

Pennsylvania Coastal Zone Management Program

**Fairmount Water Works
Esplanade Walkway Exhibits
Final Report**



*Bronze fisherman, "A Celebration of Water," an exhibit
on the Fairmount Water Works Esplanade Walkway.*

**Prepared by the Philadelphia Water Department
Philadelphia, PA
September, 1994**

Pennsylvania Coastal Zone Management Program

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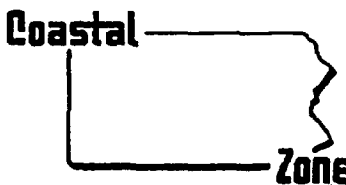
Final Report

September, 1994

Grant Task No. CZI:93.02PD
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A REPORT OF THE PENNSYLVANIA DEPARTMENT OF
ENVIRONMENTAL RESOURCES TO THE NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION PURSUANT TO
NOAA AWARD NO, NA370Z0351

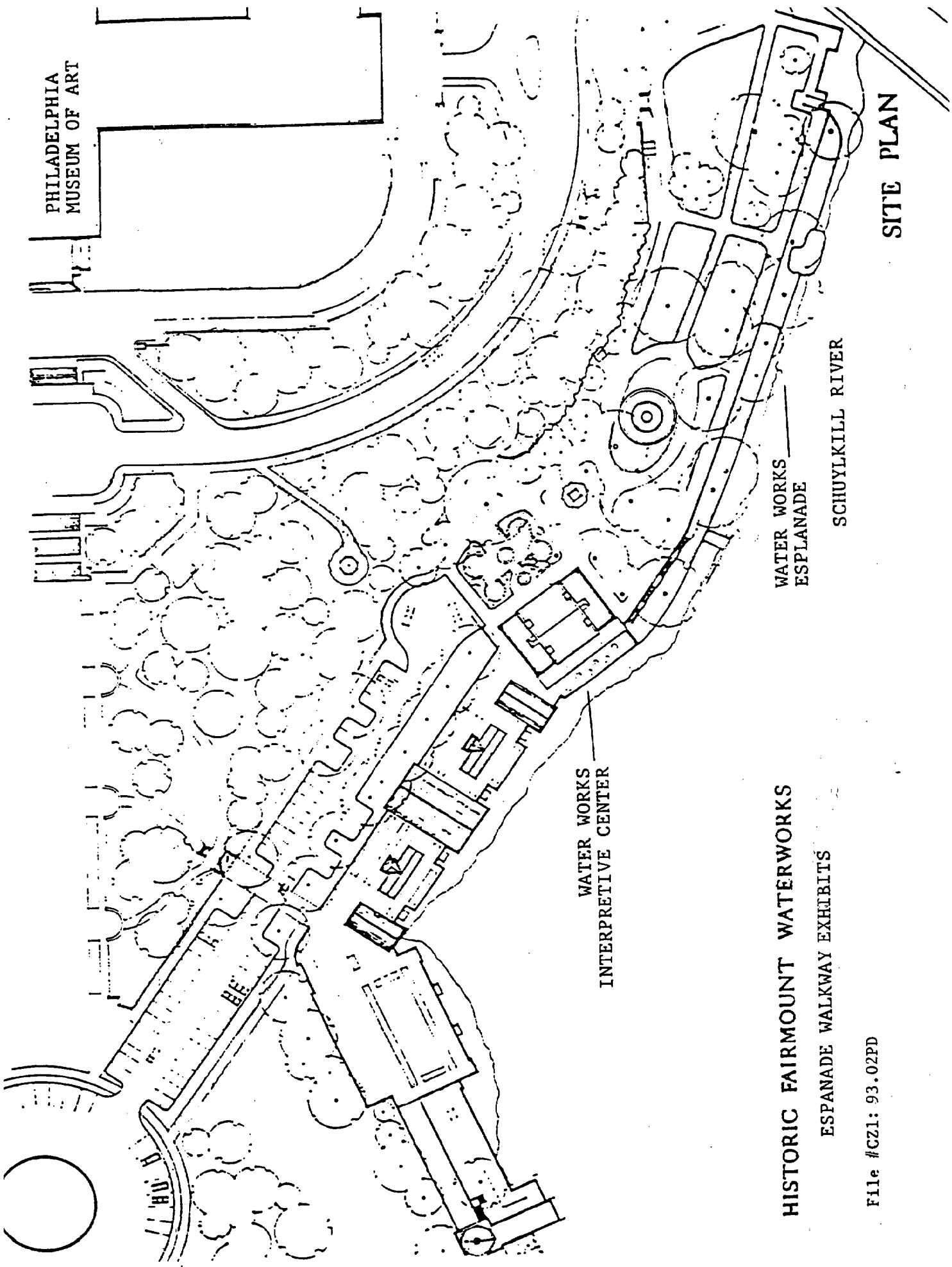
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TABLE OF CONTENTS

