been carried on for nine years and the Authority has spent over $1,000,000 in its cleaning and relining efforts. The longer range plan is to increase the amount of pipe cleaned and relined each year, thereby eventually resulting in a water distribution system which will be essentially free from internal pipe corrosion and tuberculation.

Early in 1975 a review of the Authority's 1975 budget and projected Authority expenses indicated that a rate increase would be necessary. The Authority engaged a consulting engineer to conduct a rate study. In August of 1975 a public meeting was held and the results of the study confirmed the need for a rate increase to meet existing and future operating costs and debt service requirements. The board adopted a resolution increasing the rates by an average of 44.7% to become effective September 1, 1975. The last rate increase prior to September 1975 was in January of 1972. The rate increase in 1975 provided the Authority with the revenue to meet its obligations and maintain a sound fiscal policy.

The rate study done by the company's consulting engineers was termed a "cost of service" study and it was the first study of its type done for the Authority. The cost of service concept results in a rate structure whereby each class of customer, such as industrial, commercial and residential, pays for its share of the cost of receiving water from the Authority. No one customer class subsidizes another class, thereby resulting in an equitable rate structure that will stand up to the scrutiny of challenge by customers. From 1975 to the present time the Authority has had two additional rate increases, both of which were based on the cost of service concept and in each case, there were few, if any, complaints about the water rate increases.

The Bicentennial year, 1976, arrived with celebration and bright promises for the next 200 years. President Gerald Ford addressed a crowd at Independence Hall in Philadelphia and a five-hour parade marched down Broad Street which had been painted red, white and blue in honor of the spectacular birthday. Sixty Conestoga wagons arrived in Valley Forge with 2,000 travelers hailing from all 50 states.

Ford proclaimed to the nation, "I have not the slightest doubt that our Third Century will be yet more glorious than our first 200 years."

And residents of Chester quite agreed. After all, it was one of the oldest settlements in the country; despite recent urban blight and other related problems, Chester's heritage would never change. It was a city to be proud of, particularly during a year-long Bicentennial Celebration.

The Bicentennial year was a significant time for science, as well as historians. On July 20 and September 3 the first Lander from Viking II Orbitor touched ground on Mars and beamed back close-up photographs on the planet one minute later. The first photos were received on earth after a 19-minute signal reception delay. It was a stellar achievement for scientists and a smart political move, as well.

In 1978 the Authority issued a $3.1 million bond issue on the basis of its 1975 rate increase. This bond issue would provide the capital for the ongoing capital expansion program. These projects, which would be installed between 1978 and 1981, included the following: a $2.3 million project which included construction of treatment plant facilities, renovation of the Susquehanna River intake, as well as the installation of a new transformer and substation for the main plant. Another project which would cost $300,000 included a distribution monitoring control center which would be installed in the Authority's Engineering Department for purposes of operating, controlling and monitoring distribution, pumping stations, storage tanks and system pressures. A third project to be implemented with the proceeds from this bond issue would be a data processing center installation which would bring the Authority up to date with a state of the art installation.

As the decade was reaching its final stages, a new president was in the White House. James Earl Carter, Jr. preferred to be called Jimmy and insisted on carrying his own luggage. His homespun Georgia style and broad smile put the country at ease, temporarily, but Carter soon learned it wasn't as easy to keep promises made in Washington as it was in his home state.

Chester, still a Republican stronghold, despite economic and ethnic changes in the city, was keeping a "wait-see" attitude about the plain talking good ol' boy from Plains.

In June of 1977 the Interim Primary Drinking Water Regulations established by the U.S. Environmental Protection Agency (EPA) were put into effect. Essentially, these regulations established maximum contaminant levels for various compounds and heavy metals that could be found in drinking water. The regulations also established strict guidelines relating to the frequency of water analysis and testing throughout the distribution system. The Chester Water Authority's laboratory was designated as an approved bacteriological water supply laboratory by the EPA in January of 1978. In an effort to upgrade its laboratory facility and capability, the Authority hired a micro-biologist with experience in water resources who was put in charge of the Authority's laboratory. With its facilities and staff, the Authority was capable of meeting all drinking water standards established by federal and state regulatory bodies.

The new micro-biologist, Patricia Stabler, was hired not only to supervise the laboratory, but to modernize the lab, as well. "Utilities were rather conservative," says Stabler, "but we gradually updated equipment and procedures."

The Authority set its goals to improve the data processing department in the next five years beginning in 1978. The program involved the installation of an interactive computer system which brought about a major change in its computer configuration and data communications to accommodate new procedures.

