

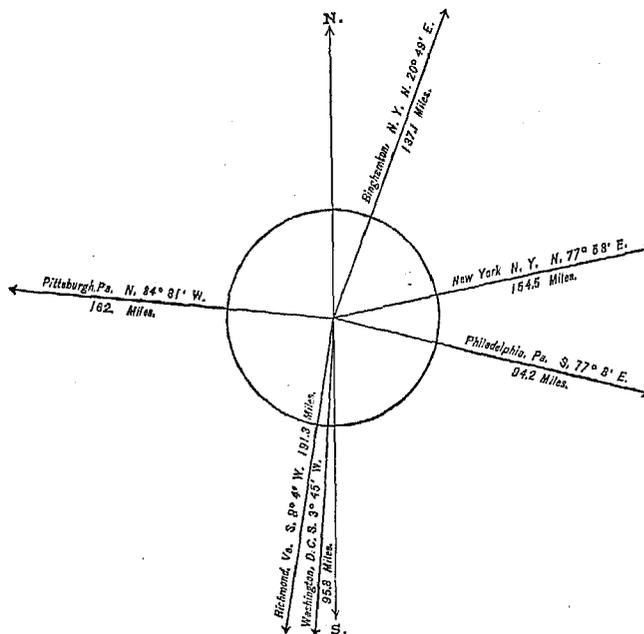
# HARRISBURG,

## DAUPHIN COUNTY, PENNSYLVANIA.

### POPULATION

IN THE  
AGGREGATE,  
1800-1880.

Year	Inhab.
1790.....	
1800.....	1,472
1810.....	2,287
1820.....	2,990
1830.....	4,312
1840.....	5,980
1850.....	7,834
1860.....	13,405
1870.....	23,104
1880.....	30,762



### POPULATION

BY  
SEX, NATIVITY, AND RACE,  
AT  
CENSUS OF 1880.

Male .....	14,760
Female.....	16,002
—	
Native .....	28,446
Foreign-born .....	2,316
—	
White.....	27,855
Colored .....	*2,907

\* Including 4 Chinese.

**Latitude: 40° 16' North; Longitude: 76° 53' (west from Greenwich); Altitude: 375 feet. (a)**

### FINANCIAL CONDITION:

Total Valuation: \$5,865,001; per capita: \$191 00.    Net Indebtedness: \$1,065,300; per capita: \$34 63.    Tax per \$100: \$3 62.

## HISTORICAL SKETCH.

Harrisburg, the capital of Pennsylvania, is situated on the east bank of the Susquehanna river about 60 miles from its mouth, 106 miles by rail from Philadelphia, and 120 miles from Washington. It was laid out as the shire town of Dauphin county in 1785 on land originally owned by John Harris, from whom the city takes its name. Its progress seems to have been steady from the time of its foundation, the situation making it an important point.

In 1800 its population was 1,472, and increased gradually and steadily until 1860, when it reached 13,405. The rate of increase then became more rapid, and in the past twenty years the population has more than doubled. On February 21, 1810, Harrisburg was made the capital of Pennsylvania, an honor it has since retained and is not likely to lose. The state buildings are plain brick edifices situated in beautiful grounds. The capitol is surmounted

by a dome overlooking the Susquehanna, which is about a mile wide opposite the city and is crossed by four bridges. The first bridge was erected in 1817 at a cost of \$192,000, then a very large sum. It was followed by another in 1837, intended particularly for the Cumberland Valley railroad, but provided also with a carriage-way. This bridge has 23 arches, with an average span of 173 feet each. Harrisburg was early supplied with water from the Susquehanna, from which it was pumped into a reservoir capable of holding 1,532,195 gallons, situated about 90 feet above the river. The "Mount Airy water-works", as they were called, have since been much enlarged, and the city now has a very complete system of water-works, which have cost it in all about \$750,000. The construction of railroads greatly promoted the growth of the town. In 1860 Harrisburg was incorporated as a city. Its streets are well laid out, a number running parallel with the river and others crossing them at right angles. The manufactures of the city are large and important, the iron and steel industries taking the lead.

## HARRISBURG IN 1880.

The following statistical accounts, collected by the Census Office (all that was furnished), indicate the present condition of Harrisburg:

### LOCATION.

Harrisburg is situated in latitude 40° 16' north, longitude 76° 53' west from Greenwich, on the left bank of the Susquehanna river, about 60 miles from its mouth.

### RAILROAD COMMUNICATIONS.

Harrisburg is connected with the whole valley of the Cumberland by the Cumberland Valley railroad, the other terminus of which is at Martinsburg, West Virginia. The Northern Central railroad, between Baltimore, Maryland, and Canandaigua, New York, brings Baltimore, on the south, Buffalo and Rochester, on the north, and the great West within easy reach. The Pennsylvania and Philadelphia and Reading railroads pass through the city and connect it with all parts of the state and of the United States. The city is also on the line of the Pennsylvania canal, which brings no small increase to its wealth.

### TRIBUTARY COUNTRY.

The country adjacent to the city is diversified by parallel mountain ridges and valleys, among the former of which is the Kittatinny or Blue mountain. Here are mines of anthracite coal and of iron. The lumber interest is large; much grain, wool, tobacco, hay, and butter are produced, all finding in Harrisburg a convenient distributing-point.

### TOPOGRAPHY.

The city is delightfully situated on a plateau whose general level is from 26 to 50 feet above low-water mark in the Susquehanna.

NOTE.—The only statistical accounts furnished by the authorities of the city are those pertaining to health and municipal cleansing, which are given below.

### SANITARY AUTHORITY.

The charge of the sanitary condition of the city is placed in the hands of the mayor, as there is no board of health. The police officers make daily reports to the chief of police of any nuisances they may find, and private persons complain to him of such as come under their notice. When a nuisance is found to exist the owner of the premises is required to abate it within forty-eight hours, and, if he neglects the notification, is prosecuted by the chief of police. Complaints of defective sewerage and street-cleaning are made to the supervisor of streets. The regulations in regard to the burial of the dead require that before any interment the undertaker shall obtain a certificate of death signed by the physician, and stating the cause of death, name, age, sex, etc., of the deceased. No stringent rules have been adopted to prevent contagion in cases of small-pox and scarlet fever. Only indigent patients are removed to a small-pox hospital on the county almshouse farm, 1½ mile from the city, while scarlet-fever patients are neither quarantined nor isolated in any way. Vaccination is not compulsory, although it is sometimes done at public expense. There is no system of registration of diseases, births, and deaths.

### MUNICIPAL CLEANSING.

*Street-cleaning.*—The streets are cleaned by the city's force under the direction of the supervisor of streets and at the city's expense. The work is done whenever it is thought necessary, but is not satisfactorily done. The whole cost of repairing and cleaning the streets per year is from \$10,000 to \$15,000.

*Garbage and ashes* are removed by the householders in such ways as best they may. Although no regulations seem to govern the conservancy and removal of the garbage, except in so far as it becomes a positive nuisance, the mayor states that no injury to the public health arises from this lack of system, while he condemns the present arrangements as defective.

*Dead animals* are removed by the Harrisburg Fertilizer Company at the expense of the owners.

*Liquid household wastes.*—The liquid wastes of the houses are almost all run into the public sewers, only very few cesspools being in use.

*Human excreta.*—About three-fifths of the houses are provided with water-closets, all of which empty into the public sewers; the other two-fifths depend on privy-vaults. These must be cleaned when full or offensive. The night-soil is used as manure, but none is allowed on land within the gathering-ground of the public water-supply.

*Manufacturing wastes.*—Liquid manufacturing wastes run into the sewers; the solid wastes are burned or buried.

## MANUFACTURES.

The following is a summary of the statistics of manufactures of Harrisburg for 1880, being taken from tables prepared for the Tenth Census by John T. Boyle, special agent:

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
All industries.....	274	\$4,026,457	3,243	264	153	\$1,236,522	\$4,975,276	\$7,663,416
Blacksmithing (see also Wheelwrighting).....	15	8,850	17			5,375	5,150	19,700
Boots and shoes, including custom work and repairing.....	30	50,775	62	21		26,390	51,534	107,456
Bread and other bakery products.....	31	37,750	45	2	2	13,198	81,895	125,322
Brick and tile.....	8	136,000	125		42	36,785	48,850	113,700
Brooms and brushes.....	3	4,000	9		3	4,422	15,700	30,000
Carpentering.....	21	13,075	53			19,808	47,238	89,225
Carpets, rag.....	3	2,500	4		1	1,514	2,300	5,550
Carriages and wagons (see also Wheelwrighting).....	5	34,150	39			15,154	10,304	33,960
Confectionery.....	6	11,600	12	2	1	6,363	22,400	35,700
Foundry and machine-shop products.....	3	145,000	128	5		49,100	87,880	174,000
Furniture (see also Upholstering).....	4	900	2			300	800	4,000
Iron and steel.....	8	2,021,692	1,076		51	445,507	1,806,916	2,839,500
Liquors, malt.....	3	80,008	18			8,370	47,050	85,500
Looking-glass and picture frames.....	3	2,700	1			150	1,600	3,300
Lumber, planed.....	5	205,000	50		2	26,187	59,797	110,019
Marble and stone work.....	4	6,200	11			4,260	6,900	16,800
Painting and paperhanging.....	17	18,800	56	1	4	21,103	26,950	71,100
Photographing.....	3	14,500	14	3		7,556	4,600	20,132
Plumbing and gasfitting.....	12	16,650	36			11,967	17,000	53,993
Printing and publishing.....	9	172,550	192	43	5	103,125	204,150	465,920
Saddlery and harness.....	5	5,050	6			2,800	8,150	14,700
Tinware, copperware, and sheet-iron ware.....	13	16,900	29			10,540	21,980	46,000
Tobacco, cigars and cigarettes.....	24	28,650	66	11	5	22,021	34,473	79,730
Upholstering (see also Furniture).....	5	3,250	7	1		1,230	2,600	6,600
Wheelwrighting (see also Blacksmithing; Carriages and wagons).....	5	3,250	9			2,861	1,650	7,000
All other industries (a).....	29	986,605	1,167	175	37	390,346	2,177,409	3,104,509

a Embracing agricultural implements; bookbinding and blank-book making; boxes, cigar, cars, railroad, street, and repairs; cotton goods; engraving and die-sinking; flouring- and grist-mill products; furnishing goods, men's; glue; hats and caps; iron forgings; iron railing, wrought; leather, curried; leather, dressed skins; leather, tanned; lock- and gun-smithing; lumber, sawed; millstones; models and patterns; patent medicines and compounds; shipbuilding; soap and candles; stencils and brands; varnish; and wood, turned and carved.

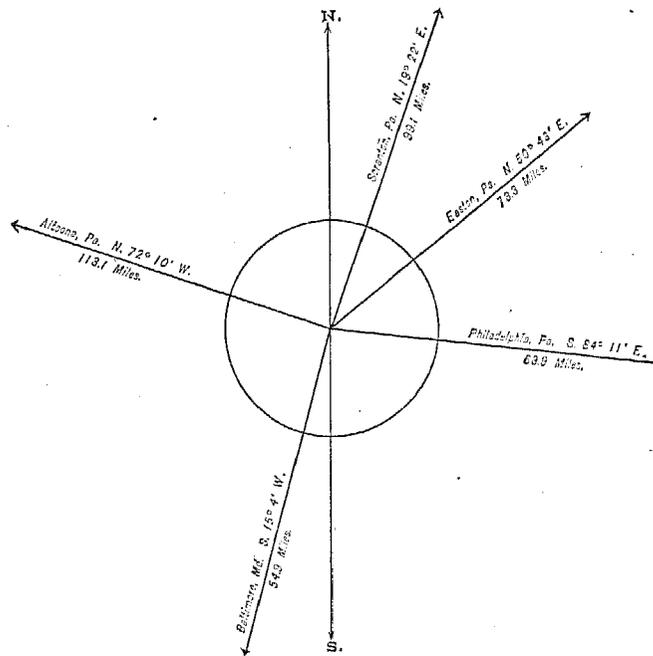
From the foregoing table it appears that the average capital of all establishments is \$14,695 10; that the average wages of all hands employed is \$337 85 per annum; that the average outlay in wages, in materials, and in interest (at 6 per cent.) on capital employed is \$23,552 50.

# LANCASTER,

## LANCASTER COUNTY, PENNSYLVANIA.

**POPULATION**  
IN THE  
AGGREGATE,  
1800-1880.

	Inhab.
1790.....	.....
1800.....	4,292
1810.....	5,405
1820.....	6,633
1830.....	7,704
1840.....	8,417
1850.....	12,369
1860.....	17,603
1870.....	20,233
1880.....	25,769



**POPULATION**  
BY  
SEX, NATIVITY, AND RACE,  
AT  
CENSUS OF 1880.

Male.....	12,212
Female.....	13,557
Native.....	22,390
Foreign-born.....	3,379
White.....	25,248
Colored.....	*521

\* Including 1 Chinese and 5 Indians.

**Latitude : 40° 3' North ; Longitude : 76° 21' (west from Greenwich) ; Altitude : 350 feet. (a)**

**FINANCIAL CONDITION :**

Total Valuation : \$12,449,480 ; per capita : \$483 00.    Net Indebtedness : \$464,142 ; per capita : \$18 01.    Tax per \$100 : \$1 21.

## HISTORICAL SKETCH.

About the year 1706 or 1707 a number of the persecuted Swiss Mennonites went to England and made a particular agreement with the honorable proprietor, William Penn, for lands to be taken up in his patent. Several families from the Palatinate, descendants from the distressed Swiss, emigrated to America and settled in Lancaster county, then embraced in Chester county, in the year 1709. It is reasonably certain that a settlement was begun by them, either this year or the next, near where Willow street now is. They selected 10,000 acres of land on the north side of Pequac (Conestoga) creek, and shortly afterward procured a warrant for the same, dated October 10, 1710. The warrant was recorded, and the land surveyed and divided among the settlers the 23d of the same month. For this tract they were to pay £500 to Great Britain, and to William Penn, his heirs and assigns, the sum of 1s. quit-rent yearly forever for every 100 acres of the 10,000, with the provision that the purchasers should have said

a Smithsonian Institution station.

lands free of quit-rent for the first two years after the survey thereof. As soon as the first settlers were fairly established they became desirous of having their friends and relatives escape from a land of trouble and oppression, and ere the earth began to yield a return in kindly fruits they were devising means to bring them hither. One of their number was chosen to return to Switzerland and bring back a company of their people, and when this was accomplished the settlement numbered about 30 families.

This little colony improved its lands, planted orchards, erected dwellings, and built a meeting- and school-house for the settlement. This building was used for religious instruction on the sabbath and for secular purposes during the week. A nucleus having been thus formed, other Germans and French settled around them. The Indians were kindly disposed and mixed freely with the white men. On October 14, 1729, the lieutenant-governor of the province issued a sort of charter, recognizing the people of the colony as lawful citizens of the province, and guaranteeing to them all the rights and privileges of natural-born subjects.

After 1718 settlements were pretty general throughout the greater part of the country. Lancaster was begun in 1721 or 1722. Before the place was laid out it was called "Hickory town". According to Gordon, Lancaster was laid out in 1728 by James Hamilton, of Philadelphia, at the request, it is said, of the proprietors. As the population increased it was found necessary to organize new townships, and in 1722 Donegal was established. Settlements on both sides of the Susquehanna, especially on the eastern, having been much extended, the inhabitants of the upper part of Chester county found the need of a new county very pressing. Petitions accordingly were forwarded to the council at Philadelphia, February 6, 1729. These were at once acted upon, and a new county, made from the upper part of Chester county, named Lancaster, was created. It was at once divided into townships, and one of these was called Lancaster. In 1734 a Lutheran church and school-house were begun, and the church was finished and dedicated October 28, 1738. The town of Lancaster, in common with the surrounding country, suffered during the French and English wars. On the 8th of July, 1755, General Braddock met his disastrous defeat, which encouraged the enemy and spread terror and dismay among the settlers, many of whom, leaving their houses and crops, fled to the interior towns. In Lancaster, during the latter part of this year, preparations were made to build a block-house for defense. The county, with the neighboring ones of Cumberland, Berks, and Northampton, were, during the spring and summer months of 1757, kept in continual alarm.

The Conestoga Indians, who were nominally friendly, at length fell under suspicion. On December 14, 1763, a number of armed men, principally from Donegal and Paxton townships, attacked the Indian village and massacred some women and children and a few old men, and burned their huts. Most of the villagers were away at the time. The magistrates sent out and collected the remainder, and, to protect them from further harm, put them in the recently erected work-house. But the passions of many of the settlers had been aroused to a pitch of fury, and, notwithstanding the proclamation of the governor that the perpetrators of the former outrage should be arrested and punished (which was not done), on the 27th of the same month an organized band broke into the work-house and killed all the Indians harboring there. The governor at once issued another proclamation and offered a reward for the arrest of the ringleaders, but without effect.

In the mean time the Moravian Indians had been placed, for safety, in the barracks at Philadelphia, and no sooner did the intelligence reach Lancaster than a large number of men assembled and marched to Philadelphia, where they excited considerable alarm. "The governor fled to the house of Dr. Franklin for safety; and nothing but the spirited measures of the inhabitants of the city saved it from the fury of an exasperated multitude, who would not have hesitated to extend vengeance from the Indians to their protectors." After some consultation among themselves, however, they decided to return home, leaving two of their number to represent their views to the government.

On the 17th of June, 1768, Lancaster county was visited by a dreadful hailstorm. A recorder of the event says: "At Susquehanna the hail was as large as pigeons' eggs; at Lancaster about the size of peas; at Denckerstown, and in the valley between the Welsh and Reading hills, they were as large as turkeys' eggs, in some places still larger; and at Reading no hail appeared." The damage done to the growing crop was very great.

When the odious measures of Parliament, affecting chiefly Boston, were being discussed by the colonies, and sentiment was being crystallized, which, when the conflict came, made the front presented to the enemy a solid and united one, Lancaster was not the last or least to aid and relieve its suffering brethren of the seaboard. Meetings were held and public opinion was fully aroused. A committee of correspondence was early formed, which was in close communication with that of Philadelphia. On May 1, 1775, the association of the freemen and inhabitants of the county of Lancaster passed, among others, the following resolution, which is noteworthy from its force and practicability:

We do most solemnly agree and associate under the deepest sense of our duty to God, our country, ourselves, and posterity, to defend and protect the religious and civil rights of this and our sister colonies with our lives and fortunes, to the utmost of our abilities, against any power whatsoever that shall attempt to deprive us of them. And the better to enable us to do so, we will use our utmost diligence to acquaint ourselves with military discipline and the art of war.

Throughout the Revolutionary war their action was in accordance with this spirit. In Lancaster county several regiments were raised and equipped, and during the struggle it always furnished its full quota both to the militia and to the Continental army.

A college was established at Lancaster in 1787, called "Franklin College", for which spacious buildings were erected; but it afterward declined to the rank of an academy or high school. The turnpike from this place to Philadelphia, completed in 1794 at a cost of \$465,000, paved first with stone and afterward macadamized, was the first road of the kind in the United States.

In 1794 a stone bridge was built on the Conestoga creek. In 1829 the improvements for rendering the Conestoga creek navigable from Lancaster to the Susquehanna river, by means of 9 locks, costing \$75,000, were completed. By means of this work, in connection with a tide-water canal to Port Deposit, a navigable communication was opened to Baltimore. In 1834 a railroad from Philadelphia to Columbia, and passing Lancaster, was opened. In 1838 the railroad from Harrisburg to Lancaster was completed, and later extended to Pittsburgh.

Lancaster was, from 1799 until 1812, the capital of the state, and when the British troops occupied Philadelphia the Continental Congress met here. It was the residence and place of burial of James Buchanan and Thaddeus Stevens.

The city is situated near the right bank of the Conestoga creek, 12 miles from where it empties into the Susquehanna river, and in the center of one of the largest and most productive limestone regions in the state. Cotton goods, cigars, and lager-beer are made to a considerable extent.

The Pennsylvania and Reading railroads touch Lancaster.

No further information was furnished.

## MANUFACTURES.

The following is a summary of the manufactures of Lancaster for 1880, being taken from tables prepared for the Tenth Census by William H. Lebkicher, special agent:

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
All industries.....	313	\$3,792,740	2,741	1,044	467	\$1,177,249	\$2,942,312	\$5,404,937
Blacksmithing (see also Wheelwrighting) ..	14	8,925	8		3	3,826	5,303	21,708
Boots and shoes, including custom work and repairing ..	13	23,400	30	2		12,977	17,105	40,033
Boxes, cigar ..	5	18,450	9	16	6	7,184	19,681	32,193
Bread and other bakery products ..	24	31,150	24	2	10	10,928	61,763	98,234
Brick and tile ..	8	53,500	93		22	26,922	14,454	53,659
Brooms and brushes ..	3	7,000	9	1	1	4,360	5,000	15,400
Carpentering ..	11	7,975	57			24,966	47,423	86,033
Carriages and wagons (see also Wheelwrighting) ..	12	151,000	226		13	79,101	123,025	242,760
Carriage and wagon materials ..	5	72,500	81		4	30,169	66,900	125,000
Clothing, men's ..	5	121,265	124	44		44,200	133,000	214,875
Coffins, burial cases, and undertakers' goods ..	4	5,550	4		1	1,098	5,200	10,800
Confectionery ..	7	79,100	26	16	4	14,803	36,990	67,160
Cotton goods ..	5	1,382,000	484	737	240	298,734	857,505	1,654,132
Foundry and machine-shop products ..	10	184,650	168		3	67,126	104,319	228,023
Furniture ..	7	67,500	39		3	19,123	28,994	68,877
Hand-knit goods ..	4	15,500	14	7	5	6,948	19,102	29,300
Leather, curried ..	6	51,400	20			11,430	146,189	177,485
Leather, tanned ..	7	66,400	42			15,349	144,035	178,123
Liquors, malt ..	8	186,000	45			13,927	84,365	139,275
Marble and stone work ..	4	47,500	15		4	7,777	18,049	34,022
Masonry, brick and stone ..	3	225	9			3,700	4,100	10,550
Painting and paperhanging ..	9	2,800	33			13,820	14,697	35,174
Photographing ..	4	8,700	6	4		3,625	3,100	11,071
Plumbing and gasfitting ..	5	5,800	6			3,440	13,700	23,945
Printing and publishing ..	6	177,600	171	17	21	66,918	51,517	157,770
Saddlery and harness ..	7	39,280	35			13,536	18,614	40,069
Sash, doors, and blinds ..	4	69,000	77			28,210	59,890	108,700
Stone and earthen-ware ..	3	8,160	8		1	2,383	1,128	5,600
Tinware, copperware, and sheet-iron ware ..	15	88,700	61		1	28,642	43,708	90,359
Tobacco, cigars and cigarettes ..	50	128,720	147	50	18	53,835	63,312	236,435
Wheelwrighting (see also Blacksmithing; Carriages and wagons) ..	3	1,100			1	156	800	2,400
All other industries (a) ..	42	687,350	601	148	106	257,736	729,434	1,163,662

a Embracing agricultural implements; bags, paper; bookbinding and blank-book making; boxes, fancy and paper; boxes, wooden packing; carpets, rag; combs; cooperage; cordage and twine; cork cutting; cutlery and edge tools; dyeing and finishing textiles; files; glue; hardware; hardware, saddlery; hats and caps; iron and steel; lock- and gun-smithing; looking-glass and picture frames; lumber, sawed; mineral and soda waters; musical instruments, organs and materials; shirts; slaughtering and meat-packing; soap and candles; tobacco, chewing, smoking, and snuff; upholstering; watch and clock repairing; watches; wood, turned and carved; and wooden ware.

From the foregoing table it appears that the average capital of all establishments is \$12,117.38; that the average wages of all hands employed is \$276.87 per annum; that the average outlay in wages, in materials, and in interest (at 6 per cent.) on capital employed is \$13,888.58.

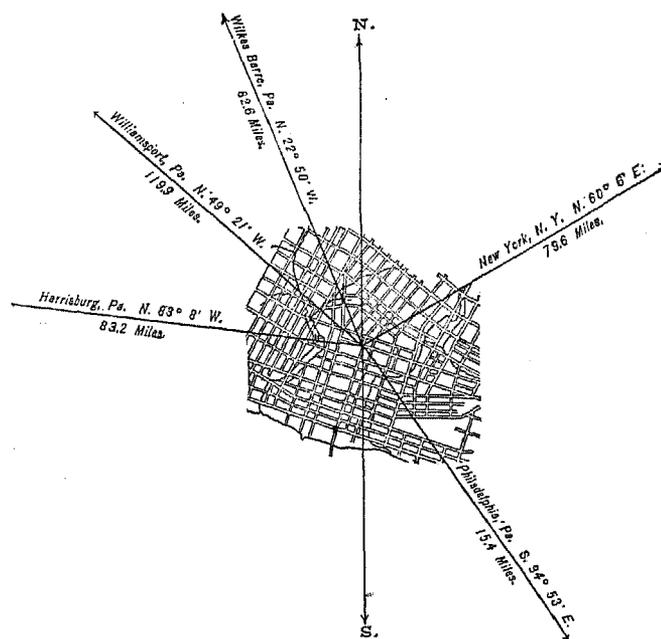
# NORRISTOWN,

## MONTGOMERY COUNTY, PENNSYLVANIA.

### POPULATION

IN THE  
AGGREGATE,  
1820-1880.

Year	Inhab.
1790.....	
1800.....	
1810.....	
1820.....	827
1830.....	1,089
1840.....	2,937
1850.....	6,024
1860.....	8,848
1870.....	10,753
1880.....	13,063



### POPULATION

BY  
SEX, NATIVITY, AND RACE,  
AT  
CENSUS OF 1880.

Male .....	6,019
Female .....	7,044
—	
Native .....	11,413
Foreign-born .....	1,650
—	
White .....	12,563
Colored .....	500

**Latitude: 40° 8' North; Longitude: 75° 19' (west from Greenwich); Altitude: 50 to 200 feet.**

### FINANCIAL CONDITION:

Total Valuation: \$6,802,077; per capita: \$521 00.      Net Indebtedness: \$81,200; per capita: \$6 22.      Tax per \$100: \$1 18.

## HISTORICAL SKETCH.

At the time when the American army lay encamped at Valley Forge, during the winter of 1777, there were only two rude houses and a mill to mark the spot where now stands the prosperous borough of Norristown. It was laid out in 1784 and incorporated as a borough in 1812, but was of no importance until about forty or fifty years ago, when a dam was built across the Schuylkill river and the immense water-power was utilized. From this time the growth of Norristown became assured, and to-day it is a flourishing town, largely engaged in the cotton, woolen, and iron industries.

Here is located the state hospital for the insane for the southeastern district of Pennsylvania, a very large and completely equipped institution.

Norristown has been fortunate in almost entirely escaping fire and pestilence. The population is mostly of English descent, but a few old Swedish families, early settlers on the opposite bank of the Schuylkill, have left their names and decendants among the townspeople.

## NORRISTOWN IN 1880.

The following statistical accounts, mainly furnished by George W. Grady, esq., burgess, indicate the present condition of Norristown:

### LOCATION.

Norristown is situated in latitude  $40^{\circ} 8'$  north, longitude  $75^{\circ} 19'$  west from Greenwich, on the east bank of the Schuylkill river, about 16 miles northeasterly from Philadelphia. The highest point is 200 and the lowest 50 feet above the sea-level. It is not on navigable waters, but canal-boats drawing less than 6 feet are able to pass along the Schuylkill to Philadelphia, and in the opposite direction to Pottsville, 70 miles distant.

### RAILROAD COMMUNICATIONS.

The Germantown and Norristown branch of the Philadelphia and Reading railroad connects Norristown with Philadelphia, and the Stony Creek railroad furnishes communication with Lansdale, 10 miles distant, where connections can be made with the North Pennsylvania division of the Philadelphia and Reading railroad.

### TRIBUTARY COUNTRY.

The country immediately surrounding the town is excellent farming country, which has a trade with Norristown limited to supplying daily needs. All commercial business is done with Philadelphia.

### TOPOGRAPHY.

The town is situated on slightly rolling ground made up of drift overlying sandstone. It is divided by two small streams, which empty into the Schuylkill into three parts, thus affording good natural drainage, the upper portion of the town being drained by these streams, the lower draining directly into the river. There are no elevations in the country immediately surrounding, higher than those of the town itself, except to the southwest, where a ridge of mixed limestone, marble, and sandstone is thrown up some 300 feet above the tide-level.

The underlying rock of the town proper is a loose friable sandstone, with red slate cropping out in places. In the southeast corner of the town is a limestone bluff, 30 or 40 feet high, an upheaval soon lost in the overlying drift. There are no ponds, lakes, or marshes in the vicinity. The soil is good and arable, and very generally cleared of timber.

### CLIMATE.

The highest recorded summer temperature is  $102^{\circ}$ , the lowest recorded winter temperature being  $-24^{\circ}$ . No other records of climate are given.

### STREETS.

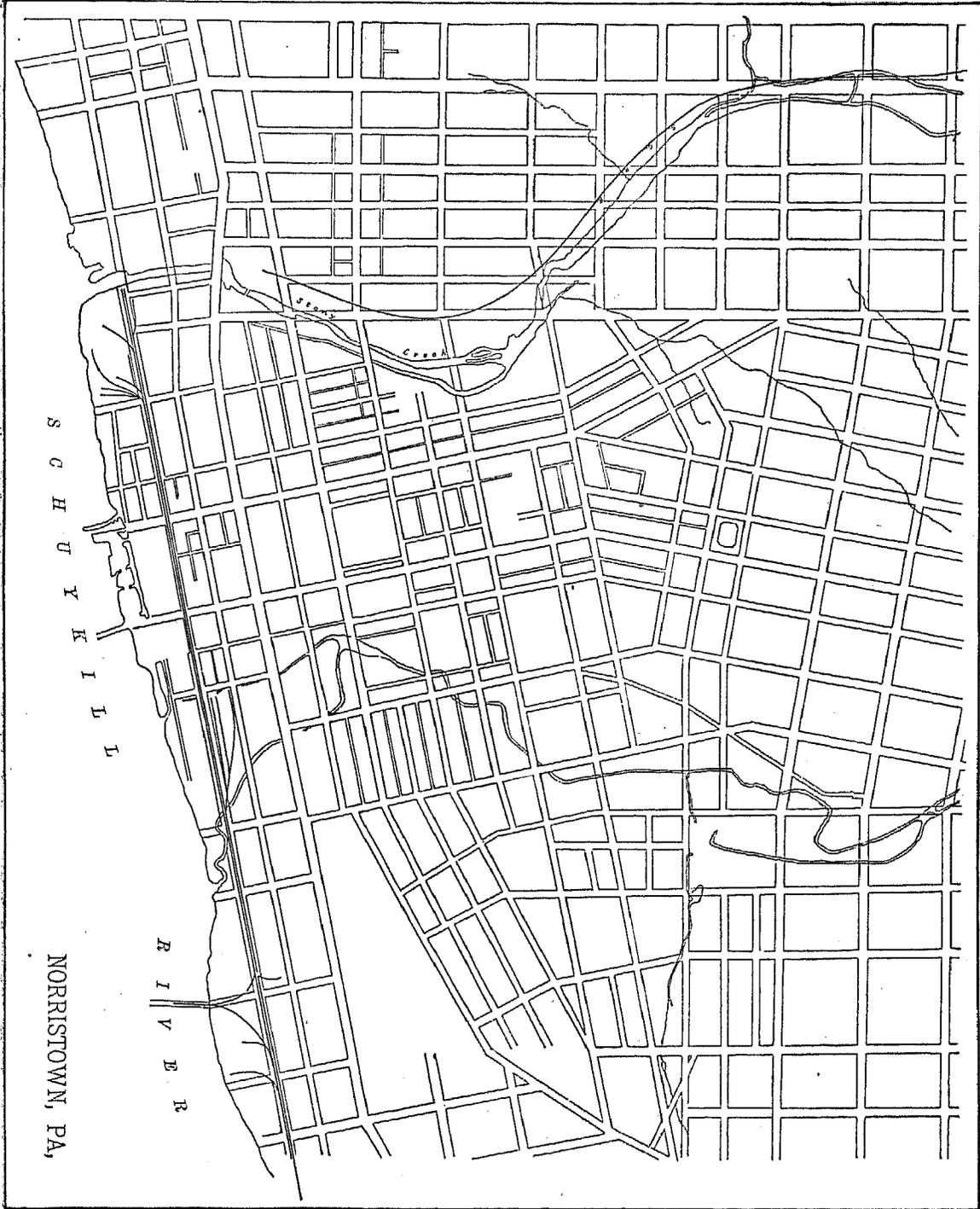
The streets in the built-up portion of Norristown are about 15 miles in length, and are provided with gutters and curbstones. Only about 10 miles are paved—7 miles with broken stone and furnace cinders and 3 miles with gravel. No estimate of the cost of the paving is kept, all expenditures on the roads being included under the general head of repairs. The sidewalks are generally of brick—on the principal streets from 10 to 12 feet in width, and on less important ones from 2 to 6 feet. In a few places flagstone sidewalks are laid. Trees are planted in many places along the residence streets, the only ordinance in relation thereto requiring that there shall be 10 feet of head room under the branches.