SITE PLAN SHOWING EXHIBIT AREA.	2
PROJECT BACKGROUND.	3
PROJECT REPORT.	5
INTERPRETIVE PROGRAMS OF THE EXHIBITS.	8
FINAL EXHIBIT DESIGNS.	10
PHOTOGRAPHS OF EXHIBIT INSTALLATIONS.	14



PHILADELPHIA
MUSEUM OF ART

SITE PLAN

WATER WORKS
ESPLANADE

SCHUYLKILL RIVER

WATER WORKS
INTERPRETIVE CENTER

HISTORIC FAIRMOUNT WATERWORKS

ESPLANADE WALKWAY EXHIBITS

File #CZ1: 93.02PD

ESPLANADE WALKWAY EXHIBITS FINAL REPORT: CZ1:93.02PD

PROJECT BACKGROUND

The Philadelphia Water Department (PWD) began as the Watering Committee in 1798, charged with providing the City with a pure and plentiful supply of water. Today it recognizes that an important part of the charge is to educate the public about the fragility of this vital natural resource.

In 1986, the Water Department, with assistance from the Coastal Zone Management (CZM) Program, began the groundwork for a museum and public education center at the historic Fairmount Water Works. The Water Works, a National Historic Landmark, is owned by the City of Philadelphia and administered by the Fairmount Park Commission. The space in the Engine House which contains the historic pumping machinery and the adjacent Water Works Esplanade have been dedicated to the Water Department for the Fairmount Water Works Interpretive Center.

The mission of the Interpretive Center is to educate the public on the pivotal role of the Water Works in the nineteenth century and to take advantage of the exceptional location to explore the fragile relationship between the urban and natural environment, raising public awareness about the need for wiser management of coastal resources to improve the quality of Pennsylvania's water resources.

The Interpretive Center is committed to attracting and serving a culturally diverse audience which includes inner-city school children, educators, community organizations, special interest groups, and senior citizens as well as the casual visitor. Although the site is in the process of being restored and the Interpretive Center space is unfinished, nearly 20,000 people have participated in the Center's programs and visited its exhibits since 1991. The success of these programs and exhibits has confirmed the value of the use of the Fairmount Water Works to communicate to the general public relatively sophisticated ideas about urban development, technology, and the natural environment.

The installation of interpretive exhibits on the Fairmount Water Works Esplanade Walkway has provided the Interpretive Center with an outdoor classroom and gallery space along which the public may explore, firsthand, Philadelphia's vital water resources.

The walkway plan is based on a 1989 CZM funded design by Tourbier & Walmsley, Inc. (TWI) for an Interpretive Esplanade. The working drawings and specifications submitted earlier and used for the fabrication and installation of the walkway exhibits were produced by TWI and are faithful to that original 1989 design.

PROJECT REPORT OCTOBER 1993 THROUGH SEPTEMBER 1994

October 1993 through March 1994: Contract No. CZ1:93.02PD between the City of Philadelphia Water Department and the Department of Environmental Resources, Bureau of Land and Water Conservation was executed.

A Personal Services contract between PWD and the firm of Tourbier & Wamsley, Inc. of New York City and Philadelphia was negotiated, executed, and conformed. Anthony Walmsley, ASLS, AICP, a principal in the firm, conceived the original designs for the Interpretive Esplanade and its Wayside Stations (exhibits) under a 1989 CZM-funded grant. PWD was pleased to be able to retain the original designer, assuring continuity of design and vision for the project.

