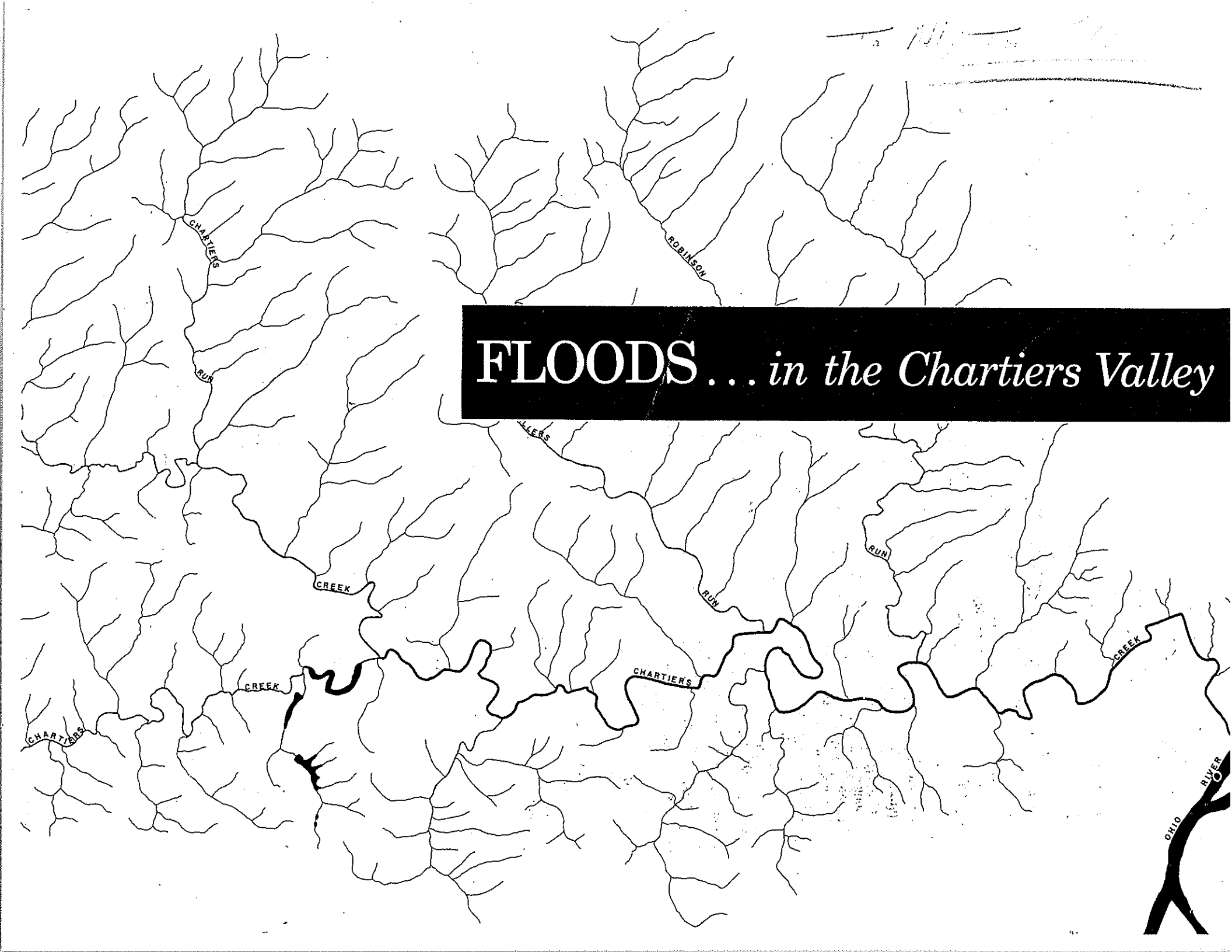
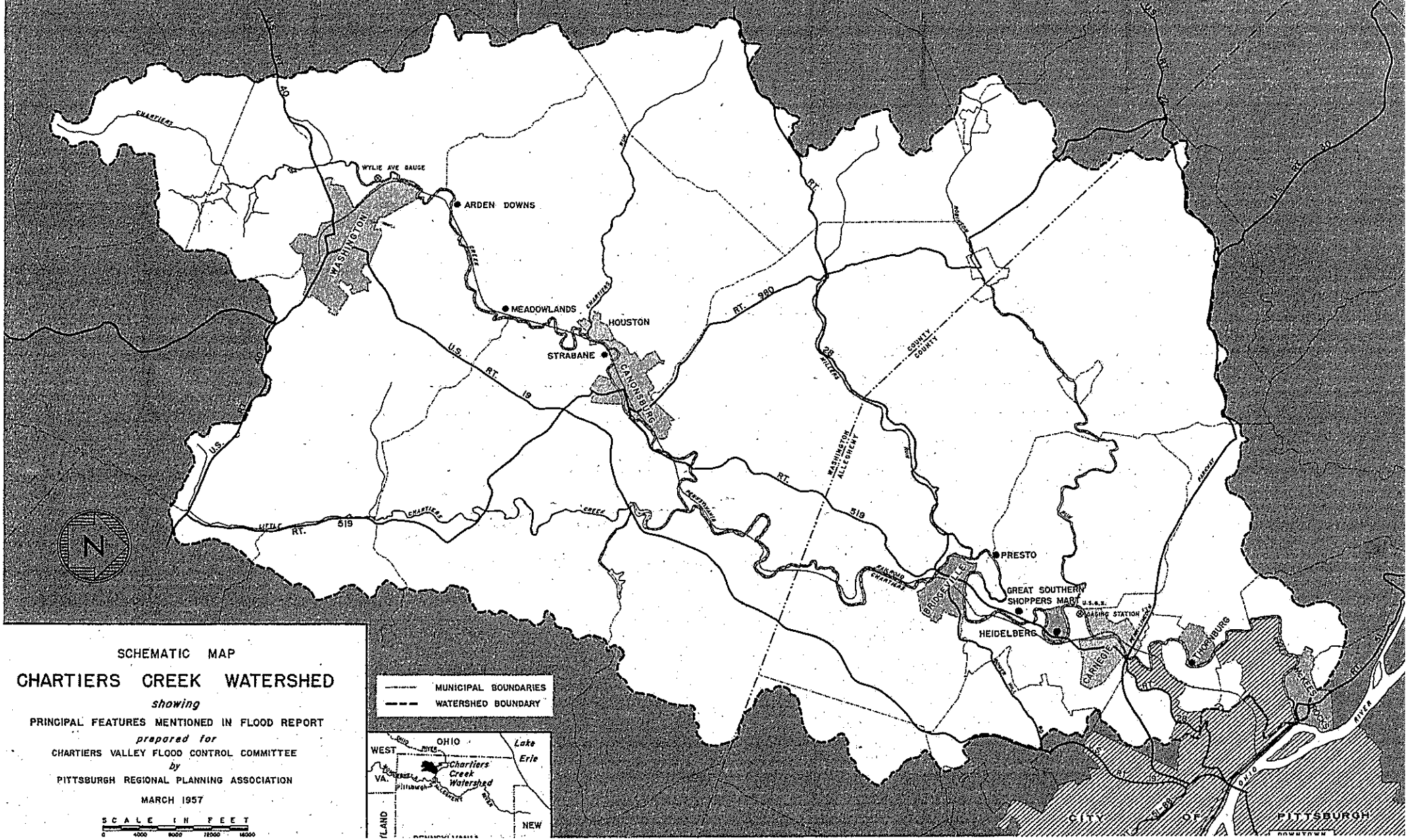


FLOODS . . . *in the Chartiers Valley*

Facts About Chartiers Creek and Its Watershed

- Located in Southwestern Pennsylvania near Pittsburgh
- 278 square mile watershed—main stream 52 miles long
- 35 municipalities within the watershed
- 255,049 persons live within the area
- $818,502,100 market value of real estate within the area
- 63 industries in watershed employ more than 50 workers
- $6,243,000 damage from flood of August 1956
- $14,000,000 in damage if flood had risen another foot
- Damage stage has been reached on an average of once per year during the past 50 years



SCHEMATIC MAP

CHARTIERS CREEK WATERSHED

showing

PRINCIPAL FEATURES MENTIONED IN FLOOD REPORT

prepared for

CHARTIERS VALLEY FLOOD CONTROL COMMITTEE

by

PITTSBURGH REGIONAL PLANNING ASSOCIATION

MARCH 1957

SCALE IN FEET

0 4000 8000 12000 16000

FLOODS . . .

in the Chartiers Creek Valley

prepared for the

CHARTIERS VALLEY FLOOD CONTROL COMMITTEE

by the

PITTSBURGH REGIONAL PLANNING ASSOCIATION

APRIL, 1957

TABLE OF CONTENTS

Introduction . . .

This report has been prepared to focus attention on the serious flood menace in the Chartiers Creek Valley. The most recent major flood of August 5 and 6, 1956, resulted in damages of $6,243,000. Reliable estimates indicate that the damages would have reached $14,000,000 if the flood waters had risen another foot.

The U. S. Army Corps of Engineers has completed a study which recommends the expenditure of $1,601,000 for a project to widen, deepen and realign the Chartiers Creek channel in and above the city of Washington, Pa., and to construct a dike at the upstream limit of this improvement.

Although the Corps of Engineers' project is certainly desirable for the Washington area, it will help that area only and will not dam or in any way contain flood waters which descend on communities in the lower valley. The lower communities sustained the major damage in the last flood.

Included in this report are an outline of the history and characteristics of the valley, a detailed description of the 1956 flood, an account of previous floods, various tables listing flood heights, populations, real estate market values, industrial and commercial data, and a summary of activities undertaken by the Flood Control Committee.

The Chartiers Valley Flood Control Committee believes that a Federal and/or State program should be initiated to bring flood protection to the entire valley.

The economic development of the valley and the future prosperity and happiness of its residents depend on the prevention of disastrous floods.

Unless otherwise noted, all photographs in this report are of the 1956 flood.

Characteristics and History Of the Chartiers Valley

The Chartiers Creek watershed lies in southwestern Pennsylvania. It has a drainage area of 278 square miles. The main stream of the Chartiers Creek rises in South Franklin Township in southern Washington County at an elevation of 1,300 feet. The course of the stream is northeasterly into Allegheny County where it empties into the Ohio River just below Pittsburgh at an elevation of 703 feet. The main stream is 52 miles in length.

In their winding courses through broken and hilly country Chartiers Creek and its many tributaries flow through 35 municipalities. At some points precipitous hills 300 to 400 feet high overlook the stream. In other places the creek opens out into plains a mile wide.

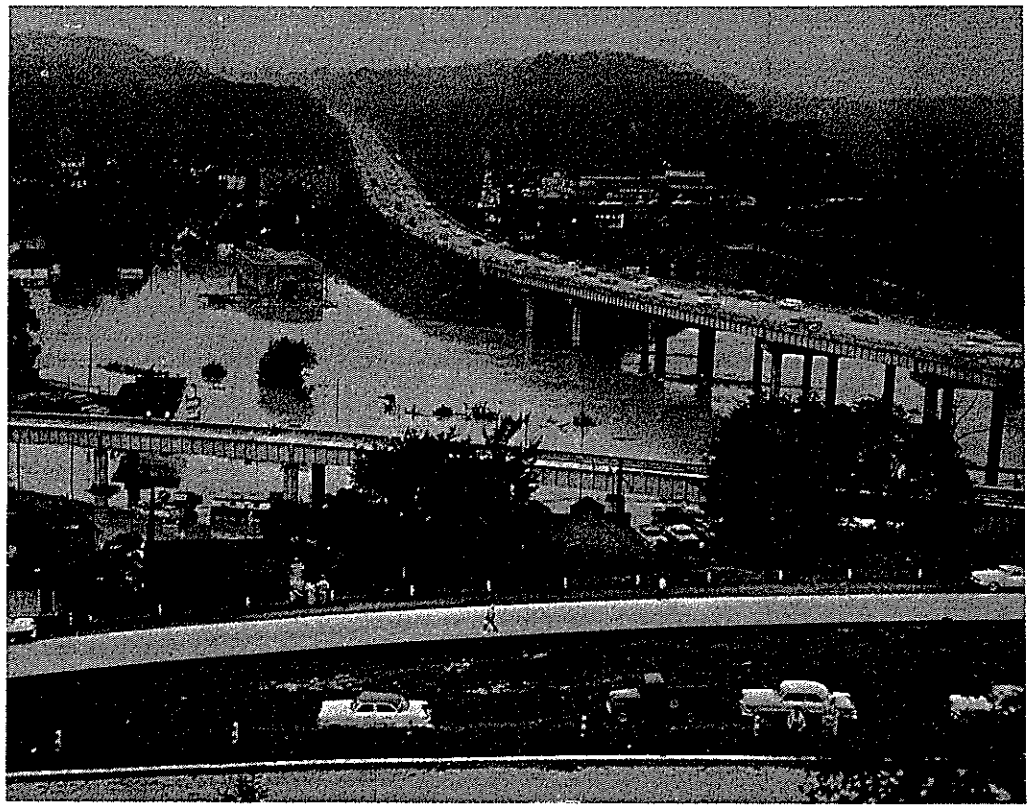
The first settlers came to the Chartiers Valley before the American Revolution. A grist mill was established at the junction of Campbell's Run and Chartiers Creek before the Constitution was adopted. Coal, oil, and gas contributed to the area's industrial development, and it naturally became a center for the steel industry. There are now more than 60 manufacturing plants in the valley, each employing in excess of 50 employees. Six major plants employ from 1,200 to 2,200 workers each.