The street-gutters are of 9-inch bricks, laid on edge, with a border of stone 2 feet wide. A steam stone-crusher is used in breaking up the huge cinders from blast-furnaces, which are used with excellent results on the streets.

There are no horse-railroads and no omnibus lines.

### WATER-WORKS.

The water-works of the town are owned by a private corporation. The system is a pumping system, raising the water to a reservoir, whence it is distributed, giving in the lower part of the town a pressure of 80 pounds, in the higher of 20 pounds to the square inch. No additional information could be obtained.



NORRISTOWN, PA,

SCHUYLKILL RIVER

ST. GEORGE'S CHURCH

## GAS.

The town is supplied with gas by a private corporation, the charge per 1,000 feet being \$2 50. The city pays \$18 per annum for each of the 107 gas street-lamps in use. There are 62 gasoline lamps used in lighting public places; for each of these the borough pays \$17 75 a year.

## PUBLIC BUILDINGS.

The burgess of Norristown states that the only buildings owned by the town are a small building used as a lockup and police headquarters, and a market-house. The town council hires the room in which it meets. The value of the buildings is, he says, merely nominal.

## PUBLIC PARKS AND PLEASURE-GROUNDS.

The only land which may in any way be regarded as a public park is a tract containing about 4,000 square yards, which was presented to the town sixty years ago, and which can not be sold. It has never been improved.

## PLACES OF AMUSEMENT.

The Norristown Music hall, seating 1,500 persons, is the only large hall or theater in the town. Theatrical performances pay a license of \$5. There are a number of small rooms hired occasionally for shows, etc. No concert- and beer-gardens exist here.

## DRAINAGE.

There is no system of sewerage for this city. All of the sewers in Norristown were originally built with a view to the drainage of wet portions of the town caused by local beds of clay underlying the prevailing sand.

In response to the question, "What final disposition is made of the outfall of the sewers?" the correspondent of the office says: "The Lord knows! Philadelphia water gets all that does not sink or blow away." The extent of the necessity for removing deposits is "not known; in the case of extraordinary influx of dirt, caused by the washing in of new-made streets and by bursting of water-mains, the cleansing was done by the day—no special account kept". The cost of sewers is assessed upon abutters by the front foot, the city paying the cost at street intersections.

Concerning cost, it is only stated that a 4-foot brick sewer laid at a depth of 12 feet, taking one kind of excavation with another, has cost about \$5 per linear foot. Mr. Grady, who supplies the above information, says:

Our sewer system is very imperfect. In the first place, the construction of a sewer depends upon the petition of the majority of front-foot holders on the roads, consequently the owner of a vacant lot often has it in his power to prevent the improved-property holders having an important improvement made; in the next place, no attention has been paid to the ultimate wants of the town, but the plan herewith shows that, bad as they are, the existing works can be brought into a system hereafter by the fortunate topography of the borough plot.

## CEMETERIES.

*Montgomery Cemetery*, about  $1\frac{1}{2}$  mile due west from the center of the town and just outside the borough limits, and *Norris Cemetery*, equally distant, and also beyond the limits due north from the center, are the grounds chiefly used for the interment of the dead of Norristown. Each contains about 50 acres, and is the property of a private corporation. The Baptists, Presbyterians, Protestant Episcopal, Catholics, and Friends have each a church-yard of their own, where interments are allowable but are very rarely made. There is a decided feeling among the people in favor of the cemeteries which by state law are exempt from levy, right of way, etc., as opposed to the church-yards which are gradually being encroached upon by the business wants of the town.

## MARKETS.

There are 2 markets in the town, one owned by a corporation and known as the Farmers' market, the other owned by the borough and called the Old or Borough market. The former is a one-story brick building containing 127 stalls, which rent at \$15 per annum each, and the latter, a low frame structure, having 118 stalls, which rent at \$25 per annum. The total rental of the Borough market is \$2,950; of the Farmers' market \$1,905. The stalls are sold outright to the holders, who can dispose of them by sale if they choose, the borough and corporation only interesting themselves in seeing that the rentals are paid. Stalls in the old market have sold as high as \$300, and in the corporation market \$255 has been obtained, although the average price is only about half these amounts. The markets are open on Tuesdays, Thursdays, and Saturdays from 4 to 9 a. m. The supplies of meat and poultry are obtained from local butchers and farmers, as is almost every thing except fish. Wholesale dealings are unknown.

## SANITARY AUTHORITY.

There is no board of health or other sanitary authority of the borough, and no organized provision is made to guard the health of the citizens. In cases of small-pox and other contagious and infectious diseases, the burgess

says the patients are isolated "only as far as common sense and the school directors order". There is no pest-house. Vaccination is not compulsory, and the registration of diseases, deaths, and births is neglected. The burgess also reports that "the town is singularly free from fatal epidemics".

#### MUNICIPAL CLEANSING.

*Street-cleaning* is done by day labor, under the direction of the street and road commissioner, and entirely by hand. The streets are cleaned whenever they need it, and the citizens boast of having a clean town. No separate account of the expense is kept, the work being included in the account of repairs. The sweepings are used in filling up low places.

*Removal of garbage and ashes.*—Garbage and ashes are removed by the householders, under no restrictions except such as decency and personal pride dictate. Ashes, which may be kept in the same vessel with garbage, are used in filling up low places; garbage is generally fed to swine in the suburbs. No nuisance is known to result from the system.

*Dead animals* are removed by the owners generally; but if no owner can be found the burgess directs the police to remove the carcass. No record is kept of the cost of this service.

*Liquid household wastes.*—Only a very small part of these wastes go into the public sewers, nearly all, except urinal matter, being run into the street-gutters, which are flushed when necessary. Such cesspools as are in use are porous and unprovided with overflows. Thirty years ago, before the public water-supply was introduced, wells were becoming contaminated, but they were abandoned as soon as a public supply of water was obtainable, and now very few are in use. Cesspools may be cleaned only at night and in the winter time.

*Human excreta.*—Less than half of 1 per cent. of the houses are provided with water-closets, all the others depending on privy-vaults. Of the water-closets about half empty into the public sewers and half into privy-vaults. None of the privy-vaults are water-tight, the ordinances simply requiring them to be at least 10 feet from any street, lane, or alley, and 18 inches from any party-line. The night-soil is taken outside the borough limits and used as manure, the natural structure of the land forbidding its use within the gathering-ground of the public water-supply. The regulations in regard to cleaning the vaults are the same as those for cleaning cesspools, as in many cases these receive water-closet wastes.

*Manufacturing wastes.*—Solid wastes are used as fertilizers, and liquid wastes run into the Schuylkill river.

#### POLICE.

The police force is appointed by the town council, and is governed by the lamp and watch committee and by the burgess. The chief executive officer is the captain of police, who has general supervision of the force; his salary is \$55 per month. The rest of the force consists of 7 patrolmen, who receive each \$45 per month. The uniform is of blue, and each man supplies his own. The men are equipped with a club and revolver, and are on duty from 5 p. m. to 4 a. m., each patrolling about 2 miles of streets.

During the past year 150 arrests were made, all but 23 of them for drunkenness. The police furnished lodging to 267 station-house lodgers. The men are required to assist in keeping the town clean by reporting all nuisances to their captain. Special policemen are appointed by the burgess to act as private watchmen, or on special occasions. The total expense of the force in the past year was about \$4,500.

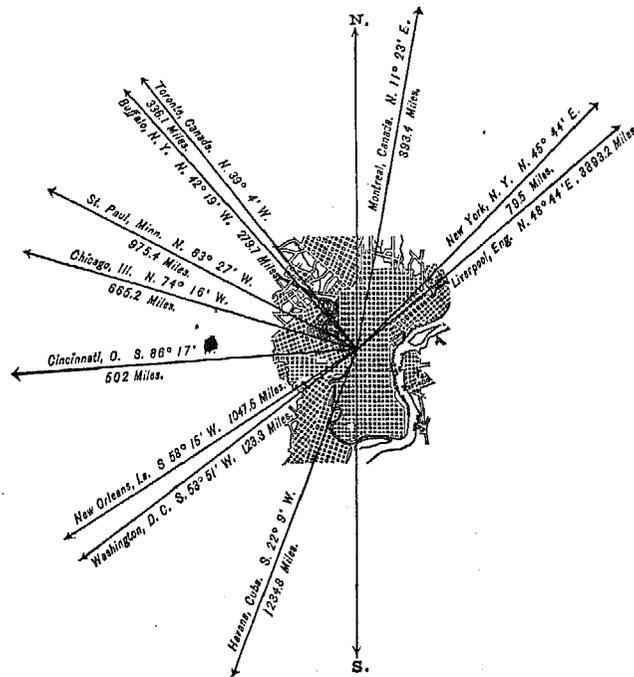
# PHILADELPHIA,

## PHILADELPHIA COUNTY, PENNSYLVANIA.

### POPULATION

IN THE  
AGGREGATE,  
1790-1880.

Year	Inhab.
1790.....	28,522
1800.....	41,220
1810.....	53,722
1820.....	63,802
1830.....	80,462
1840.....	93,665
1850.....	121,376
1860.....	565,529
1870.....	674,022
1880.....	847,170



### POPULATION

BY  
SEX, NATIVITY, AND RACE,  
AT  
CENSUS OF 1880.

Male .....	405,975
Female.....	441,195
—	
Native .....	642,835
Foreign-born .....	204,335
—	
White .....	815,362
Colored .....	* 31,808
* Including 78 Chinese, 1 Japanese, and 80 Indians.	

**Latitude: 39° 57' North; Longitude: 75° 9' (west from Greenwich); Altitude: 2 to 120 feet.**

### FINANCIAL CONDITION:

Total Valuation: \$581,729,759; per capita: \$687 00. Net Indebtedness: \$54,234,844; per capita: \$64 01. Tax per \$100: \$2 05.

## HISTORICAL SKETCH.

BY MRS. SUSAN COOLIDGE.

### EARLY SETTLEMENT.

It is difficult to realize, when studying any one of our large American towns, how short a time it is since the ground on which it stands was an unbroken wilderness, upon which the eye of the white man had never rested. This is particularly the case with those immense capitals of the West whose birth and growth are comprised within the past half-century; but the thought is sufficiently striking with regard to what we term our "old" settlements. Two centuries and a half—a mere drop in the sum of the ancient civilizations—represent all, and more than all, of what we in America count as antiquity. Take Philadelphia, for instance, second in population and importance among the cities of the United States, and rivaling in area every capital in Europe, including even the city of London. Its foundation goes back to the earliest days of our colonies, yet Rome was already in the decadence of age, Alexandria,

Jerusalem, Athens, all had numbered each over two thousand years, when in 1609 the little yacht of Heinrich Hudson, the Dutch navigator, crossed the sea in search of a short cut to China, which that worthy commander had "contracted" to discover for the use of the Dutch East India Company.

The name of the yacht was the "Crescent", familiarly known to its sailors as the "Half Moon". Failing to find the wished-for passage, and his crew growing rebellious, Hudson abandoned his quest, and, pushing southward, coasted along the New England shores to cape Cod, which he took to be an original discovery of his own, and to which he gave the name of New Holland. Still keeping a southwesterly course, he came, on the 28th day of August, 1609, to a point south of the capes of the Chesapeake, and sighted a large bay into which a large river emptied itself. This river, now known as the Potomac, he did not examine, though he explored the bay for a short distance. Retracing his course and keeping to the east, he discovered another bay into which emptied another large river; this was the Delaware, and the keel of the "Half Moon" was the first touch of civilization upon its waters.

Passing into the bay above cape Henlopen, Hudson found the land "to trend away toward the northwest with a great bay and rivers". The bay being shoal, and in places dangerous with sand-banks, he again stood out to sea, and a fortnight later discovered and ascended the noble stream which still bears his name. In the autumn the "Half Moon" returned to Holland with charts and reports of its discoveries. In the following year Hudson again returned to America to renew his search for the China passage. His crew mutinied in the icy northern seas, and, putting him, his son, and seven others into a small boat, cast them adrift. Their fate was never known. "Alone among the great navigators of that day, he lies buried in America, the glorious waste of waters which bears his name being his tomb and his monument."

Eleven years later, in 1623, the Dutch government, incited by Hudson's report, incorporated a company for trading with the new country. Taking possession of the district lying between New York and a point south of the Delaware, they gave it the name of "New Netherland". The river itself they called the "Zügd" or South river, in opposition to the Hudson or North river. In 1623, or thereabout, they built fort Nassau, near Gloucester, on the Jersey shore, opposite and about 3 miles distant from the present city of Philadelphia.

In 1637 a colony of Swedes, sent out under the auspices of the leading citizens of Stockholm, landed on the inland curve of cape Henlopen, at a point which, after their protracted voyage, seemed to them so charming that they gave it the name of "Paradise point". Exactly how long they remained there is not known; but by May of the following year they had pushed up the river as far as the site of Newcastle, and 4 miles above it on Mauqua creek had built a fort which they named "Christiana", after the young queen of Sweden—a name retained to this day. During the next eight years a number of other forts were erected by them on either side of the river, to which they gave the name of "New Sweden-land Stream", the country in general being called by them "New Sweden". Previously, in the year following the visit of Heinrich Hudson, Lord Delaware, rediscovering the oft christened bay and river, had called both by his own name, which they bear at the present time.

It is not to be supposed that the Dutch allowed this co-occupation to pass without protest, though the Dutch governor lacked the necessary strength to dispute it. Gustavus Adolphus was just dead—his fame survived—and Sweden still ranked among the warlike powers of Europe; so, though collisions, sometimes accompanied with bloodshed, not infrequently occurred between the rival colonies, no effectual stand was made against the Swedes. In their dealings with the Indians the Swedes have the credit of inaugurating that peaceful policy which afterward bore such good fruit under William Penn. They recognized a title from the aboriginal lords of the soil as being superior to and extinguishing all other titles. An amicable settlement with the savages was consequently of the first importance with them, and they spared no pains to secure it. The Dutch, perceiving the material advantages of this astute and Christian theory, made haste to follow their example, with this result, that whereas during their sole occupation of the district ill-treatment of the Indians had been commonly practiced, and had led to more than one massacre, after the arrival of the Swedes, and during their joint sovereignty of the river, not a single drop of Indian blood was shed along the Delaware by either party.

The jarring interests of the rival emigration was brought to an end in 1674 by a treaty between England and Holland, in which all settlements in America were transferred to the former power. The Swedish colonists pursued their peaceful course under the new government, and their descendants are still to be found in the neighborhood of their original settlement.

#### THE QUAKER COLONY.

For more than a quarter of a century a new and powerful influence had been working in England to build up a sect which above all others was to be instrumental in the civilization of the distant and thinly peopled waste over which the Dutch and Swedish colonies were disputing. "The rise of the people called Quakers," says Bancroft, "is one of the most memorable events in the history of man. It marks the moment when intellectual freedom was claimed by the people as an inalienable birthright." Born amid the stormy throes of the protectorate; feared and distrusted alike by the Presbyterians and by the Church; ground and tortured between the upper and lower

millstones of contending factions, fined by both, imprisoned by both, whipped and branded by both, the Quakers increased and multiplied by that strong power of growth which seems inherent in all persecuted peoples. The spirit of George Fox, their founder, imparted its principle of indomitable meekness to thousands of human souls, and, among the rest, to the soul of William Penn, destined to be the founder and law-giver of the great state of Pennsylvania.

William Penn was descended from a long line of sailor ancestors. His father, an admiral in the British navy, had held various important naval commands, and, in recognition of his services, had been honored by knighthood. Possessed of a considerable fortune, and a member of Parliament, the path of worldly advancement seemed open and easy for the feet of his son, who had received a liberal education at Oxford, continued in the schools of the continent. Beautiful in person, engaging in manners, accomplished in manly exercises and the use of the sword, fortune and preferment seemed to await the acceptance of William Penn. But at the outset of his career the Divine voice fell upon his ears as upon those of Saint Paul. "God in his everlasting kindness guided my feet in the flower of my youth, about 22," he says; and, "not disobedient to the heavenly vision", we find him during the autumn of that same year in jail for the crime of following his conscience.

Many trials awaited the youthful convert. His father cast him off. He underwent a considerable imprisonment in the tower for "urging the cause of freedom with importunity". He was fined for contempt of court, and when the jury hesitated to convict they were promptly remanded to their room by the judge, with orders to stay there till they could render a better verdict. In time these afflictions abated. The influence of his family saved him from the heavier penalties which fell upon many of his co-religionists. His father on his death-bed forgave him and reinstated him as his heir. "Son William," said the dying man, "if you and your friends keep to your plain way of preaching and living you will make an end of the priests."

Some years later (1677) we find him exerting an influence at court which almost amounted to popularity. It is evident that, with all his boldness of opinion and speech, Penn possessed a tact and address which gave him the advantage over most of his sect in dealings with worldly people. This was in great part, no doubt, the result of the wide education and varied experience which preceded his conversion. It is not given to every enthusiast to combine with the energies of an ardent faith that knowledge of affairs and of the minds and conditions of men opposed to him in belief which shall enable him to meet them successfully on their own ground while still maintaining the integrity of his own. Penn possessed this happy combination of qualities, and he used it for the advantage of his people and of mankind.

In 1680 his influence at court and with moneyed men enabled him to purchase a large grant of land in east New Jersey on which to settle a colony of Quakers, a colony having been sent out three years before to west New Jersey. Meanwhile a larger project filled his mind. His father had bequeathed to him a claim on the crown for £16,000. Colonial property was then held in light esteem, and, with the help of powerful friends, Penn was enabled so to press his claim as to secure the charter for that large and valuable tract which afterward became the state of Pennsylvania, and which included 3 degrees of latitude by 5 degrees of longitude west from the Delaware. On January 5, 1681, he thus writes:

This day my country was confirmed to me by the name of Pennsylvania, a name the king [Charles II] would give it in honour of my father. I chose New Wales, being, as this, a pretty hilly country. I proposed (when the secretary, a Welshman, refused to have it called New Wales) Sylvania, and they added Penn to it, and though I much opposed it, and went to the king to have it struck out and altered, he said it was past, and he would take it upon him. I feared lest it should be looked upon as a vanity in me, and not as a respect to the king, as it truly was, to my father, whom he often mentioned with pleasure.

"In return for this grant of 26,000,000 of the best land in the universe, William Penn, it was agreed, was to deliver annually at Windsor castle 2 beaver skins, pay into the king's treasury one-fifth of the gold and silver which the province might yield, and govern the province in conformity with the laws of England and as became a liege of England's king. He was to appoint judges and magistrates, could pardon all crimes except murder and treason, and whatsoever things he could lawfully do himself he could appoint a deputy to do, he and his heirs forever."

The original grant was fantastically limited by a circle drawn 12 miles distant from Newcastle, northward and westward to the beginning of the 40th degree of latitude. This was done to accommodate the duke of York, who wished to retain the three lower counties as an appanage to the state of New York. A few months later he was persuaded to renounce this claim, and the charter of Penn was extended to include the western and southern shores of the Delaware bay and river from the 43d degree of latitude to the Atlantic. "It was not for the love of the land but from the love of the water that I desired it," says the mild Penn; but it is easy to see how essential to the fortunes of the infant colony was the possession of this outlet to the sea.

The charter being confirmed, a brief account of the country was published, and lands offered for sale on the easy terms of 40 shillings per 100 acres, and 1 shilling's rent per year in perpetuity. Numerous adventurers, many of them men of wealth and respectability, offered. Their articles of agreement included a provision as to just and friendly conduct toward the natives. Fair dealings and humanity were from the beginning integral parts of Penn's system of government.

In April, 1681, he sent forward "young Mr. Markham", his relative, with a small party of colonists to take possession of the grant and to prepare for his own coming during the following year. Penn's charter covered most of the lands occupied by the Dutch and Swedish settlements, and Markham bore with him the following letter of reassurance to such colonists as were already living on the soil:

MY FRIENDS: I wish you all happiness here and hereafter. These are to lett you know, that it has pleased God in his Providence to Cast you within my Lott and Care. It is a business, that though I never undertook before, yet God hath given me an understanding of my duty and an honest mind to doe it uprightly. I hope you will not be troubled at your chainge and the King's choice, for you are now fixt, at the mercy of no Governor that comes to make his fortunes great. You shall be governed by la<sup>rs</sup> of your own makeing, and live a free, and if you will, a sober and industrious People. I shall not usurp the right of any, or offic<sup>e</sup>: his person. God hath furnesht me with a better resolution, and hath given me his grace to keep it. In short, whatever sober and free men can reasonably desire for the security and improvement of their own happiness, I shall heartily comply with—I beseech God to direct you in the way of righteousness, and therein prosper you and your children after you. I am your true Friend,

WM. PENN.

London, 8th of the month called April, 1681.

Such were the pledges of the Quaker sovereign on assuming the government; it is the duty of history to state that during his long reign these pledges were fulfilled. He never refused the freemen of Pennsylvania a reasonable desire.

The fitting out of the emigrant ships bore heavily on Penn's fortune and credit, and he was forced to borrow considerable sums to meet the expense. It is the more to his praise that when, the August following Markham's departure, a trading company offered him £6,000 and an annual revenue for the monopoly of the Indian traffic within his jurisdiction, he should have refused it. In his straitened circumstances the temptation must have been a powerful one; but the cherished principle of his sect, that of equal rights to all men, forbade monopolies. "I will not abuse the love of God," he writes, "nor act unworthy of His Providence by defiling what came to me clear. There may be room there, though not here, for the Holy Experiment."

Another temptation must have assailed William Penn at this time and afterward—the temptation of absolute power. How successfully he combated it may be judged from his own noble words:

I propose [he writes] for the matters (or sake) of liberty, I propose that which is extraordinary—to leave myself and successors no power of doing mischief; *that the will of one man may not hinder the good of a whole Country.* It is the great end of government to secure the people from the abuse of power, for liberty without obedience is confusion, and obedience without liberty is slavery.

These few words contain a digest of perfect government. "A plantation based on such a seed plot," says Chalmers, "could not fail to grow with rapidity, to advance to maturity, to attract notice of the world."

Three ships, including that which carried Markham, sailed for Pennsylvania in 1681. In August, 1682, Penn himself embarked. His ship, the "Welcome", made what in those days was considered a swift passage—nine weeks from shore to shore; but small-pox broke out on the vessel and thirty of the company died. On the 24th of October, 1682, he landed at Newcastle, in Delaware. It was a happy circumstance that, out of twenty-three ships which made up the emigrant fleet, not one was lost.

News of the arrival of the "Quaker king" spread rapidly, and a large concourse of Swedes, Dutch, English, and Indians assembled to greet him. There was no disposition to resist his authority. The Swedes in particular showed the utmost alacrity in helping to unload the vessel and to provide shelter for the newcomers. One of their prominent men was deputed to wait upon Penn and inform him of their readiness to "live, serve, and obey him", with the additional assurance that they counted his coming "the best day they had ever seen".

Under these peaceful auspices William Penn took possession of his new government. The formal cession of territory was made the day following his landing, by the exhibition of the royal patent and seal on his own part, and on that of the agent of the duke of York by the solemn and symbolic delivery of portions of earth and water from the country transferred by his royal master. A few weeks later Penn made his famous first grand treaty with the Indians. His title to the lands included in the royal grant was such as is held valid by all nations; but Penn chose to add to it the additional right of a purchase from the Indian proprietors. The council was held under a large elm tree at Shakamaxon, on the borders of the present Philadelphia.

"We meet," Penn told his savage audience, "on the broad pathway of good faith and good will. No advantage shall be taken on either side, but all shall be openness and love." The red men were not to be outdone in cordiality. "We will live in love with William Penn," they swore, "so long as the sun gives light." They kept their oath. The peaceful message bore peaceful fruit, and not a drop of Quaker blood was ever shed by an Indian.

#### THE FOUNDING OF PHILADELPHIA.

Surveys for the building of a town had been set on foot before the arrival of Penn. The land now occupied by the city of Philadelphia was the property of the Swedish colony, and, probably for this reason, the commissioners had decided upon a spot some 12 miles farther up the Delaware. The present site, however, possessed advantages which could not be overlooked by so acute an observer as Penn. The noble water-way formed by the approach of the two rivers, the heavy timbering of the land, the existence of large quarries of building-stone and of a heavy stratum of brick clay—all these considerations conspired to fix his choice, and, an amicable exchange of lands being effected with the Swedes, the laying out of the city began. *Philadelphia*, or "Brotherly Love", was the name chosen for it.

"The situation," writes Penn in 1682, "is not surpassed by one among all the many places I have seen in the world," and he had visited most of the cities of Europe. Time has justified his encomiums. The position of the city of Philadelphia is one of almost unrivaled advantage. Built on a neck of land between two deep rivers, which unite to form a third water-front, and barely 100 miles from the Atlantic, Philadelphia has all the practical advantages of a seaport, while holding in her hands the inland threads which link the commerce of the northern and southern states. The peninsula which she occupies, an irregular oblong in shape, has an average width of 5 miles, with an elevation of from 2 to 40 feet above the sea; but the city has long since outgrown its original limits, and the new Philadelphia to the west of the Schuylkill runs over heights which rise in places to 120 feet. Swept by freshening winds, with a climate which pleasantly compromises between northern cold and southern heat, and an abundant water-supply, the city, from its foundation, possessed the requisites of a rapid growth. "The sky," writes one of the early colonists, "is as clear in winter as in summer, not foul and black, and the air, though cold and piercing, is so dry that it does not require more clothing than in England." Game abounded. Indian corn grew wild. The rivers furnished a profusion of fish. A deer could be bought for 2 shillings, a large turkey for 1 shilling. Corn was two and sixpence a bushel. With all these facilities, however, the privations of the colony during the first winter must have been great. In sharp contrast to the comfortable English homes just quitted, they were forced to make a shift with bark huts, or in caves, which many of them dug in the high banks overlooking the Delaware. "I never heard them say," wrote one of their number, who had exchanged a pleasant home in England for a cave, "I never heard them say, 'I would I had not come,' which is worth observing, considering how plentifully they had lived in England." The framework of a country-house for the governor had been sent out by the first fleet, but the dwelling was still incomplete when he arrived.

Gabriel Thomas, one of Penn's shipmasters, writes as follows:

There is a curious building-stone and paving-stone, also tile stone, with which Governor Penn covered his great and stately pile, which he called Pennsburg House; there is likewise iron stone or oar (lately found), which far exceeds that of England, being richer and less drossy; there is also very good limestone in great plenty, and cheap, of great use in building, and also in manuring land (if there were occasion), but nature has made that of itself sufficiently fruitful; besides, here are loadstones, ising-glass, and (that wonder of stones) the salamander stone, found near Brandywine river, having cotton in veins within it, which will not consume in the fire, though held there a long time. There are an infinite number of sea and land fowl of most sorts, and there are prodigious quantities of shell and other fish; also, several sorts of wild beasts of great profit and good food. There are also several sorts of wild fruits, as excellent grapes, which, upon frequent experience, have produced choice wine; walnuts, chestnuts, filberts, hickory nuts, whortleberries, mulberries, raspberries, strawberries, cranberries, plumbs, and many other wild fruits in great plenty, which are common and free for any to gather. Also many curious and excellent physical wild herbs, roots, and drugs, of great virtue, which makes the Indians, by a right application of them, as able doctors and surgeons as any in Europe. Indeed the country, take it as a wilderness, is a most brave country.

The city of Babylon is said to have been in Penn's mind as a model for his proposed city. Its area was liberally calculated. Penn's orders were to "lay out a town on the proportion 200 acres for every 10,000 sold, of which the purchasers of 500 acres were to have 10". The whole amount sold having been nearly 400,000 acres, the city, as thus planned, would have covered an area of 8,000 acres. The disadvantages of such a scheme in a situation where the mutual protection of close neighborhood might at any moment become of the highest necessity, soon became apparent; and, in place of a town of 12½ square miles, one of a sixth of that size was decided upon. Later this plan was again contracted, and the boundaries of the city were declared to be Vine and Cedar streets to the north and south, and the two rivers to the east and west.

"Be sure to settle the figure of the town so as that the streets hereafter may be uniform down to the water from the county bounds," wrote William Penn before his arrival, forecasting that decorous regularity of arrangement which has distinguished the city of his love ever since his day. "Let every house be placed, if the person pleases, in the middle of his plot, so that there may be ground on each side for garden, or orchard, or field, that it may be a green country town, which will never be burnt and always be wholesome." Such a "plot" was set aside by the commissioners for the governor's own use. It was 402 feet long by 172 feet deep, and extended from High street, southward on Front and Second streets, half way to Chestnut. The house, according to his wish, stood almost exactly in the middle of the inclosure. It was of simple construction, two stories in height, and built of wood. The cellar was dug before Penn's arrival, and the house was probably ready for occupation the next year, 1683.

Penn's country seat was at Pennsburg, on the Delaware, above Bristol. It was the residence that he preferred, and he came to and went from it as the necessities of business required, using a barge or yacht, with a certain attention to state and show which befitted his position. "For although the proprietary had adopted the simple habits and doctrines of the society of Friends, there was in him much of the manners of his father's house. Formality, and a certain degree of luxury, with attention to many worldly fashions, which were to the strictest Quakers vanity of vanities, were kept up."

The place was constructed at great expense for that time, having cost £7,000. The mansion was 60 feet in front by 40 feet in depth. The garden, an ornamental and sloping one, lay along the river-side in front of it.

Pray let the court-yard be leveled [he writes], and the fields and places about the house be cleanly and orderly kept. I would have a kitchen, two larders, a wash-house, a room to iron in, a brew-house, and a Milan oven for baking; a stable for twelve horses, and my rooms I would have nine feet high. What you can, do with bricks; what you can't, do it with good timbers. There is gravel for walks, that is had at Philadelphia, near the swamp. Let all be well form, and not ascu from the house.

These innovations brought upon him some unavoidable criticism. In *News from Pennsylvania*, published in London in 1703, this description is given by an apostate Quaker of Penn's manner of living during his second visit to this country:

Our present governor, William Penn, wants the sacred unction, tho' he seems not to want majesty, for the grandeur and magnificence of his mein is equivalent to those of the Grand Mogul, and his word in many cases as absolute and binding. The gate of his house (or palace) is always guarded by a janisary armed with a varnished club of nearly ten foot long, crowned with a large silver head, embossed and chased as an hieroglyphic of its master's pride. There are certain days of the week appropriated for audiences, and as for the rest, you must keep your distance. His *corps du guard* generally consists of seven or eight of his chief magistrates, both ecclesiastical and civil, which always attend him, and sometimes there are more. When he perambulates the city, one bareheaded, with a long white wand over his shoulder, in imitation of the lord marshal of England, marches grandly before him and his train, and sometimes proclamation is made to clear the way. At the meeting-house, first William Penn leads the van, like a mighty champion of war, ranting as fast as the wheels of his leathern conveyency. After him follow the mighty dons, according to their several movings, and then for the chorus the feminine prophets tune their quail-pipes for the space of three or four hours.

The first house finished in Philadelphia was a small wooden one on the east side of Front street, a little north of the place afterward called the Dock. It was for many years in use as a tavern, its sign being a blue anchor. In 1683, Philadelphia "consisted", we are told, "of three or four little cottages". But word had gone out into the world of the establishment of a city of refuge for the oppressed of all nations, and from all parts of Europe and the United Kingdom emigrants came crowding to the land of promise. "In the short space of three years after the settlement of Penn, fifty sail of vessels arrived, filled with passengers from different countries." From Germany they came, from Sweden, from the low countries, Ireland, Wales, and England. The rapid increase of population almost alarmed the government; but it worked no harm, and steadily and silently the newcomers were absorbed into the body politic to help on the rapid growth of the general prosperity.

In three years after its foundation Philadelphia had gained more than New York in half a century. "The town already contained six hundred houses, and the school-master and printing-press had begun their work." No wonder that Penn should exultingly write to Halifax: "I must, without vanity, say that I have led the greatest colony into America that ever man did upon a private credit, and the most prosperous beginnings that ever were in it are to be found among us."

Lawgivers, as well as artisans, are needful for the building of a state. Nine representatives were elected from each of the six counties into which Penn's dominion was divided, to form a charter of liberties. Penn presided over the debates, but left the assembly free to follow its own counsel. He laid before them the plan of government framed in England, but added: "You may amend, alter, or add. I am ready to settle such foundations as shall be for your happiness."

The constitution, as finally decided upon, created a council and an assembly. The former was to serve three years, the latter one year. One-third of the council was to be renewed yearly; the whole assembly was subject to an annual election. Judges were nominated by the council, and were not to be removed, except in case of ill-behavior, till their term of office had expired. God was declared the only Lord of the conscience. The sabbath was set apart as a day of rest. The law of primogeniture was pronounced invalid. The word of an honest man was to be evidence, unaccompanied by an oath. Thieves were to restore fourfold, after being whipped and imprisoned; if unable to do this, they were kept in servitude till the debt was discharged. No tax or custom could be levied except by law. There were neither poor-rates nor tithes. Murder was the only crime punishable by death. Every convict-prison was to be a workhouse. False accusers were to pay a double penalty. The governor had a negative voice in all acts of the council, which was in fact a veto on every law. Except for this, the constitution of Pennsylvania would have been a pure democracy. In the adjoining state, Maryland, the council was named by its governor, Lord Baltimore. The appointment of all subordinate officers rested with him; he also had the revenue of tobacco, and the state was burdened with taxes. The same revenue was offered to Penn and was declined. Tax-gatherers were unknown in Pennsylvania, the council and all lesser officers were voted for by the people, and William Penn could not, of his own will, appoint so much as a constable to place. It is no wonder that this charter was received by the people with enthusiasm, as "one of unhoped-for liberty". Penn was no less content. "I desire," he said, "to show men as free and as happy as they can be. If, in the relation between us, the people want of me any thing that would make them happier, I should readily grant it."