Other activity in 1978 included the allocation of $2.3 million for engineering design and construction of the Octoraro Treatment Plant and Pumping Station improvement and the development of a control center to be located in the main office's engineering department. The center, when complete, would provide total monitoring and control of all pumping stations, storage tanks and pressure regulating devices located throughout the distribution system.

Another step taken by the Water Authority in 1978 was to consider an affirmative action program similar to the city of Chester's plan. The city's plan established guidelines to promote and encourage the use of minority business enterprises, especially local Chester minority businessmen and firms in the letting of contracts and the purchasing of materials and services, without conflicting with federal and state requirements.

Under the plan, the person designated to be responsible for advertising and accepting bids and proposals for public work would obtain from the Chester Black Businessmen's Association (CBBMA) a composite list of all minority business firms in Chester according to category classification. The intent of the plan was to be "the opportunity for minority firms to share in the economic activity of Chester."

The decade was in its last year and Americans looked in horror at Iran, a small nation of 40-million people which held the future of the United States in the palm of its hand. In a bold attack on the American Embassy in Teheran on November 3rd, radical students captured some 90 people, including 52 American hostages, in protest of President Carter's admittance to America of former Iranian Shah Mohammed Rega Pahlevi for medical care. The plight of the hostages remained unclear and caused great turmoil, fear and dissension within the country. Their ultimate release wasn't for 444 days.

The year, though frought with international turmoil, continuing inflation and unemployment dilemmas, was a strong one for Chester Water Authority. It ended the decade with a 59.3 percent gain of net income which climbed from $1,307,947 in 1978 to $2,083,745 in 1979. The increase was attributed to a 30 percent rate increase that went into effect October 1, 1978.

In 1978 Michael Churi retired from the Authority after 36 years of service as Controller and Investment Manager. His financial plans and thorough reports were the source of numerous project approvals and fundings. Peter Mac Ewen recalls his association with this likable man. "Mike was a very dedicated and loyal employee." Everyone who worked with him agrees with Mac Ewen's assessment.

William Atlee, who joined the Authority in 1976 as Controller, has been in charge of the Authority's financial matters for the past eight years. Atlee is a graduate of Villanova University with a Bachelor of Science in Accounting and has over 22 years of experience in the field of accounting and business.

The Authority continued its research of data processing equipment in order to streamline its accounts payable, inventory, general ledger, budgeting, job costs, payroll, property records and customer information such as billing, accounts receivable, inquiries, service order requests, customer deposits and fixed assets. It also began extensive research into the productivity and availability of hydro-power.

In order to upgrade and improve the facilities at the Octoraro Treatment Plant and Pumping Station in 1979, the Authority awarded two contracts in the amount of $1,754,000. The contracts included the installation of additional piping, rapid mix facilities, and the construction of two flocculators to improve the hydraulic flow through the plant, as well as the quality of its water. The Authority also increased the transformer capacity at Octoraro to provide sufficient power facilities to meet peak existing and projected pumping demands. With the completion of that project scheduled for 1981 the Authority's plant capacity would reach 45-million-gallons per day.

In early 1979 the Authority's engineering department designed a system of piping connections and pressure regulating stations to increase water pressure by 30 to 70 percent in parts of the borough of Parkside and a section of the city of Chester. Work was completed on this project at a cost of approximately $175,000. There were, at completion time, approximately 10,000 people living within the area served by the pressure improvement project. Results and tests conducted after completion of the work indicated a substantial increase in pressure which would improve fire protection and general service for all customers.

As the final days of 1979 drew to a close and a new decade was about to unfold, people from every walk of life contemplated the incredibly hectic 70s. It was such a period of transition, inner conflict and technological breakthrough. Names and phrases that would go down in history came out of that full 10-year period. Always to be remembered were: Legionnaires' disease, ERA, Perrier, Charlie's Angels, video games, Farrah Fawcett-Majors, double-digit inflation, long gas lines, Idi Amin, "Saturday Night Live," John Travolta, streakers, hot tubs, Alaska pipeline, home computers, Bebe Rebozo,

R2D2, Patty Hearst, Betamax, and the list could go on and on. It's the contrasts that offer the fascination of the decade.

Nineteen-eighty dawned and everyone talked of computers and cable TV. References were made to Alvin Toffler's *Third Wave* as the country prepared itself for the new Information Age.

Celebrations (or wakes, as political preferences discerned) were held as the former governor of California and a movie actor at that became America's choice for President. Carter's easy-going manner and down-home politics had been turned in for a try at something more forceful.