Population of the watershed grew to 255,049 in 1950 (see Table 1., page 4). This has been augmented particularly in recent years by the rapid suburban growth south and west of Pittsburgh spurred by the construction of the Penn-Lincoln Parkway.

The principal communities on the main course of the stream are Washington, Canonsburg, Bridgeville, Heidelberg, Carnegie, and McKees Rocks. Heavy industry is located in each of these towns, and they are all centers of commerce and retail trade (see Table 2., page 4). In 1955 the market value of all real estate in the 35 communities in the watershed was $818,502,100 based on reports of the Pennsylvania Tax Equalization Board.

—Signal-Item Photo

The whole floor of the valley was covered by water in the vicinity of the Penn-Lincoln Parkway's Carnegie Interchange. Houses, lumber yards, used car lots, and industrial facilities are all shown partially under water.



The Universal-Cyclops plant, part of which is shown in this picture, was the most heavily damaged industrial installation in the valley. It took the company several weeks to resume full production due to the damage to machinery.

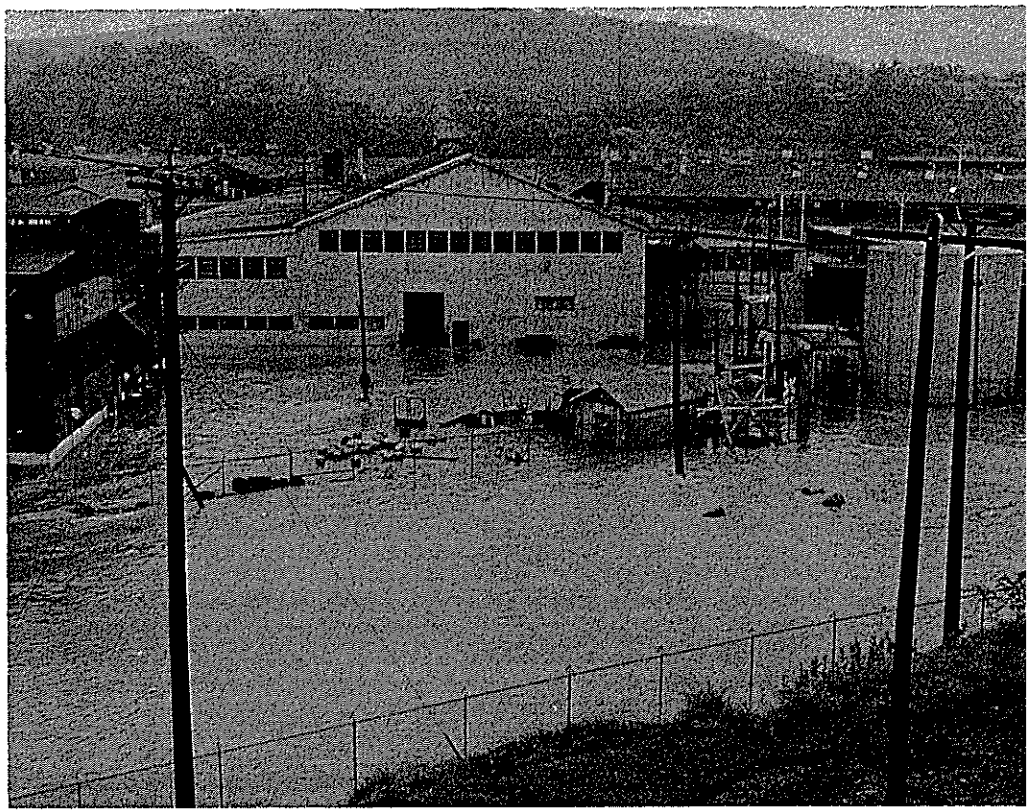


Table 1.

POPULATION AND MARKET VALUES OF REAL ESTATE LOCATED IN COMMUNITIES IN CHARTIERS CREEK WATERSHED

Allegheny County	1950 Census	1955 Market Value
McKees Rocks Borough	16,241	$ 31,956,900
Carnegie Borough	12,105	27,123,200
Crafton Borough	8,066	23,590,300
Bridgeville Borough	5,650	17,468,800
Heidelberg Borough	2,250	4,480,800
Thornburg Borough	335	1,339,300
Rosslyn Farms Borough	498	5,315,600
Oakdale Borough	1,572	2,539,500
Bethel Borough	11,324	60,105,200
Green Tree Borough	2,818	16,916,000
Mt. Lebanon Township	26,604	176,948,000
Upper St. Clair Township	3,629	26,222,700
Scott Township	8,686	37,813,800
Collier Township	8,039	21,558,900
Robinson Township	4,769	18,918,200
South Fayette Township	9,979	16,128,700
North Fayette Township	4,004	11,627,000
Pittsburgh, 20th Ward only	24,719	57,020,800
Pittsburgh, 28th Ward only	12,835	39,956,500
Total—Allegheny County	164,123	$597,030,200

Washington County	1950 Census	1955 Market Value
Washington, City of	26,280	$ 50,591,200
Canonsburg Borough	12,072	28,963,400
*McDonald Borough	3,543	5,511,400
Midway Borough	943	1,330,400
Houston Borough	1,957	3,959,400
Mt. Pleasant Township	2,956	6,679,100
North Franklin Township	2,816	7,401,500
South Franklin Township	1,029	3,203,400
South Strabane Township	4,019	14,261,300
North Strabane Township	5,465	17,988,400
Peters Township	3,004	20,403,900
Cecil Township	7,743	9,987,800
Chartiers Township	6,211	12,842,400
Canton Township	7,165	14,431,000
Somerset Township	2,006	12,077,300
North Bethlehem Township	1,725	8,980,600
Robinson Township	1,992	2,859,400
Total—Washington County	90,926	221,471,900
Total—both counties	255,049	$818,502,100

Source: Report of the State Tax Equalization Board on school districts

(*) Includes part of Borough in Allegheny County

TABLE 2.

RETAIL TRADE OF PRINCIPAL COMMUNITIES ON CHARTIERS CREEK

Community	Number of Retail Outlets	Total Sales	Employees	Yearly Payroll
Washington	518	$54,089,000	2,563	$6,172,000
McKees Rocks	283	24,383,000	929	2,492,000
Carnegie	246	24,749,000	828	2,137,000
Canonsburg	192	20,010,000	723	1,705,000
Bridgeville	91	9,726,000	364	938,000

Source: 1954 Census of Business, U. S. Department of Commerce

Note

In addition to these retail centers a large new shopping center, drawing customers from areas beyond the watershed limits, has been opened in Collier Township along Routes 28 and 519, the main highway through the Chartiers Valley. This center, called The Great Southern Shoppers Mart, has 49 retail outlets doing an estimated $10,000,000 in annual sales. Although located so high as to not be directly affected by the flood of August 1956, the center was closed for one whole day because it was inaccessible by automobile for most customers and employees. The merchants in the center reported that business was off substantially for several days following the flood as the economy of the whole area was disrupted by shut-down of manufacturing plants and the unemployment of workers.

The 1956 Flood—A New Record in Damage

The most destructive flood in the history of the Chartiers Creek Valley descended on Canonsburg, Bridgeville, Heidelberg, and Carnegie on August 5 and 6, 1956.

A survey by the Chartiers Valley Flood Control Committee based on comprehensive questionnaires submitted to all industries, commercial establishments, and residences in the flood plain indicated total direct damages of $6,243,000.

Major industrial plants in the valley were so heavily damaged that it took three weeks to two months for some of them to resume full production. Hundreds of families were forced to flee from their homes in the low-lying areas where water covered the first floors. One boy was drowned. A man was electrocuted trying to clean up damage in his home. Several persons were injured during rescue operations.

The Chartiers Valley was designated as part of the "emergency disaster area" declared by President Eisenhower, who allocated $300,000 to municipalities in Southwestern Pennsylvania to help pay clean-up expenses.

The flood resulted from a series of heavy rain storms. Rainfall in Canonsburg on August 5 measured 4.88 inches. Damage was greatest along the creek from above Canonsburg to below Carnegie. The gauge reading at Washington was the fifth highest in history, but at Carnegie the reading exceeded all previous records.

Washington

Compared to previous floods the damage in Washington was relatively light because of the completion of a flood control project in Canton Township prior to the August deluge. A mile and a quarter of the stream had been dredged and widened with financial aid contributed by local industries. The Washington County Engineer estimated that this project prevented $500,000 in damages from the flood of August 5 and 6.

Canonsburg

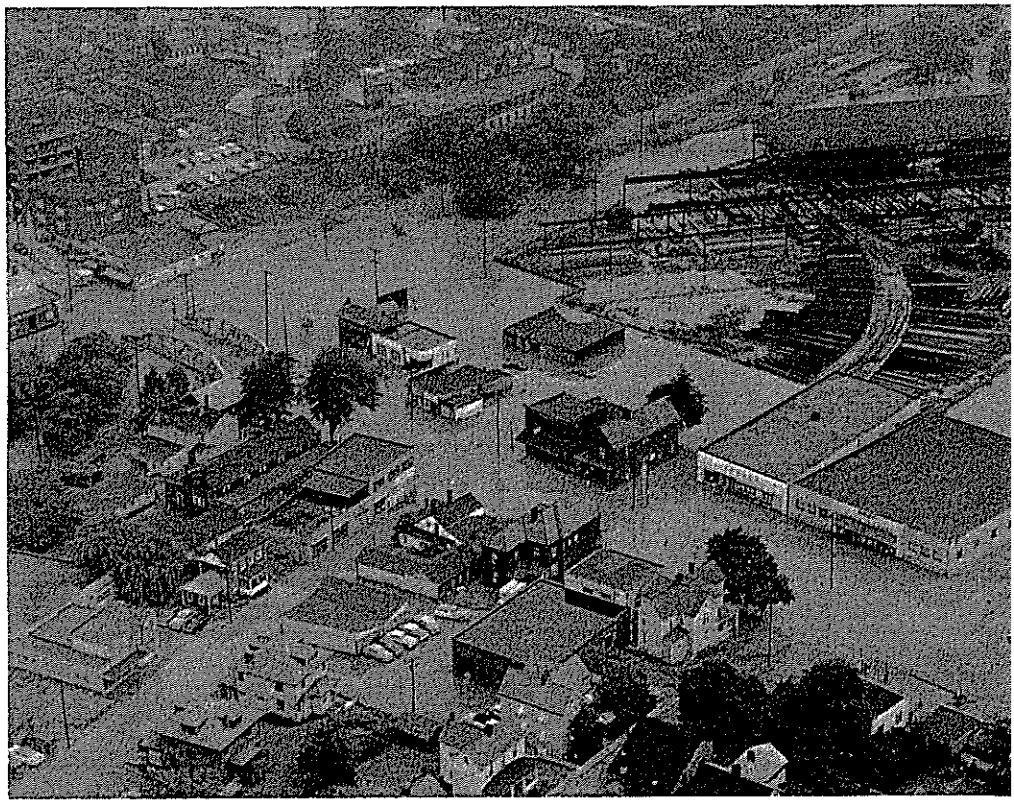
There was nothing, however, to control the raging waters in Canonsburg. They swept through Arden Downs, Meadowlands, and Houston and over the main bridges in Canonsburg. The main highways into Canonsburg, Routes 519 and 980, were covered, and the only way out was roundabout through Strabane to Route 19. The central and northern sections of the community were cut off. Public transportation was at a standstill. Only a few buses were able to operate. Cab service shut down and trains were canceled.