The early minutes [of the assembly] show that the members in William Penn's time used to take their dinners with them to the house (the house being a school-room hired for 20 shillings the session), and adjourned sometimes for an hour to warm themselves; paid their clerk 4 shillings a day, and fined absentees 10 pence; often sat in silence for a while meditating as at a Quaker meeting, and passed laws forbidding the drinking of healths and the spreading of false news.

It is interesting to note the calm good sense of the Quaker rulers when dealing with the question of witchcraft which a few years later was to upset all the best judgment of New England. In 1688 a woman was brought to trial as a witch. The jury, in which Quakers predominated, after listening to the testimony and the governor's charge, brought in this verdict: "The prisoner is guilty of the common fame of being a witch, but not guilty as she stands indicted." It was the first and last trial for witchcraft which took place in Pennsylvania.

The government thus inaugurated, the courts of law established, a peaceful settlement with the natives secured, Penn's work was done, and he prepared for a visit to England. The executive power he left in the council, and the seal of the state in the keeping of his friend Lloyd. He sailed in August, 1684, leaving behind him this touching farewell:

My love and my life are to you and with you, and no water can quench it or distance bring it to end. You are come to a great land, and liberty and authority are in your hands. I bless you in the name of the name and power of the Lord, and may God bless you in His righteousness, peace, and plenty all the land over. And thou, Philadelphia, the virgin settlement of this province, my soul prays to God for thee, that thou mightest stand in the day of trial, and that thy children may be blessed. Dear friends, my love salutes you all.

It was Penn's hope in sailing to return in the course of a few months, but this hope was frustrated. Vexations and disappointments awaited him at home. Charles II, grantor of his patent of lands, died shortly after his arrival. His successor, James II, had, as duke of York, been a warm personal friend to Penn, and continued so after his accession. We hear of Penn in favor at court during the following years, and using this favor in behalf of all 'persecuted sects, of the Roman Catholics and Universalists no less than his own people.

On the downfall of James II, Penn, in common with all the friends of the deposed king, found himself suspected and in disgrace. He was twice arrested on a charge of treasonable practices and twice acquitted. His government was taken from him and again restored. It was 16 years before he again saw the shores of the Delaware and the city of his planting. Great changes had taken place during this interval. Where he left a plain rudely staked out with squares and streets, a few houses finished, and a few others begun, he found shops, warehouses, shipping; the population had increased to 4,500, with an accommodation of 700 houses. Philadelphia from the outset has been remarkable for the liberal provision of dwellings for her people. The value of customs at this time Penn calculated to be not less than £8,000.

It was during this second visit that Philadelphia was "instituted a city", though it would seem in effect to have possessed the character of one before that, for as early as 1691 its official acts were signed by a mayor. There were several good "schools of learning for youth", and—for which the early chronicler gives thanks with an equal fervor—"several cook-shops, both roasting and bryling, as in the city of London, for which we owe the highest gratitude to our plentiful Provider, the great Creator of heaven and earth. All sorts of very good paper are made in the Freeman-towne, as also very fine German linen, such as no person of quality need be ashamed to wear, and in several places they make very good druggets, crapes, camlets, and serges, besides other woolen clothes, the manufacture of all which daily improves. The Christian children born here are generally well favored and beautiful to behold. *I never knew any with the least blemish.*"

A curious anecdote is told of Anthony Duché, "a respectable Protestant refugee from France", who was one of Penn's ship company on this second voyage. Duché had lent Penn a small sum of money, about £30. On their landing Penn offered him in lieu of the debt what he called "a good bargain in land", namely, the whole square between Third and Fourth streets, with the exception of a small piece already occupied as a Friends' burial-ground. Duché replied, "You are very good, Mr. Penn, and the offer might prove advantageous, but the money would suit me better." "Blockhead!" cried Penn, "thou shalt have thy money, but canst thou not see that this will be a very great city in a very short time?" "So I was paid," adds Duché, "and have ever since repented of my folly."

This proved to be Penn's last visit to his colony. He sailed for England in 1701, urged thither by embarrassments in his affairs, and partly, it would seem, also, by the unwillingness of his wife and daughter to remain. "I can not prevail upon my wife to stay, and still less with Tishe. I know not what to do," he writes. It was his hope speedily to return to Philadelphia and to make the colony his permanent home, but these hopes were baffled. Renewed vexations awaited him in England. At one time he was actually in the fleet prison for nine months on account of debt. "O Pennsylvania!" he wrote during this period of trouble, "what hast thou not cost me? Above £30,000 more than I ever got by it, two hazardous and most fatiguing voyages, and my son's soul almost [this is in reference to his eldest son, who had fallen into evil ways during his residence in the colony]. I can not but think it hard measure that while that proved a land of freedom and flourishing to them, it should become to me, by whose means it was made a country, the cause of trouble and poverty." So great were his necessities that he actually negotiated for the sale of his province for £12,000, reserving to himself the quit-rents and estates. His mind was failing at the time, and before the execution of the deed he had so far lost his faculties as to be incapable of making a legal conveyance. In 1712 he had a shock of paralysis, and six months later another. For six years he lingered confused in memory, but, when thoughts of business were kept from him, "very sweet, comfortable, and easy, and cheerfully resigned, and taking delight in his children, friends, and domestic comforts". He enjoyed much serenity, "and continued incomes of the love of God". He died in 1718. His work survived him and still survives. "The chief cause of Pennsylvania's rapid growth was not the pleasantness of the climate, nor the fertility of the soil, nor the convenience of the situation, though these were causes of its prosperity. Pennsylvania thrived because William Penn had been just."

Meanwhile, twelve years before his death, in a small tallow-chandler's shop in Boston, a boy had been born who, next after Penn, was destined to exert a lasting and formative influence upon the city of his planting. "Philadelphia," says Parton, "is Quakerism mitigated by Franklin."

## THE SUCCESSORS OF PENN.

FROM 1718 TO 1766.

A sober and considerate perusal of all the papers which remain at this day on the subject of Penn's government could not fail to convince the reader that the structure of colonial governments in general must have been of the most perplexing and vexatious kind. They remind one of wranglesome children, perpetually plotting and counterplotting against each other, "destroying others, by themselves destroyed", each carrying their complaints and remonstrances back to the distant parents in England, and they, equally perverse, rescinding and counteracting the efforts of the children to become their own masters. Americans, to be duly sensible of the value of their liberation from such harassing thralldom, should go back to the perusal of those voluminous papers which contain the facts so constantly afflictive to our forefathers.

For some time after the death of William Penn, in 1718, his widow, Hannah Penn, conducted the correspondence with the colony, and in some sort administered the government. William Penn, the eldest son of the family, made a claim on the colony as natural heir; but before any final decision had been arrived at in the matter, his unworthy life had come to a close; he died ten years after his father's death, worn out by intemperance and excesses.

By Penn's will the Pennsylvania estate was divided among the three sons of his second marriage, John, Thomas, and Richard. John Penn, dying unwedded in 1746, left his whole estate to his brother Thomas, who thus became owner of three-quarters of the province. He seems to have been a prudent and methodical man of business. Richard, the youngest of the brothers, was a spendthrift. Both were men of inferior capacities and narrow hearts, having inherited nothing of the wide thought and wider humanity which distinguished their father, and which led him to erect barriers for the protection of generations yet unborn, against even his own authority and that of his heirs.

Insignificant among the gentry of their own country, without place or influence, the heirs of Penn had yet the power of an almost royal control over a territory larger in extent than England itself. Ruling by deputy, and rarely visiting the country which they claimed as inheritance, their sole care in the management of it seems to have been their own enrichment in wealth and importance. Representatives of a parent whose virtues they neither understood nor imitated, and who would have been the first to condemn their methods of government, they used their authority to vex, retard, and hamper a community which, regarding them in the outset with a deep and grateful regard, learned in the end to feel toward them abhorrence and distrust, as the oppressors of the very people which their father had given his all to make free.

Twenty-five years after the death of Penn, Pennsylvania contained a population of 100,000 (1743), and Philadelphia of 10,000 inhabitants. His heirs valued their American estate at £10,000,000. Twenty-five ship-loads of Germans alone landed during the year 1749, and this was not estimated above the average emigration of former years. In 1731 Pennsylvania traded in 28 different articles of export with England, besides exporting in considerable quantities to Portugal, Spain, Surinam, and the Mediterranean ports, and shipping over 300,000 pounds of produce to the West Indies. Over 2,000 tons of shipping was built for sale over and above the quantity needed for her own trade. The heirs of Penn drew from the province an income of £20,000, yet they steadily claimed the right of exemption from all taxes, even those levied for the protection of the territory from which this revenue was derived.

During the first years of the French war, from 1754 to 1758, the ravaged colony of Pennsylvania contributed to the king's service, in defending its own borders and aiding the colonies to strike at the common foe, the sum of £218,000. Still the proprietaries would not be taxed. The crown lands and castles, the lodges and palaces of the king of England, contributed their proper portion to the revenue of the kingdom. But the proprietary estate of these lordly brothers must still be exempt from taxation!

The sum in question was not large, amounting to no more than £550 a year, all of which was to be expended in the defense of what the Messrs. Penn were magnificently accustomed to style "our province of Pennsylvania", and "our city of Philadelphia". Yet even when, after the defeat of Braddock in 1756, the savage foe ravaged the outskirts of the colony, and families were scalped within 80 miles of Philadelphia, the proprietaries held firmly to their refusal. Instead of setting on foot instant measures for relief and reprisal, the assembly was forced to waste valuable time in miserable squabbles with the governor over this point, whether or not the nominal rulers of the province and those who derived the greatest benefit from it should be forced to bear their fair share of the expenses of its protection.

These deputy governors, sent out from England with sealed instructions for the management of every possible and impossible complication which might arise in the colony, must indeed have been a thorn in the side of a quick-witted and ardent community like that of Pennsylvania. They were changed as often as the indignation of the colonists or the convenience of the Penns made it desirable, and their different careers may be summed up with tolerable uniformity: Arrival, fair promises, hopes, quarrels with the assembly, growing uneasiness, then appeals, denunciations on both sides, a tough fight over supplies, and his excellency This sailed for Europe while his excellency That arrived to take his place. It was all a hopeless muddle. More than once the governor's signature to bills which had passed the house was extorted only by making the payment of his own salary contingent upon it. "It is a happy country," remarks Franklin dryly, "where justice and what was your own before can be had for ready money. It is another addition to the value of money, and of course another spur to industry. Our present proprietaries have never been more unreasonable hitherto than barely to insist on your fighting in defense of *their* property and paying the expense yourselves."

It is no wonder that Pennsylvania turned at length against this pair of thick-headed despots, too distant and too deaf to heed remonstrance and too dull to understand it. When she turned it was with that violence of contempt which children feel who, after writhing under the rule of a formal old pedagogue, realize at last his ignorance and their own strength. But there is a melancholy side to such a reaction. Great men are none too common in this world; their names should be held in honor. It is grievous that the sons of such a man as Penn should have been able by their own folly and selfishness to smirch and dim his honorable repute with the state he so benefited, and to bring down on themselves a satire so biting and so deserved as that embodied in Franklin's "Memorial of T. and R. P., P. of P." (Thomas and Richard Penn, proprietaries of Pennsylvania), published in 1764. These are the concluding sentences:

The privileges granted by their father  
They,  
Foolishly and cruelly  
Taking advantage of public distress,  
Have extorted from the posterity of those settlers,  
And are daily endeavoring to reduce them  
To the most abject slavery;  
Though to the virtue and industry of these people  
In improving their country,  
They owe all they possess and enjoy.  
A striking instance  
Of human depravity and ingratitude,  
And an irrefragable proof  
That wisdom and goodness  
Do not descend with an inheritance,  
But that ineffable meanness  
May be connected with unbounded fortune.

Notwithstanding these misunderstandings with the proprietaries, the record of Philadelphia during the seventy years following the death of her founder shows a steady growth in prosperity. In 1753 the population had increased to nearly 15,000 and the number of houses to 2,800. In 1777 the population was 23,734 and the dwellings, 5,395.

Penn's original plan for the laying out of the streets was adhered to by his successors. Streets 50 feet in width ran from north to south and from east to west, crossing each other at right angles. The streets which lead from river to river are named in most part after the fruit and forest trees which were found growing on the spot when the first settlers arrived. The streets running from north to south are numbered in regular order from No. 1 or Front street, upward. Each block is calculated to contain 100 houses, and is numbered accordingly. All dwellings above Market street are marked "north", and all below it "south". By this arrangement the number of any house defines its exact topographical situation. Under the so-called "Philadelphia plan", now largely adopted in other cities, the blocks, which here include small intermediate streets, are numbered from a designated base-line by the hundreds of the numbers used, and the lots in the blocks are numbered by the numbers below the hundreds. Thus 1610 Chestnut street indicates number 10 in the sixteenth block on Chestnut street, counting from the Delaware river; and 541 North Eleventh street indicates number 41 in the fifth block on Eleventh street, counting north from Market street.

What such an arrangement is lacking in interest is atoned for by the ease and simplicity which makes it impossible for a stranger to go astray, or to experience the least difficulty in following a given direction.

In 1752, Philadelphia was still about what its founder desired that it should be, a "green country place", extending a mile along the Delaware and about half a mile back from its shores. The houses, built principally of brick and stone, as to-day, stood each surrounded by its garden. Almost every family kept its cow, which was pastured in the outskirts of the city. The peach orchards bore so abundantly that pigs were fattened on the fruit. There were persons living who remembered when the site of the city was a forest; indeed, the first child born in the colony was still alive—a man of 62. Game was plentiful in the near neighborhood; and down to the middle of the century wolves and bears were occasionally shot within 8 miles of the state-house.

An aged lady stated in 1740 that she could recollect the time when she and other girls went out to gather wild strawberries in what is now Spruce street, between Seventh and Eighth streets. The woods there were "lofty and thrifty", and extended all the way across to the Schuylkill. An aged gentleman, of the same date, "well remembers a fine field of corn in growth on the northwest corner of South and Front streets".

The health of the city was not uninterrupted during the first half of the century. With the increase of the population came an increase of disease, chiefly of the zymotic type. In great part these disorders seem to have had for cause a small swamp or creek running northwesterly from the Delaware across Second and Walnut streets to Third, with an arm extending as far as Spruce. This creek was given to the city by Penn to be kept in perpetuity as a convenient water-way for boats of light draught to carry supplies from the river to the heart of the town. The sluggish current of the creek caused it gradually to fill with mud, which in time became the receptacle of a mass

of sewer contamination and garbage, and made a center of poisonous exhalations for that part of the city. In 1784 Dr. Benjamin Rush pointed out the dangerous nuisance, and his influence was sufficient to carry, against strong opposition, a law providing for the cleansing and arching over of the creek and the laying out of a street above it, which measure was followed by an immediate improvement in the public health.

It was Penn's intention to preserve the frontage of the Delaware as an open esplanade, to be planted with trees, and form an airy and agreeable walk for the citizens. His straits for money, at a later day, unfortunately led him to relax from this intention, and to sell these lots for bank-vaults and stores. It was a sore mortification to him on his second visit to see the "growing deformity" of this part of the city. "My necessity, not my will, hath done this," he remarked. The abandonment of his plan was a great and lasting loss to Philadelphia, only partially remedied by the bequest of Stephen Girard, at a later day, for the improvement of the river-front.

In 1702 the breaking out of the war between England, France, and Spain menaced the settlements on the Delaware with attack, and the inconvenience of the Quaker doctrine of non-resistance became apparent. For, although the original charter of Penn included a provision that he and his heirs should "muster and train, make war, and vanquish or put to death all enemies by sea and by land", and during the early years of the colony something like a militia organization existed, there can be no doubt that the Quakers were at least strongly opposed to any thing which bore the resemblance to warlike preparation. Lieutenant-Governor Evans, then in command, attempted to raise a regiment for defense, which attempt was firmly resisted by the assembly. Four years later he employed a foolish trick, with the hope of exciting a public panic and forcing the Quakers to abandon their policy of non-resistance. A forged letter was prepared and sent into town on a market-day, when the city was full of people, reporting that armed ships had entered the Delaware and were coming up to plunder the city. The governor made his appearance on horseback with a drawn sword, and called upon the people to rise in defense of their homes. Great alarm was excited, and the people began to remove their families and property, but the Quakers stood firm; and when, soon afterward, the fraud was discovered, the storm of indignation it excited was so great that Penn was forced to remove Evans and replace him with another deputy.

In 1709 French privateers plundered the town of Lewes, in one of the lower Delaware counties. From 1740 to the close of 1748 France and Spain were at war against England, Holland, and Hungary. The American settlements were of course an inviting object of attack to all the enemies of England. All the other southern colonies put themselves into a state of warlike preparation.

Pennsylvania alone was utterly defenseless. The banks of the Delaware had not a fort, not a battery, not a gun, and Philadelphia lay a tempting prize that even a well-armed privateer could seize and sack. There was not so much as a volunteer company, if there were muskets enough to arm one. John Penn and Thomas Penn were not Quakers, as their father had been, and the governors who ruled in their stead were not Quakers; yet in the legislative assembly the Quaker influence so greatly preponderated that nothing could induce that body to vote money for the purchase of means of defense. Not the actual presence of a privateer in the river could move them; with such tenacity do we cling to eccentric belief.

This obstinate inactivity was at last brought to an end by the influence of Benjamin Franklin. We have already spoken of this distinguished man as being, next to Penn himself, the most potent factor in the molding of the Pennsylvania community.

The story of his life is, or should be, familiar to all who read these pages. There is, however, a surprising and growing carelessness about the lives of even great men as they recede with the dimness of history. We fear there may be those, especially among our young readers, who, in thinking of this celebrated character, depict him to their mind's eye as a bland elderly figure, vaguely outlined, with an aspect of benevolent instruction, who carries in one hand a lightning-rod, in the other a batch of proverbs. For the benefit of these, if such there are, we will venture to give a brief sketch of a career so intimately bound up with the fortunes of Philadelphia, and which, taken in all its parts, is perhaps the most noteworthy of any recorded in American history.

Born in Boston in the year 1706, one of the ten children of a tallow-chandler, apprenticed to his brother at the age of 12 to learn the art of printing, falling out with his master five years later and escaping from his service, our runaway apprentice landed in Philadelphia in 1723, being then 17 years of age. His first adventures in the city are too well known to be dwelt upon at length. Landing from the small boat which had brought him down the river from Burlington, foot-sore, travel-stained, and almost penniless, his first emotion was one of surprise at the quantity of bread given him in exchange for threepence—"twice as much as any Massachusetts baker would have given". Walking down grassy tree-shaded Market street, Deborah Reed, his future wife, stood in her father's doorway and smiled at the odd appearance which he made; all of which simple legend should be as familiar to American boys and girls as the history of Whittington and his cat.

Seven months later he returned to Boston for a brief visit, well dressed, with money in his pocket, and the owner of a watch. The clever young printer had prospered at his trade and made friends, among them Sir William Keith, at that time the governor of the colony. This friendship proved in the end a misfortune to Franklin. Keith, a vague, chimerical, untrustworthy man, sent him to England in 1724 with a commission to purchase the outfit for a printing establishment of a superior kind, which the governor desired to establish in Philadelphia. His promises as to money and instructions were not fulfilled, and Franklin was left to shift for himself in London as he had done two years before in Philadelphia. A good printer could hardly lack for work in those days, fortunately

for him, and he found no trouble in earning a maintenance. He returned to Philadelphia in 1726. Three years later we find him established in a considerable printing business of his own, and conducting the *Pennsylvania Gazette*, the first paper of note produced in the colony.

In 1730 he married his early love, Deborah Reed. In 1731 he started the first subscription library probably in the United States, certainly in Pennsylvania. Two pounds sterling for the purchase of books, and 10 shillings a year afterward, were the terms of the first subscriptions. This was the nucleus of the great library of Philadelphia. In 1785 the number of volumes was 5,487; in 1807, 14,451. In 1861 the number had risen to 70,000; in 1880, to 100,000. "The institution is one of the few in America that has held on its way unchanged in any essential principle for a century and a quarter, always on the increase, always faithfully administered, always doing its appointed work."

In 1732 was given to the world the first volume of the renowned *Poor Richard's Almanac*. This little work, besides the usual information as to moons, tides, weather statistics, was made the vehicle of Franklin's admirable preface on the affairs of the day, of his equally admirable fun, and of a wealth of aphorism, which still supplies our memories and conversations. "Honesty is the best policy." "A word to the wise." "God helps those who help themselves." How often these and their companion proverbs are used by us without any recognition of the source from which they come.

In 1733, having earned a certain privilege of leisure, Franklin resumed the education which, so far as schools go, had ended for him at the age of 10. He learned to read fluently French, Italian, and Spanish. He made considerable progress with Latin. He was also accomplished in music, was master of a clean and effective English style, and was fond of the game of chess.

In 1744, when the war and the defenseless condition of Philadelphia created general alarm, he published a tract entitled *Plain Truth*, in which he depicted the horrors of war, pointed out the danger of the province, and cited biblical arguments to show "the righteousness of self-defense". This tract produced a powerful impression. Within a month after its appearance almost every man in the province, not a Quaker, had joined a military organization and procured some sort of weapon. Eighty companies were soon formed. Franklin was elected colonel of one of the Philadelphia regiments, but, "thinking myself unfit", he declined. It is probable that the younger Quakers, at least, secretly rejoiced at the movement. Certain it is that Franklin's share in it did not cost him his influence in the assembly, of which he was clerk, as had been feared.

In 1747, Franklin, then 42 years of age, and in the enjoyment of an income of some £700 a year, deliberately retired from active business for the purpose of gaining time to devote to scientific study, notably to electricity, which was the absorbing topic of the day. In 1752 he made his great discovery of the identity of the electric fluid in the clouds with that in the electrical battery. The same year he invented the lightning-rod. The experiment was first tried on his own house. "The rod came into his bed-chamber on the gable-end, eastern side, and there being cut off from its communication with the rod descending to the ground, the intermediate space of about one yard was filled up with a range or chime of bells, which, whenever an electric cloud passed over the place, were set ringing and throwing out sparks of electricity." In this manner the philosopher played with the terrible agent whose properties he was among the first to recognize. A vein of poetry runs through many of his scientific experiments. He was fond of the music of the æolian harp, and accustomed wherever he went to stretch a silver string across some crevice which admitted air, in order to produce the sounds which delighted him. It is said that, revisiting many years afterward a house in which he had lived during his first visit in France, he found it shut up and deserted, under a suspicion of being haunted by spirits who made strange musical sounds. Investigation revealed the cause of this report—a forgotten cord stretched by himself across the window during his previous residence.

In 1748, through his instrumentality largely, the University of Pennsylvania was founded, and soon afterward the Pennsylvania hospital. It is to him that America owes the introduction of the willow-tree, and of plaster of paris as a fertilizer. It was at his suggestion that the merchants of Philadelphia, in 1753, sent a ship to the polar seas for the discovery of the Northwest passage. He first detected the poisonous qualities of air exhaled from the lungs, and wrote effectively on the subject of ventilation. The open stove called the "Franklin", which has been in use ever since his day, was his invention. And it was his apt and fiery arguments which strengthened the popular party in Pennsylvania during their long struggle with the proprietaries, and sowed the seeds of that determination after liberty which carried the colony through the hardships of the Revolution.

For sixteen years Franklin held the place of postmaster of Philadelphia. In 1753, he, with Benjamin Hunter, of Virginia, was commissioned by the home government as postmaster-general for America. It was under his administration that the mail service first began to yield a revenue. Some of the improvements introduced by him into its management are part of our postal system to this day.

In 1755 he gave valuable assistance in fitting out Braddock's ill-fated expedition against fort Duquesne. Visiting the camp for this purpose, he found leisure during the journey to observe and explain the movement of one of those spiral whirlwinds which were as common and destructive then as now. After the massacre of Braddock's force, and the onslaught of the savages on the frontiers of Pennsylvania, Franklin accepted for the emergency a military appointment, and led a body of volunteers to the relief of the Moravian settlement of

Gnadenhütten, which had been laid in ashes by the Indians. The record of his two months' service in the field was so creditable to him that he was urged by the assembly to accept a general's commission and "undertake the reduction of fort Duquesne", a proposal of which his wisdom and modesty alike forbade the acceptance.

In 1757 he was sent out to England as agent of the colony of Pennsylvania to appeal against the vexatious conduct of the proprietaries. He carried with him a memorandum of heads of complaints, which ran as follows. 1st. The royal charter gives to the assembly the law-making power: the proprietaries deprive them of that power. 2d. The charter confers on the assembly the right to regulate supplies: the proprietaries neutralize that right. 3d. The exemption of the estate of the proprietaries from taxation is a manifest injustice. These complaints producing no impression on the minds of the Messrs. Penn, Franklin bent his energies toward influencing the lords of the council and the board of trade.

His mission kept him in England for nearly five years. They were laborious and harassing years, but they had their admixture of happiness, for the reputation of Franklin was now world-wide, and the best literary and scientific societies of London welcomed him with open arms. In its main object his errand was a failure. The proprietaries proved impracticable, and their influence prevailed with the authorities.

In 1760 a committee of the privy council had a report actually prepared by which his majesty was recommended to repeal the bill which had passed the assembly for the equal taxation of all estates. This was equivalent to a decision in favor of the Penns. Here the inimitable fact and dexterity of Franklin stepped in. He contrived so far to influence the committee as to secure an alteration of the report by which the king was recommended to repeal the bill *unless* the assembly made certain alterations and concessions therein. This was in effect spiking the enemy's gun, for the assembly found it easy to procrastinate and evade the fulfillment of the conditions until the matter had passed out of men's minds and the immediate consideration of the privy council.

It may be said here that these feuds with the proprietaries were not finally ended until the breaking out of the Revolution put an end to all property titles based on grants from the English crown.

One year after Franklin returned to his own country their discontent culminated. A majority of the assembly signed a petition praying the king of England to take Pennsylvania under his protection as a royal colony.

On the 26th day of October they elected Benjamin Franklin as their agent, and in spite of the bitter protests of his opponents he sailed for England with the sacred charge of the liberties of his country in his custody.

Six times Franklin presented the petition of the province to the king. Six times the Penns so opposed it that the appeal came to nothing. When the final disruption occurred, the Penns, being still in possession of the province, contrived to sell what they could no longer retain. The state of Pennsylvania voted them £130,000, and the British government settled upon the head of the family a pension of £4,000 a year. They deemed the price far too small, but they nevertheless deigned to accept it, and Pennsylvania was rid of them forever.

The agitation caused by the passage of the stamp act the following year also operated to hamper his negotiations. Franklin continued in London as representative, first for Pennsylvania and later for the thirteen original colonies, for ten years, until the very eve of the great struggle of the Revolution, and until every hope of averting that struggle was past. He himself, in his own person and as the agent of his country, had been subjected to a public insult at the hands of the king's solicitor-general, Wedderburn, in a speech before the privy council in 1773. Horace Walpole's epigram on this occasion will be remembered:

Sarcastic Sawney, swol'n with pride and prate,  
On silent Franklin poured his venal hate:  
The calm philosopher, without reply,  
Withdrew, and gave his country liberty.

The "calm philosopher" might not reply, neither did he forget. "I am not insensible to injuries," he told a friend in after-life, "but I never put myself to any trouble or inconvenience to retaliate." Five years later, on the day when the treaty of alliance between France and the United States of America was signed at Paris, it was observed that Dr. Franklin had put on the same suit of "Manchester" velvet which he wore on the day when he stood to be baited by Wedderburn, amid the applause of a great concourse of lords. He never wore it again, and he never remarked on the circumstance; but there can be no doubt that even the philosophic mind found satisfaction in linking together by this little act the day when in his own person his country was humiliated, and that on which with his assistance she secured a powerful ally and sprang into a new position of power and menace before the eyes of England.

"Franklin's presence in France was in itself a triumph to the colonies." A member of the famous congress of 1776, he was sent to Paris in the autumn of the same year as commissioner of the United States, and remained there until after the treaty of peace in 1782. His high repute in science, in letters, his eloquence and dexterity, and his inimitable tact, contributed largely to the success of his negotiations and the ultimate triumph of the cause he represented. "Franklin charmed and captivated by a power so subtle and magnetic as to be well-nigh undefinable." His personal popularity was unbounded. "'Tis the fashion nowadays," sneered Soujnet, "to have an engraving of Mr. Franklin over one's mantle-piece, as it was formerly the fashion to have a jumping-jack." The rest of his life may be summed up in a few brief sentences: Returning to Philadelphia in 1785, he was twice elected president of Pennsylvania. He died 1790, in his own home in Market street, being in the 85th year of his age. Next to Washington, his life may be said to have been that which was most useful to mankind of any life yet lived on the American continent.

## OLD PHILADELPHIA.

FROM 1718 TO 1766—CONTINUED.

So late as the year 1760 Philadelphia continued to be an unpaved city. The soil being of clay, the streets in the wet season became almost impassable. Carts were frequently "stalled" in the mire of the principal thoroughfares. "Filthy-dirty" was the jeering name given to the place by the farming-folk in the neighborhood. The roads leading to the city were even in a worse condition. It was not an infrequent experience to see horses struggling in mud up to their knees. "Mr. Tyson has seen 13 blue wagons stopped on the York road, near Logan's hill, to give one another assistance through the mire; and the drivers could be seen with their trousers rolled up, and joining team to team to draw out; at other times they set up a stake in the middle of the road to draw off wagons from the quicksand pit. Sometimes they took down fences and made new roads through the fields."

Even the ground around the market-place was left neglected until in 1752. Franklin, "seeing with pain the cleanly people wading in mud up to the stalls", used his influence to secure a pavement, and later set on foot a subscription for having it regularly swept. The convenience of this pavement raised a general desire for the paving of other streets, and made the people willing to be taxed for the purpose.

Second street was the first to be paved. A prominent citizen riding there on horseback was mired, thrown from his horse, and broke his leg. This accident drew attention to the shocking condition of the street, and led to its reformation. In 1761 a lottery of 12,500 tickets, at \$4 each, was made for the raising of \$7,500, to be used in paving the streets; ten years later another lottery produced £5,250 for the same purpose.

The sidewalks were generally laid in brick. New York sidewalks of the same date were cobblestoned. "Habit reconciles to every thing," writes a Philadelphian about 1730. "It is diverting enough to see a Philadelphian in New York. He walks the streets with as much painful caution as if his toes were covered with corns, or his feet lame with the gout; while a New Yorker, as little approving the plain masonry of Philadelphia, shuffles along the pavement like a parrot on a mahogany table."

In the year 1742 the city began to be illuminated with lamps. Most of the early houses had casement-windows fitted with leaded panes. Sun-dials were affixed to many of the house-fronts, and were consulted as time-pieces by the passers-by. In 1842 such a dial was still in existence on a dwelling on the north side of Pine street, opposite the Friends' meeting-house. Every house-door had its porch, under which the family sat on pleasant evenings to enjoy the fresh air. "It was customary to go from porch to porch in neighborhoods, and sit and converse." "Decent citizens had a universal speaking acquaintance with each other, and everybody promptly recognized a stranger in the streets." A watch of any kind was a rarity. When they first came into common use, it was quite an annoyance to the watchmakers that they were so constantly called on by passers-by for the hour of the day. Carpets were scarcely known in the city until after 1750. Wall-papers followed about 1790, whitewash having previously been in universal use. In 1771 the first umbrellas appeared in Philadelphia, and were scouted as a ridiculous affectation. Blank cards seem to have been unknown down to the middle of the century. Playing-cards were the only ones imported, and invitations and tickets of admission were written or printed on the backs of these. A card for a ball, still in existence, issued in 1749 by Mrs. Jekyll, one of the fashionable leaders of the day, bears on its back the glaring image of the queen of clubs.

Down to the time of the Revolution tooth-brushes were unknown. "The genteel were content to rub the teeth with a chalked rag or with snuff. Some deemed it an effeminacy in men to be seen cleaning the teeth at all." The dental art was in its infancy. By a printed advertisement of the year 1784, Dr. Le Mayeur, one of the first dentists known in the city, engaged to pay 2 guineas for each tooth which may be offered him by "persons disposed to sell their front teeth, or any of them". These were wanted for the operation called "transplanting", by which a sound tooth is drawn from the mouth of one living person and set in that of another. Dr. Le Mayeur had great success in Philadelphia, and is said to have "transplanted" 123 teeth in six months.