In Philadelphia that year, the emphasis was on sports. The phenomenal Phillies won the World Series and the town heralded its victory over Kansas City for days, maybe even weeks.

Construction was at a peak in the city as new offices were seen popping up every few months. The quaint historic Benjamin Franklin Hotel closed its doors, but a beautiful new hotel and convention center called Franklin Plaza opened to early success.

In Chester, the Redevelopment Authority continued in its attempts to rehabilitate the city's housing. Homeowners who wished to improve their homes applied for low-interest loans and federal grants. Several hundred houses had been improved since a rehabilitation program began in 1975, but the hundreds of ramshackle dwellings and abandoned buildings caused the city growing headaches.

Another problem which faced the area in the first year of the decade was a drought in the Delaware River Basin. Chester Water Authority used its backup water supply from the Susquehanna River and went through the dry period with no major problems. The Authority, in fact, was one of the few water suppliers in the area able to make that statement. The decision to tap the Susquehanna was a wise one. The company's foresight and planning once again had been responsible for a problem-free period that could have otherwise proven to be a malady and a hardship for consumers. A review of the Authority's explanation of the situation is given in its 1980 Annual Report:

> *"From May of 1980 through January 1, 1981 precipitation in the Delaware River Basin was 25 percent below the long-term average. This resulted in a widespread lowering of ground water levels. During this period, stream flows in the Delaware River averaged approximately 59 percent of the long-term average and*

reservoirs experienced 15-year record low levels which, in turn, resulted in the regulatory agencies enacting legislation and resolutions which mandated restrictions on water use throughout Eastern Pennsylvania.

The Pennsylvania Department of Environmental Resources established a ban on non-essential water use, such as car washing, lawn watering and certain water restrictions on the use of swimming pools, as well as other restrictions. Customers of all area water utilities were asked to conserve water, and a concerted effort was made by state water agencies and water utilities to reduce unnecessary water use.

Many water utilities in Eastern Pennsylvania were severely affected by the drought, both from the standpoint of not being able to meet their customer demands and from the resultant loss of revenues. In the case of the Chester Water Authority, the situation was different. After experiencing the drought of the mid-1960s, this Authority obtained permits for a water allocation and constructed an intake and pumping station and installed 11 miles of 42-inch water main so as to be able to pump 30-million-gallons per day (MGD) from the Susquehanna River to the Authority's main source of supply, the Octoraro Reservoir. All of the Authority's water supply is now obtained from the Susquehanna River Basin and is pumped approximately 35 miles east to the demand center located in Delaware County. With the 30 MGD Susquehanna Pump Station in place combined with the 30 MGD Octoraro supply, the Authority was able to augment its normal supply from the Octoraro Reservoir to meet the water demands during the drought.

The Authority's customers consist of residential, industrial and commercial classifications, as well as five other utilities that purchase water wholesale from Chester Water Authority. During the drought period, beginning in the fall of 1980, the industrial and wholesale utility demand increased significantly offsetting the reduction in residential demand to reflect an overall increase in pumpage of 15 percent. The increased industrial demand resulted from industry being unable to use as much of their normal source of supply as usual, thereby, purchasing additional water from the Authority. Similarly, other water utilities that experienced a reduction in their source of supply turned to Chester Water Authority and purchased additional water to compensate for their shortages.

As a result of the Authority's foresight in the mid-1960s, it was able to meet its water demands and actually increase its usage above the average so as to assist other utilities as described above. This resulted in the Authority being recognized by regulatory agencies as well-prepared to meet drought conditions that existed in 1980–1981 and future droughts which are inevitable."