Hundreds of homes had several feet of water in the basements. The water was so high in some sections, such as Philadelphia Place, that at least 50 families had to be evacuated from their homes when the water climbed above the first floor. Many of the rescues were accomplished by use of boats.

Stores and gasoline stations on Pike Street were flooded. Two large supermarkets on the South Side were flooded causing extensive loss of food. Several commercial establishments reported damages ex-

—Washington Observer Photo

This aerial view shows the extent of flood coverage in Canonsburg. The Fort Pitt Bridge Works in the upper right was put out of commission and the Kroger and A&P supermarkets in the lower right were forced to shut down.



—*Bridgeville News Photo*
This picture is taken at a point some distance from the creek in Bridgeville. The lake-like area in the middle of the picture is Carol Ave., one of the main streets of the community. So many major streets were under water that the town was isolated for several hours.

ceeding $20,000 each. One furniture company listed damages of $70,850.

Industrial damage in Canonsburg was particularly devastating. The Fort Pitt Bridge Works, the Canonsburg Pottery Company, and the Chartiers Cinder Block Company were completely closed. It took Fort Pitt three weeks to resume full operations and the Pottery Company more than six weeks to restore 100 percent operations. Physical damage at these two plants exceeded $120,000. Their employees lost $70,000 in wages during the shutdown. Other companies suffered disruption of production because of the flood waters and the inability of many employees to reach their places of employment. The Canonsburg *Daily Notes* reported that "several thousand workers in Greater Canonsburg were idle" on August 6 because of the flood.

Homes were damaged in both Meadowlands and Houston. At least one house was wrenched from its foundation in Houston. Nearby Arden Downs provided one of the few humorous incidents that occurred during the flood. Following rescue of the horses which had appeared in a show the day before the flood hit, a man set out around the track in a motorboat to collect some 850 floating chairs which had been placed near the show ring. At one time the track was under four feet of water.

Bridgeville

For several hours during the height of the flood Bridgeville was practically isolated. Routes 519 and 28 at both ends of town were closed. Bower Hill Road was under water near the Universal-Cyclops Steel Corporation plant. Water also covered the road to Presto and blocked use of a new bridge. Many families were evacuated from their homes as the water rose. Contributing to the damage was McLaughlin Run, a tributary which joins Chartiers Creek in the middle of Bridgeville.

The Universal-Cyclops plant, biggest employer in the valley with almost 2,200 workers, was covered with water. The company reportedly placed an estimate of $1,500,000 damage with the County Tax Board in asking for a reduction in its real estate tax assessment. Newspaper stories at the time the request was made hinted that the company was considering moving its facilities out of the county because of the continual flood threat. Many employees of the plant were out of work six weeks, two months and longer because of the time required to get machinery repaired and back in operation. Major damage was also reported at the Bridgeville Glass Works of the General Electric Company and at the Sipe & Company paint plant.

Heidelberg and Carnegie

Motorists driving on the Penn-Lincoln Parkway where it crosses over the Chartiers Valley at Carnegie could hardly believe their eyes on August 5 and 6. The floor of the valley had been turned into a huge lake. The whole town of Carnegie appeared to be under water. On some streets water reached second-floor windows. Large industrial plants were inundated.

In Heidelberg and Carnegie the main form of transportation was no longer automobile, streetcar or bus. It was motorboat, rowboat, and canoe supplemented by high-wheeled military vehicles. At least

250 persons were forced to abandon their homes and take refuge in the Carnegie Library, the Boys' Club, the Methodist Church, the Salvation Army, and the homes of friends. The Red Cross gave assistance to 259 families in Carnegie and 97 in Heidelberg.

The Chartiers Valley Flood Control Committee in a door-to-door survey found that 435 homes in Carnegie alone sustained a total flood damage of $791,000.

Business enterprises in Heidelberg and Carnegie were very heavily damaged as water covered the principal commercial areas. Losses to establishments on Main Street, Chartiers Street, Third Street, Jane Street, and Third Avenue in Carnegie approached $750,000 according to a survey made by the *Signal-Item*. The Carnegie store of McCrory's Stores Corporation had damages of roughly $100,000. Merchandise was ruined, showcases and fixtures were damaged, and various types of equipment were rendered useless in furniture and appliance stores, drug stores, restaurants, and clothing shops. The showroom and service garage of Pascoe Motor Company was flooded causing $99,600 damage to new cars, used cars, and equipment.

—*Signal-Item Photo*

These homes in Heidelberg are typical of hundreds of homes throughout the Chartiers Valley in which first and second floors were covered by the rising water. The top of a car is barely visable in the right foreground. Hundreds of autos were caught by the flooding creek.

The Superior Steel Corporation, which lies in a section of Scott Township between Heidelberg and Carnegie, suffered damages to equipment, inventory, and property that almost reached $400,000. In addition the company estimated its 1,350 employees lost approximately $140,000 in wages during the shutdown necessary for clean-up operations. It took the plant 50 days to resume 100 percent operations following the flood.

Several other large plants along the creek in the Carnegie area were unable to resume full production for periods of three to five weeks. A substantial number of these plants reported losses exceeding $50,000.

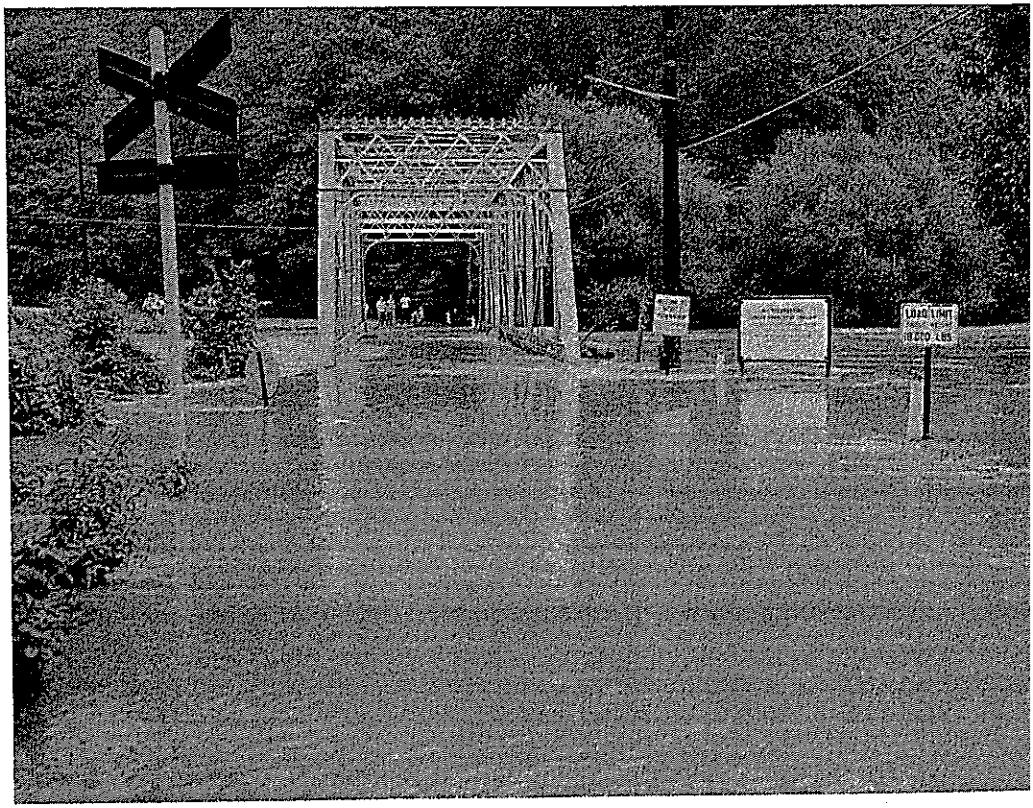
Below Carnegie the flood spread out and covered parts of the Crafton Public Golf course in Thornburg. The damage to the course was estimated at $30,000. The Ohio River was not unusually high at the time of the flood, which enabled the lower part of the creek to run off rapidly. There was only minor damage in a few basements in McKees Rocks.

The Red Cross reported expenditure of more than $110,000 in rehabilitation and disease prevention work during the flood. This was broken down as follows: Washington County, $18,018; Carnegie, $42,361; Heidelberg and Bridgeville, $49,924. Hundreds of residents whose homes were flooded received polio and typhoid shots. The Pennsylvania Department of Health established stations to distribute large quantities of free disinfectants.

Flood Effect on Transportation and Utilities

One of the major effects of the flood was the disruption of transportation. Except for the Penn-Lincoln Parkway, almost all bridges over the creek along the length of the valley were either blocked by water over their approaches or over the bridges themselves. Many people were unable to get to work, shopping facilities, or doctors' offices. Some roads were physically damaged. Others were temporarily blocked by debris following the flood. The State Highways Department spent $36,800 in repairs in Washington County and

The Vanadium Rd. Bridge, one of the main bridges across the creek, was closed to traffic by the flood waters. The road drops away from the bridge at the near end. The bridge is in Scott Township near the Universal-Cyclops plant.

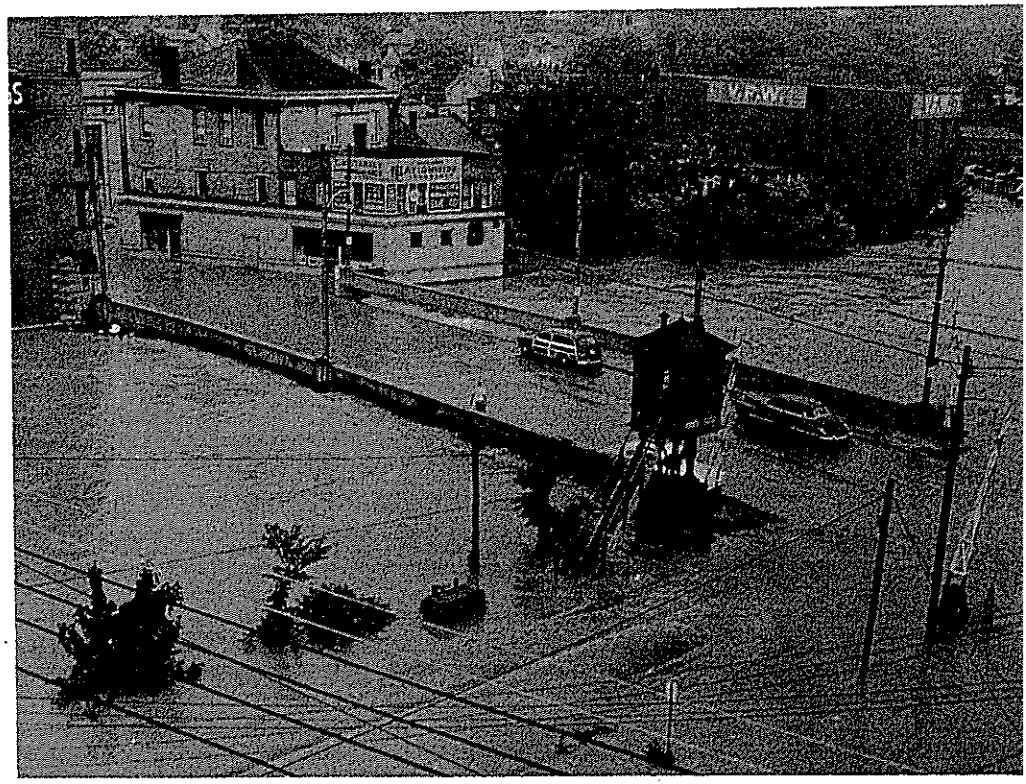


$39,981 in Allegheny County. The Borough of Carnegie was forced to spend $71,000 cleaning and repairing its streets and sewers. The Borough of Canonsburg spent $5,000 and the Allegheny County Works Department $1,600.