Carriages were scarcely used in the city until after the Revolution. "One of the early honorables of the colonial days has told me of his mother (the wife of the chief justice) going to a great ball in her youthful days, to Hamilton's stores on the wharf, on Water street, next to the drawbridge—she going to the same in her full dress on horseback." In the year 1761 there were in the city but 3 coaches, 2 landaus, 18 chariots, and 15 chairs, making 38 vehicles in all. The rapid progress in luxury immediately after this date is shown by the enumeration for duties in pleasure-carriages, in 1794, which shows a list of 33 coaches, 157 coaches, 35 chariots, 25 phaetons, 80 light wagons, and 520 chairs and sulkies.

As late as the year 1762, the Schuylkill was still unbridged, and was crossed by means of ferries. In 1776 a floating bridge was placed on the river, but it was not until 1804 that a permanent structure took its place.

In 1704 the city was divided into 10 wards, which division continued until 1800. The eastern front of the Delaware, from Vine to Walnut, made 2, named the Upper and Lower Delaware wards. From Walnut to Mulberry, and from Front to Second, made 3 more, Walnut, Chestnut, and High. The space between Mulberry and Walnut and Second and Seventh streets was formed into the South, Middle, and North wards. Mulberry ward occupied

the space between Front and Seventh and Vine and Mulberry; and Dock ward that between Delaware, Seventh, Walnut, and Cedar streets. The whole number of taxable persons in the city in 1741 was only 1,621. The exports to Great Britain in the following year amounted to £8,527. 12s. 8d., while the imports were £75,295. 3s. 4d.

During the first thirty years of the century piracies along the coast were of frequent occurrence and kept the colony in continual alarm. In 1699 Captain Kidd was a standing menace to all sea-going people. Four of his crew were arrested and tried in Philadelphia. In 1717 and 1718, the equally infamous "Blackbeard" was plundering off the coasts of the middle and southern states. He is said to have made repeated visits to Philadelphia, and to have been countenanced and abetted by men in respectable repute; though a son-in-law of the deputy governor, Colonel Markham, was refused his seat in the assembly on account of his alleged connection with him. Blackbeard frequented an inn in High street near Second, and his vessel, which lay off Slate island, was regularly victualled and supplied by a worthy Swede named Crane, who lived at the Upper ferry, on the Schuylkill, and went off in his boat to the pirates.

How great was the terror excited by this freebooter may be guessed from the correspondence of the times. James Logan writes:

We have been extremely pestered with pirates, who now swarm in America, and increase their numbers by almost every vessel they catch (compelling them to enter by coercion or otherwise). If speedy care be not taken they will become formidable, being now at least fifteen hundred strong.

And later—

We have been much disturbed the past week by the pirates. They have taken and plundered six or seven vessels to this place. Some of our people, having been several days on board of them, had much free discourse with them. They say they are about four hundred strong at Providence, and I know not how many at cape Fear, where they are *making a settlement*. The sloop that came on our coast had about one hundred and thirty men, all stout fellows, all English, and doubly armed. They said they waited for their consort of twenty-six guns, when they designed to visit Philadelphia. Some of our masters say they know almost every man on board—most of them having been lately in the river. They are now busy about us to lay in their stores of provisions for the winter.

The following year, writing to the governor of New York, he says:

We are in manifest danger here, unless the king's ships (who seem careless of the matter) take some notice of us. They probably think a proprietary government no part of their charge. It is possible, indeed, that the merchants of New York, some of them, I mean, might not be displeas'd to hear that we are all reduced to ashes. [Even so early, it seems, there were jealousies of trade.] Unless these pirates are deterred from coming up our rivers by the fear of men-at-war to block them in, there is nothing but what we may fear from them; for that unhappy pardon [of Blackbeard] has given them a settled correspondence everywhere, and an opportunity of lodging their friends where they please, to come to their assistance; and nowhere in America, I believe, so much as in this town.

Here we have the direct fact of Blackbeard's being then on the coast, well armed, with a crew of 130 men, and waiting the arrival of another vessel, when he meditated a visit of plunder and rapine on Philadelphia itself. That, too, of his crew being men generally known to captains in Philadelphia, and busily concocting schemes to lay in their winter store of provisions.

The "settled correspondence" of Blackbeard seems to have included persons high in authority. On his capture, some months after the date of these letters, papers were found on board his ship which criminated both the governor of North Carolina and his secretary as accessories in his infamous trade. They seem to have held a regular business connection with the pirates, who were allowed to bring their prizes into port and have them condemned, as if the freebooters were sailing under letters of marque. Their booty was openly sold, the governor sharing in the spoils. He even lent the countenance of his presence to the marriage of Blackbeard with a young woman of good family, who wedded him without being aware of his character. It afterward proved that she was his fourteenth wife, twelve of them being still living. It was not till the governor of Virginia, moved by an appeal from North Carolinians, "who much distrusted their own governor", came to the rescue, that any thing was done toward suppressing the desperado.

His capture produced no immediate effect on the spirit of lawless adventure, for in 1723 we hear of "Lowe the pirate, and his consort Harris"; in 1724, of "Sprigg, the pirate of the 'Bachelor's Delight'"; and of "Skipton, of the 'Royal Fortune'". Justice seems to have taken her time, but 1725 brought a check to this nefarious trade, and gradually it came to an end. The last executions were in October, 1731, when "Captain Macferson" and four others were tried for piracy and hanged, after a long delay.

The low valuation of land within the city limits so late as the middle of the century is remarkable.

In 1737 the whole square from High to Chestnut street, and from Tenth to Eleventh, was leased for twenty years for the sum of 40 shillings per annum, and the additional consideration that the lessee should fence the plot and sow it with "English grass". Three years later this fortunate lessee sold out his title and interest in the ground for the remainder of the term for £5. William Penn is said to have offered his coachman the whole of the square included between Chestnut and Walnut and High and Second streets in lieu of a year's wages! An old lady living in 1842 relates that her grandfather was offered, for £20, the whole square from High street to Arch street and from Front to Second street, by William Penn himself. He declined, saying, "How long shall I wait to see my money return in profit?" Water street was a fashionable residence down to the beginning of the present century, "many of the richest and genteelst merchants living there". "The ground forming the square from Chestnut to Walnut street, and from Sixth to Seventh, was all a grass meadow, under fence, down to 1794.

The next square beyond, westward, was Norris' pasture-lot. Except one or two brick houses on the corner of Eighth street, you met no other house to Schuylkill." When, in 1792, a house was built on Market street above Fifth, the owner was "almost considered deranged for putting his building so far beyond the seat of civilization".

In 1751 the Burlington and Bordentown line of packet-boats was established for the transportation of merchandise to New York. In 1756 a stage line to the same place was instituted, to start from the sign of "The Death of the Fox", in Strawberries alley, and arrive in three days. Nine years later a second line of stages was announced. They were covered Jersey wagons, without springs, leaving Philadelphia twice a week, consuming three days on the journey, and charging a tariff of twopence a mile. The year following, the march of improvement and the demand for rapid transit resulted in the establishment of a third line, called the "Flying Machine", price threepence a mile, and warranted to push through to New York in two days, "except during the winter season", when three days must be allowed.

Only three newspapers were published in Philadelphia previously to the Revolution: *The American Weekly Mercury*, started in 1719 and discontinued in 1746. Its successor, the *Pennsylvania Journal and Weekly Advertiser*, begun in 1742, in size a foolscap sheet; and Franklin's *Pennsylvania Gazette*, which dates back to 1729, and was finally merged, in 1840, with the *North American*. Those were the days when the pen was held under strict censorship, both in England and in America. As late as 1719, John Mathews, a boy of 19, was executed at Tyburn for publishing a tract in favor of the expelled Stuarts. In 1722 the council of Boston condemned James Franklin, publisher of the *Courant*, to jail for what was held to be a reflection on the tardiness of the authorities in the matter of the pirates. In 1723 they attempted to suppress the same newspaper. Private as well as public opinion bore heavily on writers and printers, and held them to a strict account for their utterances. There is a droll and delightful story told of Franklin in connection with this:

Not long after Benjamin Franklin had commenced editor of a newspaper, he noticed with considerable freedom the public conduct of one or two influential persons in Philadelphia. This circumstance was regarded by some of his patrons with disapprobation, and induced one of them to convey to Franklin the opinion of his friends with regard to it. The doctor listened with patience to the reproof, and begged the favor of his friend's company at supper on an evening which he named, at the same time requesting that the other gentlemen who were dissatisfied with him should also attend. The invitation was accepted by Philip Lyng, Hugh Roberts, and several others. The doctor received them cordially, his editorial conduct was canvassed, and some advice given. Supper was at last announced, and the guests invited to an adjoining room. The doctor begged the party to be seated, and urged them to help themselves, but the table was only supplied with two puddings and a stone pitcher filled with water. Each guest had a plate, a spoon, and a penny porringer; they were all helped, but none but the doctor could eat; he partook freely of the pudding, and urged his friends to do the same, but they tasted and tried in vain. When their facetious host saw that the difficulty was unconquerable, he rose and addressed them thus: "My friends, any one who can subsist on sawdust pudding and water, as I can, needs no man's patronage."

He might have added, "and can afford to print the truth and his real opinion"—a luxury not common among editors, ancient or modern.

On the 14th of May, 1729, the assembly of Pennsylvania made an appropriation of £2,000 for the building of "a house for the assembly of this province to meet in". A lot was purchased on Chestnut street, extending from Fifth to Sixth. The building was begun in 1732 and finished in 1735. Not until 1750, however, were the tower and steeple added, and the bell procured, with its prophetic inscription, "Proclaim liberty throughout all the land and to all the inhabitants thereof."

It is a singular fact in municipal history that the first house built in Philadelphia still survives. This ancient dwelling was built in 1696 by Penn's order, to be ready for his use when he arrived. It was formally made part of the marriage portion of his daughter Letitia, and is still known as the Letitia house. It stands on Second street near Market. For many years it was occupied as a tavern, known as the Woolpack hotel. Many changes have been made in the building, but the upper portion of the front and northern walls and the quaint dormers of the roof remain unaltered.

Another quaint building, antedating 1700, was the "Slate Roof house" on Second street, at the corner of Norris alley, which survived until 1863. Penn occupied this house during a part of both his first and second visits to this country, and in it was born John Penn, the only one of his descendants not born in England.

Of other well-known buildings in Philadelphia which date back to the 18th century, we may name the original Friends' almshouse, built in 1729; the German Lutheran church on Fifth street, built in 1743; the old London coffee-house, on the corner of Front and Market streets, built probably in 1702; and the old Swedes' church, which antedates them all, having been begun in 1698. The first Presbyterian church in Philadelphia was built in 1704. The first place of worship for members of the church of England was erected in 1695. It was a lowly structure of wood, occupying the present site of Christ church. An old negro woman, who died in 1802 at the advanced age of 115 years, recollected its appearance: "The ceiling, she said, she could touch with her lifted hands. The bell to call the people was hung in the crotch of a tree near by. When it was superseded by a more stately structure of brick, they ran their walls up so far outside of the first church that the worship was continued unmolested till the other was roofed, and so far finished as to be used in its stead." Facts since brought to light seem to prove that the original wooden building must have been a temporary shed constructed within the walls of brick, and used until the walls and roofing could be finished.

In 1711, and again in 1720, Christ church received considerable additions. The tower and steeple were not built until after 1744. This church is rich in antique communion plate, including a chalice and flagon presented by Queen Anne in 1708. Benjamin Franklin and his wife are buried in its church-yard.

In 1739 the famous preacher George Whitfield made his first visit to Philadelphia. His eloquence produced a profound impression, and no church could be found large enough to contain the audiences which flocked to hear him. He accordingly held forth from the balcony of a court-house, on the corner of Second and Market streets, to a crowd which extended nearly to the Delaware. Franklin calculated that at times 25,000 people may have been within the reach of his voice. In 1740 he made a second visit to Philadelphia, but speedily involved himself in controversies with the leading people of the city, which had the effect to impair his influence. He and his co-evangel Seward "undertook the bold measure of endeavoring to close the dancing-school, the dancing assembly, and the concert-room, the two latter being kept up by subscription among people of wealth and fashion who aspired to be leaders of society". Seward writes:

A friend came in and told us that some gentlemen threatened to come me for having taken away the keys of the assembly-room, dancing-school, and music meeting, which the owner delivered to me on my promise to pay for any damage which he might sustain thereby. May the Lord strengthen me to carry on this battle against one of Satan's strongest holds in this city. Supported in part, too, by the proprietor, whose father bore a noble testimony against those devilish diversions, which shows us how dangerous a snare it is to our children to leave them rich in this world's goods and not rich in faith.

Many years after, Whitfield saw, through the light of sober experience, how unwise and uncharitable he had been, and with ripened opinions made the following confession:

I have carried high sail while running through a torrent of popularity and contempt. I may have mistaken nature for grace, imagination for revelation, and the fire of my own temper for holy zeal; and I find that I have frequently written and spoken in my own spirit when I thought I was assisted entirely by God.

The disfavor felt by the regular clergy toward Whitfield threatening to deprive him of any place of worship for his meetings, it was determined to erect a building which should be controlled by him, and large enough to hold the vast crowds which came to listen to his teachings. This resulted in the building known as the Old Academy, in Fourth street; it was begun in 1740. Whitfield preached in it during the same year, before the roof was put on, and again in 1745 and 1746. During the week it was used as a free school, under the name of "The College, Academy, and Charitable School of Philadelphia". On Sundays it was at the service of any regular minister of the gospel who was willing to subscribe to what was known as "the Whitfield creed", with the proviso that the Rev. George Whitfield should have the free and uninterrupted use of the building whenever he should happen to be in Philadelphia. Later on this "academy and college" was merged in the University of Pennsylvania.

The amusements of the century were mostly of a hearty and unrefined sort. "Bull-baiting and cock-fighting were much countenanced." Horse-racing was popular. "All genteel horses were pacers. A trotting-horse was deemed a bad breed." Fairs with whirligigs and slack- and tight-rope dancing were much patronized. In winter there was a great deal of skating on the rivers. May-day was observed with the raising of the May-pole. It was not until 1754 that the first theater was opened in Philadelphia, "by a company of comedians from London". Their first place of exhibition was a store in Water street. At the date of their arrival "popular prejudices were powerful against every species of theatrical exhibition, and petitions were more than once presented to the legislature to put a stop to them. The synod of the Presbyterians, in a general convocation July, 1759, also lent the aid of their influence against the theater, by petitions to the governor and legislature, which were published. A few days later the theatrical corps announced for exhibition the "Tragedy of Douglass, by the Rev. Mr. Home, minister of the Kirk of Scotland".

From the settlement of Philadelphia in 1682 until 1696, no precautions seem to have been taken against fire. In the latter year the provincial legislature passed a law by which persons were forbidden to fire their chimneys to cleanse them, or suffer them to be so foul as to take fire, under a penalty of 40 shillings; and each house-owner was to provide and keep ready a swab 12 or 14 feet long, and a bucket or pail, under the penalty of 10 shillings. No person should presume to smoke tobacco in the street, either by day or by night, under the penalty of 12 shillings. A similar act was passed in 1700, providing for two leathern buckets, and forbidding more than 6 pounds of powder to be kept in any house or shop, unless 40 perches distant from any dwelling-house, under the penalty of £10. The law was re-enacted in 1701, and the magistrates were authorized to procure "6 or 8 good hooks for the tearing down of houses on fire".

In 1718 Abraham Bickley, a public-spirited merchant, imported a hand fire-engine from England, which next year was purchased of him by the council. A destructive fire in 1730 led to the purchase of 3 more engines by the city, besides 400 leathern buckets, 20 ladders, and 25 hooks, an assessment of twopence per pound and 8 shillings per head being made to pay for the same.

In 1733 an article appeared in Franklin's *Pennsylvania Gazette* on fires, their origin, and the best methods for putting them out. This led to the formation of the first fire company. It was incorporated in 1736, Franklin being one of its founders. "Each member, at his own cost, was to provide 6 leather buckets and 2 bags of good Osnaburg or wider linen. The bags and buckets were for packing and transporting of goods. Upon the alarm of fire each

member was to repair with half of his buckets and bags to the fire, to extinguish it and preserve the goods. The number of members was restricted to 30, and this being filled up within a year, a second company was formed—March 1, 1738—under the name of the 'Fellowship Fire Company', with 35 members."

In 1742 a third company, "The Hand in Hand," was organized; in 1743, a fourth, "The Heart in Hand;" three years later, the fifth, named "The Friendship"; and in 1751, "The Britannia", disbanded in the time preceding the Revolution, probably on account of its name. Each of the companies had an engine imported from England, and these 6 organizations, with their appliances, were Philadelphia's reliance for protection against fire down to the end of the century.

Education was one of the earliest needs to which the Quaker colony lent its attention. The first English school was opened in 1683, one Enoch Flower being its master. "The prices were moderate—to read English, 4s.; to write, 6s.; and to read, write, and cast accounts, 8s.; for teaching, lodging, and diet, £10 per annum." In 1689 the Friends' public school, which still stands in Front street below Chestnut, was begun. There were no separate schools for girls until near the close of the century. In 1770 a Mr. Griscom advertises his private academy, "free from the noise of the city", at the north end. It is a little amusing to reflect that this scholastic retreat was situated on Front and Water streets a little above Vine—a spot which no student in search of quiet would be likely to select nowadays.

The stone prison on High and Third streets was begun in 1718, and was probably the first built for the use of the colony. "The barbarous appendages of whipping-post, pillory, and stocks were placed full in the public eye, hard by, on High street, directly in front of the market." These punishments were in use until the Revolution. In 1720 the penalty of death was inflicted for the making and passing of counterfeit dollars—the first case in the colony. In 1705 men were fined 20 shillings for laboring on the sabbath day, and 10 for being found tipping in a tavern on that same day. Profane swearing was a punishable offense. Barbers were indicted for shaving persons on "first day", and for "trimming hair". In 1731 a woman was burned alive—publicly—for the murder of her husband. It was not till after the coming in of our own century that the present penitentiary system was inaugurated.

Down to the Revolution slavery was a feature of Philadelphia life, and it was a common incident for family servants to be sent to jail to receive a dozen lashes as punishment for acts of insubordination. In 1762 Messrs. Willing and Morris advertised in the daily papers the sale of 170 negroes just arrived from the gold coast. "Redemption servants", or emigrants sold for a term of years to defray the expenses of their passage, were numerous. An advertisement in 1728 reads: "Lately imported, and to be sold cheap, a parcel of likely men and women servants." The practice was discouraged after a time, from the dread lest criminals should in this way be imported into the country.

In 1763 the treaty of peace between England and France was signed at Paris. The savage tribes of America, however, remained unaffected by the pledges of the Christian rulers who had for years alternately employed them. They still continued their career of destruction, and of all the colonies Pennsylvania suffered the most.

Through the whole summer of that fatal year the western frontier of the state was ravaged by the hostile savages, till "every white man in Pennsylvania loathed the name of Indian". The terror and indignation excited by these attacks led, during the winter, to an act of unjustifiable reprisal, if reprisal it can be called, which visits on the innocent and defenseless the wrongs of the guilty, who are out of reach.

Twenty miles from Philadelphia, near Lancaster, there still dwelt a feeble remnant of the Conestogas, the tribe which had been first to bid the English settlers welcome on their arrival eighty years before, and join in the treaty of peace. One old man still survived who had touched the hand of William Penn. They had kept their treaty obligations loyally, and had always been faithful friends to the English. In 1763 only twenty of them were left—seven men, five women, and eight children. "They were still living in their village on the Shawanee creek, their lands being assured to them by manorial gift, but they were miserably poor, earned by making brooms, baskets, and wooden bowls a part of their living, and begged the rest. They were wholly peaceable and unoffending, friendly to their white neighbors, and pitifully clinging and affectionate, naming their children after whites who had been kind to them, and striving in every way to show their gratitude and good-will."

Upon this inoffensive community, which had never raised a hand against a white man, a party of armed ruffians descended on the 15th day of December, burned the huts, and killed and scalped every creature in them. As it chanced, only six of the Indians were at home that morning. The magistrates of Lancaster took charge of the remaining fourteen, and placed them in the workhouse for protection.

A fortnight later the same band of murderers surrounded the workhouse; they were fifty strong; no one dared to interfere. "When the poor wretches saw that they had no protection nigh and could not possibly escape, they divided their little families, the children clinging to their parents. They fell on their faces, protesting their innocence, declared their love for the English, and that in their whole lives they had never done them injury; and in this posture they received the hatchet. The barbarous men who committed this atrocious act huzzahed in triumph, as if they had gained a victory, and rode off unmolested." This tragedy could hardly find a place in a history of Philadelphia, though belonging to its immediate neighborhood, were it not for the consequences that followed.

The massacre of these twenty harmless and unresisting creatures seemed to light a flame of cruelty throughout the state. Men justified the acts of "the Paxton Boys"; worse, they burned to imitate it. The efforts of the

magistrates to find the offenders were fruitless. All the Christian Indians were included in the unreasoning hatred of the multitude. "Everywhere in the provinces fanatics began to renew the old cry that the Indians were the Canaanites whom God had commanded Joshua to destroy. It became dangerous for a Moravian Indian to be seen anywhere. In vain did he carry one of the Pennsylvania governor's passports in his pocket. He was liable to be shot at sight, with no time to pull his passport out."

In November an order reached the Moravian missionaries to bring the baptized Indians under their charge to Philadelphia, that they might be under the protection of the city. The governor at that time was John Penn, the younger, who had lately arrived from England. He seems to have acted in good faith in this order, but he found difficulties in carrying it out. When the little band of Indians arrived, 140 in number, including the aged, the sick, and the little children, they were assigned to the "barracks in the Northern Liberties" for shelter, but the Highland regiment quartered in the place denied them admission. For five hours the helpless creatures stood before the shut gate, the mob increasing and growing more riotous every hour, their missionaries bravely standing by them, and trying in vain to stem or control the insults of the crowd. At last an order came that they should proceed to Province island, an island in the Delaware, joined to the shore by a coffer-dam.

They remained at this place for more than a month, humane people in Philadelphia sending them provisions, fuel, and other necessaries. Meanwhile the Paxton Boys, now swelled in numbers to some hundreds, began to march upon the city in two bodies, with the avowed intention of not leaving a single Indian alive. The governor issued stringent proclamations, but had evidently no force of will to meet the emergency. The hapless Indians were hurried here and there, to Leek island, back again to Province island, to Amboy, with the intention of putting them under the protection of New York, back again to Philadelphia—all in the cold of mid-winter. At last they were quartered in the same barracks which had once before refused them admittance.

News was received that the rioters in large force were approaching. It was only too probable that should they enter the city they would be joined by many sympathizers. Bells were rung, bonfires lighted, the whole city was in terror. Intrenchments were thrown up round the barracks and cannon planted, many Quakers assisting in the preparations for defense. Dr. Franklin and three other gentlemen rode out to meet the insurgents at the request of the governor—all this warlike demonstration and public fear being caused by the necessity of protecting less than 200 of his majesty's red lieges, members of the same communion and answerable to the same laws, from the murderous assaults of a body of their so-called fellow Christians of the same community!

The arguments of the delegation, or the news of the defenses of the city, had the effect to discourage the rioters, and they withdrew their force, making no attack. The effect of the affair on the mind of Governor John Penn was, however, unfortunate. He lost all courage and spirit in the face of danger, and gave way to the tide of popular feeling. Terrified, and angry with himself for being so, he truckled to the murderers. A few weeks after these events he issued a proclamation which may justly be styled infamous, offering a bounty for Indian scalps, \$138 for that of a male Indian, \$50 for that of a female, with the addition implied, if not stated, of "no questions asked". And this from a grandson of William Penn!

### THE GATHERING OF THE STORM.

FROM 1766 TO 1776.

When, on the morning of September 22, 1763, three lords of the treasury met in Downing street, and with little discussion and less hesitation passed a casual minute providing for the taxation of the American colonies, neither of them, as it would seem, had the least foreboding of the storm of resentment which the measure was to evoke. Parliament was equally unconscious. One man alone among the employés of the government had an instinct of the coming peril. Richard Jackson, secretary of the chancellor of the exchequer, warned his master to lay the project aside and to refuse to take any part in furthering it.

"Ignorance of American affairs," said Burke, "had misled parliament; knowledge alone could bring it into the right road." But knowledge came, as she too often does, only in time to point a moral after the evil is an accomplished fact and its consequences inevitable. All the colonies were in a flame of passionate indignation; the spirit of resistance, like a prairie fire, was fairly leaping over the land before any one in England had wasted two thoughts on the matter, and even before the actual passage of the stamp act itself in 1765.

It was an act curiously well adapted to puzzle and disgust the people whom it was to affect. It imposed duties on 54 different articles. All parchment and paper, all legal documents, school and college degrees, bills of lading, licenses, bonds, leases, warrants, mortgages, all pamphlets, almanacs, advertisements, translations, all premiums paid by apprentices, all deeds, conveyances, appointments to office—in short, every act between man and man which required the guarantee of a signature and a seal—were to be taxed at a rate of from 1 shilling to £4 each.

In addition, heavy restrictions on trade were imposed. The colonists were prohibited from exporting the great bulk of their produce to any country save Great Britain. They were prohibited from purchase, except of a few specified articles, in other than British ports. To increase their dependence on England, manufactures of various sorts were interdicted, especially those of iron ore and wool.

The colonists abounded in land, and so could feed flocks of sheep. Lest they should multiply their flocks and weave their own cloth, they might not use a ship, nor a boat, nor a carriage, not even a pack-horse, to carry wool, or any manufacture of which wool forms a part, across the line of one province to another. They could not land wool from islands in the harbor or bring it across a river. A British sailor finding himself in want of clothes in one of their harbors might not buy there more than 40 shillings' worth of woollens.

Printing the Bible in America was also prohibited, and, except in the Indian dialect, it never was printed there until after the Revolution.

These laws were to be enforced, not by the civil officers only, but by naval and military officers, irresponsible to the civil power in the colonies. The penalties and forfeitures for breach of the revenue laws were to be decided in courts of vice-admiralty, without the interposition of a jury, by a single judge, who had no support whatever but from his own share in the profits of his own condemnations.

Looking at these measures in the light of their after results, it seems singular indeed that even the colonial agents dwelling in London should have been so little prepared for what was to follow. Franklin himself seems never to have doubted that the tax, however unpalatable, would be peacefully levied. "Nobody could be more concerned in interest than myself to oppose it," he writes to a friend; "but the tide was too strong against us. We might as well have hindered the sun's setting; that we could not do. But since 'tis down, my friend, and it may be long before it rises again, let us make as good a night of it as we can. We may still light candles. Frugality and industry will go a great way toward indemnifying us. Idleness and pride tax with a heavier hand than kings and parliaments; if we can get rid of the former we can easily bear the latter." To a friend he added, privately, "We are not *yet* strong enough to resist."

Meanwhile all America was in a ferment. In Connecticut, Rhode Island, New York, and Massachusetts the collectors were compelled by threats or by the urgency of public opinion to resign their offices. An ardor for retrenchment seized the colonists. Resolutions for the practice of economy were everywhere passed. Communities bound themselves, by way of encouraging the production of wool, to eat no mutton or lamb, and they resolved to dispense with the use of all British-made goods. Self-denial for the living was not enough; it was decided to restrict the expenses of burying the dead, and, accordingly, in Philadelphia that year, "B. Price, esquire," was buried in an oaken coffin with iron handles, and Alderman Plumstead without pall or mourning dresses.

In the hope of making the objectionable act more palatable, several of the colonial agents in London (1765) were consulted by Greville, the prime minister, as to the choice of persons to serve as stamp-collectors. Franklin, when applied to for the choice of some one who should be acceptable to Pennsylvania, designated Mr. John Hughes, a respectable merchant of Philadelphia, and an old friend of his own. His policy seems to have been that, the tax being inevitable, it was wise to make the best of the matter; but at home the action was construed as indicating a sympathy with the unpopular measure, and for a time his townspeople were very angry with him. The unlucky Mr. Hughes, who does not seem to have been in any way responsible for his appointment, became the object of general execration. When the English ships bearing the detested stamp-paper came up the river, all the vessels in the harbor hung their flags at half-mast, and the bells of the city were muffled and tolled as if for a funeral. The stamps were not allowed to land, and were sent back to England. A similar fate awaited a similar freight some months later. To evade the provisions of the act, the almanacs of that year were published in advance of their usual date, and, on the day before the act was to go into effect, the two newspapers then existing in the city came out with black borders, a heading of skulls, cross-bones, pick-ax, and spade, and, by way of a tail-piece, a coffin. Several thousand citizens assembled in the state-house yard, and appointed a committee to wait on Mr. John Hughes and request him to resign his position as collector. This he refused, but subsequently, under pressure, did.

So high did popular feeling run that the home of Franklin himself was threatened with destruction at the hands of the mob. It must have been particularly trying to be misjudged by a distant constituency at a time when explanations and exculpations took two, three, sometimes four months to cross the sea. Franklin's repute did not, however, long suffer wrong at the hands of his countrymen. Presently came the report of his examination before parliament on the question of the day, an examination which did much to influence the repeal of the stamp act, which soon after followed; and the record of his clear, vigorous, outspoken explanations and replies united to him afresh the affection of every loyal heart in America.

News of the repeal reached Philadelphia in May, 1766, through the captain of a merchant vessel. The overflowing and general joy expended itself in acts of hospitality toward the bearer of the good tidings. He was escorted through the streets, treated to punch at the coffee-house, and presented with a gold-laced hat. The following day an entertainment was given in the state-house, to which the officers of the royal ships then in harbor were invited. Mutual pledges were exchanged, and all was amity and good-will, not in Philadelphia only, but throughout the colonies. In Boston, even the debtors were brought out of prison to share in the general rejoicing.

Franklin's relief at the repeal was deep and fervent, but he instantly wrote to warn his friends at home not to express their gladness in a way which should give a handle to their enemies in England. "Our relief," he writes, "is chiefly imputable to what the profane call luck and the pious call Providence." Neither he nor any other American had occasion for enduring satisfaction. Their defeat in the matter of the stamp act rankled in the hearts of his majesty's ministers, and a year later the excitement and distrust of the colonies were reawakened by the passage of an act to tax glass, paper, painters' colors, lead, and tea.

These duties, being only designed to produce a revenue of some £24,000, were treated in a light and matter-of-course way by parliament, who ignored the fact that the question at issue with the colonies was the principle of taxation rather than the avoidance of its immediate burden.

All the agitations provoked by the stamp act were at once renewed. In September, 1768, the traders of Philadelphia, in concert with those of New York and Boston, entered into a formal agreement to import no goods whatever from England till the tax should be abolished. In 1769 a vessel freighted with English malt arrived in the city. The brewers held a meeting, and by a unanimous vote resolved not to purchase or use a pound of it. In 1770 the New York traders, under the pressure of a strong local influence, receded from the agreement and reopened importation. This act gave great umbrage to the patriotic Philadelphians, who in a public meeting agreed to buy nothing whatever in New York, "that faction unfriendly to reduction of grievances". The general desire to encourage home manufactures led, in 1771, to the establishment of a flint-glass factory near Lancaster and a china factory in Philadelphia. In this year, also, a piece of fine broadcloth was exhibited at the coffee-house, probably the first ever made in America.

The feeling in Philadelphia was shared or surpassed by the colonies in general. It was during this period of intense agitation that Franklin, still in London, published anonymously his famous satire, entitled "*Rules for reducing a great empire to a small one. Presented to a late minister when he entered upon his administration.*"

This trenchant burlesque began as follows: "An ancient sage valued himself in this, that though he could not fiddle, he knew how to make a great city out of a small one. The science that I, a modern simpleton, am about to communicate is the very reverse." Then follow the "Rules", which are full of humor.

A great empire, like a great cake, is most easily diminished at the edges. Turn your attention, therefore, first to your remotest provinces, that, as you get rid of them, the next may follow in order. Take special care that the provinces are never incorporated with the mother country; that they do not enjoy the same rights, the same privileges in common, and that they are governed by severer law, all of your enacting, without allowing them any choice of the legislators. By carefully making and preserving such distinctions, you will (to keep to my simile of the cake) act like a wise gingerbread baker, who, to facilitate a division, cuts his dough half through in those places, when baked, he would have it broken to pieces. Quarter troops among them, who by insolence may provoke the rising of mobs, and by their bullets and bayonets suppress them. By this means, like the husband who uses his wife ill from suspicion, you may in time convert your suspicions into realities. Scour with armed boats every bay, harbor, river, creek, cove, or nook throughout the coast of your colonies. Stop and detain every wood-boat, every coaster, every fisherman; tumble their cargoes, and even their ballast, inside out and upside down; and if a penny's worth of pins is found unentered, let the whole be seized and confiscated. Then let these boats' crews land upon every farm in their way, rob their orchards, steal their pigs and poultry, and insult the inhabitants. If the injured and exasperated farmer, unable to procure other justice, should attack the aggressors, drub them, and burn their boats, you are to call this *high treason and rebellion*, order fleets and navies into their country, and threaten to carry all the offenders three thousand miles to be hanged, drawn, and quartered. Oh, this will work admirably! If you have carefully practiced these few excellent rules of mine—take my word for it—you will get rid of the troubles of governing them, and all the plagues attending their commerce and connection, from thenceforth and forever.

This ingenious bit of fun and satirical sense had a great run, and was copied into many newspapers on both sides of the Atlantic.