March through May, 1994: The design process began in earnest. In a series of three meetings the texts for Wayside Stations 1, 3 and 4, and for the Introduction panel were refined, edited, and finalized. Images for the Wayside Stations were located, borrowed if necessary, and modified to balance the overall interpretive intent and visual effect. TWI had subcontracted the fabrication to Sears Iron Works of Ottsville, Pennsylvania which was represented at these meetings to assure that the design elements selected could be reasonably produced.

Images and artifacts from the collections of the American Philosophical Society and The Franklin Institute Science Museum in Philadelphia, the Hagley Museum and Library in Delaware, and the New Jersey State Museum in Trenton were incorporated into the Wayside Station designs. All these institutions have been credited in the introduction panel. Final design drawings were sent to CZM for approval.

June through September 1994: A camera-ready positive (2600 dots/inch) of the approved designs were sent to the Sheidow Bronze Co., Kingswood, West Virginia. From these positives photographic transparencies of each of three Wayside Station designs and the Introduction panel were made and transferred to polyfilm, creating patterns. The patterns were backed to the desired thickness, then sent to the sandcasting department where sand molds were made. The molds then went to the foundry where they were cast into bronze plaques, sandblasted, and finished. In the meantime, original Lenape fishing implements borrowed from the New Jersey State Museum were cast locally to be attached to the bronze plaque of Station 1 during installation.

On the Esplanade itself, the words "WATER FOR THE CITY" were sandblasted in the concrete pavement around the circular bench of Station 3. The knock-out panels for Stations 1 and 3 were removed from the Walkway, and holes for the Introduction Panel and Stations 1 and 3 were excavated. A "French" drain was dug for Station 1 and concrete pads for all four exhibits were poured. (Station 4's pad was poured above the walkway level on an existing concrete

pad covering an abandoned sewer manhole).

The granite frame of Station 1 produced at H.C. Wood Monuments in Lansdowne, PA was laid, and each of the four bronze plaques were installed on the concrete pads, secured by pins and an epoxy and concrete mixture. A brick paving "frame" was laid around the Introduction Panel and the site was cleaned.

INTERPRETIVE PROGRAMS OF THE EXHIBITS

The Introduction panel, Philadelphia and the Schuylkill River, is a plaque cast of bronze located at the top of the stairs leading down to the river-side Esplanade. The panel text introduces the main interpretive goal of the Esplanade, the relationship between man and the Schuylkill River. In addition, it recognizes the agencies and institutions whose generosity has made this project possible.

Station 1, Lenape Seasonal Fishing Camp, begins the interpretation of the site describing and illustrating man's earliest use of the Schuylkill River for transportation and food. This exhibit is recessed and represents an archaeological dig complete with a meter stick and outline of the "dug" quadrant represented in a granite block frame. A bronze plaque set within the granite frame includes text describing how the Lenape fished and features cast "artifacts" which archaeologists might find, were they to excavate a Lenape fishing camp along the river. These cast "artifacts" are chert or axe blade, sinkers from a fishing net, and sharpened points or arrow heads.

Station 3, Water For The City: The Centre Square Waterworks, describes the first time Philadelphians harnessed the water of the Schuylkill River for drinking, cleaning, and fire-fighting. A bronze plaque with an image of the interior of the Centre Square waterworks includes text which describes the innovative technology which ultimately lead to the failure of that system and

the building of the Fairmount Water Works.

Station 4, Water For The City: The Fairmount Water Works is a bronze plaque with images of the waterwheels and turbines, the two technologies used during the “Golden Age” of Philadelphia’s second and most famous pumping station. The text describes the social implications of bring water to Philadelphia during the Nineteenth century.

Station #0
set at 10% of the final size
set in Galliard bold
5/31/94

SRS-1

Philadelphia and the Schuylkill River

The Schuylkill River has shaped human activity for thousands of years. As their times and cultures differed, peoples' daily use of the Schuylkill differed. One thing was constant: all left traces of their lives on the river. Indeed, the river's name itself (pronounced "Skool-kill") shows the influence of early Dutch settlers; in their native language, "schuilkil" means "hidden creek."

The exhibits you see along the Esplanade are imaginary, but faithful, re-creations showing how people and the Schuylkill have made their way together over the years - from the time of the Lenape people, through the explosive urban growth of the

nineteenth century, to today's renewed respect for the river's life-giving qualities.