It took the Pennsylvania Railroad almost two full days to restore complete service. Flood expenses reported by the P.R.R. included $8,140 for repair and replacement of communications and signals; $3,300 for fill for washed out areas; $900 for expense of operating work trains; and $8,660 for wages for the clean-up and repair crews.

The gas, electric, and phone companies suffered considerable service interruptions. At one time 1,500 phones were out of commission in the Carnegie and South Hills area. In the midst of the flood confusion the joint police radio communications system of South Hills communities was knocked out. The West Penn Power Company and Duquesne Light Company reported it cost them $21,000 in equipment and wages to restore their flood-interrupted services. It took West Penn ten days to get back to completely normal operations. The three gas companies in the area spent $35,735 in draining pipes and restoring service. It was almost two weeks before all of the gas lines were back in operation.

Several schools and churches sustained damages in the Carnegie area. St. Mary's Russian Orthodox Church in Carnegie reported $37,500 in damages; St. Luke School and Church, $30,000; All Saints Polish National Catholic Church, $20,000; Holy Souls Church, $11,000; and other churches lesser amounts. Some church services had to be canceled.



—*Signal-Item Photo*

Water not only went under the Main St. Bridge in Carnegie, it went across it. Note the railroad tracks in the foreground completely covered by water. Train service was interrupted for almost two full days.

History of Floods in the Chartiers Valley — A Repetition of Disasters

The scourge of floods has been a threat to life, property, and peace of mind ever since the first settlers built homes in the Chartiers Valley and industry began to develop along the banks of the Chartiers Creek and its tributaries.

The U. S. Army Corps of Engineers records based on gauge readings and other data show that the creek waters have exceeded the damage level in Washington at least 54 times in the past 50 years (see Table 3., page 11).

Other gauge readings taken by the U. S. Geological Survey and the Pennsylvania Department of Forests and Waters for 34 of the past 42 years at Carnegie indicate that the creek overflowed its banks at the Gauging Station 18 times during the record period (see Table 4., page 14).

The floods in the Chartiers Valley are frequently the result of heavy thunderstorms lasting several hours. When the creek rises in Washington, it follows that a few hours later it will rise in Meadowlands, Houston, Canonsburg, Bridgeville, Heidelberg, Carnegie, and McKees Rocks. But because of the large watershed and the many tributaries the severity of the flood may vary from community to community.

In fact the Corps of Engineers reports these communities have been extremely fortunate on several occasions that the center of a flood-causing storm was not directly over the valley. The Engineers have indicated in a study of the creek at Washington that a water flow five times greater than any on record (causing the creek to rise 10 feet higher than has ever been recorded) could result from a concentration of rainfall equal to that which has hit nearby sections of Southwestern Pennsylvania.

The official gauge readings and water flow charts are only a part of the history of death and destruction which is recorded in yellowed pages of old newspapers in printing shop basements and community libraries scattered through the Chartiers Valley.

Early Flood Reports

Among the earliest floods on which there is a report was the "Whiskey Run Flood" of 1874. Several people were drowned. The rolling mill located at what is now Carnegie was put out of operation. Bridges were washed out at several points between Bridgeville and Washington. Trains on the Chartiers Valley Railroad were delayed for several days.

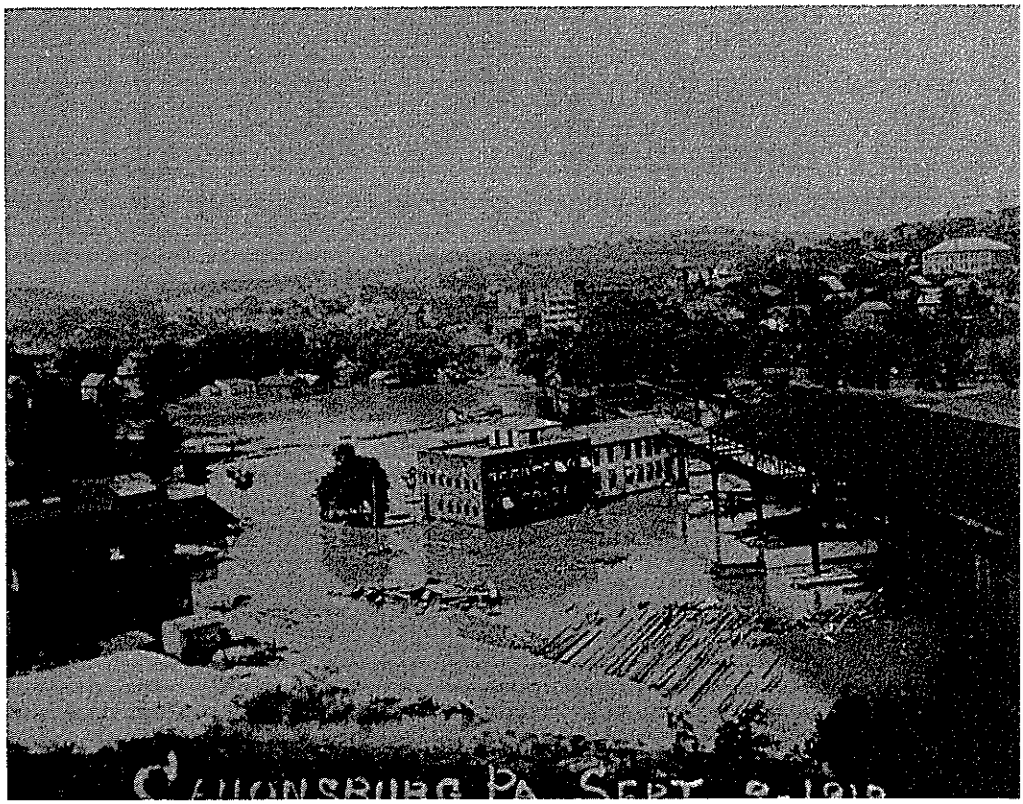
Another severe flood occurred throughout the valley in August 1888. One of the major items of damage in this flood was the overturning of a bridge on the Pittsburgh, Chartiers and Youghiogheny Railroad. Hundreds of families were forced to flee from their homes.

The Flood of 1901

A terrible flood developed on April 20, 1901. The *Carnegie Item* reported the streets were like rivers and described the damage to the

—Ducky Swan Photo

The Fort Pitt Bridge Works in Canonsburg has been a long-suffering victim of floods in the Chartiers Valley. This picture of the plant was taken on September 2, 1912.



Superior Steel Mills as follows:

> "The water came into their gas producer and the furnaces of the hot mills causing explosions which incurred a heavy loss. The rolls were submerged and all had to be taken out and the furnaces repaired. The tunnel through which the gas is passed from the producer to the furnace had to be renewed."

Abutments of a railroad bridge near the plant washed out and the shops around the mills were under water. Upstream several bridges were destroyed. A cottage floated down the creek and crashed against the Heidelberg bridge, and another house overturned. Many outbuildings were sucked into the swirling waters. A new building under construction for the old Columbia Bridge Works was ruined.

In Canonsburg the situation was so bad that temporary bridges had to be built over streets. No mail reached the town for three days.

There was apparently a major flood in Washington during March of 1907. Although a high water mark for the flood was established by the U. S. Engineers, little information is available on the actual damages.

The Flood of 1912

On the first two days of September, 1912, one of the worst floods in history hit the valley. It is the highest flood of record in Washington and resulted in the drowning of 13 people in the Washington area and three near Canonsburg. There are detailed reports of heroic rescues preventing further loss of life in both of these cities and at Heidelberg and Collier Township.

The Canonsburg Daily Notes, reporting on rescue work performed by horse and mule drawn wagons which carried residents from their flooded homes, said:

> "On the last trip of the rescue wagon along Forest Street, when four families were taken in the wagon and hauled to a place of safety, the mules were compelled to swim and for some time the drivers even feared for their lives."

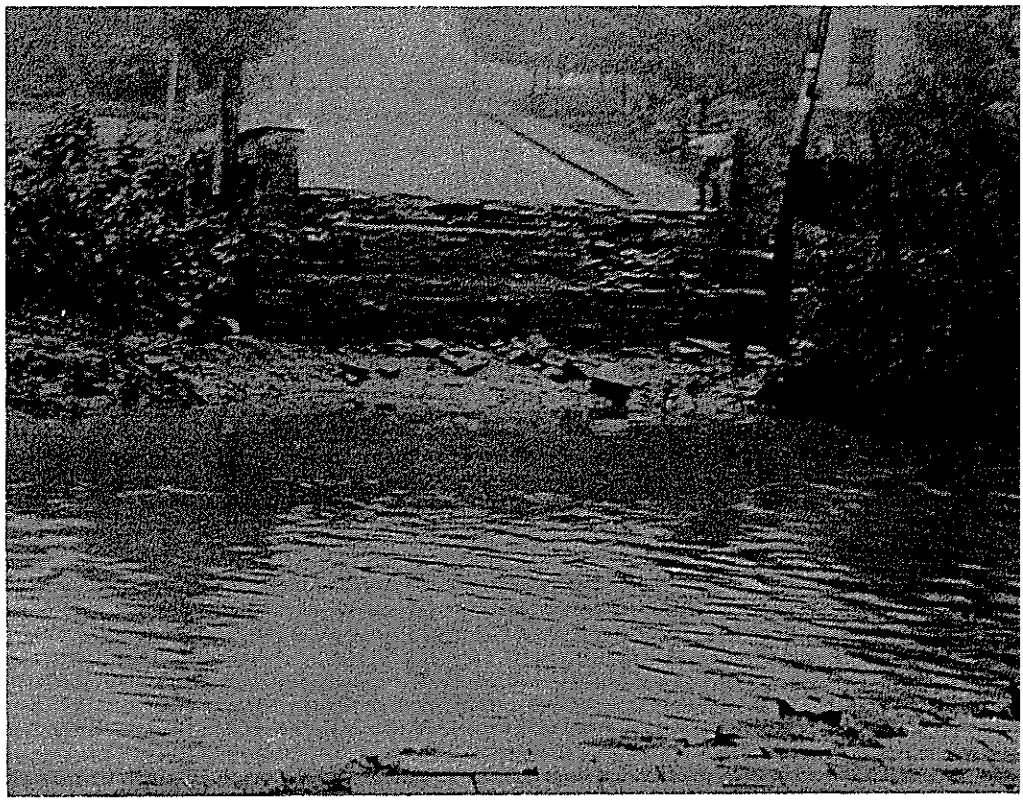
The Jefferson Avenue Bridge in Canonsburg was washed away. The raging torrent tugged buildings loose from their foundations, ripped up the paving on such main streets as South Central Avenue, and heaved railroad tracks putting the PCC & St. L. Railroad and the Pittsburgh Railways Company out of commission.

The plants of Fort Pitt Bridge Works, Canonsburg Pottery, and Standard Tinplate were so heavily damaged that they could not resume operations for more than a week. Merchandise in many stores was ruined.

Following the flood there was an outbreak of diphtheria in the Canonsburg area.

In Collier Township a home was washed away, and the Sipe Paint plant lost hundreds of barrels of paint. The track of the B & M Branch Railroad was out in several places.

In Carnegie the land between Arch Street and the creek was from one to six feet under water. As water rose over the first floors of houses, many people were forced to seek shelter on higher ground. Cellars were flooded in the business establishments on Fourth Avenue. The McClintic-Marshall Company plant in East Carnegie was flooded, and there was severe damage to railroad tracks, bridges and culverts.



—Ducky Swan Photo

Washed-out bridges are an old story along the Chartiers Creek. Back in 1912, as this photograph shows, the Jefferson Ave. Bridge in Canonsburg was demolished by a flood.

Table 3.

FLOODS ON CHARTIERS CREEK AT WYLIE AVENUE IN WASHINGTON, PA.