In 1770 parliament decided to abolish all taxes in the colonies excepting that on tea. The concession produced no effect. The right to levy imposts was as much involved in the taxing of a single article as of a dozen, and the determination to resist such a right had only grown stronger with time. Smuggling became a common practice. In 1771 a revenue schooner belonging to the king made a prize in the Delaware of a pilot-boat loaded with tea intended for the Philadelphia market. A rescue party at once set out, boarded the king's vessel near Red Bank, overpowered and bound her crew, and taking possession of the pilot-boat and her cargo sailed away with her.

All the agreements for non-importation were continued. In 1773 the East India company resolved to ship cargoes of tea to the principal American seaports. What this resolve led to in Boston all the world knows. In Philadelphia a large meeting of citizens was held in the state-house yard to protest against the enterprise. Eight resolutions were adopted, the seventh of which was as follows:

*Resolved*, That whoever shall directly or indirectly countenance this attempt, or in any wise aid and abet in unloading, receiving, or sending the tea sent or to be sent out by the East India company, while it remains subject to a duty here, is an enemy to his country.

Two months later, Christmas day, word came that the tea-ship "Polly", Captain Ayres, was in the river, and had got up as far as Gloucester point. Another meeting was at once called, even more largely attended than the previous one. The resolutions it passed were curt and to the point:

*Resolved*—1. That the tea on board the ship "Polly", Captain Ayres, shall not be landed.

2. That Captain Ayres shall neither enter nor report his vessel at the custom-house.

3. That Captain Ayres shall carry back the tea immediately.

4. That Captain Ayres shall immediately send a pilot on board his vessel with orders to take charge of her and proceed to Reedy island next high-water.

5. That the captain shall be allowed to stay in town till to-morrow to provide necessaries for his voyage.

6. That he shall then be obliged to leave town and proceed to his vessel and make the best of his way out of our river and bay.

7. That a committee of four gentlemen be appointed to see these resolves carried into execution.

Handbills and broadsides purporting to be issued by the committee for tarring and feathering were printed. They were addressed to the Delaware pilots and to Captain Ayers himself, warning the former of the danger which they would incur if they brought the tea-ship safely up the river, while Captain Ayers was threatened with the affliction of tar and feathers if he attempted to land the tea.

But Captain Ayres had landed in advance of his cargo, had attended the state-house meeting, and needed no further warning; he discreetly took the hint. Very little time was given him for trifling. In two hours the "Polly" was loaded with fresh provisions and water, her bow turned seaward, and Captain Ayres sailed out of the Delaware to convey "the detested tea back to its old rotting-place in Leadenhall street".

"The eyes of all the world," writes Bancroft of this period, "were riveted on Franklin and George the Third." The former still remained in London, though encompassed by dangers. He knew himself daily in peril of arrest; but so long as a glimmering hope of mediation remained, he would not desert his post, though matters in England steadily grew worse. The colonies were systematically misrepresented, bribery was on the increase, offices and votes were openly sold. "If America," said Franklin, "would save for three or four years the money she spends in the fashions and fineries and fopperies of this country, she might buy the whole parliament, ministry and all."

Seven years of alternate usurpation and concession, hope and fear, faith and distrust, ripened at length in the first Continental Congress, in 1774. The time had come for the fulfillment of Bonaparte's prophecy concerning America: "The youth must become a man—the time must arrive when the child must cease to sleep with its mother." The congress held a preliminary meeting in Smith's tavern to select a place for their deliberations. The carpenters of Philadelphia offered the use of their "plain but spacious hall", and the offer was accepted. John Adams tells the story of the acceptance:

We took a view of the room and of the chamber, where there is an excellent library. There is also a long entry where gentlemen may walk, and also a convenient chamber opposite the library. A general cry was that this was a good room, and the question was put whether we were satisfied with this room, and it passed in the affirmative. A very few were for the negative, and they were chiefly from Pennsylvania and New York.

Some discussion arose at the first meeting as to whether the session should be opened with prayer. It was at last resolved that the Rev. Mr. Duché, rector of Christ church, should be asked to read prayers on the occasion. He appeared, accordingly, in vestments, and read several collects and the psalm for the day, which chanced to be the thirty-fifth. A false rumor of the cannonading and destruction of Boston by the British troops had that morning arrived, which gave to the psalm an especial significance. "It seemed as if Heaven had ordained that psalm to be read that morning," wrote John Adams. "I never saw a greater effect upon an audience."

The proceedings of this congress were cautious and slow. It adopted a series of "recommendations" to the American people, enjoining economy, self-restraint, the disuse of English goods, and the non-exportation of sheep to the West Indies. The time had not yet come for the talk of armed resistance. Before its adjournment, the members were formally entertained at a banquet given in the state-house, the last time that building was used for such a purpose. John Adams writes of this dinner:

A sentiment was given—May the sword of the parent never be stained with the blood of his children! Two or three broadbrims were over against me at table. One of them said, "This is not a toast, but a prayer; come let us join in it;" and they took their glasses accordingly.

On the 26th of January, 1775—that year big with fate—a provincial convention was held in Carpenters' hall to enforce the measures recommended by the congress, and to advocate the promotion of manufactures, especially of gunpowder, for which, it was dryly added, "a great necessity existed, *especially in the India trade*". On the 24th of April came news of the skirmishes of Concord and Lexington, and the reprisals taken by the Massachusetts farmers on the king's troops. All Philadelphia was in a surge of excitement. Meetings were called, and all present pledged themselves to "defend with arms their property, liberty, and lives against all attempts to deprive them of it". Even the pacific Quakers shared in the popular emotion. On "fifth day afternoon" they called an assembly to consider how best to send supplies to Boston, "then suffering for freedom's sake". The assembly was petitioned to raise £50,000 for the defense of the city. Militia companies were formed and exercised in all the open parks or squares, the manufacture of gunpowder and cannon was urged forward, and preparations were made to obstruct the navigation of the Delaware.

It was in the midst of this crisis that a strong re-enforcement to the friends of liberty landed from England in the person of Dr. Franklin. He had slipped quietly away from London on March 20, with leave-taking so brief that he was well at sea before his departure was known. To the last there were apprehensions lest he might not be permitted to embark. He landed in Philadelphia May 5, and was elected a member of the second Congress on the day following.

The news that greeted his arrival stirred in him a hearty zeal. Long residence in England had taught him the futility of negotiations and petitions, and the true character of the king and his ministers. Concerning the Lexington affair, he wrote to Mr. Burke: "General Gage's troops made a most vigorous retreat, 20 miles in three hours, scarce to be paralleled in history; the feeble Americans who pelted them all the way could scarce keep up with them!" And to some disaffected person, who insinuated that firing from behind stone walls proved the cowardice of the Americans, he shrewdly answered, "I beg to inquire if those same walls had not two sides to them."

With his disappearance from the scene [London] the last gleam of a compromise vanished. Of all men he was the friend of peace, but the horrors of a sanguinary civil war did not confuse his perceptions or impair his decisions. The administration and its followers called him insincere. But nothing deceives like jealousy. The British ministry overreached themselves by not believing him. "Speaking the truth to them in sincerity," says Franklin, "was my only *success*."

On the 10th of May the second Continental Congress met in Philadelphia. A cavalcade of gentlemen—500 mounted men in all—rode 6 miles out of the city to meet and escort them. One of its first measures was to reinstate Franklin in the postmaster-generalship, of which he had been deprived by the British government immediately after his arraignment at the hands of Wedderburn. He was elected "for one year, or till another is appointed by a future congress". In franking letters at this time he adopted, instead of the "Free. B. Franklin", which he had been accustomed to employ, the form "B. free. Franklin", which served at once as an admonition and a passport.

On June 15 Washington was chosen by Congress as general of the American army. That same evening a dinner was given in honor of the event by several prominent gentlemen of Philadelphia. At its close Jefferson rose and proposed the health of "George Washington, commander-in-chief of the American armies". Washington had risen to reply, but as for the first time the new title fell upon his ears, he lost color, and a look of awe came over his face. "At that moment he suddenly realized, as we all did," says Dr. Benjamin Rush in his journal, "the awful responsibility of our undertaking, and all the difficulties which lay before us. The shock was great. The guests had all risen and held their glasses to their lips ready to drink. Each one slowly replaced his glass without touching a drop, and thoughtfully sat down. For some moments the solemn silence was unbroken."

The proprietary party in Pennsylvania, both at this time and later, remained strongly opposed to any collision or rupture with the mother country. Under the guidance of John Dickinson, their representative, they held a firm check on the ardent spirit of the colony, and retarded so far as possible its patriotic impulses. "The redress of grievances, together with union and harmony between Great Britain and the colonies," was their policy, openly avowed and persisted in throughout all the years of struggle and agitation which preceded the final severance, and it was a policy difficult to combat. "The honest scruples of the Quakers merited consideration." The proprietary influence was strong, and the popular resistance to that influence had instigated the habit of looking to the king as a reducer of grievances rather than an inflicter of them. This division of sentiment and interest had the effect more than once to make Pennsylvania seem lukewarm in her response to the appeals of her sister colonies, but the strength of the liberal party was constantly on the increase, and in the end it prevailed, and the Quaker colony took her full share and more of the risks and hardships of the seven years' struggle.

The conduct of the Quakers during the American Revolution is inexplicable if viewed in connection with their earlier history. From the settlement of Pennsylvania, the adherents of the Church of England, representing the interests of the crown, were in opposition to them. But they were found, with but few exceptions, on the side of the crown, and as long as they dared they did not hesitate to show their disapprobation of the measures of resistance, to using which led the way to independence.

Even so late as December 20, 1776, an address was issued by the Pennsylvania Friends urging upon all members of their communion to resist with Christian firmness the ordinances of men who assumed the power of compelling others to carry on war. Long after the evacuation of the city by the British troops, the society claimed the right to deal "with such of their members as violated their discipline by joining in the measures for defense or self-protection. In 1779 two worthy Friends, in the pursuance of this policy, called at the house of Colonel Timothy Matlack to thus "deal" with his son, a member of their body, "on account of bearing arms". The wrath of the warlike parent could not be restrained. "I turned them out of my house," he says in a published account of the transaction, "and gave them both in the open street, in full measure, but not without mercy, the chastisement which their audacious impudence demanded, and thus exacted from me. As this transaction will undoubtedly form a page in the *Book of Sufferings*, and as Mr. F. and Mr. J. represent the stick used on that occasion as a very heavy one and a mere cudgel, to prevent the exaggeration so very common in that book, it is necessary to say that, my horsewhip being out of place, I was obliged to use a middle-sized walking-stick which I have usually carried for a few years past."

The members excluded from the society by this process of discipline were not disposed to submit quietly to their excommunication. They associated themselves into a separate body under the name of the "Free Quakers", called by outsiders the "Fighting Quakers". In 1783 they built the Free Quakers' meeting-house on the southwest corner of Fifth and Mulberry streets. In 1786 they obtained from the city the grant of 8 lots on the west side of Fifth below Penn (or Locust) for a separate burial-ground, which in after years was opened for the dead soldiers of the war of the rebellion. To the last this assemblage of seceders maintained firmly their position as true members of the society of Friends, but protested against its injustice. No man of them ever gave in. Down to 1835 the survivors of the congregation, reduced by that time to four or five venerable men, met at the appointed seasons for an hour of silent worship in the Free meeting-house. One by one they failed from their accustomed places, but not till the last staunch gray-beard was laid low was the meeting abandoned, or the protest of half a century silenced. In 1880 the trustees of the Free Quakers leased the building for the use of the "Apprentices' free library", the only library of the sort in the city.

Petitions to the king was the remedy proposed by Dickinson and the assembly he controlled, for the pacification of all difficulties. A carefully worded memorial and protest was accordingly forwarded to London, and was insultingly rejected by George III. A second anxiously draughted document was concocted and intrusted to the hands of Richard Penn for presentation to his majesty. Meanwhile the defenses of the Delaware went on.

Before the year was ended it was so well protected by forts, batteries, and *chevaux-de-frise*, that when, two years later, the king's ships attempted to force a way up the river they were retarded for two months. "Row galleys", devised by Dr. Franklin, were manned and armed, patriotic women made provision of lint and bandages, Tories were occasionally tarred and feathered by the mob; but the influence of Dickinson and the Penns and the Quaker party still prevailed to curb the more ardent spirit of the colony and keep her in the rearward of the movement toward revolution. Congress meantime had appointed Washington commander-in-chief of its army, and the battle of Bunker Hill gave new impetus to the determination after freedom.

Dr. Franklin's humorous summing up of the results of the Massachusetts campaign will be remembered. It occurred in a letter to Dr. Priestley:

Britain, at an expense of three millions, has killed 150 Yankees this campaign, which is £20,000 a head. At Bunker's Hill she gained a mile of ground, half of which she lost again by our taking post on Ploughed hill. During the same time 60,000 children have been born in America. From these *data* Dr. Price's mathematical head will easily calculate the time and expense necessary to kill us all and conquer our whole territory.

The only answer of the king to the elaborate petition of the assembly of Pennsylvania was his proclamation declaring the colonies in rebellion, and pledging the resources of the kingdom for its suppression. Not even this peremptory and insulting treatment had power to influence the proprietary party. They still held to their policy of peace at all sacrifices, and, undeterred by ill-success and discouragement, set about the preparation of a third petition!

In this critical moment the liberal party of Pennsylvania decided to adopt Franklin's favorite method of influencing public opinion—an appeal through the press. Thomas Paine, then a young man, prepared, at their request, a pamphlet which, printed under the name of *Common Sense*, produced a powerful impression throughout the land. In it the whole question at issue between England and the colonies was argued with a masterly mixture of eloquence and satire and clear reasoning.

England, he contended, was not the mother country of America. Not more than a third of the people of Pennsylvania even were of English parentage; the mother country of America was Europe. To be always running three or four thousand miles with a tale or a petition, waiting four or five months for an answer which, when obtained, requires five or six more to explain it in, will in a few years be looked upon as folly and childishness. There was a time when it was proper, and there is a proper time for it to cease. Every thing that is right and natural pleads for separation. The blood of the slain, the weeping voice of nature cries, It is time to part.

The success of the pamphlet exceeded the most sanguine hopes of its originators. Edition after edition was sold; converts to the cause of liberty were made by the thousands. Mr. Dickinson's majority divided, and the Pennsylvania members of Congress began to waver in their opposition.

In May, 1776, a naval engagement took place in the Delaware between the galleys, guard-boats, and floating batteries of the colony and the British frigate "Roebuck" and sloop-of-war "Liverpool". The king's ships were in great danger of total destruction, and with some difficulty retreated and returned to their cruising-ground near the capes.

During the same month Congress met for the third time in Philadelphia, and adopted a preamble and resolution, prepared by John Adams, for the promotion of an independent government in the colonies. The publication of these was claimed by the popular party in Pennsylvania as a dissolution of the proprietary government, and an order to frame another under the authority of the people. On the 24th of May a town-meeting was held in the state-house yard, attended by more than 4,000 people. It was called to order by John Bayard, and resolutions were passed; but while the matter was still under discussion, Richard Henry Lee, of Virginia, introduced, on the 7th of June, his famous motion that "these united colonies are, and of right ought to be, free and independent states; that they are absolved from all allegiance to the British crown, and that all connection between them and the state of Great Britain is, and ought to be, totally dissolved". Consideration of the matter was postponed for a few days, during which Congress debated as to the form in which an announcement of liberty should be made.

During this interval the Declaration of Independence was framed by a committee of five members, Franklin being one. They held their meetings in a house on Market street, the exact site of which is in dispute, but probably it was that on the corner of Seventh street. To the pen of Thomas Jefferson America owes the immortal document. He submitted a draught of it to Franklin and to John Adams separately, accepted from each one or two verbal corrections, and on the 28th of June handed it to Congress. Debate on the document began on July 3. There was no excitement in Philadelphia during those days. Congress was in secret session, and the people were not aware of what was taking place.

It was not till the the 6th of July, 1776, that the passage of the declaration was made known to the city. On the 8th it was publicly read to the people from the observatory in the state-house yard. The reading was listened to with deep and solemn attention. That night the king's arms were taken down from the court-room of the state-house, and from all public buildings and places of entertainment, and were formally burned amid the hurrahs of the mob and the blazing of bonfires, while the Declaration of Independence was read for the second time on the common to the five battalions of city associators, and the state-house bell, with its prophetic motto, rang out the message of freedom to the land, and proclaimed the birth of the United States of America.

## THE REVOLUTIONARY WAR.

FROM 1776 TO 1783.

During that memorable month of July, Franklin, Jefferson, and John Adams were appointed by Congress as a committee to select a device for the seal of the new confederation. Their deliberations occupied six weeks, but the elaborate design which they proposed did not please the legislative taste, and only two of its features, the eye of Providence, and the felicitous motto *E pluribus unum*, were incorporated with the device finally chosen.

The summer of 1776 was one of mustering and preparation. Lord Howe arrived from England with a fleet of 120 sail. Troops from the southern colonies passed through Philadelphia almost every day on their way to join the forces of Washington. In August came the tidings of the battle of Long Island and the defeat of the American army. Three weeks later Howe sent a paroled prisoner to Philadelphia with a message to Congress, requesting that some of its members might wait upon him, not in an official capacity, but as private gentlemen, to discuss the possibility of some amicable compromise between the British government and the colonies. Congress, very properly, declined to treat on these terms, but offered to send a committee of their body to listen to what Lord Howe might have to say. Franklin, John Adams, and Edward Rutledge were designated for this purpose, and during the month of September they set out for Staten island, at that time the headquarters of Lord Howe. They were received with courtesy, but unconditional surrender was the only basis on which the British commander was prepared to treat; and the interview proved fruitless of results, except that Adams, who on the journey had observed with distress the lack of discipline exhibited by the national forces, returned to Philadelphia to urge upon Congress the absolute necessity of reform in that particular. His argument resulted not long after in the adoption of the British discipline and articles of war, which still constitute the military system of the United States.

The year wore on, full of foreboding anxieties to the new-born republic. Disaster, suspense, and material loss are often the first results of the taking of a decided step, either by nations or by individuals. Many who read this can recall the heartache, the sickening uncertainty, the blind groping after counsel which followed the first enlistment of troops in 1861. Such a period of suffering is the bracing discipline which matures manly strength out of callow boyhood. It is the stern March weather which stakes and tightens the firm root-grasp of the tree. America was waiting to see what fate should send to her by way of a friend. England had many enemies; those enemies were the natural allies of England's alienated children. Already in the preceding year a secret agent had been dispatched to sound the intentions of France, and now in the dark hours which preceded the dawn came a letter of hope. Muskets, cannon, army material of all kinds had been contracted for in France. French artillery officers of repute were ready to offer their services to America. The French government, though not prepared to commit themselves by giving armed assistance to the revolutionists, would wink at the shipment of those and the departure of these. It was a vague and indiscreet letter; it promised much that was unauthorized, and hinted at more than it had a right to promise, but at that moment of discouragement the vagueness and the indiscretion passed unnoticed, and the letter was read with an impulse of relief and joy.

On September 26, 1776, it was decided to send, secretly, an embassy to France. Three persons were chosen, Silas Deane, already in Paris, Arthur Lee, of Virginia, who turned out a singularly bad selection, and Dr. Franklin. Franklin was already 70 years of age. "I am old and good for nothing," he said to Dr. Rush; "but as the storekeepers say of their remnants of cloth, I am but a fag end; you can have me for what you please."

On October 27 he sailed, and escaping by good fortune from capture by the enemy's cruisers he landed at Auray, in Brittany, on December 3. In his character as scientist and philosopher he was welcomed with enthusiasm in Paris; as ambassador the French government was not yet ready to have to do with him. Immediately after his arrival came the news of Washington's second defeat by Howe and his retreat through the Jerseys. Matters looked dark for the United States, and her friends on both sides the sea lost heart.

It was at this crisis that the Marquis de Lafayette, then a young man only 19 years of age, fired by the picture of endangered freedom which the aspect of affairs in America presented to his mind, resolved to volunteer his services in her aid. He sailed in May, 1777, a re-enforcement of inestimable value, from his rank, his character, his nationality, and the generous sympathy in the American cause which his action indicated.

The battles of Trenton and Princeton in the closing month of that year reanimated the spirits of the patriots, but matters were in a gloomy condition with the army of defense. Washington was adored by his own troops and possessed the entire confidence of the great men of the nation, but Congress accorded but a half-hearted support, and Gates and Wayne and Lee, who divided his powers, were a continual check and obstacle to the carrying out of his plans. "In Philadelphia toryism stalked about fearlessly. In May a clergyman had publicly read prayers for the king." The troops were in need of clothing, supplies of every thing had run short, the term of enlistment for a considerable part of the army was nearly exhausted. The retreat of Howe from the Jerseys, however, enabled Philadelphia to celebrate the first anniversary of freedom with heartiness and enthusiasm. The bells were rung all day and into the evening. All the ships and galleys drawn up in line on the Delaware, manned and dressed with colors, saluted the newly chosen flag. A banquet was given to Congress and the officers of the army, the troops were reviewed, and the festivities concluded with a display of fireworks and a general illumination of the city.

In the month of August, 1777, General Howe, having determined on the invasion of Pennsylvania, sailed with his army from New York, disembarked at the head of Elk river in Maryland, and ascended the Chesapeake in transports. Washington marched southwest to meet him. On the 24th his troops passed through Philadelphia. They wore sprigs of green in their hats, and the display was made as imposing as possible in order to awe the disaffected in the city. On September 10 the battle of the Brandywine was fought and lost, leaving the road to Philadelphia open to the British. Washington prepared to contest the passage of the Schuylkill at Parker's ford, but by a feint Howe crossed the river at Gordon's and Falland's fords, and on September 25 two battalions of Hessian artillery marched down the road leading to Second street and entered the city. The news of their advance created universal consternation. Congress fled with inglorious haste to York, where they resumed their interrupted business. Valuables were concealed or buried, the state-house bell was hurried out of town to a place of security; the timid and vacillating made haste to declare themselves on the side of the king. Part of the British army was quartered in Germantown, which at that time formed one continuous street nearly 2 miles long.

The ships and galleys of the state were lying in the Delaware, above Fort island. Perceiving that the British were erecting batteries on the wharves, they ran up to engage them. The result was unfortunate. The frigate "Delaware" ran ashore and was forced to strike her flag; one of the schooners met with the same fate, and the remainder of the fleet was glad to retreat to their former position under the protection of the guns of the fort. On October 2 a detachment of royal troops crossed the Delaware and made a demonstration against the fortifications at Billingsport, the garrison of which fled, spiking their guns, and faint-heartedness prevailed along the river.

On October 4, 1777, at daylight, Washington attacked the British detachment at Germantown. The morning was foggy, which should have been favorable to the success of the movement, but there were blunders and a lack of co-operation, and Washington's well-planned measures were not carried out. The attack failed, and the British cavalry pursued the retreating Americans for 8 miles into Whitpane township.

The day of the battle was one of intense excitement to the citizens of Philadelphia. Deborah Logan writes of it:

We could hear the firing and know of the engagement, but were uninformed of the event. Toward evening many wagons full of the wounded arrived in the city, whose groans and sufferings were enough to move the most inhuman heart to pity. The American prisoners were carried to the state-house lobbies, and had, of course, to wait till the British surgeons had dressed their own men. But in a very short time the streets were filled with the women of the city, carrying up every kind of refreshment which they might be supposed to want, with lint and linen, and lights in abundance for their accommodation. A British officer stopped one of these women in my hearing, and, not ill-naturedly but laughingly, reproved her for so amply supplying the rebels, whilst nothing was carried to the English hospitals. "O sir," replied she, "it is in your power fully to provide for *them*, but we can not see our own countrymen suffer and not do something for them." They were not denied that poor consolation.

The battle of Germantown had not ended victoriously for the Americans, but its result was the withdrawal of all detachments within the city lines, and the erection of a chain of redoubts, with connecting abattis, from Kensington, on the Delaware, to the hill at Fairmount. The British held Philadelphia, but the Americans held the country beyond. The water approach to the city was closed by the *chevaux-de-frise*, which cut off communication with the English fleet. To stop the sale of provisions to the invaders, Congress declared the punishment of death to any person who should be convicted by court-martial of giving them information or furnishing them with supplies. Parties of militia watched the fords of the Schuylkill so closely that before long the enemy suffered from a scarcity of food and forage. "The Americans were excessively severe on market people, and Lacy burned the mills about the city, to the infinite misery of the townfolk, to whom poor salted beef was now publicly distributed. Galloway says it was usual to give 200 lashes to the market people caught coming into town, or to send them in to Howe with G. H. branded on their flesh with a hot iron." The British army was, in effect, a beleaguered force. This result had been foreseen by Franklin. "Well, doctor," said an English sympathizer to him in Paris, "Howe has taken Philadelphia." "I beg your pardon," replied the astute philosopher, "Philadelphia has taken Howe."

Philadelphia had taken Howe, and for ten long months she held him fast. All things considered, the citizens fared better than could have been expected. The city, though very dirty, was not unhealthy. There was scarcely any thing to sell in the shops when the British entered, and prices were enormous. Paper money was worth almost nothing. Two pieces of silk on sale at that time commanded \$100 a yard, and tea was \$50 and \$60 a pound.

On October 21, 1777, the British fleet made an attempt to get through the *chevaux-de-frise*. Three of the ships went aground; the Pennsylvania batteries, galleys, and fire-ships cannonaded them, and in the end the fleet was compelled to drop down the river again, with the loss of two frigates, the "Augusta" and the "Mulis", blown up and set on fire. Meanwhile the Hessian grenadiers and chasseurs, under Colonel Donop, crossing the river in boats, assaulted the fort at Red Bank. The assault was repelled, Donop killed, and the British forces retreated, with a loss of 400 in killed and wounded.

After the affair of Germantown, Washington had retired to a range of hills northeast of Whitemarsh and about 14 miles from Philadelphia. Early on December 4, a severely cold morning, he was attacked by Howe with an army of 14,000 British troops. Washington had not more than 7,000 effective men, but so ably did he handle his forces that, after four days of skirmishing, Howe, baffled, returned to Philadelphia, where he passed the rest of the winter behind his intrenchments.

It is in connection with this *sortie* that the story of Lydia Darrach is told, a story legendary rather than historical, but probably resting on a sufficient foundation of fact to entitle it to a brief mention. She and her

husband, members of the society of Friends, are said to have dwelt on Second street, near the military headquarters of General Howe. One of her back rooms had been hired by the British officers as a place for private counsel and deliberation. On December 2, her suspicions being excited by a peremptory order that she and all her household should retire early to bed, she listened at the key-hole of the counsel-chamber and overheard the plans then under deliberation for surprising the army of Washington at Whitemarsh. Much agitated, she retired to her chamber. When, an hour or two later, an officer knocked at her door to request her to extinguish the lights they had been using, she kept him waiting some moments, feigning to be awakened with difficulty from a deep sleep. Next day she obtained a pass from Sir William Howe to go to Frankford for flour, and, leaving her bag at the mill, hastened through the lines, and, meeting a company of the American light-horse, called the commander aside, told her secret, and obtained his promise to communicate it to Washington. Her warning gave time to make needful preparations for the repulse of the British attack. Lydia returned home; she heard the British march out of town by night, she heard them return, but she dared not ask a question. The next day she was sent for by the adjutant-general and closely questioned as to whether any of her family were up on the night of the officers' meeting. "You, I know, were asleep," he observed, "for I knocked three times at your chamber-door before you heard me." Such is the legend of Lydia Darrach; and, though dates and circumstances contradict it in part, it invests with a certain interest the house No. 177 South Second street, in which she is said to have lived.

The American officers taken prisoner in the battles of the British occupation were at first confined in the long upstairs room in the state-house, afterward used for Peale's museum. For privates, the building afterward called the Walnut Street prison was employed. At one time not less than 900 prisoners were confined there under charge of a cruel warden, Captain Cunningham, who had previously exhibited his inhumanity as the provost of New York. At the hands of this wretch the unhappy inmates of the jail were systematically tortured. Numbers died of cold and starvation, being tantalized by the sight of food which they were not permitted to touch. They ate grass, leather, chips, pieces of rotten pump; were frequently beaten with the butt-end of Cunningham's whip, and in every way insulted and abused.

Economy had become not only the law of conscience, but the law of necessity. Tea, if sold at all, was sold in sealed papers, under the name of "cut tobacco", or some other disguise. Those who indulged in it did so secretly, taking it from a pitcher or water-pot, and keeping always a coffee-pot on the table to disarm suspicion. A lady in Philadelphia, writing at this date to an officer in the British army, who had been intimate with her family before the war, says:

Though we consider you as a public enemy, we regard you as a private friend; and while we detest the cause you are fighting for, we wish well for your personal interest and safety. I will tell you what I have done: My only brother I have sent to the army with prayers and blessings; and had I twenty sons and brothers, they should go to emulate the great example before them. I have retrenched every superfluous expense in my table and family. Tea I have not drunk since Christmas, nor bought a new cap or gown since your defeat at Lexington. I have the pleasure to assure you that these are the sentiments of all my sister Americans.

The reduction of the fort at Mud island had now become a matter of prime importance to the British. By November 10 they had completed their batteries on the morass of Province island, about 500 yards distant from the American works, and opened a heavy fire. For five days the fort, whose garrison was less than 300 men, held out. Then the "Vigilant", a twenty-four gun ship, was warped up so near the American works as to be able to throw hand-grenades into it, while marksmen from the masts could pick off its defenders. On the sixth day only 50 men were left available for duty. The works were fairly knocked to pieces by the enemy's fire, the palisades beaten down, the parapet in ruins, and the guns dismounted. The remnant of the brave little garrison had therefore no alternative but to abandon the position; and setting fire to all that was combustible, they crossed the Delaware in boats and joined the forces at Red Bank.

This disaster opened the Delaware to the British fleet, and put that of the Americans in peril. The best hope of the latter was to gain the waters of the upper Delaware; but to do that it was necessary to pass the city. On December 19, 13 galleys and 12 row-boats succeeded in doing this under cover of night. The following night the remainder made the same attempt, but with less success. Two vessels were driven ashore and nine were perforce abandoned and set on fire. A Philadelphian, living till nearly the middle of our own century, recollected seeing six of these "vessels of defense float by High street, all in flames, their magazines blowing up as they went—an awful spectacle".

The fort at Red Bank was next invested and taken by the British. On November 26, 1777, frigates and transports from below arrived at the docks of the city, causing great joy to the inhabitants and royal troops, for provisions had become scarce and exceedingly dear, beef selling at \$1 a pound.

Early in January, 1778, took place what was facetiously called "the battle of the kegs". These kegs were constructed in Bordentown and floated down the Delaware, for the purpose of destroying the British shipping. They were charged with gunpowder and arranged to explode, by a spring-lock, the moment they would touch the keel of a vessel. They did not do the damage that was intended, but they created a general panic and an apprehension that was slow to subside.

No other skirmishes of importance occurred during the remainder of the winter or the spring. The British officers, following the example of their general, a man of notoriously dissipated habits, amused themselves in

various ways, in which the least questionable were balls, parties, cock-fighting, and gambling. Twice a week entertainments were given at the theater, which some of their number had assisted in decorating. Major André painted the drop-curtain.

In May arrived the stirring news of the alliance between France and the United States, negotiated by the American commissioners in Paris, and signed on the 6th of February previous. On the 18th of the same month, the famous tilt and tournament called the "Mischianza" took place. It was given in honor of Sir William Howe, by the officers of his army, on the occasion of his recall to England, superseded in his command by Sir Henry Clinton. The scene of the festival was Walnut grove, the residence of the Wharton family, on the Moyamensing road, just outside the city limits. Major André was one of the givers of the entertainment, and "the charm of the company". He, with the assistance of Captain Oliver Delancey, painted the chief of the decorations, which included a magnificent supper-room, 210 feet in length, ornamented with a design of vine-leaves and festoons of flowers; a ball-room, with walls painted in imitation of white and black marble, with blue and gold and garlands, and 85 mirrors, borrowed for the occasion, trimmed with rose-silk ribbons and artificial flowers; a card-room, on whose ceiling was depicted over the entrance door a cornucopia filled with roses, while over that by which the unlucky gambler left the room one quite empty was displayed; and two magnificent arches, which served as entrances to the lists, and which celebrated the (somewhat scanty) naval and military exploits of Admiral and Sir William Howe. Neptune mounted guard over the admiral's arch, while Fame presided over that of the general.

The entertainment began with a superb regatta. The invited guests, almost entirely ladies, were escorted in a long procession of galleys, flat-boats, and barges, with bands playing and colors flying and cannon saluting, from Knight's wharf in the Northern Liberties to the old fort or Association's battery, afterward the site of the United States navy-yard.

Every thing was loyal and enthusiastic, all but the tide, which, being composed of "rebel floods", was not disposed to hold back its regular course, even to favor the commander-in-chief of the British army. The flood-tide became too strong for the galleys to advance, and all the generals and admirals and colonels and captains which they contained were compelled to remove from the grand and exclusive means of conveyance in which they had started and empty themselves, with undistinguished people of low degree, into the ordinary barges.