These exhibits were made possible by the Philadelphia Water Department and through federal Coastal Zone Management grants from the Pennsylvania Department of Environmental Resources with funds provided by the National Oceanic and Atmospheric Administration, U. S. Department of Commerce. Co-operating institutions were the American Philosophical Society, The Franklin Institute Science Museum, the Hagley Museum and Library, the New Jersey State Museum, and the Philadelphia Flower Show, Inc.

E

E

Station #1
set at 10% of the final size
set in Galliard bold
5/31/94

SRS-2

Food from the River, about 1400

Native Americans, beginning around 12,000 years ago, used the Schuylkill for food and a faint mark on the river and its history. The Lenape people practiced a mixed economy of farming, hunting, and fishing. They fished the river intensively from March to May, when it teemed with shad and other fish. Lenape men caught them by any means they could - with nets, traps, hooks and spears. Their families cooked and preserved the catch for use in winter months. The dig shown here contains worked stones. They are an axe head, arrow heads, and a pile of sinkers that held a rope-like net under the river's surface. The vegetable fiber net has long since decayed.

E

E

Station #3
set at 10% of the final size
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6/20/94

srs-3

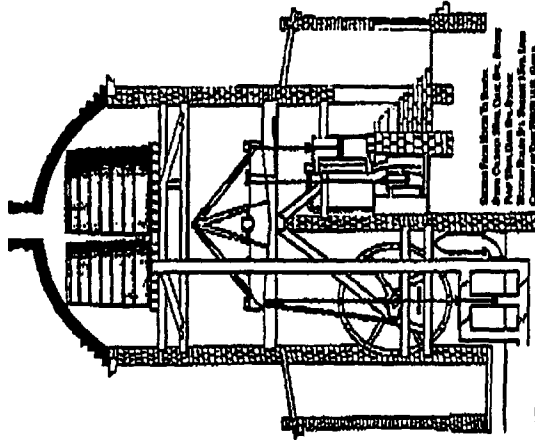
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The First Water Works, 1801-1815

Philadelphians in 1800 drew their water from backyard and public wells, which were often close to household privies. Worried about polluted wells, the City Councils engaged a young English architect/engineer, Benjamin Henry Latrobe, to design a better system.

Latrobe's pioneering waterworks called for steam engines, a new source of power. Steam engines pumped

water from the river to a water tunnel under Chestnut Street, then raised the water to elevated tanks in Centre Square (where City Hall now stands). Gravity forced the water from the tanks through wooden pipes to homes, businesses and public hydrants. Even though this system failed - it was too small, too costly to run, too undependable - the City's next waterworks also ran on steam.



CENTRE SQUARE WATER WORKS
Drawing from a plan by Henry Latrobe, 1801-1815
Grade of Street

Station #4
set at 10% of final size
set in Galliard bold

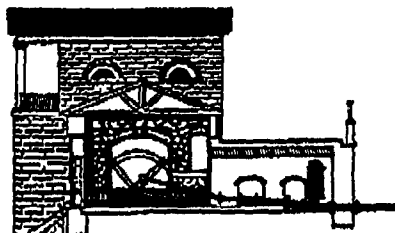
SRS-4

E

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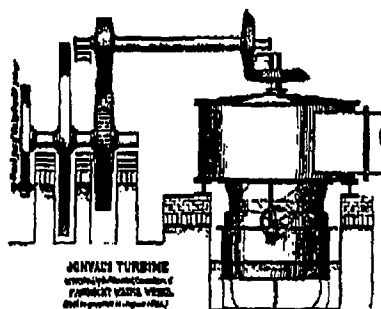
Fairmount Water Works, 1815-1909

Frederick Graff, once Latrobe's assistant, designed the Fairmount Water Works, which first served Philadelphia in 1815. It featured reservoirs atop Fairmount, now the site of the Art Museum. River water pumped into the reservoirs flowed down to the City in cast-iron pipes. Between 1819 and 1822, a dam was constructed across the river so the City could replace steam power with waterwheels to run the system's pumps. Demand for water grew. By 1870, many middle-class Philadelphians had indoor baths and plumbing.