Date of Flood			Stage Elevation Ft., M.S.L.	Est. Discharge Sec.-Ft.
2	September	1912	1013.0 (a)	2,790 (a)
28	July	1943	1012.4	2,400
	March	1907	1012.0 (a)	2,140 (a)
6	March	1945	1012.0	2,140
5	August	1956	1011.9	2,050
30	December	1942	1011.67	1,980
25	June	1923	1011.5 (a)	1,890 (a)
17	March	1936	1011.12	1,700
22	January	1937	1011.0	1,640
15	January	1951	1010.8	1,550
13	July	1928	1010.7 (a)	1,520 (a)
8	June	1947	1010.0	1,250
4	December	1950	1010.0	1,250
7	August	1935	1010.0 (a)	1,250 (a)
4	February	1955	1010.0	1,250
10	April	1942	1009.96 (a)	1,240 (a)
27	January	1952	1009.9	1,200
20	April	1940	1009.71 (a)	1,150 (a)
16	November	1955	1009.4	1,050
15	October	1954	1009.3	1,000
10	June	1951	1009.2	960
24	July	1955	1008.6	780
7	February	1951	1008.4	700
7	December	1950	1008.2	680
7	May	1953	1008.0	640
14	April	1948	1008.0 (a)	640 (a)
20	June	1946	1008.0 (a)	640 (a)
17	September	1942	1008.0 (a)	640 (a)
20	February	1938	1008.0 (a)	640 (a)
11	March	1935	1008.0 (a)	640 (a)
4	April	1931	1008.0 (a)	640 (a)
29	April	1951	1007.8	600
1	July	1953	1007.7	570
1	February	1951	1007.7	570
30	December	1954	1007.3	470
5	November	1950	1007.2	460
6	January	1955	1007.2	460
4	February	1952	1007.1	440
11	March	1952	1007.0	420
27	December	1949	1007.0 (a)	420 (a)
12	September	1938	1007.0 (a)	420 (a)
26	April	1937	1007.0 (a)	420 (a)
2	August	1935	1007.0 (a)	420 (a)
10	May	1933	1007.0 (a)	420 (a)
15	March	1933	1007.0 (a)	420 (a)
16	July	1932	1007.0 (a)	420 (a)
30	March	1928	1007.0 (a)	420 (a)
26	January	1949	1006.8 (a)	380 (a)
16	August	1954	1006.6	360
16	June	1954	1006.5	340
25	April	1955	1006.5	340
5	May	1952	1006.4	320
25	May	1952	1006.2	310
20	May	1952	1006.1	290

(a) Approximated

Source: Corps of Engineers, U. S. Army

Notes

1. Damage stage begins at elevation 1,006 m.s.l. at Wylie Avenue in Washington, Pennsylvania. The above table lists all floods of record which have exceeded that level.
2. Since 1950, flood data have been available from the Jefferson Avenue recording gauge. The West Penn Power Company furnished the Corps of Engineers with elevations of high water for the floods of March 1936, April 1940, April 1942, December 1942, July 1943, and March 1945. The Engineers obtained other data from field investigation of high water marks, information furnished by manufacturing plants, business establishments and individuals, and by examination of file editions of Washington newspapers.

In addition to the damage to industries, commercial establishments and houses, thousands of acres of corn were destroyed and thousands of tons of forage were carried away by the waters which spread out over the farm plains in the upper valley. Horses and chickens were among the casualties.

An indication of the destructiveness of this flood is an estimate by the U. S. Engineers that recurrence of a flood of the same gauge height in Washington today would produce $761,000 in damages in that city alone.

It should be noted that the storm center for the 1912 flood missed Washington. The rain varied from six to 15 inches. If such a deluge hit Washington today and raised the creek 2½ feet higher than 1912, the damage would be $1,722,000 according to the Engineers. Even a flood of this magnitude is considerably below the "maximum project flood" the Engineers consider possible for Washington.

—Signal-Item Photo

Many boats were pressed into service for rescue operations. This picture was taken in Third St., Carnegie, as a group of men helped three nuns to safety.

The Flood of 1920

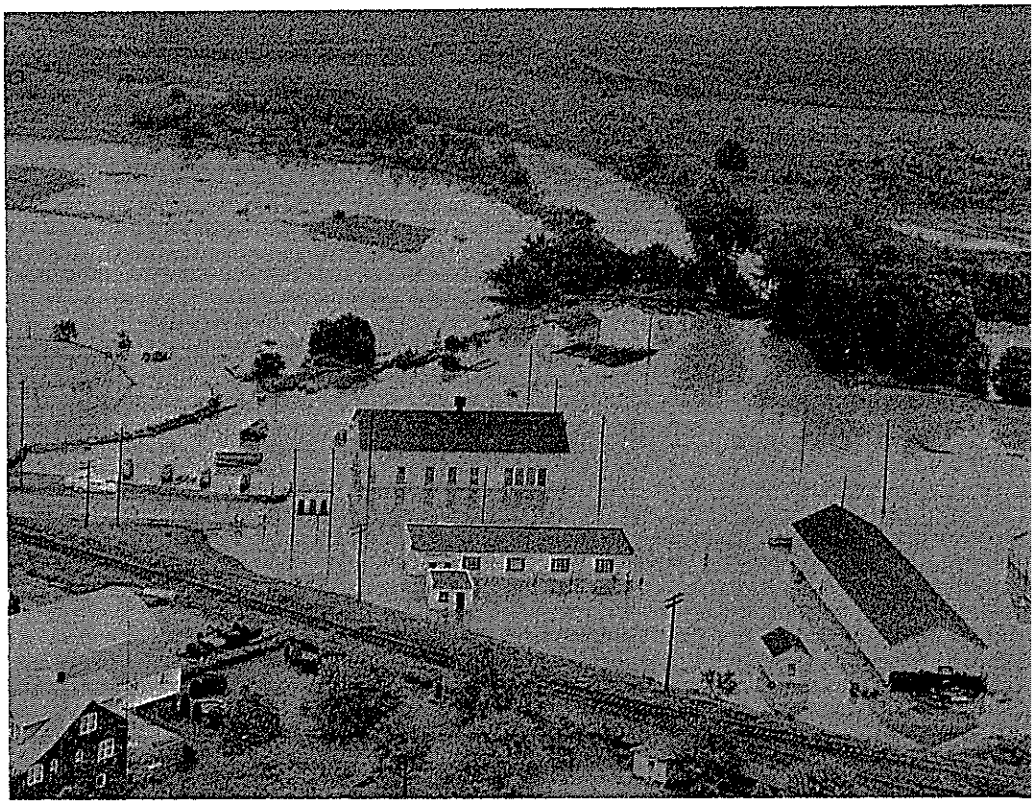
The next major flood to wreak havoc in the Chartiers Valley occurred on June 17, 1920. Apparently the damage was not particularly great in the upper part of the stream system in the vicinity of Washington, but Canonsburg, Carnegie, and McKees Rocks suffered heavily.

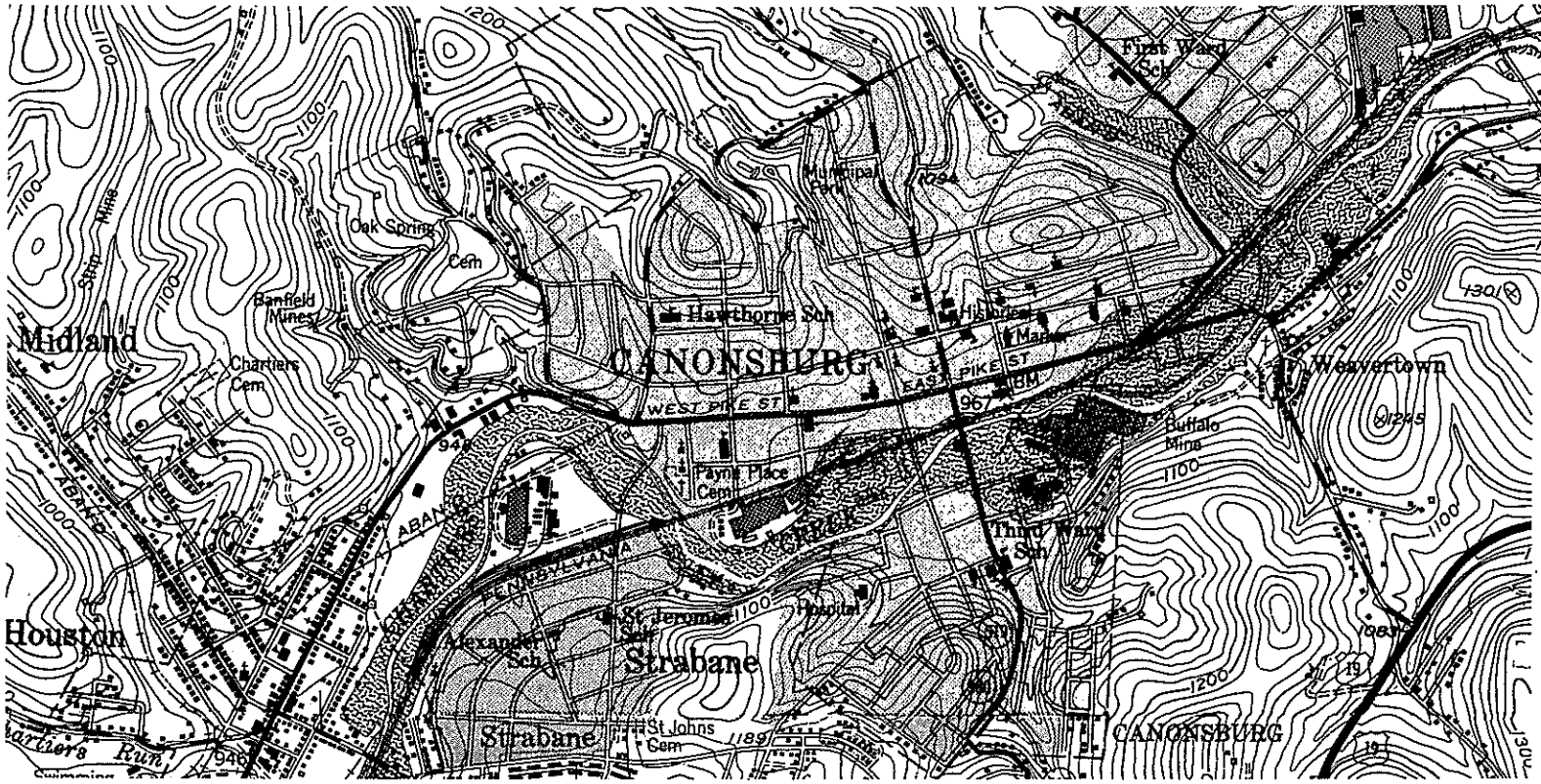
Train and trolley service was cut off all along the valley as tracks were covered. The water rose over the Central and Jefferson Avenue Bridges in Canonsburg, and sidewalks on streets near the creek were washed away.

Standard Tinplate and Fort Pitt Bridge Works were again shut down by the flood. Phone lines were put out of commission and more than 300 homes in Canonsburg were without service. Two bridges were ruined in Peters Township, and several secondary roads suffered severe damage.

—Washington Observer Photo

This view shows part of the SW Penn Pipe Line Pump Station and part of a farm under water at Meadowlands. The flood caused extensive crop damage as it spread out in the plains.





Downstream in Carnegie, Main Street was covered. The swirling waters damaged merchandise, forced industries to close, and flooded cellars and first floors of many homes. At least 50 families had to leave their homes. Newspapers reported a merchandise and supply loss in Carnegie of more than $100,000 and a loss of work and business in excess of $500,000. Farmers in the area lost large numbers of horses, cattle, hogs, and poultry in addition to considerable crop damage.

In McKees Rocks the Esplen Bridge connecting the community with Pittsburgh was washed out. One man drowned and another barely escaped when the raging Chartiers Creek carried the bridge into the Ohio River. Streetcar service was disrupted on Carson Street until a new bridge could be built and many residents had difficulty getting to their jobs.

The Flood of 1936

The Chartiers Creek contributed its share to the enormous damage in the Pittsburgh area caused by the famous St. Patrick's Day Flood of 1936. While the Allegheny, Monongahela, and Ohio Rivers were rising to record heights at the Point in Pittsburgh, Chartiers Creek was making life miserable for the residents of Canonsburg, Carnegie, and McKees Rocks.

In Canonsburg basements were flooded, sewers backed up into homes and business establishments creating a menace to health.