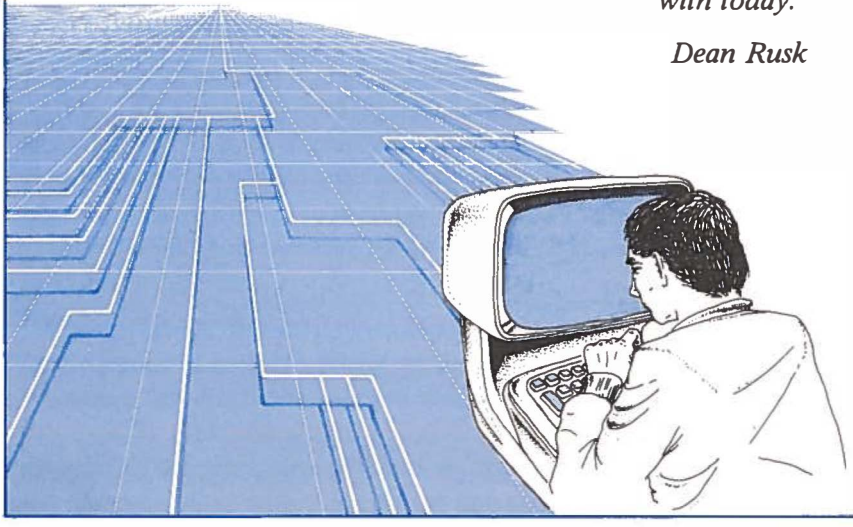
Part IV

What's Ahead

1981-1983

"The pace of events is moving so fast that unless we can find some way to keep our sights on tomorrow, we cannot expect to be in touch with today."

Dean Rusk



13 Looking to 2001

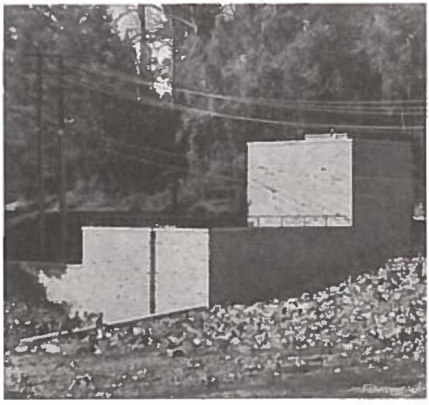
It was evident that the early 80s were essential to the future of nearly every business and industry in America. Technological changes were occurring at a rapid rate, and Chester Water Authority was keeping pace with these changes.

Chester Water Authority, as a service utility, had to look ahead to the needs of its future residential consumers and large industrial customers. Chester's urban renewal program, although moving slowly, was in gear. A promising future of increased industrialism and population could be on the horizon. The Water Authority was committed to meeting any need resulting from changes in both urban or suburban population.

As part of its ongoing program to adequately prepare for the future, the Water Authority completed its Octoraro plant modifications in 1981 which brought its pumping capacity up to 45-million-gallons per day.

The Authority completed the installation of an electrical substation including a 5,000 KVA transformer and new high voltage transmission lines between the transformer and the pumping station. This facility permitted the Authority to meet peak electrical demands and provide greater flexibility in selecting pump combinations to meet customer needs.

In the late 1970s, a study concluded that there was potential for development of a hydroelectric power plant at Octoraro Dam and Reservoir. Subsequent to the preliminary study a feasibility study was prepared in 1980 and licensing was completed. This project would provide for the generation of electricity by using the available head at the dam combined with the required downstream flow releases. The



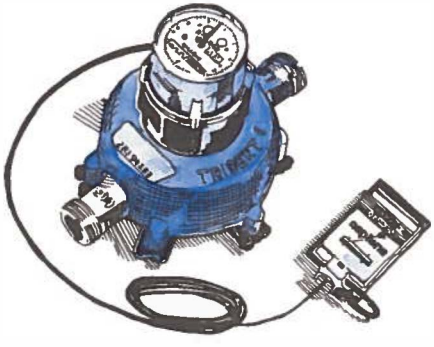
hydroelectric power plant would enable Chester Water Authority to generate approximately 20 percent of its own power requirements in the long term. The project was economically attractive and had a benefit cost ratio of approximately 1.1.

During the licensing phase of the project the Authority and its consultants worked with various federal, state and local regulatory agencies. These included historical societies and fish and wildlife agencies which were determined to insure that no ecological damage would result from the project.

The project schedule included completion of design by the end of 1983 and acceptance of bids for construction during the first half of 1984. It is anticipated that the project will be operational in 1985.

Infrastructure

In 1982, the Authority continued to look to the future as it developed its programs. One of the nation's mounting concerns was the country's infrastructure. The problem centers on areas of aging highways, bridges, port facilities, water utility system and sewer systems which should be replaced or renovated. Estimates are as high as $3 trillion for restoration of sewers, water projects, highways and bridges in the United States.



In addition to its rehabilitation and improvement program, the Water Authority also addressed the meter problem and tackled it beginning in 1979. By 1982, 5,000 new meters had been installed with a remote reader on the home's exterior. This permitted meter readers to obtain readings without entering the home, increasing the amount of daily reads. The program provided for a complete changeover of 29,000 meters every 15 years.