When landed, the company proceeded in due order to the tournament-grounds. Seven "Knights of the Blended Rose" fantastically arrayed in white and red silk, their horses similarly caparisoned, encountered seven "Knights of the Burning Mountain" in black and orange, while their respective ladies in "Turkish habits" of black and white, and white and pink, designed after drawings by Major André, sat by to "rain influence" on the combat. Each knight bore a device in honor of his chosen demoiselle. One of the ladies of the Burning Mountain was Miss Shippen, afterward the unhappy wife of Benedict Arnold. Her cavalier, Lieutenant Winyard, bore as his emblem a bayleaf, motto, "Unchangeable". Heralds trumpeted defiance and made their proclamations. Gauntlets were flung down, the knights met in mid-career and shivered harmless lances, a magnificent display of fire-works took place; and while they thus feasted and joisted and fiddled, Captain Allan McLane, a dashing dragoon of the Continental army, who had not been invited to the Mischianza, was occupied with firing the abattis north of the city by means of camp-kettles filled with combustibles and cunningly disposed along the lines. The timbers blazed, the long-roll sounded, cannonading began, there was general alarm throughout the city, and the fair ladies at the *fête* were sorely affrighted. Their partners, however, with great presence of mind, explained to them that these sounds only indicated a further demonstration in honor of the tournament. So the dancing was resumed, and the sound of the violins drowned the beat of hoofs as the British horse sallied forth in pursuit of the audacious McLane, who, having done as much mischief as he possibly could, took the Wissahickon road, swam his horse across the Schuylkill, and made good his retreat without a scratch.

Looking at this picture of senseless display on one hand and military incapacity on the other, it is easy to see why the British occupation of Philadelphia was so void of result. In a derisive pamphlet published a few months later in London, under the title *Strictures upon the Philadelphia Mischianza, or the Triumph of Leaving America Unconquered*, the writer speaks of the pageant in this wise:

What are we to think of a beaten general's debasing the king's ensign—for he had none of his enemies—by planting all the colors of the army in a grand avenue 300 feet in length, for himself and his brother to march along in pompous procession, followed by a numerous train of attendants, with seven silken knights of the Blended Rose and seven more of the Burning Mountain, and their fourteen Turkey-dressed damsels, to an area of 150 yards square lined also with the king's troop, for the exhibition of a tilt and tournament, or mock fight, in honor of this triumphant hero? And all this sea and land ovation made, not in consequence of an uninterrupted succession of victories like those of the duke of Marlborough, but after thirteen colonies wretchedly lost, and a three-years' series of ruinous disgrace and defeat.

The festival was scarcely over when Howe, learning that Lafayette with 2,500 men had crossed the Schuylkill and taken up a post on Barren hill, resolved, in the hope of winding up his American career with *éclat*, to move upon and capture him. Lafayette, however, availed himself of a lower ford to recross the river and get his force over without the loss of a man.

A few days after this useless demonstration the British troops marched to the lower part of the city, crossed the river in boats, and quitted Philadelphia never to return. "They did not go away," wrote an eye-witness: "they vanished."

On June 18 the British troops evacuated Philadelphia. Washington made haste to intercept them on their way across the Jerseys, and on the 27th the battle of Monmouth was fought, which, though disastrous to the American troops in the outset, was turned into a decisive victory by the energy and courage of the commander-in-chief. "Tell those Philadelphia ladies," writes General Wayne, "who attended Howe's assemblies and levees, that the heavenly, sweet, pretty red-coats, the accomplished gentlemen of the guards and grenadiers, have been humbled on the plains of Monmouth. The knights of the Blended Rose and of the Burning Mount have resigned their laurels to rebel officers, who will lay them at the feet of those virtuous daughters of America who cheerfully gave up ease and affluence in a city, for liberty and peace of mind in a cottage."

Close upon the footsteps of the retreating invaders came Colonel Allan McLane with his rangers, and immediately after him General Benedict Arnold, sent by Washington to take possession of the city as military governor. His first act was to issue a proclamation declaring the town under martial law, and ordering that until further instructions all stores should be closed and all sales cease excepting the sale of provisions in the markets. The why and wherefore of this remarkable order was not made known until a much later period, when a secret contract was discovered, signed immediately on Arnold's arrival in the city, between himself and the clothier-general, by which these worthies agreed to make purchases of goods, ostensibly for the public stores, but in reality for sale for their joint benefit, and this cessation of commerce was employed by them in purchasing and storing articles to be sold at a profit as soon as the embargo should be removed.

The law continued in force eight days to the infinite discomfort of Philadelphia, and would have probably continued longer had not the supreme executive council of the state interfered by a message demanding of General Arnold his reasons for ordering the shops to be shut. These reasons he dared not give; and finding that he could no longer persevere in the measure without exciting suspicion, he issued a proclamation reopening retail commerce.

"There were no means by which Arnold could obtain money that he hesitated in embracing." Soon after taking command of the city, he married Miss Shippen, one of the chief belles of the place and a favorite toast with the British officers. Their mutual extravagance and love of show and ostentation led to constant embarrassment for money, and Arnold resorted to all manner of questionable methods for raising it. Public stores he treated as his own property. In the matter of the privateer "Active" he bought of her seamen their claims for prize-money at a small rate, and then used his influence with Congress to get the claims allowed in full. He smuggled goods for his own private profit into Philadelphia by means of army wagons, and charged the transportation to the government.

After a twelvemonth the executive council began to take notice of these transactions. A paper of accusations was drawn up by them and laid before Congress. Arnold was tried by court-martial in 1780, and was sentenced to receive a reprimand at the hands of the commander-in-chief, a sentence which, mild as it was in comparison with his offenses, embittered him for life, and strengthened the determination, already forming in his breast, to sell himself to the British at the first convenient opportunity.

After the exposure of his treason, and his flight, Mrs. Arnold returned to the protection of her own family in Philadelphia. But her own loyalty was distrusted, and the city authorities were not content to have her remain. Within a month of her arrival the following notice was served on her: (a)

IN COUNCIL, *Friday, October 27, 1780.*

The council taking into consideration the case of Mrs. Margaret Arnold (the wife of Benedict Arnold, an attainted traitor with the enemy in New York), whose residence in this city has become dangerous to the public safety, and this board being desirous as much as possible to prevent any correspondence and intercourse being carried on with persons of disaffected character in this state and the enemy at New York, and especially with the said Benedict Arnold: therefore,

*Resolved,* That the said Margaret Arnold depart this state within fourteen days from the date thereof, and that she do not return again during the continuance of the present war.

Mrs. Arnold's family and friends made strong intercessions for her with the authorities, but their efforts were unsuccessful, and she was forced to depart at the time designated.

In 1778 the United States were forced to close the campaign, before the end of the summer, for lack of funds with which to carry on operations. The continental money had become practically worthless. In 1779 a dollar in specie was worth \$2,593 of the paper currency; in 1780, \$7,400; in 1781 no dealer would receive it. As an example of the straits to which our ancestors were reduced at this time of national depression, we copy an original bill of the year 1781:

Colonel ALLAN McLANE, bought of W. NICOLL:

1 pair of boots.....	\$600 00
6½ yards of calico, at \$85 per yard.....	752 00
6 yards chintz, at \$150 per yard.....	900 00
4½ yards morien, at \$100 per yard.....	450 00
4 handkerchiefs, at \$100 each.....	400 00
8 yards of quality binding, at \$4 per yard.....	32 00
1 skein of silk.....	10 00
	<hr/>
	3,144 00

If paid in specie, £18.10s.

Received payment in full, for Wm. Nicolls.

JONA. JONES.

To complicate the money question, each state had an irredeemable paper currency of its own to compete with the national currency. The confusion of values caused by these mixed issues can easily be imagined. The vague and uncompact form of government, which made of Congress rather an ill-assorted body for consultation than a central power, added to the bewilderment of public affairs in all departments.

"The Congress," wrote Greene toward the end of June, 1780, "have lost their influence. I have for a long time seen the necessity of some new plan of civil constitution. Unless there is some control over the states by the Congress we shall soon be like a broken band."<sup>5</sup>

The first vehement impulse toward the consolidation of the states into the federal union was given by Robert Morris. By birth an Englishman, he had removed to America in his boyhood, and in 1733 had settled in Philadelphia. Averse, in the first instance, to the idea of a rupture with the parent country, his growing patriotism so far overcame this original reluctance that we find his name among the signers of the Declaration of Independence. From the very opening of the revolutionary struggle he was foremost in sustaining all patriotic measures. A member of the Congress of 1776, and again of that of 1778, he was placed on that committee, most important of all, which was charged with the expenditure of moneys for the secret service, and was appointed its special commissioner to negotiate bills of exchange and to take other measures for raising funds. In February, 1781, he was made superintendent of finance, in which position he did not hesitate to pledge his private credit for the relief of army emergencies. "As it has been said that Washington was the sword of the Revolution, so it may be said that Morris was the purse." Again and again, when clothing and military stores were exhausted in Washington's camp, this generous friend came to their rescue. At one time when cartridges had entirely given out, a seasonable supply of lead came in as ballast in one of Mr. Morris' ships, and was at once turned over by him to the use of the army. Morris raised on his own notes and credit the sum of \$500,000 for the transportation and supply of the national army to Yorktown, where the battle was fought which brought about the end of the struggle and secured peace.

In June, 1780, steps were taken at Philadelphia, under his influence, for the founding of a bank with the power to issue notes. This was the Bank of the United States, whose fortunes were destined to have a considerable influence upon the prosperity of the city. It opened on January 7 with a capital of \$400,000, of which Morris took half as an investment of the United States, paying for it in their currency.

Congress resumed its sessions in Philadelphia soon after the departure of the British. On October 4, 1781, was fought the decisive battle at Yorktown, followed by the surrender of Lord Cornwallis and his army. The news came to Philadelphia by express at midnight, and the watchmen, when crying the hour as usual, roused the city by adding to their usual call of "Twelve o'clock, and all's well!"—"And Cornwallis taken!"

When the letter of Washington, announcing the capitulation, reached Congress, that body, with the people streaming in their train, went in procession to the Dutch Lutheran church to return thanks to Almighty God. Every breast swelled with joy. In the evening Philadelphia was illuminated with greater splendor than ever before. Congress voted thanks to Washington, to Rochambeau, and to De Grasse, with special thanks to the officers and troops. A marble column was to be erected at Yorktown, with emblems of the alliance between the United States and his most Christian majesty.

On November 30, 1782, the preliminary treaty of peace between England and America was signed at Paris. When the news was confirmed the joy in Philadelphia was unbounded.

A great flag was hoisted on a lofty mast on Market Street hill, and the people fastened their eyes on it by the hour, transferring to the emblem the veneration they felt for the achievers of the peace. Great fireworks were prepared up High street; and the crowd being immense, when the arch took fire and the rockets flew down the street among the people, a great panic ensued, and many contusions and accidents. The houses at night were illumined generally, save those of the Friends, which, of course, afforded fine sport for the rabble in breaking in the dark panes.

It is a singular coincidence that the first American flag ever displayed on the Thames at London (1783) floated from the mainmast of the ship "William Penn". The sight caused so much excitement and vexation in the city, that the ship's crew was forced to keep vigilant watch at night lest the vessel should be mobbed; an odd result of the exhibition of that pacific name.

## PHILADELPHIA AS THE CAPITAL CITY.

FROM 1783 TO 1800.

Immediately after the departure of the British army, Congress resumed its sittings in Philadelphia, and remained there until June, 1783. During that month a mutinous outbreak occurred among the Pennsylvania soldiery. About 300 of them left their barracks in the Northern Liberties, and, joined by two newly arrived companies, marched to the house of Robert Morris and demanded their arrears of pay, which, from the necessity of the times and, it might be added, the incompetency of Congress, had been withheld from them. Morris received them with tact and forbearance. He even offered to allow their sergeants to examine his books, but he was forced to confess that the public coffers were empty.

Thereupon the mutineers left him and marched to the state-house, where Congress was in session. General Hamilton was sent out to address and conciliate them, but they were so determined in their behavior that he lost

hope, and, returning to the hall, calmly advised his fellow members to "think of eternity, since he firmly believed that within the space of an hour not an individual of them would be left alive". It was feared that the insurgents would attack the national bank; but force enough was collected to overawe them, and in the end they returned quietly to their barracks, where, a day or two later, they were surrounded and disarmed by a force under Major General Howe, who had been sent for to quell the mutiny. Congress, however, could not forgive the insult to its dignity, and removed without delay, first to Princeton, and shortly after to New York, where it remained until after the adoption of the Federal Constitution in 1790, when it was determined that Philadelphia should be the seat of government for ten years, while preparations were making for its final establishment in the District of Columbia.

President Duer writes:

Morris had hitherto strongly advocated the charms of Philadelphia to be the permanent metropolis, and he now shrewdly concluded that if the public offices were once opened in that city they would continue there; as, but for the silent influence of the name of Washington, whose wishes on the subject were known, would have been the case.

In December, 1783, General Washington passed through Philadelphia on his way to Annapolis to resign his commission into the hands of Congress.

The roads were covered with people, who came from all quarters to see him, to get near to him, to speak to him [says Bancroft]. Alone and ready to lay down in the hands of Congress the command that had been confided to him, he appeared even greater than when he was at the head of the armies of the United States. The inhabitants of Philadelphia knew that he was drawing near, and, without other notice, an innumerable crowd placed themselves along the road that he was to pass. Women and aged men left their homes to see him. Children passed among the horses to touch his garments. Acclamations of joy and gratitude accompanied him in all the streets. Never was homage more spontaneous and more pure. The general enjoyed the scene, and owned himself by this moment repaid for eight years of toil and wants and tribulations.

At Philadelphia he put into the hands of his comptroller his accounts to December 13, 1783, all written with minute exactness by his own hand, and accompanied by vouchers conveniently arranged. Every debit against him was credited, but, as he had not always made an entry of moneys of his own expended in the public service, he was, and chose to remain, a considerable loser. To the last he refused all compensation and all indemnity, though his resources had been greatly diminished by the war.

In May, 1787, the delegates chosen by the states to decide upon a constitution and rule of government met at the state-house in Philadelphia. Much agitation and fluctuation of feeling preceded this important meeting. "Shall we have a king?" asked John Jay; and himself answered, "Not, in my opinion, while other expedients remain untried." Washington, in the quiet of Mount Vernon, was studying the matter, reading Montesquien, soliciting the opinions of the ablest men in public life, and, as the result of reflection and opinion, he drew up three separate outlines of a constitution, differing widely from each other, but all designed to consolidate a union of the conflicting interests of the thirteen states.

Many and various were the points in debate. Should the chief executive authority be vested in one person, or in two, or three? Should an equal number of senators be sent from each state, or should they be distributed *pro rata* according to area or population? How should representatives be apportioned? How should the separate state governments be made to work in harmony with the general government? The questions of slavery and the slave-trade, of finance, of the public debt, of taxation, of commerce, of the Indians, each in turn formed menacing points of difference and collision, which required the utmost wisdom, moderation, and gentleness of treatment.

At last, on the 17th of September, the Constitution as it now stands, with the exception of its modern amendments, was resolved upon, with the unanimous approval of the eleven state representatives in the convention.

The assembly of Pennsylvania was at that time in session, and felt it desirable to secure the ratification of the Constitution without delay. A resolution for the calling of a state convention was passed by them. The enemies of the new measure were in a minority, but, determined to retard it as much as possible, they resorted to the scheme of defeating action by preventing the attendance of a quorum. This scheme was frustrated by the decided step of seizing two of the refractory members at their lodgings, carrying them forcibly to the house, and there detaining them until they had, by their unwilling presence, contributed to the passage of the unwelcome act.

As the last signature was appended to the document, Franklin, looking at the emblazoned sun on the president's chair, remarked to those near him: "In the vicissitudes of hope and fear I was not able to tell whether it was rising or setting; but now I know that it is the rising sun."

Franklin was right; but the sunrise which he rejoiced over had in it the menace of storms. Intrigues against the Constitution and attempts to alter or annul its provisions were begun before the document was fairly laid before the people. Patrick Henry, Richard Henry Lee, and others of the southern leaders exerted themselves strongly in opposition.

But the influence of Washington outweighed them all. He was embosomed in the affections and enshrined in the pride of the people of Virginia; and in all their waverings during the nine months following the federal convention he was the anchor of the Constitution.

The extraordinary intelligence and virtue displayed by the Continental Congress was recognized by sagacious and dispassionate observers throughout the world. Mirabeau spoke of it as a company of demigods; and William Pitt exclaimed: "I must declare that in all my readings and observations, for solidity of reasoning, force of sagacity, and wisdom of conclusion, under such a complication of different circumstances, no body of men could stand before the national Congress of Philadelphia."

The final adoption of the act was celebrated in Philadelphia on the 4th of July, 1788, by the most magnificent procession ever known in the city. From 5,000 to 7,000 persons took part in it. All the trades were represented and all the societies. Ten white horses in the middle of the line drew a dome, supported by thirteen columns, which

bore each the name of a state, and held up a cupola with the figure of Plenty and the motto, "In Union the fabric stands firm." Another display was, "The Federal ship Union," also drawn by ten horses and manned by twenty-five men, who heaved the lead as they passed, cried the soundings, and trimmed the sails to the wind.

This beautiful little vessel had been barge to the "Serapis", captured from the English by Paul Jones in 1779. She was 33 feet in length. From under her keel, canvas, painted to represent the waves of the sea, hung over and concealed the wheels of the car. A smaller vessel followed her, and a procession of pilots.

"The Declaration of Independence," "The Definite Treaty of Peace," "The French Alliance," "The Convention of the States," "The Constitution," "The New Era," were represented by some of the principal citizens in emblematical costumes. The Constitution was personified by a lofty car in the form of an eagle, drawn by six horses, in which sat Judge Atlee and Judge Rush in their official robes, carrying the Constitution, framed and mounted on a staff, which bore a liberty-cap and "The People" in gilded letters. Each trade had its car, on which skilled workmen exhibited themselves busied in their different employments. The blacksmiths displayed a forge, with men engaged in the symbolic labor of beating swords into plowshares; the printers and bookbinders, a platform, on which was a press, where odes were printed and thrown out to the crowd. When the procession was over, all its members sat down to a plentiful dinner, at the conclusion of which the whole great company "withdrew to their homes by 6 o'clock in the evening, all sober, but all joyful"; a sight to rejoice the spirit of the city's friendly founder.

That same year (1788) saw the first steamboat on the Delaware. Its inventor, John Fitch, had conceived the idea in 1785, but, being a poor man, was for a time unable to carry it out. He applied to Congress for assistance, but was refused. A company was at last organized, by the aid of which the first rude idea of what has since become the modern steamboat was built and launched. It was a singular craft, with two sets of paddles on either side set within a framework, and worked by an engine placed near the stern. Gilded chains were hung over the sides as an ornament to the boat, whose rate of speed was about 8 miles an hour.

On the 6th of April, 1789, General Washington was elected the first President of the United States, and on the 16th he left Mount Vernon for his inauguration in New York. His desire was to travel quietly, but this the irrepressible enthusiasm of the people would not permit. On the confines of Pennsylvania he was met by two troops of cavalry and a large concourse of citizens, who had quitted Philadelphia the day before and waited all night for his appearance. He was persuaded to leave his carriage and mount a white horse, which was in readiness for the purpose, and so, escorted by a throng which increased with every mile, was conducted through avenues of just-transplanted laurels and under triumphal arches, across Gray's ferry and into the city. "As he passed under the last arch, a youth concealed in the foliage let down, with the aid of some ingeniously constructed machinery, a beautiful ornamented wreath of civic laurel, which, before the hero was aware, embraced his head." Thus crowned, with 20,000 worshippers crowding about him, the great man made his way to the City tavern, where all the dignitaries of Philadelphia and a superb banquet awaited him. The festivities closed with a magnificent display of fireworks.

In 1790 Congress returned to Philadelphia, which for the next decade served as the capital city of the nation. All the principal officers of the government took up their residence there. The Supreme Court sat in the hall on the southeast corner of Fifth and Chestnut streets. The Treasury Department used the old Clark mansion on the southwest corner of Chestnut and Third, Congress was accommodated in a building which had been erected for use as a county court-house, on the corner of Sixth and Chestnut. In this building, known as Congress Hall, Washington and Adams were inaugurated as President and Vice-President in 1793, and Jefferson as Vice-President in 1797.

In a letter from Philadelphia, dated August 10, 1790, we find the following:

Some of the blessings anticipated from the removal of Congress to this city are already beginning to be apparent; rents of houses have risen, and I fear will continue to rise, shamefully; even in the outskirts they have lately been increased from £14, £16, and £18, to £25, £28, and £30. This is oppressive. Our markets, it is expected, will also be dearer than heretofore. I am convinced that if things go on in this manner a very great majority of our citizens will have good reason to wish the government settled at Conococheague long before the ten years are expired.

Robert Morris' house, in Market street, between Fifth and Sixth, had been secured by the corporation as a residence for the president. It was a large double house, built in the plain style of architecture which at that time and since has been characteristic of the Quaker City. Another and finer house in South Ninth street was proposed and urged upon the acceptance of Washington by the legislature of the state, but was declined, on the ground that he would by no means consent to live in any house which was not hired and furnished from his own means. The Morris house was three stories in height and 32 feet wide, with 11 windows in front and a door, furnished with 3 stone steps. It had formed part of the marriage portion of the wife of Richard Penn, son of the last proprietary, and for some years was occupied by him. During the British occupation it was the headquarters of Lord Howe. The rent paid by General Washington for the house was \$3,000.

From the letters of Washington at this time to his private secretary, Mr. Lear, we get an exact and curious picture of the minute regularity with which he acquainted himself with his affairs in their smallest particulars. It was the exactitude, not of a petty mind, but of an intellect so comprehensive in grasp that it could include little things as well as great, and whose first and most urgent desire was for justice:

I am, I must confess, exceedingly unwilling to go into any house without knowing on what terms I do it, and I wish this sentiment could be again hinted in delicate terms to the parties interested with me. Mrs. Morris has a mangle (I think it is called) for ironing

clothes, which, as it is fixed in the place where it is commonly used, she proposes to leave, and take mine. To this I have no objection, provided mine is equally good and convenient; but if I should obtain any advantages, besides that of its being up and ready for use, I am not inclined to receive it. They will also leave a large glass lamp in the entry or hall, and will take one or more of my glass lamps in lieu of it. I have no particular directions to give respecting the appropriation of furniture. I approve, at least till inconvenience or danger shall appear, of the large table ornaments remaining on the sideboard, and of the pagoda standing in the smaller drawing-room. Had I delivered my sentiments from here respecting this fixture, that is the apartment I should have named for it. Whether the green, which you have, or a new yellow curtain, should be appropriated to the staircase above the hall, may depend on your getting an exact match, in color and so forth, of the latter. For the sake of appearances one would not in instances of this kind regard a small additional expense. Would not a stand like that for casters with four apertures for as many kinds of liquors, each aperture just large enough to hold one of the cut decanters sent by Mr. Morris, be more convenient for passing the bottles from one to another, than the handing each bottle separately, by which it often happens that one bottle moves, another stops, and all are in confusion? Talk to a silversmith and ascertain the cost, and whether they could be immediately made, if required, in a handsome fashion. Upon examining the caps of Giles and Paris I find they (especially that of Paris) are much worn, and will be unfit to appear in with decency after the journey from here is performed. I therefore request that you will have two new ones made, with fuller and richer tassels at the top than the old ones have. That the maker of them may have some guide as to the size, the inclosed dimensions of their heads will, I presume, be sufficient.

The president and Mrs. Washington arrived in Philadelphia on the 28th of November and took possession of their new residence. Tuesday was selected as the reception day for all "respectable citizens and strangers properly introduced". These receptions were held in the dining-room on the first floor. From 3 to 4 the President stood, surrounded by the members of his cabinet, bowing courteously as each newcomer was named to him. He never shook hands on these occasions, even with his most intimate friends, and he rarely forgot a name that had once been mentioned in his hearing. On Fridays, Mrs. Washington held her levees, at which the President appeared as a private gentleman and conversed without restraint. Formal dinners were given every Thursday "at 4 o'clock precisely, never waiting for any guests". At 12 every day it was the President's custom to walk forth and set his watch at Clark's standard, southeast corner of Front and High streets. All the passers-by took off their hats and stood uncovered till he turned and went back again. He always returned the salutations by lifting his hat and bowing low. On fine days he went out to walk, attended by his two secretaries, one walking on either side of him. They were never seen to talk to each other. On Sundays he drove to Christ church in a cream-colored coach, with enameled figures on the panels (the carriage is still preserved in Philadelphia). All his servants wore liveries of white cloth turned up with scarlet or orange.

A very elegant and refined circle led society in Philadelphia at this time, and the coming of Congress gave the city the air and tone of a capital.

Says Samuel Beck, in his entertaining *Recollections*:

There was more attention paid then to the dress of servants and the general appearance of equipages. Dinners were got up in elegance and good style. Besides Brigham and Morris and the President, who had French cooks, as well as most of the foreign ministers, there was a most admirable artist, by the name of Marriot, who supplied the tables of private gentlemen when they entertained with all that the most refined gourmand could desire.

General Washington had a stud of 12 or 14 horses, and occasionally rode out to take the air with six horses to his coach, and always two footmen to his carriage. He knew how to maintain the dignity of his station. None of his successors, except the elder Adams, has placed a proper value on a certain degree of display that seems suitable for the chief magistrate of a great nation. I do not mean pageantry but the decent exterior of a well-bred gentleman.

The inauguration of Washington for his second presidential term was soon followed by the French revolution (1793) and the proclamation of the republic. The enthusiasm excited in the United States by the news was almost universal. "There seems to be something infectious in the example of a powerful and enlightened nation urging toward democracy, which imposes on the human mind and leads human reason in fetters," says Sparks; and this feeling was deepened to Americans by the fact that France was following the example which themselves had so recently given, and that it was a spark from our own torch which had set the old world in a blaze.

"In its first stage, but one sentiment respecting it prevailed;" but the excesses which followed set serious men to thinking, and in the minds of a small but influential minority reaction began. Washington was of this minority. Entertaining the strongest affection and gratitude toward the French nation, and sympathizing in its desire for liberty, he yet felt the necessity for cautious action on the part of the United States. In April, 1793, came the declaration of war made by France against Great Britain and Holland. "The situation of America was precisely that in which the wisdom and foresight of a prudent and enlightened government was indispensably necessary to prevent the nation from inconsiderately precipitating itself into calamities which its reflecting judgment would avoid;" and the government at Philadelphia at once issued a carefully worded proclamation of neutrality, which gave equal offense to the French and to their hot-headed sympathizers in the United States.

At this crisis arrived "the citizen Genet", ambassador from the republic of France. He reached Philadelphia on the 16th of May, [1793], and was received with enthusiasm. The church-bells were rung, a public address was made him, democratic societies were founded in imitation of the Jacobin club, and the French frigate "L'Amuscade" came up the river, her masts decorated with the red caps of liberty and flags bearing republican mottoes, and her guns saluting a vast crowd on the Market Street wharf, who answered each discharge with deafening hurrahs. On the 18th a dinner was given to Genet by the democrats at the City tavern, and on the 22d another, at which each guest in turn put the *bonnet rouge* on his head and offered a "patriotic toast". The term *citizen* became as common in Philadelphia as in Paris, and in the newspapers it was the fashion to announce marriages as partnerships between "citizen" Brown, Smith, or Jones, and the "citese" who had been wooed to such an association. At a dinner where Governor Mifflin was present, a roasted pig received the name of the murdered king, and the head, severed from the body, was carried around to each of the guests, who, after placing the

liberty-cap on his own head, pronounced the word "Tyrant", and proceeded to mangle with his knife that of the luckless creature doomed to be served for so unworthy a company. One of the democratic taverns displayed as a sign a revolting picture of the mutilated and bloody corpse of Marie Antoinette!

This frenzy of welcome had its natural effect upon the intellect of the French ambassador. On his first visit to the President he took umbrage at perceiving in the vestibule a bust of Louis XVI, and stigmatized it as "an insult to France". Other causes of complaint were not lacking. The "Little Sarah", an English merchantman, captured by a French frigate, was brought into the port of Philadelphia and equipped as a privateer. Her armament was on board and her crew enlisted, and she was about to sail on a cruise under the name of "Le Petit Democrat", when the governor interposed, and requested M. Genet to defer the sailing of the vessel until the President, then at Mount Vernon, should return to the city and the cabinet should sanction her departure.

Genet, in a fury, threatened "to appeal from the President to the people". In defiance of the governor's prohibition and of the half promise extorted from Genet, "Le Petit Democrat" sailed before the arrival of the President.

The condemnation of this act on the part of the government, and the steps taken to prevent the departure of other privateers then in process of being fitted up, excited a tumult of popular wrath, which in every way was stimulated by M. Genet. His letters to the President and other officers of the government were couched in terms which bordered on insult. Before the end of the year, Mr. Morris, our minister at Paris, was instructed to request his recall. But the flame of sedition and discontent lit by him burnt on, and embittered the closing year of Washington's administration.

The yellow fever made its appearance in Philadelphia during the summer of 1793, and raged with fearful violence. During the months of August, September, October, and November the deaths in the city amounted to 4,002, out of a population of 30,000. Congress adjourned to Germantown, which, from the healthfulness of its situation, was exempt from the scourge. Down to that year this suburb of Philadelphia retained its German character to a remarkable degree. All the public preaching and most of the conversation were in German. After the influx of strangers, caused by the fever, many persons chose Germantown as a summer residence, and the use of English rapidly increased.

The horrors of this memorable affliction were extensive and heart-rending [says Burk]; nor were they softened by professional skill. The disorder was in a great measure a stranger to our climate, and was awkwardly treated. Its rapid march, being from 10 victims a day in August to 100 a day in October, terrified the physicians, and led them into contradictory modes of treatment. They, as well as the guardians of the city, were taken by surprise. No hospitals or hospital stores were in readiness to alleviate the sufferings of the poor. For a long time nothing could be done other than to furnish coffins for the dead and men to bury them. At length a large house in the neighborhood was appropriately fitted up for the reception of patients, and a few pre-eminent philanthropists volunteered to superintend it. In private families the parents, the children, the domestics, lingered and died, frequently without assistance. The wealthy soon fled; the fearless or indifferent remained from choice, the poor from necessity. The inhabitants were reduced to one-half their number, yet the malignant action of the disease increased so that those who were in health one day were buried the next. The committee was in session night and day at the city hall, on Chestnut street. The attendants on the dead stood on the pavement in considerable numbers, soliciting jobs; and, until they were employed, they were occupied in feeding their horses out of the coffins which they had provided in anticipation of the daily wants.

Repeated visits of this terrible epidemic in the years 1798, 1799, and 1802 led public attention to the investigation of causes, and to the cleansing and filling up of Duck creek, after which malignant diseases of all kinds abated.

The years 1794 and 1795 were troubled ones. War broke out with the northern Indians, and hardly was this brought to a close by the victory of General Wayne at the Miamis, when a formidable mutiny began in the western counties of Pennsylvania against the execution of the recent laws imposing a duty on distilled spirits. The mails were stopped and rifled, the government officials fired upon, the houses of the inspectors attacked, and they themselves forced to resign their positions. Nothing but the promptitude and energy of the government saved the country from a civil war. The militia was ordered out, Governor Lee of Virginia placed in command, the President himself visited each division of the force before it marched, and the insurrection was in the end terminated without the shedding of a drop of blood.

On the 7th of March, 1795, the "treaty of amity, commerce, and navigation", between the United States and Great Britain, which had been negotiated at London by our minister, John Jay, was received at the State Department, and on the 24th of June the Senate, by a small majority, voted for its ratification. "An immense party in America, not in the habit of considering national compacts, without understanding the instrument, and, in many cases, without reading it, rushed impetuously to its condemnation."

The friends of the treaty were mobbed, and Mr. Jay was burned in effigy in several cities. In Philadelphia the mob held a meeting, at which various demagogues made addresses, after which they burned a copy of the treaty under the windows of the British minister. The determination of the President, the calm statements and explanations addressed by him to the people, and the strong confidence felt by the majority for his opinion, availed in the end to subdue opposition and secure the final acceptance of the treaty; but not until his person and character had been attacked with the utmost bitterness by the faction which opposed the measure. He was pronounced by them to be "totally destitute of merit, either as a soldier or a statesman". His honesty even was assailed, and

his enemies did not scruple to assert that he had drawn from the Treasury, for his private use, more than the salary belonging to his office. We are so accustomed to think of Washington as the recognized model of a faultless human character, that it is difficult to realize that he, too, bore in his time that "sharpest pang" of being vilified and misrepresented by those for whom he had given his best of life and work. That, with all his dignified composure, this pang was not unfelt by him, is proved by a passage from one of his letters, written in 1796:

Until the last year or two, I had no conception that parties would or even could go the lengths I have been witness to; nor did I believe, until lately, that it was within the bounds of possibility that I should be accused of being the enemy of one nation and subject to the influence of another; and, to prove it, that every act of my administration should be tortured, and the grossest and most insidious misrepresentations of them be made, and that, too, in such indecent and exaggerated terms as could scarcely be applied to a Nero, to a notorious defaulter, or even to a common pickpocket. But enough of this. I have already gone further in the expression of my feelings than I had intended.