Utility services—water, electric, and telephone—were disrupted in Carnegie. The area between Arch Street and the creek was under water, and store basements were flooded on East and West Main Street. Many thousand dollars' worth of merchandise was lost. Schools were closed. The Sipe Paint Plant upstream from Carnegie was damaged, and lowlands of Thornburg below Carnegie were covered with water.

Practically the whole Borough of McKees Rocks was covered with water, but this was mostly caused by the flooding of the Ohio River. However, appreciable damage resulted along the banks of the Chartiers Creek as the floodwaters from upstream joined the backwater from the Ohio River.

Table 4.

FLOODS ON CHARTIERS CREEK

AT THE U. S. GEOLOGICAL SURVEY GAUGE STATION, CARNEGIE, PA.

Date of Flood			Stage Elevation Ft., M.S.L.	Est. Discharge Sec.-Ft.
6	August	1956	778.40	13,100
17	June	1920	778.13	
17	March	1936	776— *	
6	March	1945	775.52	12,200
30	December	1942	774.33	8,700
27	November	1919	774.33	
26	March	1929	774.23	
22	January	1917	774.13	
22	June	1928	774.03	
16	October	1954	773.58	7,520
22	September	1921	773.53	
22	February	1917	773.43	
4	December	1950	773.33	7,160
5	September	1926	773.33	
22	March	1916	773.33	
28	July	1943	773.18	7,130
9	April	1942	773.03	7,380
29	December	1915	773.03	
15	January	1951	772.83	6,560
16	November	1926	772.53	
9	February	1918	772.53	
27	January	1952	772.36	6,030
4	April	1930	772.33	
17	November	1927	772.23	
29	June	1924	772.23	
15	March	1933	772.03	
5	June	1927	772.03	
3	January	1924	771.93	
1	April	1922	771.83	
14	December	1927	771.63	
5	July	1950	771.44	5,100
15	April	1922	771.23	
4	March	1955	771.18	4,900
16	January	1924	771.13	
17	November	1929	771.05	
23	December	1923	771.03	

* No gauge was maintained at this time. The stage elevation is based on observation and reports collected by the U.S.G.S. The date coincides with the St. Patrick's Day Flood in Pittsburgh when the waters of the Allegheny and Monongahela Rivers reached the highest point in recorded history.

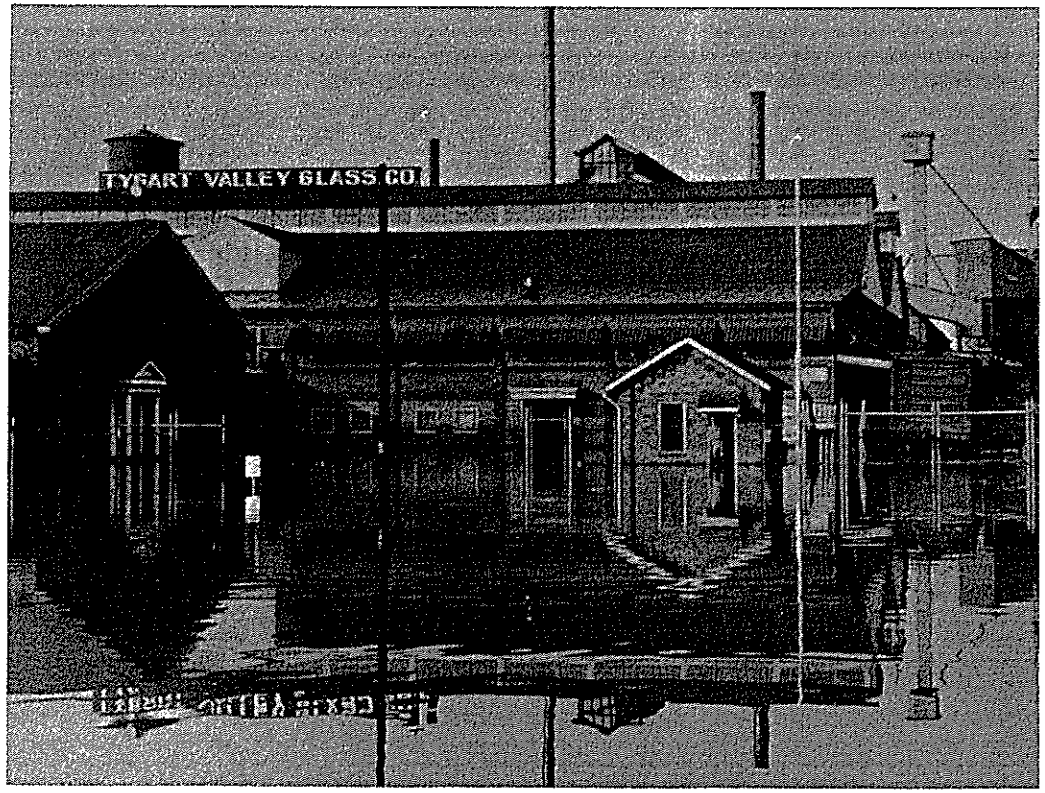
Notes

1. The normal flow or "pool" stage at the present Gauge Station at the Superior Steel Company plant is two or three feet (764-765 ft., m.s.l.). No official damage level has been established for the creek in Carnegie. However, the U.S.G.S. reports that the creek overflows its banks at the Gauge Station when the water reaches 11 feet (773 ft., m.s.l.). It should be noted that the banks are higher at the Gauge Station than at other points along the creek. Therefore, at some points damage would occur before the gauge reading reaches 773 feet.

2. A chain gauge was established in 1915 on a railroad bridge .6 mile below the present Gauge Station by the Pennsylvania Department of Forests and Waters. (Zero of this gauge was 757.08, but the readings in the above table have been converted to correspond with the zero of the gauge at the present station near the Superior Steel plant.) The U. S. Geological Survey joined in the operation of this gauge in 1919 and maintained records until December 15, 1931.

3. Another gauge was established at the Main Street Bridge in Carnegie, one mile downstream from the present gauge on January 8, 1932. It was abandoned in 1933. (Zero of this gauge was 757.91, and its readings have also been converted to correspond with the Superior gauge.)

4. The present gauge at the Superior plant was established by the U.S.G.S. with the cooperation of the U. S. Corps of Engineers in 1941 and has been maintained to date. (Zero of this gauge is 762.03.)



On July 28, 1943, the flood waters entered the Tygart Valley Glass Co. plant in Washington County. Local industries have contributed to some channel improvements in that area to help reduce the flood threat, but a major project is still needed for complete flood control.

The Flood of 1942

The flood of December 30, 1942, while ranking only fifth highest in terms of gauge records at Carnegie, caused hardships which did not accompany some of the more destructive floods. One of the few winter floods, it left many homes in Carnegie and Canonsburg without heat as utility service was disrupted.

Water covered streets and industrial railroad facilities and flooded cellars of homes in the lower parts of Canonsburg. As usual, the basements of establishments on Main Street, Carnegie, were flooded. In McKees Rocks backwaters from the flooding Ohio River diverted Chartiers Creek down Union Alley onto Chartiers Avenue. The street was covered by three feet of water and thousands of dollars' worth of merchandise was damaged in the cellars and on the first floors of stores.

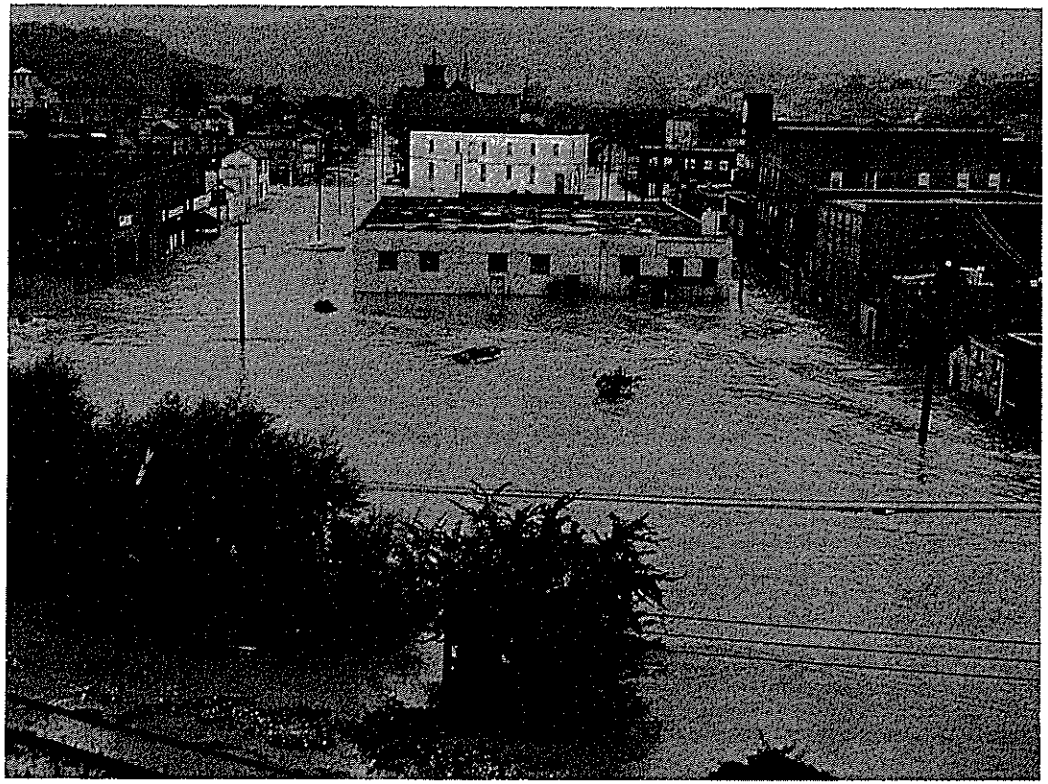
The Flood of 1943

A terrific cloudburst on July 28, 1943, swept over the Chartiers Creek Valley. Six inches of rainfall were reported at points in the headwaters. Eleven bridges were washed out in Washington County, most of them along Chartiers Creek and its tributaries. Hundreds of basements were flooded in Washington, and extensive industrial damage was reported. Again the U. S. Engineers pointed out that a slight transportation of the center of the storm could have doubled its magnitude in the city of Washington.

In Carnegie the rushing water overflowing the banks of the creek ripped bricks from the streets. Residents of McKees Rocks recall this cloudburst as one of the worst half-hour storms in history. Many cellars in the business places along the creek were flooded.

The Flood of 1945

On March 6, 1945, a combination of melting snow and heavy rains developed into a flood which caused industrial damage in Washington and poured water into the cellars of low-lying homes. In Canonsburg the streets were covered, and there was only one way out of the main part of town. The homes in "Philadelphia Patch" were under



—Signal-Item Photo

The A&P supermarket in the center of the photograph was one of many stores which had to destroy large quantities of food following the flood. This picture gives some idea of the large area in the heart of Carnegie which was under water.

four to six feet of water. Train tracks were covered and there were serious industrial losses. Many residents of Arch, Third, and Jane Streets in Carnegie were rescued from their homes by rowboats. West Main Street was under water from Chartiers Street to a point several blocks west.