Philadelphians took great pride in their Water Works. They came to admire the massive machinery and the neoclassical architecture; they brought their friends. In 1835, a

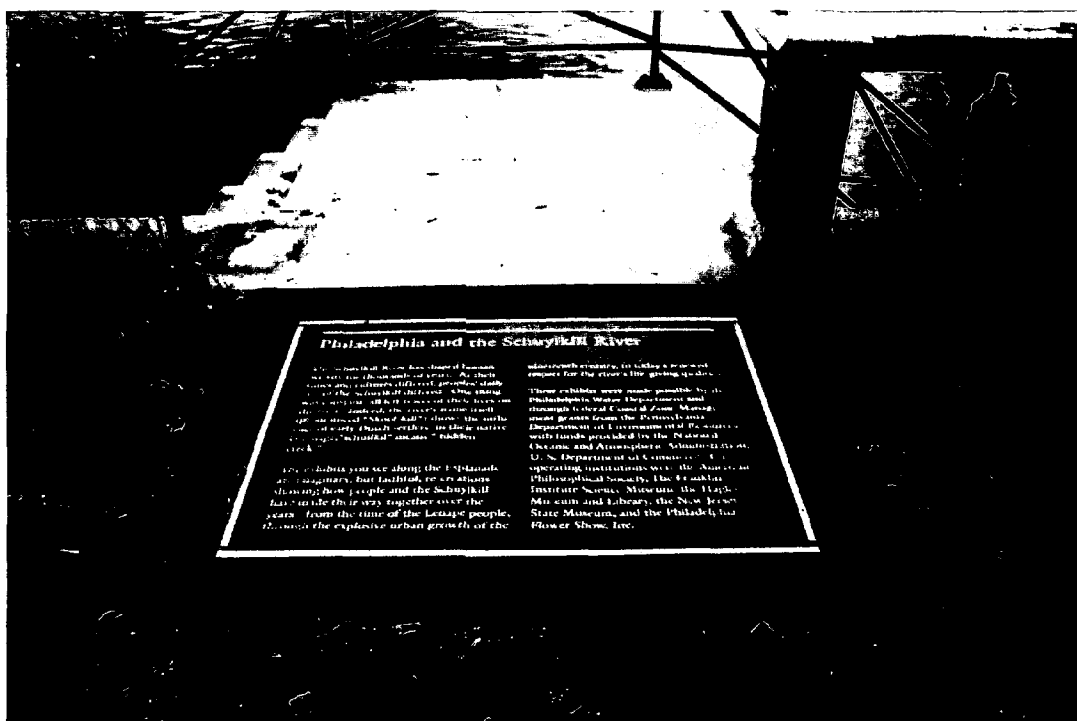
refreshment saloon and public gardens added to the attraction. These gardens were the beginning of Fairmount Park, established to protect the water supply from pollution and to provide public recreation.