In 1982 the Authority completed the development of a mathematical model of its water main distribution system which includes 370 miles of water main, five booster stations, and 22 other control points

including pressure regulating valves, storage tanks, and pressure monitoring points in the distribution system.

With this model, which was mathematically programmed for execution on a computer system, combined with the distribution monitoring control center, solutions to hydraulic problems and daily monitoring and operation of the distribution system were now possible. The distribution control center was equipped with a microprocessor which allowed these functions to be accomplished, and also provided staff with the ability to start and stop pumping stations remotely from the engineering department. This technology will enable the Authority's engineering department to more effectively design future facilities.

In 1982 the Authority also contracted with an internationally recognized firm to conduct a testing program of all major meters and a review of potential areas of water leakage in the distribution system. The program was completed and the results indicated that the Authority would be able to reduce unaccounted for water by two percent which represented a substantial gain. This became an ongoing program.

Continuing education for staff members is given a high priority by management. Employees are encouraged to attend seminars related to water utility subjects and also attend college to study job-related courses under a tuition reimbursement program. It is the position of management that without a highly qualified and motivated staff, the Authority cannot perform its activities with the high level of excellence required.

During the past several years there has been a major turnover in Board members due to members resigning for reasons of health and transfers. In January of 1982 Mr. Anthony Przedzial resigned from the Board for reasons of health after having served for 13 years as a director. The following December of 1982 Mr. Robert C. Wright, Esquire, submitted his resignation from the

Board inasmuch as he had been elected to the Pennsylvania House of Representatives and due to those duties and other commitments he regretfully had to leave the Chester Water Authority Board. In June of 1983 Mr. Peter Murphy resigned from the Board for reasons of health after serving for 30 years as director. Mr. Alexander Osowski was appointed to the Board to fill the term of Mr. Przedzial. Reverend Accooe was appointed to fill the unexpired term of Mr. Wright; and Mr. James Sharp, former city councilman, was appointed to fill the unexpired term of Mr. Murphy. Mr. William Warwick replaced Reverend Accooe in September 1984 due to Reverend Accooe being transferred to another parish, and Mr. Donald F. Tonge was appointed to the Board in August of 1985 with the death of Mr. J. Newton Pew. These changes reflect the first mass change of Board members in over two decades and it is encouraging to see that the successful policies established by the Board in the past are being maintained. Mr. Sharp was a former city councilman between the years 1971 and 1982 having first come to Chester in the 1930s. Mr. Sharp indicated that prior to becoming a member of the Board of Directors he was aware of the excellent reputation of the Authority and having now joined the Authority as a Board member he is more aware of the operation and what makes it successful. He indicated that his early impression of the Authority has stood up well to a closer inspection as a Board member.

In discussing future growth, Mac Ewen commented:

"Hopefully, by the late 1980s, we will start to see some vigorous growth. The Water Authority has 90 to 95 percent of its customer base in Western Delaware County. I think that we will see expansion into Southern Chester County in the area of Kennett Square. When that happens, and it may take between 20 to 30 years, we will experience substantial growth. We still have growth potential here because we are a regional authority and we have an area that has not been developed yet. We recently signed an agreement with the Borough of Kennett Square to provide them with approximately 400,000 gallons of water per day. We have another large water utility in Delaware asking us for water. We also sell water to the Wilmington Suburban Water Corporation in the state of Delaware and to the Philadelphia Suburban Water Company. We expect to someday be the major regional supplier in the two county area exclusive of Philadelphia Suburban and its franchise.

"Before we reach that point, we will need to expand the

facilities necessary to deliver 60-million-gallons per day—that is the next step. We'll put in another pumping station along the transmission main and expand the treatment plant by 15-million-gallons per day from the current 45 MGD.

"The Water Authority, as it always has in the past, looks ahead for answers to its development programs. Technology has changed. The economy has been altered. Politics and policy have taken on new roles. The Water Authority has adjusted its programs and automation to the times and the transitions. But one thing has never changed. The long-range planning and analyses of future needs—the incredible foresight of Chester Water Authority's management and board remains its source of ingenuity and, in turn, success."

14
Epilogue

The history of the Chester Water Authority is one of achievement and success and from the beginning these achievements were well known to others in the water utility industry and to the business community in which it operates and serves.