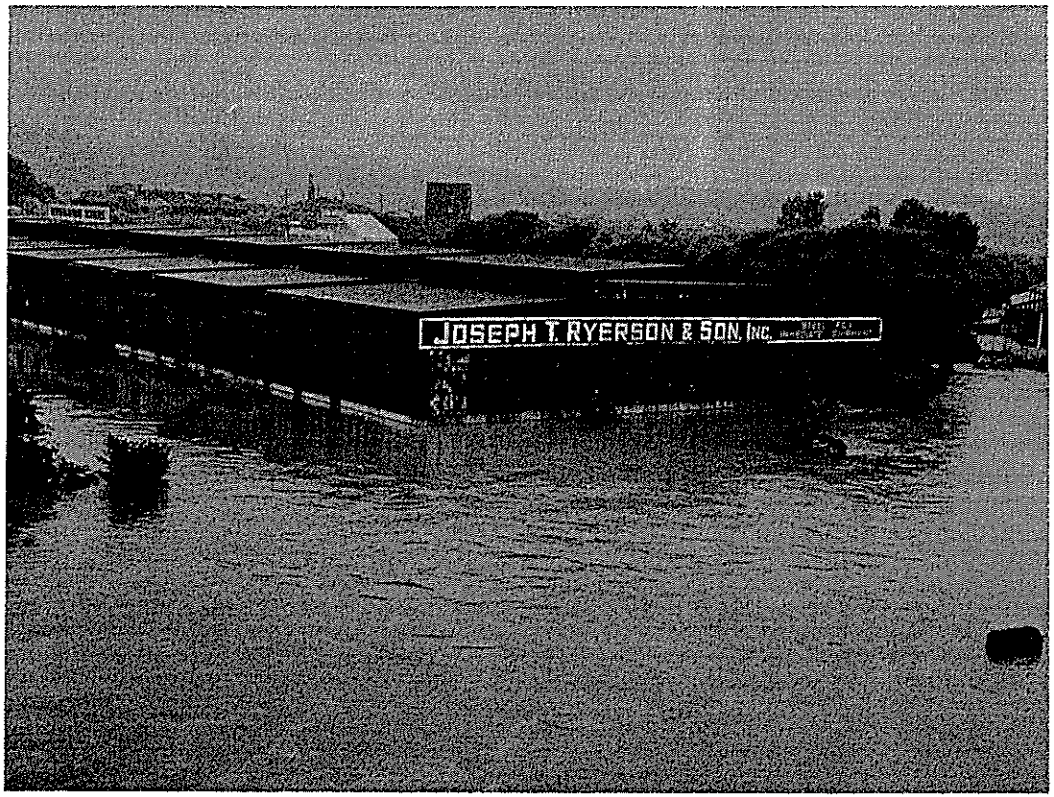
* * * *

The foregoing has been a brief historical report on the main floods in the Chartiers Valley prior to the flood of August 5-6, 1956. However, it should be pointed out that there are some low-lying homes, industrial plants, and business establishments which suffer minor damage and inconvenience at some time during almost every year when the creek rises from a heavy rain. These people insist that they get flooded "every time somebody spits in the creek."

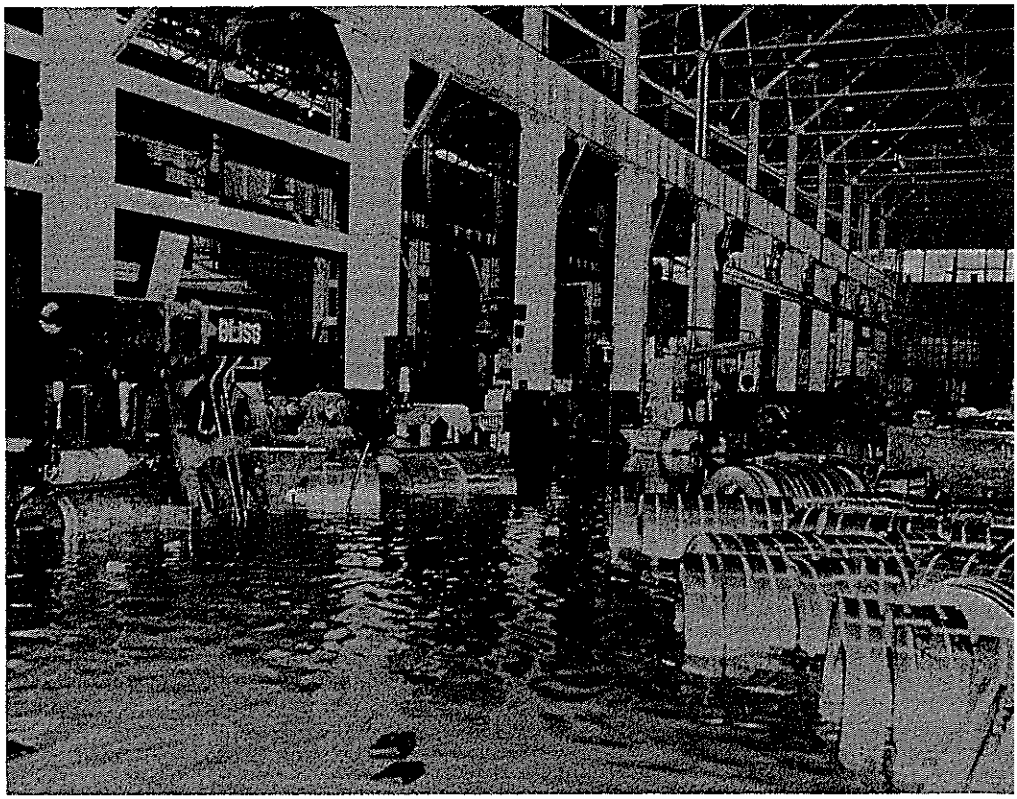
Four of the worst floods from the standpoint of general damage have occurred within the past 15 years. The increase in severity of these floods may be attributed in part to the heavy residential development of sections of the watershed. Since the end of World War II many of the choicest new Pittsburgh suburban residential developments have been located in this area. The valley has also recorded its share of new commercial and industrial developments. The extensive grading, clearing of land and construction of new streets has contributed substantially to increased run-off in the valley after heavy rains. Considerable erosion has also occurred which is a factor in the filling of the creek channel at several points.

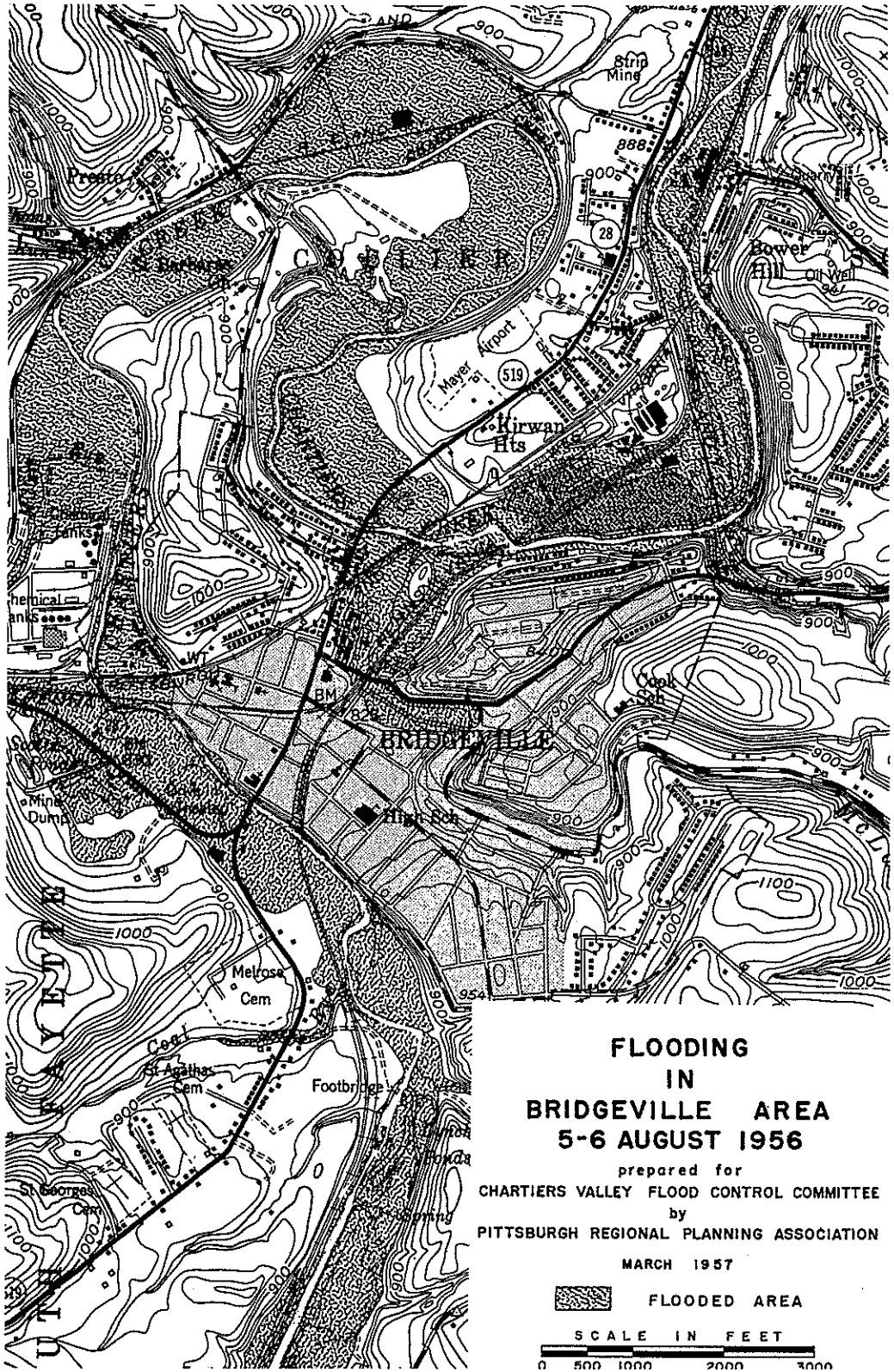
—Signal-Item Photo

The sign says "Steel For Immediate Shipment," but there was no shipping for several days after the flood struck the Ryerson Steel Warehouse in East Carnegie.



Industrial products valued at thousands of dollars were ruined during the flood. This picture shows the water swirling around coils of steel in the finishing department of the Superior Steel plant in Carnegie.





Industry in the Chartiers Creek Valley

Chartiers Creek flows through two heavily industrialized counties, Washington and Allegheny. In 1954 the 2,100 manufacturing and mining establishments in Allegheny County produced goods valued at $3,500,000,000. During the same year 239 industrial establishments in Washington County produced goods valued at $439,400,000.

Heavy industries provide the bulk of production. In Allegheny County metals and metal products account for $2,500,000,000. In Washington County goods from the metals industry were valued at $274,400,000. Other leading industry components in Allegheny County are foodstuffs, chemicals, electrical machinery, paper and printing, paints and varnishes, mineral extraction and associated industries. Washington County is the state's leading producer of bituminous coal, the fourth leading producer of oil and the tenth leading producer of natural gas. Other principal products include clay, glass and stone, electrical machinery, pipes and tubing, radios and parts, fibreboard containers and chemicals.

The population in Allegheny County is 90 per cent urban. There are 1,897 farms left, but they are rapidly diminishing. Washington County's land area is still two-thirds devoted to agriculture. There are 3,423 farms, many in the flood plain, producing field and fruit crops, milk, eggs, and cattle valued at $21,735,000 (1954).

A large number of the major industries in the Chartiers Valley are located right alongside the creek. High floods have consistently inflicted heavy damage on these plants as detailed in the previous sections of this report. It should be emphasized, however, that all plants in the valley whether located adjacent to the creek or not, suffer from high floods through interruption of employment and shipping since major floods in the valley have always closed main highways and rail lines.

Several of the key industries in the valley have essential defense mobilization assignments. In time of war, another serious flood would disrupt production of such items as small arms ammunition and aircraft and ground machine gun barrels. The most vital assignments are held by some of the plants which were most heavily damaged and out of production for the longest periods during the 1956 flood.

The following lists contain the names, locations and numbers of employees of plants in communities along the main branch of the Chartiers Creek which have more than 50 workers.