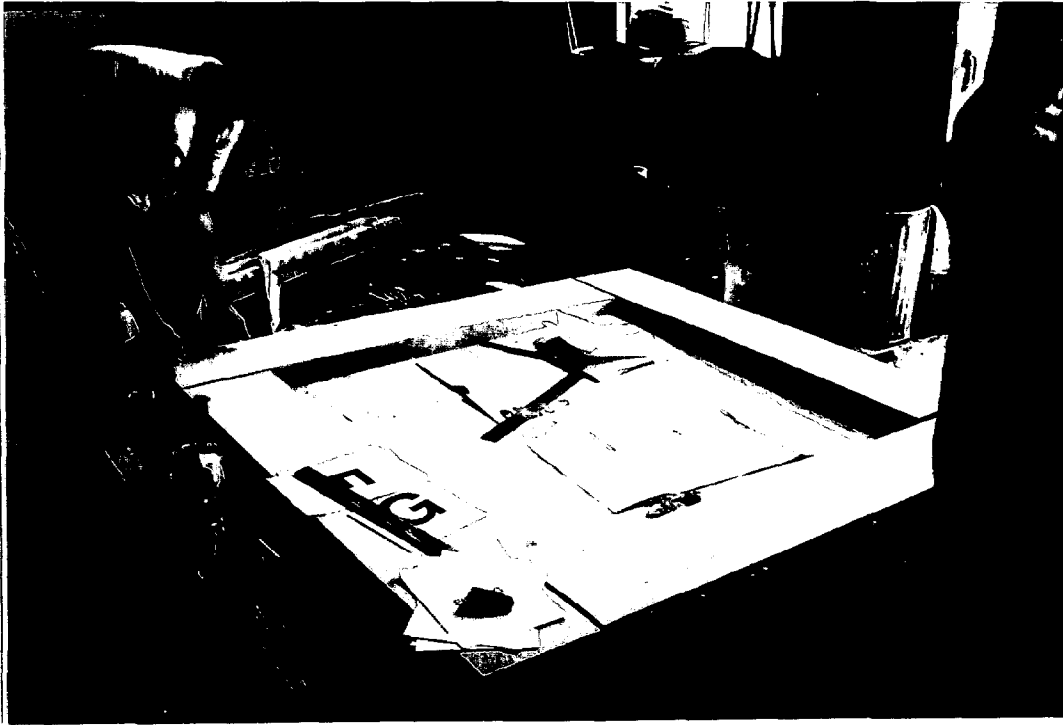


The Water Works expanded as water power technology improved and the City's population increased. But growth in the City and the communities upstream took its toll, and the waters of the Schuylkill became increasingly polluted. By 1900, the typhoid fever epidemics caused by contaminated river water forced Philadelphia to build sand filtration plants to purify the water supply. The Fairmount Water Works was closed in 1909.



1. (above) Installation of introductory Station "0".
2. (below) Station "0" introduces the Interpretive Esplanade's exhibits and credits the responsible organizations.