To the great mass of the American people Washington remained to the end of his life the object of unabated reverence and affection. At the close of his second term of office, the determination of the general body of electors to continue him as chief magistrate so long as he would consent to fill the place was so unequivocal that even his enemies dared not openly dissent. Only his distinct refusal to be a candidate for renomination laid the question at rest.

In 1796 he issued his famous farewell address to the people of the United States; and, in the following March, having assisted at the inauguration of his successor, John Adams, he left Philadelphia for Mount Vernon, where the short remainder of his life was spent. Dr. William Duer, afterward president of Columbia college, witnessed his farewell appearance at Congress hall, and thus describes it:

As the venerable hero moved toward the door, there was a rush from the gallery that threatened the lives of those who were most eager to catch a last look of him who, among mortals, was the first object of their veneration. Some of us effected an escape by slipping down the pillars. I succeeded in making good my retreat through the outer door in time to see the retiring veteran as he waved his hat in return for the cheers of the multitude, while his gray locks "streamed like a meteor in the wind". Seldom as he was known to smile, his face now beamed with radiance and benignity. I followed him with the crowd to his own door, where, as he turned to address the multitude, his countenance assumed a serious and almost melancholy expression; his voice failed him, his eyes were suffused with tears, and only by his gestures could he indicate his thanks, and convey a farewell blessing to the people. This was the last I saw of the most illustrious of mankind, and should I live a thousand years, I "ne'er shall look upon his like again".

In the spring of 1799 the water-works of Philadelphia were begun by the construction of a reservoir near the banks of the Schuylkill, and another edifice of marble at the Center square as a receiving-fountain. These works in the outset had little encouragement, and to induce moneyed men to contribute their capital, they were offered the free use of the water for a term of years. The citizens of Philadelphia clung to their pumps and preferred them, until after the yellow-fever epidemic had opened their eyes to the possible danger of such a supply. In 1818 the steam-engine at Fairmount was set in operation, and from that time on there was a general acceptance of the Schuylkill water.

On the 11th of March, 1799, the legislature of the state granted a new charter to the city of Philadelphia, the old one having been superseded by the events of the Revolution. This act was made applicable to the city as laid out by Penn. the general form of administration differing but little from the old system. In the course of time suburbs outside of Philadelphia were created districts, having separate municipal powers. Under this system grew up a heterogeneous aggregation of municipalities, independent of each other, and frequently discordant in policy.

In December of the same year, General Washington died at Mount Vernon. The event was commemorated in Philadelphia by a funeral procession from Congress hall to the German Lutheran church, and by an oration in honor of the departed leader, delivered before both houses of Congress. Meanwhile work had been going on at Washington in the building of the capitol, the corner-stone of which had been laid by Washington himself in September, 1793. In the autumn of 1800 the north wing was pronounced ready for occupation, and Philadelphia ceased to be the seat of government.

## GROWTH AND DEVELOPMENT.

FROM 1800 TO 1880.

About the time of the transfer of the seat of government to Washington it was decided to remove the state capital to Harrisburg. Philadelphia, thus shorn of both her dignities, was left to work out her own development through a course of prosperous though uneventful years.

The discovery of the value of anthracite coal, about the year 1810, gave an immediate impetus to manufactures of all sorts. The existence of this coal had become known as early as 1773, when the Lehigh Coal Company was started with a very small capital. The property owned by this company was on Summit hill, 9 miles from Mauch Chunk, but the difficulty and cost of transportation was such as to dishearten the stockholders, and for some years the mine was suffered to lie idle. The coal was used to a small extent for the forge-fires of the blacksmiths in the neighborhood, and in Philadelphia a few persons burned it in their grates, but rather as a curious

experiment than from any sense of its full utility. Even so late as 1807 the coal company gave a lease of one of their veins *gratis* to a firm of iron manufacturers, in hopes of securing the utilization of the mineral; but the attempt proved a failure.

In 1810, however, an Englishman, whose name has not been preserved, made an analysis of the coal, which convinced him of its value for all purposes of combustion. He built a small furnace for experiment, quickened by three strong bellows, and succeeded in getting a heat from the coal which was sufficient to melt platinum. This experiment paved the way for a more general use of the anthracite; but, even as late as 1818, 365 tons carried to Philadelphia completely stocked the market and was with difficulty disposed of. In 1825, however, the consumption amounted to 28,393 tons, and by 1839 to 221,850 tons. In 1841 the Schuylkill mines produced 1,000,000 tons of anthracite alone.

Coincident with the discovery of coal and co-operative with it came the employment of steam. Steamboats began to ply regularly on the Delaware by 1818, in which year the "Phoenix", built in New Jersey, was successfully brought round to Philadelphia by sea. Turnpikes and bridges came to rank as prime necessities, not in Pennsylvania alone, but all over the country. In 1789 the traveler from Boston to Philadelphia was forced to pass not less than eight rivers in ferry-boats, namely, the Connecticut at Springfield; Housatonic at Stratford; Hudson at New York; Hackensack and Passaic between Paulus Hook and Newark; Raritan at New Brunswick; Delaware at Trenton; and Neshamony near Bristol; all of which, except the Hudson, were substantially bridged by the year 1829. Between 1791 and 1829 the state of Pennsylvania expended over \$22,000,000 on its internal improvements.

In 1825 the Schuylkill navigation improvement was put in operation, by which, through a system of canals, the waters of the Susquehanna were connected with those of the Schuylkill and Delaware. Following this came the opening of the Delaware and Maryland and the Delaware and Raritan canals, which united Philadelphia by a network of water-ways with Baltimore on the one hand and New York on the other.

The war of 1812 between Great Britain and the United States gave but a brief check to the progress of this peaceful growth. Volunteer companies were formed and the forts on the Delaware strengthened. In the spring of 1813 three companies, under Colonel Lewis Rush, were sent from Philadelphia to guard the peninsula between Delaware bay and the Chesapeake, and two years later twenty-one companies of volunteers from the city formed part of an advance light brigade, serving under General Thomas Cadwallader.

The war against the Bank of the United States, instituted under Jefferson, was the cause of great excitement and a considerable financial derangement about the year 1811. The act incorporating this bank was signed by President Washington on February 22, 1791, his 59th birthday. It directed the establishment of a Bank of the United States, with a capital not exceeding \$10,000,000, divided into 25,000 shares of \$400 each, of which no person should be allowed to subscribe for more than 1,000 shares, except the President of the United States, who was empowered to subscribe for \$2,000,000 on behalf of the government. The subscription-books were opened on the 4th of July, and before night the whole subscription was taken. In four days the value of the scrip was doubled; by the 4th of August it was selling for three times its face value, and by the end of that month at four times. This speculative spirit gradually subsided, and the stock reverted to par, where it remained.

In 1811 the charter of the United States Bank expired. Jefferson's objections to the bank had formed part of his political creed, and his party succeeded in preventing the passage of an act for its recharter, in spite of the urgent appeals of the federal press and the business community in general. The Bank of North America, established in 1781, under the powerful influence of Robert Morris, which had passed through a parallel crisis in 1786, and barely succeeded in weathering the storm of opposition, added the weight of its remonstrance. Its directors transmitted to Congress a memorial, pointing out the past services of the institution, and expressing serious apprehensions as to how the commerce of the country could be carried on without its co-operation and assistance. The appeal was in vain. The directors of the bank turned for relief to the legislature of Pennsylvania, but the democrats were sufficiently strong in that body to defeat the bill incorporating it as a state institution, and at last, in 1812, the friends of the bank gave up the contest, the bank was closed, and its affairs were finally wound up.

That same year Stephen Girard, the largest stockholder in the Bank of the United States, bought of its trustees the handsome building which had been erected for its accommodation, and set up in business as a private banker. "In fact, to all intents and purposes, Mr. Girard became the United States Bank under another name, though with not so much capital." He managed its affairs with great prudence and success. At his death, in 1831, the banking house so long under his control became a chartered institution by the name of "Girard Bank". The subscription-books were opened to the public in May, 1832, and a scene of the most extraordinary confusion ensued. Hired bullies were employed to subscribe for citizens who hesitated to trust themselves in the crowd, and the stock was secured for a few hands by a system of ruffianly violence. The grand jury found bills of indictment against five of the bank commissioners; there was even talk of repealing its charter, and the legislature was petitioned to that effect, but that body refused to take action, and in time the public indignation subsided and was forgotten.

Mr. Girard was, at the time of his death, in 1831, one of the richest men in the country. By his will he left \$500,000 to the city of Philadelphia for the improvement of the river-front, \$116,000 to various institutions of charity in and about the city, a considerable sum for the improvement of the police system and the reduction of

taxes, and \$2,000,000 for the erection and endowment of a college for poor orphan boys, whom, it was stipulated must be white. Explicit directions for the building and regulation of the college accompanied this bequest, to which was added the remarkable proviso that no "ecclesiastic, missionary, or minister" should ever hold or exercise any office or duty in the college, or should ever be admitted within the walls for any purpose whatever, not even as a visitor. The orphans at an age between 14 and 18, it was stipulated, were to be bound out to suitable trades and educations under the direction of the mayor and corporation of Philadelphia. In 1874 there were 500 scholars in this institution, which number, it was hoped, might soon be increased to 1,000.

The first railroad communication with Philadelphia was made in 1832 by the opening of a street line to Germantown. In the same year the Wilmington and Baltimore and the Camden and Amboy roads were completed, and in 1833 the Reading railroad. The Pennsylvania railroad was chartered in 1846.

An outbreak of cholera took place in Philadelphia, making its appearance on the 5th of July, 1832, and between that time and the 4th of October there were reported 2,314 cases and nearly 1,000 deaths.

In 1835 gas was first made for general consumption by a private company, chartered with a capital of \$125,000. Other gas-works were organized in different districts, but after consolidation in 1854, they all came into possession of the city with the exception of the gas-works of Kensington and the Northern Liberties.

In 1824 Lafayette, on his second visit to the United States, was tendered a public reception at the state-house in Philadelphia. On this occasion the condition of the building and the changes that had taken place in its interior appearance attracted public attention. Since the year 1800 some persons in temporary authority had taken advantage of their opportunity to "modernize" the fine east room in which the second Continental Congress and the constitutional convention had held their sittings, and where the Declaration of Independence was signed. The ancient paneling, the carvings, the old furniture, even the beautiful chandelier, a relic of colonial days, were torn down, cast aside as useless lumber, and replaced by something which was thought to be "prettier". It was resolved that this room, famous as the scene of so many important historical events, should be restored to its original condition, and in 1833 a sum of money was voted for this purpose. A large part of the old wood-work was found intact in the lumber-rooms of the building, what was lacking was replaced by new carving made after the pattern of the old, and in all important particulars the room now bears the aspect which it bore when, with John Adams as president of the Senate, the debates of the first United States Congress were conducted with "the most delightful silence, the most beautiful order, gravity, and personal dignity of manner", and "three gentle taps" from the silver pencil-case of the president were enough to compose the most excited discussion, and "restore every thing to repose and the most respectful attention".

In 1831 the United States mint, which since 1792 had occupied a plain brick building on the east side of Seventh street, removed to its present situation on Chestnut street. In the following year the Asiatic cholera made its appearance in the city, and between July and October swept away nearly 1,000 victims.

Previously to the spring of 1830 only two locomotives had been built in the United States. At that date Mr. Baldwin, the founder of what has since grown to be the colossal "Baldwin Locomotive Works", constructed a miniature engine, with 2 tiny cars capable of holding 4 persons, and exhibited them on a track laid for the purpose in Peale's museum. The next year he received an order from the Germantown Railroad Company to construct a locomotive for their road. "He had no proper tools, no patterns, no models, but, confidently relying on his own genius and resolution, he went to work, and in six months had it finished and placed on the road. Oddly enough, the ingenious brain which was capable of planning a locomotive, failed to supply any expedient for preventing the slipping of the wheels on wet rails, so on rainy days the locomotive was left in its stable, and horse-power was used to drag the train."

Experiments were made for propelling trains of cars by means of sails worked by the wind, and various other methods; for twenty years the Portage road over the Alleghanies moved its cars by the use of wire ropes attached to stationary engines. The first stone of the Baltimore and Ohio railroad was laid on the 4th of July, 1828, but locomotives did not run regularly over it until after 1831. In the construction of this road—

Every mode hitherto suggested by science or experience was tested, the granite sill and iron rail, the wood and iron on stone blocks supported by broken stone, the same supported by longitudinal ground-sills in place of broken stone, the log-rail formed of trunks of trees worked to a surface on one side to receive the iron, and supported by wooden sleepers, and the wrought-iron rails of the English mode, had all been laid down, and, as early as 1832, formed different portions of the road. The first portion completed was operated by horse-power. Finally locomotives were adopted.

In 1834 the Columbia line, combined of canal and railroad, was opened from Philadelphia to Pittsburgh, the whole making an aggregate length of nearly 400 miles. It was at first constructed to be worked by horse-power, but, about 1836, locomotives were taken into use to the exclusion of horses. In 1847 a charter was granted to the Pennsylvania railroad, which has since become one of the great agencies of progress to the city and state. The decade comprised between the years 1834 and 1844 was marked by a series of riots and outrages which were in extraordinary contrast with the peaceful spirit usually prevalent in Philadelphia. In August, 1834, a collision occurred between the blacks and the whites of the city. Colored people were assaulted and mobbed, their houses plundered, and a meeting-house belonging to them near the Wharton market was torn down. Later in the same year a serious riot of a political character took place near the Moyamensing hall in Chestnut street, and a block of houses was burned. In July, 1835, further attacks were made on black people and their dwellings. In 1838 this

hostility against negroes took the form of violence against those who urged the abolition of slavery. In May of that year Pennsylvania hall, a large building for public meetings, was hired by the abolitionists; it was attacked by a mob, fired, and totally destroyed. Two years later riots broke out in Kensington on the proposal to extend the track of the Philadelphia and Trenton railroad along Front street; the rails were torn up and more buildings were burned. In 1844 occurred the most terrible riots that the city has ever known. Their cause was a dispute between what was known as the "Native American party" and the Irish Catholics. A meeting of the former, held on May 6, at the corner of Master and Second streets, was attacked and dispersed. The persons who composed it retired to a market-house near by, where they were again attacked, fire-arms being used. This led to reprisals which endangered the safety of every Roman Catholic and every Roman Catholic church in the city. The churches of Saint Michael and Saint Augustine, with their priest-houses and seminaries, were burned, as well as many private dwellings, and a large number of persons were killed on both sides. Troops were called out to protect the city, and remained on guard for several days. In July further disturbances occurred, and they were again ordered out. The Catholic church of Saint Philip de Neri, in Southwark, was attacked, but, being protected by a body of citizens, little harm was done to it. In clearing the streets some difficulties occurred between the troops and the people; a soldier was wounded by a brick, and the captain in command ordered his company to fire. Several were killed, others wounded; an intense excitement set in, the troops were attacked with musketry and cannon, and defended themselves with artillery. For twenty-four hours the battle continued, and lives were lost on either side. This was the most formidable riot ever known in Philadelphia, and the last of importance. Since then the peace of the city, with unimportant exceptions, has been unbroken.

The divided authority caused by the subdivision of the city into many districts, all practically independent of each other, was a serious obstacle to the peaceful administration of the laws.

A street became a barrier which an officer of the law could not pass, and rogues and rioters, by fleeing from one square to another, were free from molestation. The evils of this system led at last to the consolidation into one municipality and under one charter of the entire county of Philadelphia in 1854. By this act it became the largest city in territorial area in America, and second only to London in Europe.

The purchase of ground for the Fairmount water-works, in 1812, has already been mentioned. After the failure of the Bank of the United States, Lemon hill, which was included among its assets, was purchased by the city in order to secure the purity of the water, which might have been impaired had the river-bank above Fairmount been built upon. This purchase was made in 1844, and eleven years later Lemon hill was formally opened as a public park. In 1856, Ledgeley, a considerable estate north of Lemon hill, was added to the park; in 1866 the Landsdowne property on the west side of the Schuylkill; later the land along the Wissahickon; and in 1867, by the gift of Jesse George and his sister, the eminence since known as George's hill. The whole forms one of the largest parks in the world, equaled in extent only by Epping and Windsor forests in England and the Prater in Vienna, and exceeded by none in beauty of situation and natural advantages. It contains 2,740 acres, and affords a drive of 13 miles in length along the beautifully wooded banks of the Schuylkill and Wissahickon and their tributary streams.

At Rambo's rock, on the east bank of the Schuylkill below Gray's ferry, stands the quaint building known as the court-house or castle of "the Fishery Company of the State in Schuylkill". This association, originally formed for hunting and fishing, dates back to 1732, when it occupied a house on the western bank upon the estate of William Warner, who received from the company in quittance of annual rent three fresh fish, the first caught in the spring. Much humorous ceremony attended the meetings of this society, whose membership has included most prominent Philadelphians of the Revolutionary times and since. In 1789 General Washington and a party of friends were entertained at the "castle". In 1824 the club gave a reception to Lafayette on his second visit to this country. Two years previously, the erection of the Fairmount dam rendering it necessary to change their location, the materials of which the old castle was built were carried across the river and re-erected at the present site of Rambo's rock. The building includes a dining-room large enough to accommodate 80 persons, and a large kitchen, where the members of the club personally prepare the occult viands for which their reunions are famous.

On the east bank of the Schuylkill farther north, and opposite Fairmount park, lies a group of cemeteries of which Laurel Hill is the nucleus. The original purchase for this cemetery was in 1836, and the first interment took place in October of that year. It comprises but 25 acres, but is skillfully laid out and planted to make the most of its very picturesque position. West Laurel Hill cemetery, a mile distant, and much larger in extent, is growing into rivalry with its celebrated neighbor.

In 1829 was completed the great Eastern penitentiary on Fairmount avenue, the corner-stone of which had been laid in 1823. This prison was originally intended for the system of solitary confinement known as the Pennsylvania plan, by which each prisoner was to be secluded in a cell by himself and kept from all knowledge of the outside world. It was argued that the association of criminals within the walls of a prison was productive of much evil, and almost inevitably demoralized the young offenders not hardened in crime. In practice the theory of solitary confinement proved a failure. Insanity resulted in numerous cases, and a gradual relaxation of the rules took place. The system is still called "solitary", but the prisoners are necessarily associated to some degree in the various handicrafts they are taught, and in some cases there are two occupants to a cell. They are also allowed to write and receive letters under the inspection of the officers, a library of 6,000 volumes is open to their use, and newspapers are distributed among them.

The breaking out of the civil war in 1861 aroused a deep and active spirit of loyal sacrifice in Philadelphia. It was followed within a year by the formation of the Union League, an organization for the promotion and strengthening of patriotic feeling, and the establishment of a center "where true men might breathe without having their atmosphere contaminated by treason". Beginning with this modest intention, the work of the league soon took a wider direction. Its example was followed all over the land; a host of leagues were formed in Pennsylvania and other states, until there was scarcely a hamlet in the North which did not contain a similar institution. Three regiments were organized and equipped in Philadelphia by the parent society in 1862. A board of publication was established for the printing of patriotic documents, which were distributed gratuitously through the country. Committees for obtaining employment for disabled soldiers and seamen and for recruiting colored troops were formed, and a "soldiers' claim and pension agency" was organized, all of which did valuable work.

The fourth annual report of the Union League states that down to December, 1866, "18,064,870 pages of sound union doctrine" had been published and distributed by the society, which at that time numbered over 2,000 members, including most of the influential men in Philadelphia.

In 1862 the great "Cooper-shop volunteer refreshment saloon", for the feeding of United States troops passing through the city, was inaugurated. Beginning with a few kind-hearted women and the supply of a single regiment, it developed into a thoroughly organized system, managed exclusively by volunteer aids, by which, in the course of the war, 600,000 soldiers were fed, nearly 2,000 cared for in a hospital managed by volunteer nurses, and several thousand others relieved by dispensary treatment. This magnificent contribution to the comfort and effectiveness of the national forces was supported entirely by funds raised by private individuals, with no assistance whatsoever from the government, and by the unremitting labor of unpaid assistants, not a few of whom laid down their lives as a willing offering to the work.

At the close of the war the Cooper-shop volunteer refreshment saloon and hospital was merged in the "Soldiers' Home of the City of Philadelphia", an incorporated institution still in active operation.

In June, 1864, a magnificent fair was held in Philadelphia to raise funds for the sanitary commission. By the consent of the authorities, Logan square was temporarily inclosed by a huge building of glass and iron, in whose aisles grew large shade-trees, unimpaired by their brief detention from the outer air. The fair lasted three weeks, and its result was \$1,000,000 to augment the treasury of the commission.

Notwithstanding the heavy drains made by the war in the loss of volunteer soldiers from the ranks of her citizens, the population of Philadelphia was increased during the decade between 1860 and 1870 by nearly 150,000. Since the close of the war her growth has been still more rapid, and not in numbers only, but in the provision of comfort made for them. Philadelphia leads all other American cities in the accommodation provided for the poor man, and has thus earned the honorable title of "The City of Homes". The number of dwelling-houses, as computed by the Census of 1870, was 112,366, which is an average of one house to each 6 persons. Nowhere else is there such a number of small commodious homes, each with its bath-room and water-supply, put within the reach of the working-classes. Among more luxurious dwellings a gradual change has been at work during the past few years. The red-brick houses, with marble trimmings and white-painted shutters, which for many years were so universal as to seem like the Philadelphia uniform, are gradually giving place to a more ornate architecture, carried out in a great variety of beautiful stones and marbles, of which the quarries of the state afford an abundant supply.

The closing hours of the national century were celebrated by a grand civic pageant in which thousands of people took part. The grave of Franklin was decorated with flowers and flags by members of the insurance patrol, among the decorations being a kite formed of flowers. As midnight neared, a vast crowd assembled in the neighborhood of Independence square, and when the clock struck the twelve clanging notes which marked the ending of the first 100 years of American liberty, an unexpected excitement of emotion took possession of the bystanders. Hardy men were not ashamed of the sudden dew which clouded their eyes, and voices trembled as they tried to utter a blessing or a good augury for the land, and for the new period into which it had entered.

## PHILADELPHIA IN 1880.

### LOCATION.

Philadelphia is situated on a tract of land embraced between the Delaware and Schuylkill rivers, which, lying to the east and west of the city, and gradually nearing each other, unite to form its southern boundary. In the original plan this tract comprised about 1,200 acres, but the enormous additions made during the present century have increased this area to 82,700 acres, so that the city now covers a territory amounting to 129 square miles, an extent not exceeded by any American or European capital save the city of London. The latitude of Philadelphia is 39° 57' north, 75° 9' west from Greenwich. It is 136 miles northeast from Washington, and about 100 miles from the Atlantic ocean, following the bay and river. The site of the city is a nearly level plain, varying from 2 to 46 feet above tide-water, but in the suburbs to the west of the Schuylkill the land rises in places to an elevation of

from 112 to 120 feet. The total length of the city is 23 miles, with an average width of  $5\frac{1}{2}$  miles between the rivers. Having thus a large river to east and west, and fanned by strong currents of air, the situation of Philadelphia in point of healthfulness is most advantageous. The city is entitled to send 5 representatives to the national Congress, and 8 senators and 28 representatives to the state legislature.

#### WATER COMMUNICATIONS.

Philadelphia may be ranked among the Atlantic ports. The width and depth of the Delaware river enables steam-vessels of the largest size to come up to her wharves, where there is an extraordinary depth of water, being 57 feet at low water at the pier-heads for more than half a mile, and not less than 25 feet for 3 miles of the river frontage. The only obstacle to navigation is a bar in the river below the city, and on this there is 19 feet at low and 25 feet at high water. The strong current setting on the western shore at both flood and ebb tide prevents encroachments on the harbor by deposit. The rise of tide is but 6 feet, and floods and overflows are unknown.

#### WHARVES.

The wharves of the port of Philadelphia lie along the west shore of the Delaware river for miles. Conspicuous among them are those of the Clyde Steamship Company, the Red Star line, the American Steamship line, the Philadelphia and Southern Mail Steamship Company, and the great ship-building yard of the Philadelphia and Reading Coal and Iron Company, which has a launching-dock 400 feet long and 250 feet wide, with shipways which allow of the building of 4 vessels at a time, and an immense dry-dock which will lift a steamship of the largest size. At Girard's Point, near the junction of the Schuylkill with the Delaware, are the docks and warehouses of the International Steam Navigation Company, and their enormous grain-elevator, 100 feet wide, 200 feet long, and 124 feet high to the peaks of the roof. This stands in the middle of a wharf 500 feet long by 250 feet wide, with a dock of the same dimensions on either side. The total capacity of this elevator is 800,000 bushels, and by its facilities 6 vessels may be loaded at the same time.

#### CLIMATE AND HEALTH.

The salubrity of Philadelphia is exceptional, the mortality being 1 to every 1,000 persons less than that of London, 2 to every 1,000 persons less than that of Paris, and 7 to every 1,000 persons less than that of New York. This is due in part to the unbounded supply of fresh water and its universal use for cleansing and bathing purposes, but also in a great measure to its natural advantages of situation and the sweep of fresh air across the city from river to river. The foundation of the city is mainly a dry, well-drained gravel, making good sewerage an easy matter. The range of temperature throughout the year is very considerable, including all degrees from below zero to 100°, but the extremes of heat and cold are of short duration, and the average of the year is moderate, escaping the worst evils of the southern and northern climates between which the city may be said to lie. During the past 122 years the highest recorded summer temperature was 101°, the mean annual temperature being about 52°.

#### RAILROAD COMMUNICATIONS.

In 1880 Philadelphia had the following railroad communications:

The Pennsylvania railroad, to which the city owes much of its progress in recent years. The total number of miles operated and controlled by this railroad is estimated at over 2,000. Its rolling-stock comprises 1,000 locomotives, half as many first-class passenger cars, and over 25,000 freight cars. The total assets of the company have been placed as high as \$180,000,000. Its principal passenger depot is on Market street, and its chief freight depots are on the block of ground bounded by Market, Filbert, Fifteenth, and Sixteenth streets, and at Delaware avenue and Dock street, extending to the water.

The Philadelphia and Reading railroad, whose offices are on Fourth street.

The Philadelphia, Wilmington, and Baltimore railroad, whose depot is on Broad street and Washington avenue.

The North Pennsylvania railroad.

The Camden and Atlantic railroad.

The West Jersey railroad.

The West Chester and Philadelphia railroad.

The Lehigh Valley railroad.

#### STREETS.

Penn's original arrangement of the streets has been adhered to. Those streets running from river to river are crossed at right angles by those running north and south, the latter being designated numerically from the Delaware, as First, Second, Third, and so on, and the intersecting streets from east to west bearing, as a general thing, the names of trees or of persons. The city is divided at Market street into North and South, all streets above Market street being known as North Third, etc., and those below as South Third, etc. The houses are numbered by blocks, small intermediate streets being included in the blocks. Each block is calculated as containing precisely 100 houses.

There are 2,000 miles of streets, of which 900 miles are paved and 1,102 miles are either unpaved or laid with gravel. The extent of the paved streets and the cost per square yard of each, as nearly as may be estimated, is as follows:

Materials.	Miles.	Cost per square yard.
Cobble-stones .....	500	\$1 25
Stone blocks .....	47	3 00
Asphalt .....	2	1 60
Broken stone .....	100	1 50
Wood .....	1	-----
Rubble-stone .....	250	1 50

The gravel roads cost 19 cents per square yard. The chief commissioner of highways says:

Cobble-stones, when properly laid, make a durable and cheap pavement. Rubble-stone is used in districts where the long haul of cobble-stones would render the cost too high, and, while such a pavement, laid with care, is durable, it does not give general satisfaction, from its rough and irregular surface. Broken stone is used in the semi-rural sections, and is the old macadamized road, the merits of which are, of course, thoroughly understood. Asphalt in various forms and combinations has qualities which render it desirable for some purposes, but it has not yet proved itself the most desirable under all circumstances, which general quality is found more completely in the stone block or Belgian pavement, and to which we would unhesitatingly give the preference. Wood we ignore, experience having shown that its rapid and constant decay renders it unfit for use.

The pavements of those streets in which car-tracks are laid are maintained in repair between the curbs by the horse-railroad companies, while the others are attended to by the highway department, the work being done under contract. When the cobble stone pavement settles out of shape, or gets in holes or ruts, the stones are taken up, the ground is loosened with picks and smoothed with shovels, a little sand is scattered over it, and the cobble-stones are returned to their places, rammed, and covered with earth. This treatment is effective for a longer or shorter time, according to the amount of traffic on the street. The extent of streets paved with cobble-stones is so great that any attempt to replace the whole of it with Belgian blocks would involve an enormous expenditure of money. The great length of paved streets to be kept in repair may account, in part, for the very indifferent condition in which some of them are. No cobble pavement, however well laid, can be kept properly cleaned by the means usually applied in cities, the hollows, ridges, and ruts preventing the brooms, sweeping-machines, etc., from reaching the accumulation of dirt and filth, this dirt being brought to the surface by rains, or when the streets are sprinkled, only to be carried, when dry, all over the city in the shape of dust. However, the cobble-stone pavement has been an imperfect element in the development of the city, as its use has rendered possible the improvement and occupation of many miles of streets which would probably have remained undeveloped if expensive pavements and the consequent high assessments on abutting property had been laid. The macadamized roads and streets consist of quarried stones placed on edge, forming a rough bottom 8 to 10 inches deep, and covered first with coarse broken gneiss or other hard rock then with finer stone of the same character, and over all the fine dust from the screenings of the broken stone. Very little limestone is used, but in its place a large quantity of slag from the iron furnaces, which is very hard and contains a large proportion of lime, is laid. In addition to the pavements enumerated above, many of the abutting property-owners have laid composition blocks in front of their respective residences.

#### STREET RAILROADS.

There are 285 miles of car-tracks laid in the city, having a broad rail nearly on a level with the pavement, for the more convenient use of carriages. There are 1,197 cars, with 6,946 horses in use, and employment is given to 3,672 men. During the year 1879 the total number of passengers carried was 88,360,982. There are no regular omnibus lines in the city, but there are 25 single omnibuses and 68 hacks regularly licensed by the highway department. This, however, gives no adequate idea of the actual number of these vehicles in the city, as a recent law permits the owners of livery stables to run hackney coaches, upon the payment of a state tax, without requiring a special license from the city.

#### WATER-WORKS.

Philadelphians are noted for their free use of water, of which the city has an abundant supply, conducted over the city by over 730 miles of pipe. The smallest and cheapest house has its bath-room, and the incessant washing of sidewalks and door-steps is a grievance complained of by strangers who are trying to see the city on foot. The water department, which is under the control of the city, consists of the following officers: a chief engineer, a register, and a chief clerk, besides a large force of draughtsmen, clerks, engineers, and laborers.

The water-works are divided into the following sections: The Fairmount, Schuylkill, Delaware, Belmont, Roxborough, and Chestnut Hill.

The Fairmount reservoir is divided into 4 basins, having a capacity of 26,896,636 gallons. The works are run with 7 turbine wheels and 1 breast-wheel, with a Worthington steam-pump for use when the water-wheels can not be run on account of low water in the Schuylkill. The Fairmount supply began with a pumping-engine at Chestnut

street, Schuylkill, and a distributing reservoir at Center square, which were begun in May, 1799, and brought into use the 1st of January, 1801. In April, 1819, a dam across the Schuylkill at Fairmount was begun. The first water passed out from the new reservoir on July 1, 1823. Subsequently the city purchased the Lemon Hill and other properties to secure the river from defilement, and formed what is now known as Fairmount park.

The Schuylkill water-works, at the foot of Thompson street, supply the 11th, 12th, 13th, 14th, and 15th wards of the city. Their daily average is 5,226,008 gallons. They were erected in 1844 as independent water-works by the commissioners of Spring Gardens and the Northern Liberties, after an ineffectual protest at the high rates charged to the inhabitants of the district as compared with those of the city proper. They are run by steam-power, with Cornish side-lever and compound engines.

The Delaware water-works are situated on the Delaware river at the foot of Wood street. These works went into operation in 1850. They supply the 17th, 18th, 19th, and 20th wards, their daily average capacity being 4,960,709 gallons. They are run by steam, a Worthington beam and horizontal engine.

The Belmont water-works have their reservoir at George's hill, Fairmount park. They were built to replace the West Philadelphia water-works, which went out of use in 1870. They are run by 3 Worthington steam pumping engines, and furnish a daily average of 5,226,008 gallons.

The Roxborough water-works are on the east bank of the Schuylkill, above Manayunk, on the line of the Philadelphia and Norristown railroad. They were finished in 1870, are run by steam-power, and furnish a daily supply of 2,281,287 gallons. On the completion of these works the Germantown and Chestnut Hill works were abandoned as pumping-stations, and receive their water from the Roxborough reservoir through 2 large mains which cross the Wissahickon in Fairmount park.

The total amount of water pumped in the various works in 1879 was 19,894,101,515 gallons, or an average of 54,504,387 gallons per day. The average cost of raising 1,000,000 gallons 1 foot high is 5.07 cents. The total receipts of the department during 1879 were \$1,419,179 07, and the total expenditures \$443,693 68.

#### DRINKING-FOUNTAINS.

Through the agency of the Philadelphia Fountain society 61 public drinking-fountains have been established within the limits of the city. Seven additional fountains have been added by the Society for the Prevention of Cruelty to Animals. They are kept in order by a fund appropriated for the purpose.