Allegheny County

Company	Location	Employees
Universal-Cyclops Steel Corp.	Bridgeville	2,188
Superior Steel Corp.	Scott Twp.	1,320
Federal Enameling & Stamping Co.	McKees Rocks	1,197
U. S. Steel Corp.	McKees Rocks	809
American Cyanamid Co.	S. Fayette Twp.	627
Columbia Steel & Shafting Co.	Carnegie	494
Flannery Manufacturing Co.	Collier Twp.	464
Superior Paper Products Co.	Robinson Twp.	326
Union Electric Steel Co.	Carnegie	318
American Steel Band Co.	Heidelberg	291
Salem-Brosius, Inc.	Carnegie	241
Vimco Macaroni Products Co.	Collier Twp.	179
Ertl-Pitt Bakeries, Inc.	McKees Rocks	172
J. R. Richards Co.	Carnegie	156
Hommel Co.	Carnegie	155
G.E. Co. (Bridgeville Glass Works)	Bridgeville	136
Ft. Wayne Corrugated Paper Co.	McKees Rocks	134
Guibert Steel Co.	McKees Rocks	121
Sipe & Company	Bridgeville	110
Taylor Forge & Pipe Works	Carnegie	107
Taylor-Wilson Manufacturing Co.	McKees Rocks	103
Lockhart Iron & Steel Co.	McKees Rocks	95
Duer Spring & Manufacturing Co.	McKees Rocks	92
Trion, Inc.	McKees Rocks	79
Chesebrough Manufacturing Co.	McKees Rocks	76
Pittsburgh Plastic Corp.	Carnegie	61
Phillips Corp.	Carnegie	58
McKay Company	McKees Rocks	58
National Cylinder Gas Co.	McKees Rocks	56
Steinmetz Bakery	Carnegie	55
Keystone Abrasive Wheel Co.	Carnegie	53
Thepitt Manufacturing Co.	Carnegie	50

Washington County

Company	Location	Employees
Hazel-Atlas Glass Co.	Washington	2,052
Radio Corp. of America	Canonsburg	1,697
Pennsylvania Transformer Co.	Canonsburg	1,553
Jessop Steel Co.	Canton Twp.	959
Tygart Valley Glass Co.	Canton Twp.	787
Fort Pitt Bridge Works	Canonsburg	658
Hazel-Atlas Glass Co. (2nd plant)	Washington	449
Canonsburg Pottery Co.	Canonsburg	337
Washington Steel Corp.	Washington	203
Duncan & Miller Glass Co.	Washington	182
George Pottery Co.	Canonsburg	172
River Raisin Paper Co.	Washington	151
B. F. Drakenfeld & Co.	Washington	139
Findlay Clay Products Co.	Canton Twp.	130
Washington Glass Co.	Washington	127
American Brake Shoe Co.	Meadowlands	120
Observer Publishing Co.	Washington	117
Molybdenum Corp.	Washington	112
National Annealing Box Co.	N. Franklin Twp.	104
Forbes Steel Corp.	Canonsburg	97
Albert Packing Co.	Washington	96
Resnicks, Inc.	Washington	86
Plasteel Products Co.	Washington	83
Vitro Corp. of America	Canonsburg	77
Washington Co.	Washington	76
Washington Mould Mach. & Fdry. Co.	Washington	74
Delfrate Packing Co.	Washington	73
Washington Mould Mach. & Fdry. Co.	Washington	68
Harper Feed Mills	Washington	63
National Metal Products Co.	Canonsburg	62
Star Mould Machine & Foundry Co.	Washington	56

(Figures taken from Pennsylvania Industrial Directory, Department of Internal Affairs.)

Activities of the Chartiers Valley Flood Control Committee

Within three weeks after the destructive flood of August 5 and 6, 1956, the first steps were taken to organize the Chartiers Valley Flood Control Committee. On August 29 nearly 100 representatives of municipal governments, local industries, and community service groups met to discuss and endorse plans for creating a formal organization to deal with the flood problem. By the middle of September the Flood Control Committee was fully organized with representatives from communities throughout the valley.

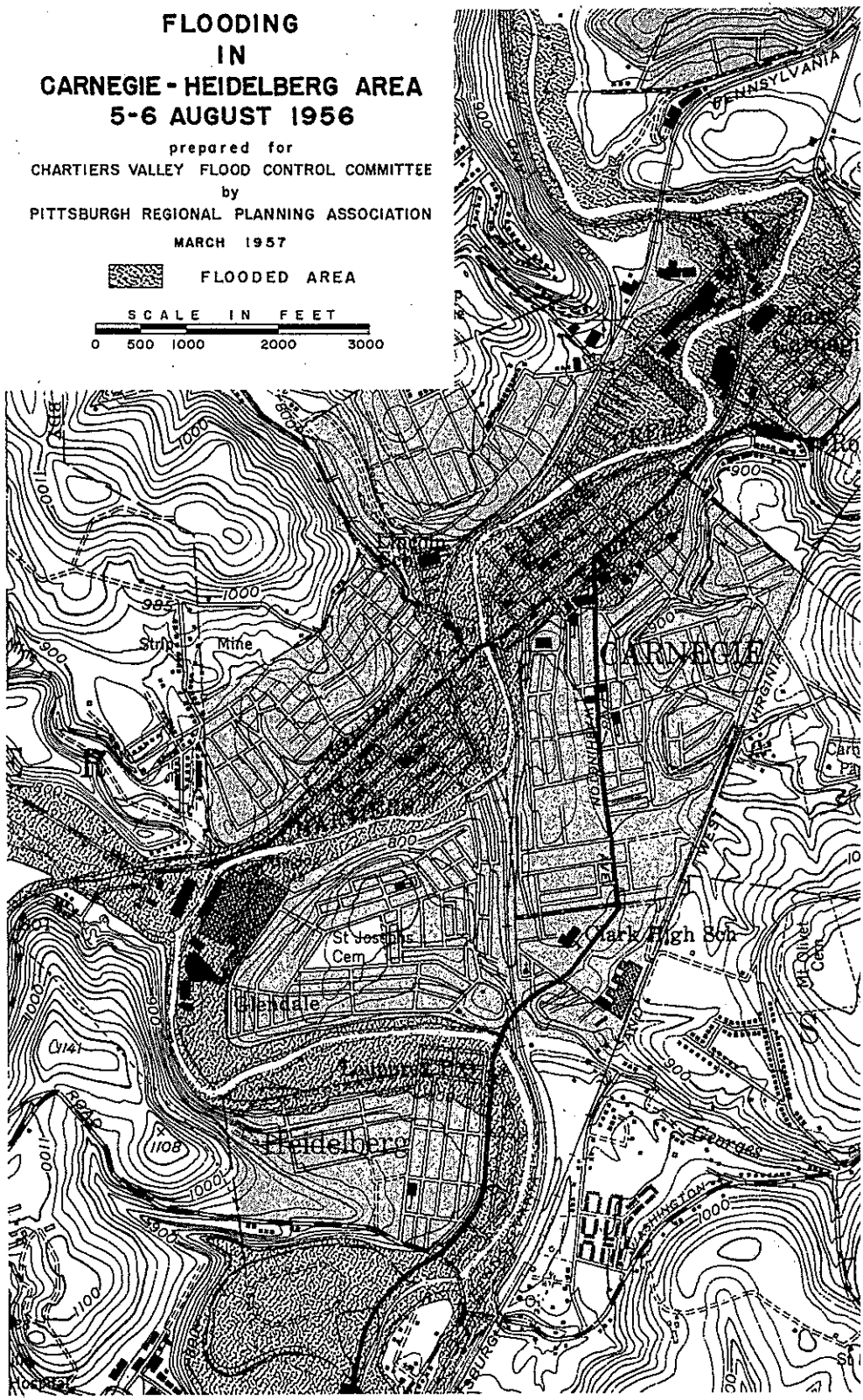
The Committee itself undertook an extensive house-by-house, industry-by-industry, store-by-store survey of damages all along the creek from the August flood.

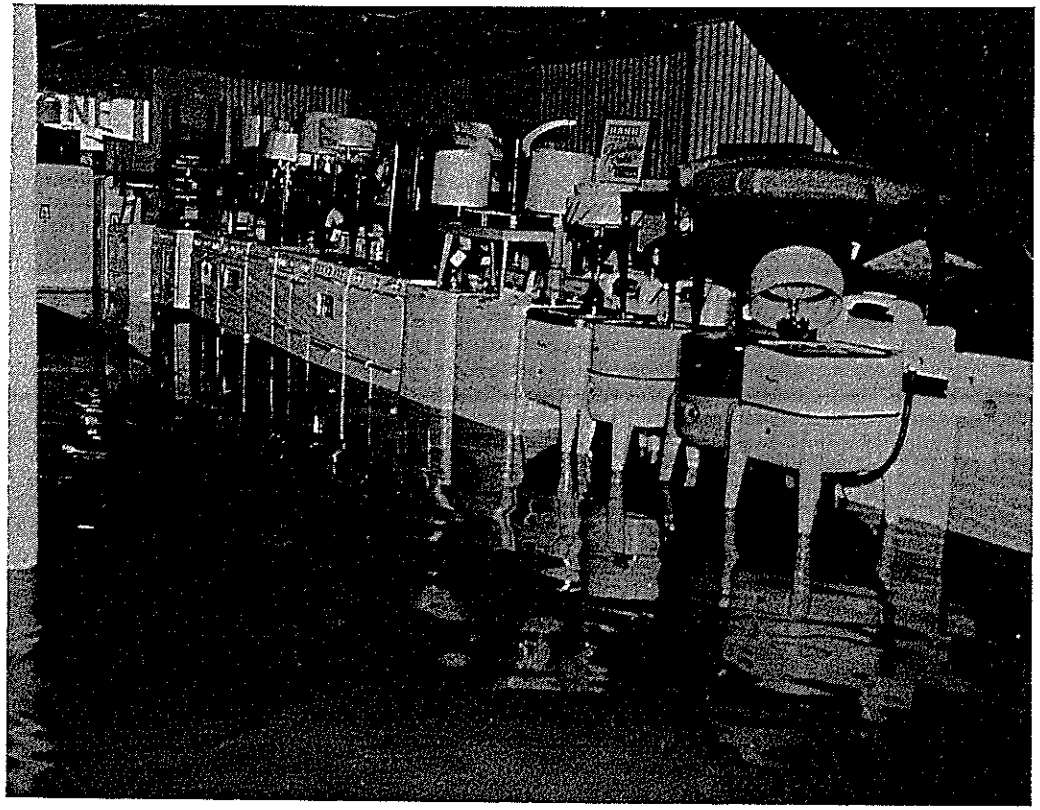
It was instrumental in obtaining U. S. Senate Public Works Committee authorization for a comprehensive survey of the portion of the creek below Washington, Pa., by the U. S. Army Corps of Engineers. Funds must be provided, however, before this authorization can become effective. In the meantime the Pittsburgh District Office of the Corps of Engineers has made a preliminary study and filed a report on what the full-scale survey would be expected to cost.

The Pittsburgh Regional Planning Association was engaged to prepare a report summarizing the history of floods in the valley and developing pertinent data to demonstrate severity and scope of the problem.

The Committee authorized the purchase with its own funds, subject to federal and state approvals, of two recording stream gauges to be installed at key points on the creek to obtain additional data which will facilitate the preparation of a survey report by the Corps of Engineers. One or more of these gauges would be used to augment a warning and information network which is being developed in conjunction with the U. S. Weather Bureau. The warning system will also require the installation within the watershed of additional rain gauges and the enlistment of qualified observers.

The Committee succeeded in getting the Pennsylvania Department of Forests and Waters to investigate the need for emergency dredging work at various points along the creek and its tributaries.





—*Signal-Item Photo*

The water rose so fast that it was impossible for many commercial establishments to move their stocks in time to avoid damage. This picture was taken inside the Hahn Furniture Store, Main St., Carnegie. The motors of many of the electrical appliances had to be repaired.

(The U. S. Geological Survey Office in Pittsburgh reports that the bottom of the creek at the Carnegie Gauging Station has risen 1½ feet during the past six years.) It is understood that the Department has approved several of these emergency proposals and has scheduled further investigations of conditions.

Pledges of financial contributions for its work have been obtained from many sources in the valley. Although it is obvious that the magnitude of a comprehensive flood control project would far exceed budgetary limitations of the municipalities in the valley, the Committee wishes to stress that it is willing, as it has demonstrated, to help in every way to facilitate and expedite any project which will provide flood protection for the valley.

—*Signal-Item Photo*

Main St., Carnegie, was turned into a raging river during the height of the flood. Banks, clothing stores, supermarkets, drug stores, appliance stores, real estate offices and other commercial and business operations suffered extensive damage.


MELLON BANK
NORTH POLE ICE CREAM
DOLLAR STORES
AUTENREITH'S
DOLLAR STORES
EAGLE
DRUGS
YORK'S
PASCOE
LOANS
CLOTHING
CHARTIERS ST.
MELLON NATIONAL BANK AND TRUST COMPANY
U.S. MAIL

CHARTIERS VALLEY FLOOD CONTROL COMMITTEE

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