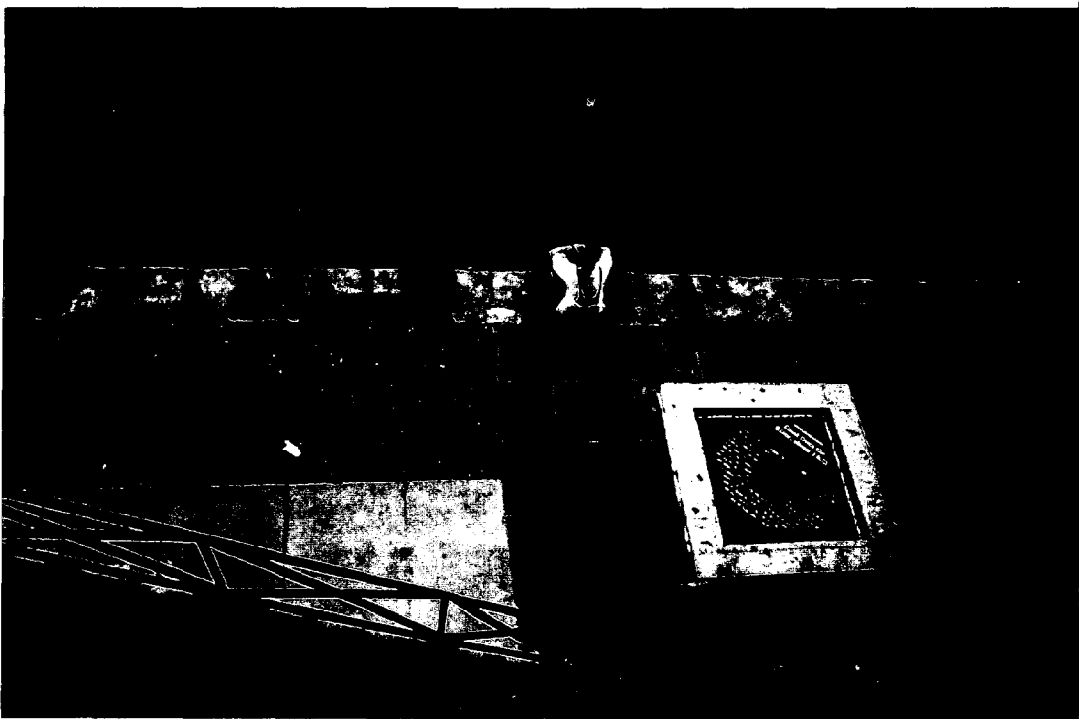


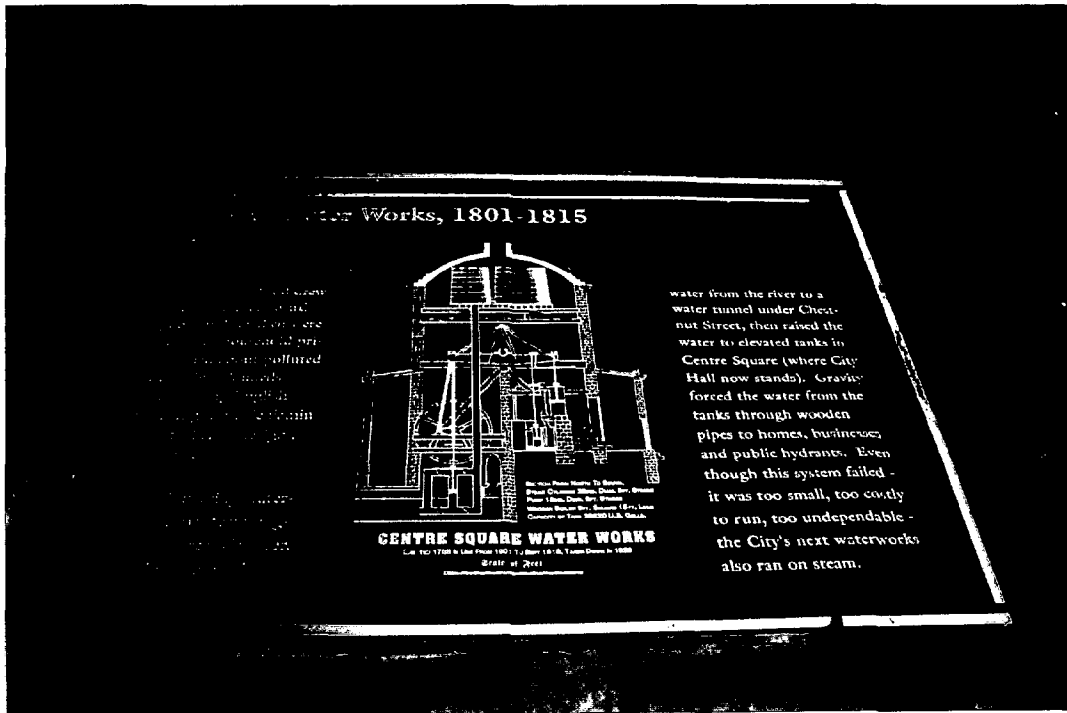
3. (above) Preparation of the granite border for Station 1, Lenape Seasonal Fishing Camp, at H.C. Wood Monuments.
4. (below) Mock-up of the arrangement of "artifacts" for Station 1.