In 1868 the South Ward Water Works, which was the first water works in the city of Chester and which ultimately became the Chester Water Authority, had facilities valued at $38,022 and a total of 67 service connections. From that modest start the Authority has grown to the point in 1984 where it has over $55,000,000 in fixed capital facilities serving a population of over 140,000 as well as industry. While these statistics are impressive, the driving force of the Authority is its employees and the Board of Directors. No business can consistently maintain a sound fiscal and technically efficient operation without the right mix of professionals and supporting staff. The Authority has this blend of personnel and a managment team which includes engineers, accountants, chemists, computer science and data processing personnel, all of which are supported and backed up by a well-trained and dedicated staff. This is what makes the Authority successful on a day-to-day basis.

In the last decade the nation's technology has experienced a quantum move forward to the point where the future economic well being of industry and the country will only be achieved if the latest in high technology techniques are used wisely. In this regard the Chester Water Authority is in an excellent position to meet present and future needs. During the past ten years the Authority has paralleled the nation's technological growth by updating its existing facilities in all areas with an ongoing renewal program. In addition, professional staff has been added where needed and this has led to state of the art

improvements with the addition of an interactive computer system and word processing, and the use of mathematical models for decision making purposes by management, to name but a few. Most importantly, there has been a philosophy developed by the Board of Directors and management whereby excellence in operation is the goal.

It is this approach that has brought the Authority so far and with a continuation of these policies the future success of the Authority is ensured.

"Often do spirits of great events stride on before the events... and in today already walks tomorrow."

Samuel Taylor Coleridge

CHESTER WATER AUTHORITY
MEMBERS of the BOARD of DIRECTORS
1986

James A. Aldridge
Chairman

Alexander V. Osowski
Vice Chairman

James L. Sharp
Secretary

William N. Warwick
Treasurer

Donald F. Tonge
Assistant Secretary/Assistant Treasurer

Elected 1/16/86

CHESTER WATER AUTHORITY
BOARD MEMBERS

Clifford H. Peoples	July 1939 - 1940
Edward D. McLoughlin	July 1939 - December 1941 February 1942 - December 1949
William J. McDowell	July 1939 - December 1941
John T. Ross	July 1939 - December 1941
William P. Lear	July 1939 - December 1941
Ralph F. Swarts	January 1941 - January 1943
Clarence T. Starr	December 1941 - January 1957
Thomas F. Feeley	December 1941 - February 1947
Dr. S. P. Gray	February 1942 - December 1952
Archie Levy	February 1943 - January 1946
Frank G. Andrews	January 1946 - April 1957
George F. Dougherty	February 1947 - September 1962
J. Harold Hughes	January 1950 - April 1956
Howard J. Gallagher	May 1956 - December 1958
Peter J. Murphy	January 1953 - June 1983
J. Newton Pew	April 1957 - August/July 1985
Frances P. Donahoo	January 1957 - July 1977
J. Pius Barbour	December 1956 - January 1974
Arthur Levy	October 1962 - May 1968
Anthony J. Przedzial	June 1968 - January 1982
Robert C. Wright	February 1974 - January 1983
James A. Aldridge	July 1977 - Present
Alexander V. Osowski	January 1982 - Present
Philip A. Accooe	January 1983 - April 1984
James L. Sharp	June 1983 - Present
William N. Warwick	September 1984 - Present
Donald F. Tonge	August 1985 - Present

CHESTER WATER AUTHORITY
CHAIRMEN OF THE BOARD

Clifford H. Peoples	1939 - 1940
William J. McDowell	1940 - 1941
Ralph F. Swarts	1941 - 1943
Dr. Stoddard P. Gray	1943 - 1952
Frank G. Andrews	1953 - 1957
J. Newton Pew	1957 - 1985
James A. Aldridge	1985 - Present

CHESTER WATER AUTHORITY
SOLICITORS

D. Malcolm Hodge	July 1939 - February 1941
Ellwood Turner	February 1941 - March 1948
J. H. Ward Hinkson	December 1948 - January 1969
Guy G. deFuria	January 1969 - December 1979
Arthur Levy	January 1980 - Present

NOTES:

1. William H. Turner acted in the capacity of solicitor after the death of Ellwood Turner, March 1, 1948.
2. Clement B. McGovern named Special Counselor in charge of obtaining rights-of-way for water lines through Delaware and Chester Counties by action of the Board on January 19, 1950.

CHESTER WATER AUTHORITY
EXECUTIVE MANAGERS

E. F. Muser	1939 - 1941
Rennie I. Dodd	1941 - 1948
Clarence L. Conner	1948 - 1960
Victor A. Appleyard	1961 - 1973*
Peter K. Mac Ewen	1974 - Present**

* In 1965 title became Executive Manager and Chief Engineer.
** Hired in 1971.

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