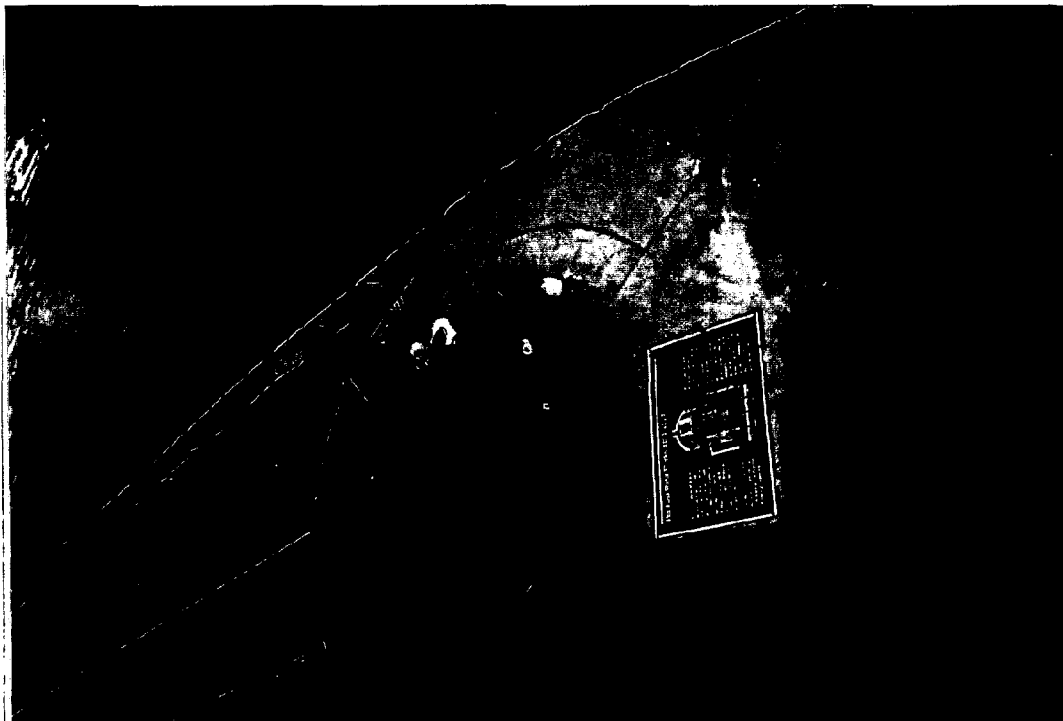


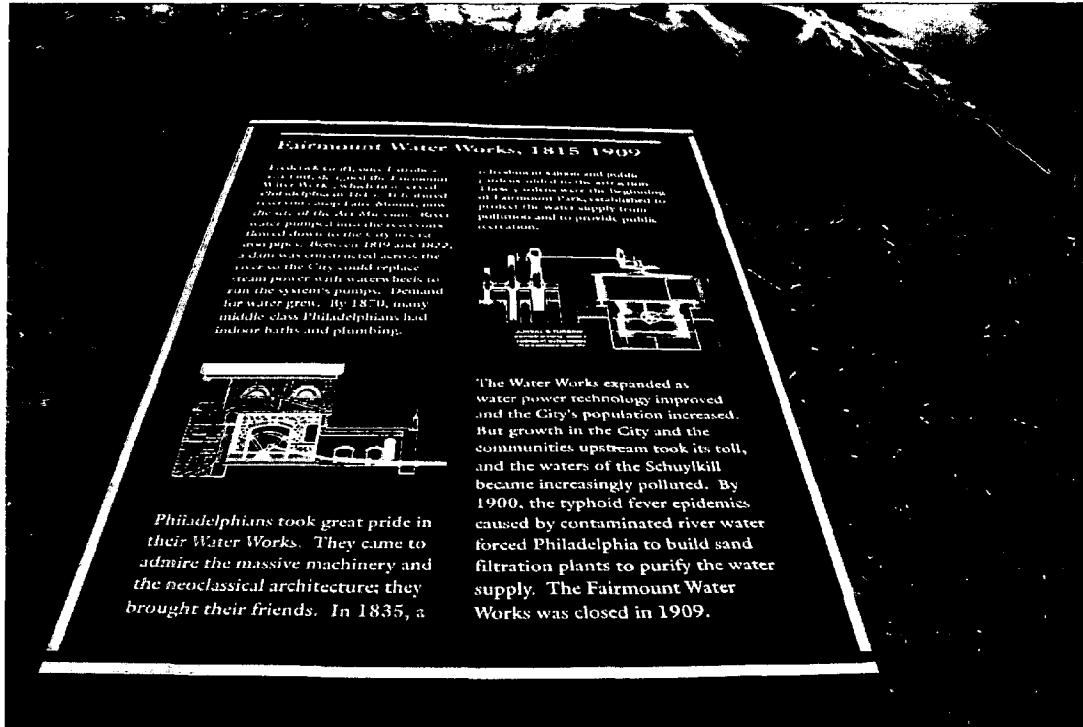
5. (above) Installation of Station 1.
6. (below) Station 1, Lenape Seasonal Fishing Camp,
installation completed.





7. (above) Station 3, Water for the City: The Centre Square Water Works, installed.
8. (below) Fishermen enjoy the amenities of Station 3.





9. (above) Station 4, Water for the City: The Fairmount Water Works, close up.
10. (below) Station 4, installed on the Interpretive Esplanade.





11. (above) Man and goose share the Fairmount Water Works Interpretive Esplanade with the Fisherman (Station 6, installed 1988).

12. (below) Two young fishermen enjoy the Schuylkill River from the Esplanade.