#### GAS.

The works for the manufacture of gas are the City, Point Breeze, Spring Garden, and Frankford works, owned by the city, and the Northern Liberties gas-works, which are the property of a private corporation.

The City gas-works were authorized by an ordinance of the council in 1835. This company has a capital stock of \$125,000, but the city reserved the right to purchase the works from the shareholders at any time, which right it claimed in 1841, when it bought out the stockholders for \$173,000, and took possession of the works through the agency of a board of trustees. In 1859 the remaining independent companies were bought out, and the whole service, with the exception of the gas-works of the Northern Liberties, was brought under the control of the city. Great care was taken in the outset to secure the best improvements then effected in the manufacture of coal-gas in Europe, and the Philadelphia works have always furnished gas cheaper than is usual in other American cities. The total amount of gas made during the year 1879 by the combined works was 2,180,625,000 cubic feet.

#### PUBLIC BUILDINGS.

The buildings owned or occupied by the city for municipal purposes are: The state-house or Independence hall; the city hall; the county court-house building; the quarter-sessions building; and the hall of the American Philosophical Society, in Independence square; the new city hall, in Penn square; the house of refuge, in Poplar street; the house of correction, on the south bank of Pennypack creek at its junction with the Delaware; the morgue, on Noble street, between Front street and Delaware avenue; the Philadelphia almshouse, with which is connected the Philadelphia hospital, on the west side of the Schuylkill, south of the Darby road; and the lazaretto or quarantine station, on Tinicum island. The west room on the first floor of the state-house, in which the sittings of the second Continental Congress were held, was formally withdrawn from public use about 1830 and held as a national museum, to be devoted to "dignified purposes only". It now holds a valuable collection of relics, including the original charter of the city of Philadelphia, with Penn's signature and the great seal of the state, and the liberty bell, now cracked and soundless, which rang forth the declaration of American independence. The old Congress hall was begun in 1790 and finished in 1791. The hall of the American Philosophical Society was erected in 1789. The society took its origin from Franklin's famous club, "The Junto," established in 1743. The new city hall, in Penn square, was begun in August, 1871, and it is expected will be open for use a few months from this date (1880). The dimensions of this magnificent building are 470 feet from east to west by 486½ feet from north to south, and the area covered by it is equal to about 4½ acres. The building contains 520 rooms and is supposed to be absolutely fire-proof.

The Philadelphia almshouse consists of 5 main buildings, each 3 stories in height and 500 feet long, and extending from a central building. The grounds comprise 130 acres. The buildings, which are managed by a board of guardians elected by the councils, are devoted to the poor and sick, to the insane, and to friendless children. The guardians also grant out-door relief in the various wards. The average daily population of the almshouse is over 4,000, and out-door relief is afforded to nearly 80,000 annually.

To this list of buildings for municipal purposes should be added nearly or quite 200 public-school buildings, the total real-estate value of which is, including their furniture, nearly \$6,000,000.

The buildings owned or occupied by the United States government in the city of Philadelphia are the United States custom-house and sub-treasury, on Chestnut street, between Fourth and Fifth, built in 1824; the United States appraiser's building, on Second street; the post-office, on the south side of Chestnut street, between Fourth and Fifth; the United States courts, on Library street; the new post-office, on the corner of Ninth and Chestnut; the United States naval hospital; the United States naval asylum; the United States navy yard, on League island, in the Delaware; the Schuylkill arsenal, on the Gray's Ferry road; and the Frankford or Bridesburg arsenal, on Tacony road and Bridge street; and the United States mint, on Chestnut street, corner of Juniper. The mint was established by act of Congress on the 2d of April, 1792. The corner-stone of the present building was laid in 1829. It was made fire-proof in 1854, and the interior has been frequently altered. It is a marble building with a Grecian portico, and contains on the main floor, first, the deposit-room, where gold and silver bullion is received and weighed; second, the copper-melting room, where ingots are cast for the minor coinage; third, the gold- and silver-melting room; fourth, the rolling and cutting room; fifth, the coining-room. The building contains 12 strong vaults, securely guarded, and a cabinet containing the largest and most valuable collection of coins in the United States.

The deposits of gold of domestic production made at the United States mint from its earliest period to the close of 1880 amount to \$873,097,015 62. The deposits of native silver during the same time are \$121,924,919 14.

#### HOSPITALS.

There are 23 hospitals within the limits of Philadelphia, and 13 dispensaries at which gratuitous medical and surgical treatment are given to the poor. The list of these is as follows:

*The Pennsylvania Hospital*, founded in the year 1752 by the exertions of Benjamin Franklin and his friends. The western wing was not built until after the Revolution, and the central building was finished about 1805. This hospital occupies the square bounded by Eighth, Ninth, Spruce, and Pine streets, the entrance being on Eighth street. The entire frontage is 278 feet in width. Over 100,000 patients have been admitted to this hospital since its establishment, of whom more than one-half have been poor patients supported by the institution.

*The Pennsylvania Hospital for the Insane* (male department), between the West Chester and Haverford roads, west of Forty-third street, opened for the reception of patients in 1841. The principal building and wings have a front of 436 feet, 3 stories in height, and the institution accommodates 250 patients.

*The Pennsylvania Hospital for the Insane* (female department), on Forty-ninth street, opened for use in 1859. It has an equal capacity.

*Philadelphia Hospital*, conducted as a branch of the Blockley almshouse. The insane department of this hospital contains on an average over 1,000 patients.

*Wills Hospital for Diseases of the Eye*, on Race street, between Eighteenth and Nineteenth, opened March 3, 1834. This institution furnishes clinical assistance gratuitous to all who desire it.

*Friends' Asylum for the Insane*, Adams street, founded in 1811 by members of the society of Friends, has accommodations for about 75 patients. This institution was one of the first for the accommodation of the insane in the United States.

*Preston Retreat*, Hamilton street, opened in 1866. This is a lying-in hospital for the use of "indigent married women of good character, residents in the city and county of Philadelphia and the county of Delaware".

*Municipal Hospital*, Hart lane, near Twenty-first street, for the treatment of persons laboring under infectious diseases.

*Saint Joseph's Hospital*, south side of Girard avenue, from Sixteenth to Seventeenth street, under the care of Roman Catholic Sisters of Charity, but non-sectarian in its management. Capacity, 250 beds.

*Charity Hospital*, 1832 Hamilton street, chartered in 1858, and supported by private subscription. Daily clinics given, with advice and medicines to the respectable poor.

*Hospital of the Protestant Episcopal Church*, southeast corner of Lehigh avenue and Front street, occupying a square of ground. This fine building, whose doors are open to patients of all creeds and nationalities, has a capacity of 300 beds.

*German Hospital*, southwest corner of Girard and Corinthian avenues, founded by the efforts of citizens of German descent in 1860. Both the German and English languages are spoken in the institution, which is open to the sick and injured of all nationalities.

*Saint Mary's Hospital*, corner of Frankford road and Palmer street, under the care of the Franciscan Sisters of the Roman Catholic church, and entirely supported by voluntary contributions.

*Jewish Hospital*, Olney road, near the York pike, founded in 1866. It admits all sufferers without regard to religious belief, but with special arrangements for Jewish patients so far as regards the peculiar observance of their religion.

*Orthopedic Hospital and Infirmary for Nervous Diseases*, northeast corner of Seventeenth and Summer streets. The cases annually treated number 600.

*Presbyterian Hospital*, corner of Thirty-ninth and Filbert streets. Accommodation for 100 patients.

*Germantown Hospital*, Shoemaker lane, near Chew street.

*Children's Hospital*, Twenty-second street, below Walnut. Children under the age of twelve received. Accommodations for about 50 patients. The Children's Sea-shore hospital, at Atlantic City, may be considered a branch of this institution.

*Homeopathic Hospital*, Cuthbert street, west of Eleventh; under the control of the Hahnemann Medical college.

*Hospital of the University of Pennsylvania*, south side of Spruce street, between Thirty-fourth and Thirty-fifth; founded in 1871; opened in part for use in 1874. This splendid hospital is entirely free to all residents of Pennsylvania who may need its services. Its endowment amounts to nearly or quite \$1,000,000.

*Woman's Hospital*, corner of North College avenue and Twenty-second street; under the care of women, and for the reception of women and children only. It was established in 1861 in connection with the Woman's Medical College.

*Lying-in Department of the Northern Dispensary*, 608 Fairmount avenue,

*State Hospital for Women and Infants*, 1718 Filbert street.

*Mission Hospital for Women and Children*, corner of Eighth and Mary streets.

## DISPENSARIES.

*Philadelphia Dispensary*, erected in 1801, on Fifth street, between Library and Walnut.

*Eye and Ear Institute of the Philadelphia Dispensary*, southeast corner of Thirteenth and Chestnut streets.

*Northern Dispensary*, 608 Fairmount avenue.

*Northeastern Dispensary*, corner of Tulip and Fox streets.

*Northeastern Dispensary* (homeopathic), 1520 North Fourth street.

*Southern Dispensary*, 318 Bainbridge street.

*Howard Hospital*, 518 Lombard street.

*Germantown Dispensary*, connected with Germantown hospital.

*Infirmary for Eye and Ear*, 419 Wetherill street.

*Moyamensing Dispensary*, at House of Industry, Catherine street, below Seventh.

*Dispensary for Skin Diseases*, Eleventh street, above Locust.

*Church Dispensary of Southwark*, 1017 Morris street.

*Philadelphia Lying-in and Nurse Charity*, 126 North Eleventh street.

## ASYLUMS AND HOMES.

The number of these charitable institutions in Philadelphia is very large. A partial list only can be given:

*Asylum for Children* (Philadelphia almshouse), corner of Thirty-fourth and South streets.

*Asylum of Philadelphia Orphan Society*, Haddington, West Philadelphia; instituted in 1814.

*Saint Joseph's Female Orphan Asylum* (Roman Catholic), southwest corner of Seventh and Spruce streets.

*Saint John's Orphan Asylum* (Roman Catholic), Westminster avenue, near Forty-ninth street.

*Colored Orphans' Shelter*, under charge of the society of Friends, corner of Haverford and Forty-fourth streets.

*Catholic Home for Destitute Orphan Girls*, 1720 Race street.

*Church Home for Children*, Angora station, on West Chester railroad.

*Lincoln Institute for Boys*, 308 South Eleventh street.

*Educational Home for Boys*, Greenway avenue, near Forty-ninth street, West Philadelphia.

*Industrial Home for Girls*, Twelfth street, below Spruce.

*Northern Home for Friendless Children*, occupying a square of ground between Twenty-second, Twenty-third, Brown, and Parrish streets. Chartered by act of assembly, 1854.

*Burd Orphan Asylum*, of Saint Stephen's Church, on Market street, at Delaware county line, for the support of white female orphans not less than 4 or more than 8 years of age, who have been baptized in the Protestant Episcopal Church of Pennsylvania.

*Day Nursery for Children*, 410 Blight street.

*Home for Destitute Colored Children*, Marylandville, Darby road, near Forty-sixth street.

*Foster Home Association*, Poplar street, near Twenty-fourth.

*Saint Vincent's Home* (Roman Catholic), northwest corner of Wood and Eighteenth streets.

*Saint Vincent's Orphan Asylum* (Roman Catholic), at Tacony.

*Union School and Children's Home*, southeast corner of Twelfth and Fitzwater streets.

*Union Temporary Home for Children*, northwest corner of Sixteenth and Poplar streets.  
*Western Provident Society and Children's Home*, Forty-first and Venango streets.  
*Orphans' Home of Evangelical Lutheran Church and Asylum for Aged and Infirm*, 5582 Germantown avenue.  
*Jewish Foster Home*, 1431 North Fifteenth street.

## HOMES FOR THE AGED.

*Christ Church Hospital*, between York and Huntington, Forty-ninth and Fiftieth streets; founded in 1772. Accommodates 100 inmates. The present building was erected in 1857.

*Friends' Almshouse*, south side of Walnut, between Third and Fourth streets. The land for the erection of this building was given to the society of Friends in 1713 by John Martin, a poor man, on condition that they would build an almshouse on the premises and would take care of him for the remainder of his life. Only a few aged inmates occupy at present what is left of the old building, which is supposed to have been in the mind of Longfellow when he wrote his description of the spot where Evangeline meets her long-lost lover.

*Indigent Widows and Single Woman's Asylum*, Cherry street, near Eighteenth; opened about 1820.

*Saint Ann's Widows' Asylum*, Moyamensing avenue, below Christian street; under charge of the Sisters of Saint Joseph.

*Temporary Home Association*, 505 North Sixth street.

*Saint Luke's Church Home for Aged Women*, 1317 Pine street.

*Penn Widows' Asylum*, Wood and West streets, Kensington.

*Home for the Homeless*, 708 Lombard street.

*Presbyterian Home for Widows and Single Women*, Fifty-eighth street and Greenway avenue.

*Baptist Home for Women*, corner of Seventeenth and Morris streets.

*Home for the Aged and Infirm Members of the Methodist Episcopal Church*, Lehigh avenue, between Thirteenth and Broad streets.

*Asylum for the Aged and Infirm of the Evangelical Lutheran Church*, 5582 Germantown avenue.

*Asylum of Little Sisters of the Poor* (Roman Catholic), Eighteenth street, above Jefferson.

*Old Men's Home*, Thirty-ninth street and Powelton avenue.

*Mapother Home*, Harrowgate lane, west of Kensington avenue.

*Old Ladies' Home*, Charfield street and Frankford road.

*Home for Aged and Infirm Colored Men and Women*, Belmont and Girard avenues.

*Boarding-house for Young Women*, 1433 Lombard street, which provides a comfortable Christian home for members of the Protestant Episcopal church.

*Boarding-house of Women's Christian Association*, 1605 Filbert street.

*Bedford Street Mission*, 619 Alaska street; fire, lodgings, and baths for the poor.

*Boarding Home*, 915 Clinton street, for working girls.

## ASYLUMS FOR THE UNFORTUNATE.

*Pennsylvania Asylum for the Deaf and Dumb*, northwest corner of Broad and Pine streets; founded in 1820; finished and occupied in 1825.

*Pennsylvania Institute for the Blind*, northwest corner of Twentieth and Race streets; founded in 1833.

*Pennsylvania Working Home for Blind Men*, 3518 Lancaster avenue.

*Pennsylvania Industrial Home for Blind Women*, 2931 Locust street.

## REFORMATORY HOMES.

*Asylum of Magdalen Society*, for the reformation of fallen women, corner of Twenty-third and Race streets; founded in 1800.

*Home of the Good Shepherd*, for the reformation of unfortunate women without respect to creed, Twenty-second street, above Walnut, under charge of the Sisters of the Good Shepherd of the Roman Catholic Church.

*Asylum of the Rosine Association*, Germantown avenue, below Rising Sun lane.

*Howard Institution*, 1612 Poplar street.

*Midnight Mission*, 911 Locust street.

*Franklin Reformatory* (for inebriates), 913 Locust street.

*House of Industry*, Catherine street, above Seventh.

In addition should be enumerated 8 or 9 "relief societies" founded by different nationalities; "soup societies", for the supply of the poor with nutritious food during the winter months; and a number of fuel, industrial aid, assistance, and humane associations.

Mention must also be made of the Philadelphia Society for Organizing Charitable Relief and Repressing Mendicancy, established in 1878, which has done and is doing a valuable work.

## PUBLIC PARKS AND PLEASURE-GROUNDS.

Of these the largest and most important is *Fairmount Park*, situated on both banks of the river Schuylkill, and covering an extent of 2,740 acres. Next to Epping and Windsor Forests, in England, and to the Prater, at Vienna, it is the largest city park in the world. It is divided by common usage into Old Fairmount, Lemon hill, East park, West park, and Wissahickon park, contains a great variety of surface, and commands wide and beautiful views. The number of trees and shrubs is immense. It was calculated some years since that the park contained 34,000 trees each over 18 feet in circumference and 70,000 of lesser size.

*Hunting Park*, containing 45 acres, is situated at the intersection of Nicetown lane with the old York road. It was opened for public use in 1835, and is under the control of the commissioners of Fairmount park.

## PUBLIC SQUARES.

In founding the city William Penn set aside 5 squares as public parks or inclosures. They were known as Northeast square, Southeast square, Northwest square, Southwest square, and Center square. Their modern names are as follows: Southeast, now *Washington Square*, occupies the block of ground lying between Sixth, Washington, Walnut, and Locust streets. It contains a little more than 6 acres. It was used for many years as a burial-ground and potter's field, and hundreds of American soldiers were interred there during the Revolutionary war. This use ceased in 1795, and about 1820 it was reopened as a pleasure-ground to the public.

Northeast, now called *Franklin Square*, lies between Sixth, Franklin, Race, and Vine streets. It contains between 7 and 8 acres. A portion of this square also was for a long time appropriated for burial purposes by a German Reformed congregation, under a grant from one of the Penn proprietaries, but the grant was annulled by the city authorities about 1835, and the square restored to its original intention.

Northwest, now known as *Logan Square*, extends from Race to Vine streets, and from Eighteenth to Logan, and contains a little over 7 acres. It was formerly the place chosen for public executions. In 1864 the whole extent of the square was inclosed for the great fair of the United States Sanitary Commission before mentioned.

Southwest or *Rittenhouse Square* is comprised between Walnut, Locust, Eighteenth, and Rittenhouse streets, and contains  $6\frac{1}{2}$  acres.

*Centre Square* was finally given up for the occupation of municipal buildings.

*Independence Square* is the block of ground extending from the south side of Chestnut to the north side of Walnut street, between Fifth and Sixth, and contains a little more than 4 acres. The public buildings upon it have already been described.

*Jefferson Square*, between Washington, Federal, Third, and Fourth streets, contains  $2\frac{1}{2}$  acres.

*Passyunk Square* occupies part of the old parade-ground between Twelfth, Thirteenth, Wharton, and Reed streets.

*Norris Square*, 486 by 330 feet in extent, is situated between Diamond, Howard, and Hancock streets and Pennsylvania avenue.

*Fairhill Square*, on Lehigh avenue, is 500 feet by 210 in extent.

*Germantown Square*, one-half acre, is in front of the old Town hall of Germantown.

*Union Square* occupies a small triangle at the junction of Fifth and Buttonwood streets.

*Shackamaxon Square*, also triangular, is at the intersection of Maiden street with the Frankford road.

*Thouzon Square* is at the corner of Sixth street and the Germantown road.

## PLACES OF AMUSEMENT.

Philadelphia has 8 theaters, 5 halls, 1 zoölogical garden, and 1 museum, as follows:

American Academy of Music, Broad and Locust streets; seating capacity, 2,900; opened in 1857.

Walnut Street theater, Ninth and Walnut streets; seating capacity, 1,500; opened in 1829.

Arch Street theater, Arch street, west of Sixth; seating capacity, 1,500; opened in 1828.

Chestnut Street theater, Chestnut, between Twelfth and Thirteenth streets; seating capacity, 1,500; opened in 1863.

Amateurs' Drawing Room, Seventeenth street above Chestnut; seating capacity, 700; opened in 1865.

Concordia theater, 417 Callowhill street; opened in 1854; burnt in 1868 and afterward rebuilt.

Eleventh Street opera-house, Eleventh street and Marble alley; seating capacity, 1,100; opened in 1854; used for minstrel performances only.

Simmons and Slocum's opera-house, Arch street, between Tenth and Eleventh streets; seating capacity, 1,100; opened in 1870; burnt in 1872; rebuilt and reopened the same year.

Wood's Museum, corner of Ninth and Arch streets; besides a collection of curiosities and a menagerie, has a regular theatrical department where performances are given.

Concert hall, north side of Chestnut street, between Twelfth and Thirteenth streets; is a well-appointed concert room with a seating capacity of 1,200; opened in 1853.

The Assembly buildings, southwest corner of Tenth and Chestnut streets, used for concerts, exhibitions, and balls; built in 1839; burnt in 1851; rebuilt in 1852.

Männerchor hall, corner of Franklin street and Fairmount avenue; under the charge of the German Männerchor Society.

The Musical Fund Society hall, Locust street, above Eighth; has a concert-room 60 by 110 feet in size, which is held to be, acoustically considered, the most perfect music-hall in the United States. It was built in 1854, and for many years was the fashionable public room for balls and lectures as well as concerts.

Handel and Haydn hall, northeast corner of Eighth and Spring Garden streets; is a large building, 4 stories high, and devoted to the uses of the Handel and Haydn Musical Society and their concerts.

The Zoölogical Garden occupies a beautiful situation on the banks of the Schuylkill, within easy distance of the city, with which it is connected by two lines of street-railway and various lines of ferry-boats. The total amount of land occupied by this garden is 33 acres, which are tastefully laid out and shaded by fine forest trees. Within the inclosure are the following buildings: "Solitude", a mansion formerly occupied by John Penn, now used for a variety of purposes; the carnivora house, with out-door cages, a large substantial structure; the aviary; the monkey house; the eagle house; the elephant and rhinoceros house; the bear-pits; besides a large number of pens, cages, etc. The cost of the buildings was over \$150,000.

The Pennsylvania Academy of Fine Arts is a fine fire-proof building 260 feet in depth by 100 feet in width, on the corner of Broad and Cherry streets. It is in the Byzantine style of architecture, and is built of brick and stone. The institution was organized in 1805, and for many years occupied a building on Chestnut street above Tenth. The lower floor is devoted mainly to educational purposes, a directors' room, a lecture and life-class room, a studio for painting, drapery, and still-life, a modeling-room, a library and print room, and galleries of casts from the antique. On the second story are three ranges of galleries, divided by a fire transept 30 feet in width. The collection of paintings and marbles is large and valuable. The six galleries on the north contain each one important painting by an American artist, and are known as the Allston, the Benjamin West, the Leslie, the Stuart, the Sully, and the Neagle galleries.

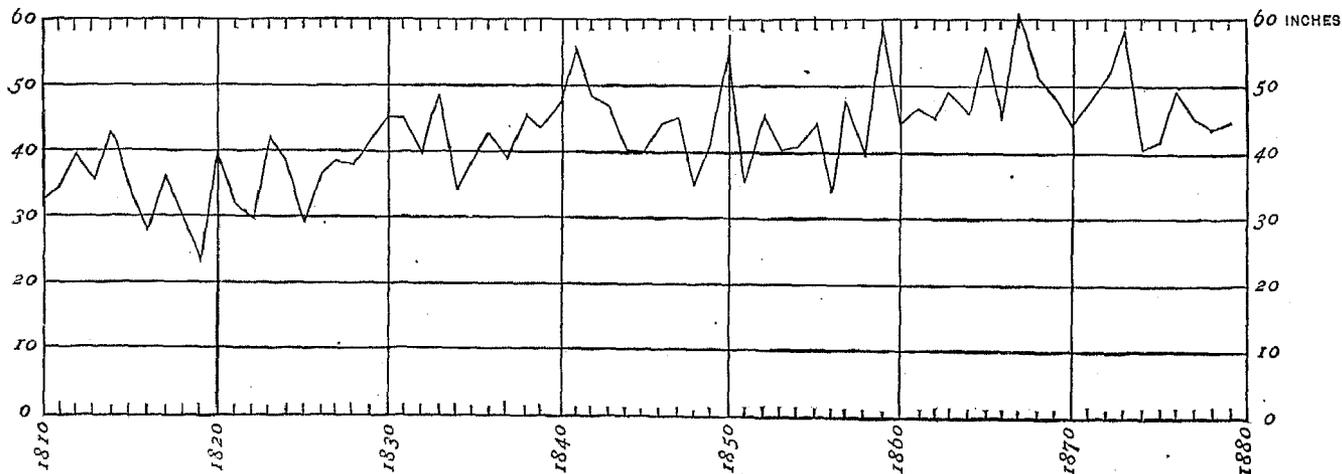
#### DRAINAGE.

Copious notes were taken for a very full and explicit account of the sewerage of Philadelphia, and many illustrations of special features were prepared by W. H. Baldwin, C. E. It was found necessary, however, greatly to modify the original plan, and the account given below is only an abstract of the notes.

Philadelphia is sewered on what is known as the "combined system", the same channel serving for the removal both of sewage and of storm-water. In all such systems the amount of rainfall is the factor controlling the capacity to be given to the sewers.

A tabulated statement of the rainfall from 1810 to 1879, taken at the Pennsylvania hospital, 50 feet above the level of the sea, shows that the least amount of rainfall recorded in any year was 23.35 inches (1819). The next smallest was 27.95 inches (1816). The greatest was 67.18 inches (1867). The next greatest was 58.28 inches (1873). Both of these instances of unusual precipitation were due to an extremely heavy rainfall in the month of August, that of 1867 being 15.81, and that of 1873 being 12.29 inches.

The following diagram, prepared from this table, shows that the average annual rainfall has gradually increased at the rate of about 1 inch in every three years—this without an apparent increase of the summer rainfall:



The underlying rock of the city is gneiss and an imperfect granite. In the central and lower portions the rock lies below the surface of the rivers. In the lower portion of the city, at the junction of the Delaware and Schuylkill rivers, the present surface of the ground is a low, flat alluvial deposit, but little above tide-level, drained chiefly by ditches or canals, and by the natural tidal stream known as Hallander's creek, discharging through tide-

*Phila. 2.*

<i>Atlantic Ocean</i>	<i>City Datum</i>	
+ 8.732	± 0.000	<i>Philadelphia City Datum 8.732 above mean surface Atlantic.</i>
+ 8.100	- 0.632	<i>Bench Mark U.S. Coast Survey at Gloucester.</i>
+ 6.913	- 1.819	<i>Datum Pennsylvania R. R. Surveys.</i>
+ 6.484	- 2.248	<i>High Tide in Delaware River.</i>
+ 3.349	- 5.383.	<i>Mean Tide in Delaware River.</i>
+ 0.214	- 8.518	<i>Low Tide in Delaware River.</i>
± 0.000	- 8.732	<i>Mean Surface Atlantic Ocean at Rariton Bay.</i>

gates at low stages of the rivers. This area embraces about 10 square miles, with a population of about 25,000. It is occupied largely by market-gardens and dairy-farms in a high state of cultivation, fertilized by manure brought from the city.

The surface-soil of other parts of the city, where undisturbed, is usually clay, thoroughly drained by underlying strata of gravel and sand, which separate it from the rock.

In the more elevated portions of the city the primitive rock crops out at the surface. Fairmount reservoir is built upon such a formation near the Schuylkill, which also affords a foundation for parts of the Fairmount dam.

The accompanying diagram shows the city datum and the United States Coast Survey's bench-mark at Gloucester, New Jersey; the datum of the Pennsylvania Railroad surveys; high, mean, and low tide in the Delaware river, and the mean surface of the Atlantic ocean at Raritan bay.

The rise and fall of the tide in the Delaware river at Philadelphia is over 6 feet.

The topography of Philadelphia may be generally indicated as follows: A contour line drawn at an elevation of 20 feet above extreme high water crosses Broad street at Reed street, thence runs very near to the Delaware river at South and Pine streets; after receding, to pass around the natural depression at the former water-course at Dock street, it again approaches the river, along the foot of Market, Vine, Fairmount, and Poplar streets. This portion of the bank was formerly a high gravelly bluff, and the river-streets embraced but little filled-in or made land. This bluff has been somewhat graded down to form the streets along the river, but the approaches to the wharves are in some places still inconveniently steep.

A contour drawn 40 feet above high tide extends from the East park, at Girard avenue, along the Reading railroad to the passenger station at Broad and Callowhill streets; thence in a continuous line, crossing Poplar street at Tenth street, Norris street at Fourth street, and York street at Second street; thence to the intersection of Lehigh and Kensington avenues, and thence along the general direction of Kensington avenue to Frankford.

From this it will be seen that a very large part of the business portion of the present city lies between the limits of 20 feet and 40 feet elevation, high enough to afford dry, healthful, and well-drained ground for business purposes.

Above the 40-foot contour the ground rises rapidly to an elevation of 100 feet at Girard college, Broad street, Lehigh avenue, and along the old Second Street turnpike, or Frankford lane.

Still farther to the north the surface rises in Germantown and Roxborough to 200 and 300 feet, and at Chestnut Hill even to 400 feet. The surface of water in the Roxborough reservoir, less than a mile from the Schuylkill river, is 365 feet above tide, while the Chestnut Hill tank is at an elevation of 431 feet.

The surface of these elevated regions is rolling, and the ground slopes toward the rivers on each side from a line following the general course of Germantown and Ridge avenues. The divide is much nearer to the Schuylkill than to the Delaware, and the natural drainage of almost the entire city is toward the latter river.

The natural drainage of Philadelphia is by numerous small streams, having their origin mainly within the city limits. Two streams of considerable size enter the city from Montgomery county, but as they lie beyond the built-up district, and discharge into the rivers without traversing the thickly settled wards, they need not now be considered. Of these two streams the Wissahickon passes through a corner of the city and discharges into the Schuylkill at Manayunk.

The more important streams are the Wingohockin, rising in Germantown; Gunner's run, or Hart's creek, which makes its appearance a little above the Tioga station of the Germantown railroad. This stream later assumes the name of the Aramingo canal, and discharges into the Delaware river near the Kensington water-works, after a course of about 6 miles. One of its branches, Huntingdon creek, drains an area of about 690 acres. The Cohocksink and its branches have been converted into the most extensive system of sewerage leading to one outlet in the city of Philadelphia. The district thereby drained is bounded substantially by the lines of Girard, Ridge, and Lehigh avenues, and by the districts belonging to the systems above described. It embraces all of the 17th ward, most of the 16th and 20th, and portions of the 19th, 28th, and 29th wards, with a combined population of about 135,000. Its area is about 2,800 acres. What is known as the Willow Street sewer system occupies the bed of an old stream called Peg's run, the course of much of which has been obliterated by grading.

That part of the city lying between Vine street and South street—"Old Philadelphia"—was probably sewered without reference to natural water-courses, and indeed the area, while sufficiently diversified to afford good falls for drainage, appears to have been an unbroken rolling plain.

In West Philadelphia, Mantua and Mill creeks, considerable streams, are being converted into continuous sewers of very large capacity.

There are in the suburbs, or in parts now being built up, drainage areas of much importance, the treatment of which constitutes one of the most important problems of the sewerage engineering of Philadelphia as thus far developed. What is known as the Hart's Creek sewer, at a point  $3\frac{1}{2}$  miles from Delaware river along its probable amended course, has an elevation of 53.7 feet above the city datum. This sewer is for a part of its course an open channel; between Seventh and Fifth streets it is a circular sewer 10 feet in diameter; at Somerset street and Kensington avenue it is increased to a diameter of 16.5 feet; in Somerset street east of Trenton avenue its flow is divided, and thus continues to the Aramingo canal, each of the twin sewers being 13 feet in diameter. The

discharging capacity of the 16.5-foot portion is 103,000,000 gallons per hour. The cost of about 1 mile of this sewer below Indiana avenue to 1876 was \$322,137 81, being at the rate of \$62 67 per foot. This is exclusive of expenses of litigation, land damages, interest, etc., which would increase the cost to about \$420,000.

The Huntingdon Street sewer, built by the corporations of Kensington and Richmond before their consolidation with the city, is at its outlet 10 feet in diameter. It discharges at about the level of mean low tide, 9.3 feet below city datum, so that its flow is obstructed during the greater part of the time. There are other important drainage areas which discharge into the Aramingo canal.

The Cohocksink system referred to above remained an open water-way as far as Thompson and Fifth streets until 1855. There were four principal systems draining into this water-way (the Cohocksink creek); these still remain as built in early times, delivering the storm-water of their districts almost at the city datum line, nearly a mile away from the outlet of the creek. This last mile is now occupied by sewers of great size and moderate fall, finally discharging at a depth of 11.16 feet below the city datum, or about 2 feet below low tide.

Before 1855, when the outlying districts were independent corporations, their sewerage works were carried out independently, and a consequent lack of uniformity is obvious in different parts of systems which are now combined, as in the present instance. One of the branch sewers of this system takes in a water-course originally a branch of the Cohocksink, one of the ramifications of which has become a sewer in Susquehanna avenue near Twenty-seventh street. This sewer and its branch, amounting in all to a length of 1 mile, carry the drainage of a considerable number of houses on the high ground near Ridge avenue. The main sewer terminates in a wooden box, once covered with earth. The wood-work has now fallen in pieces, and at points the earth has caved in (1880). The *débris* thus falling is covered with remnants of the offal of slaughtered animals in various stages of decay. After leaving the ruins of this temporary sewer, it takes in several smaller branches from other sources, and after a devious course through open fields enters a sewer connecting it with the Cohocksink main. Other branches penetrate districts which are now completely covered with houses.

The outlet of the Cohocksink drainage is into a slip surrounded by wharves, now used for landing lumber and building-material. The discharge is usually below the tide-level, and is consequently sluggish. The flow of the tide in the slip, obstructed by piers on each side, has usually but little current, so that the lighter parts of the sewage float, while the heavier matters are deposited, gradually filling the slip with organic and earthy sediment. The 39 miles of sewers of this system drain an equal length of paved streets; they also receive the gutter flow of a large additional length of lateral streets. Although in this district there are comparatively few water-closets or other plumbing connections, the discharge of liquid household wastes and much garbage follows the course of the gutters to the sewers, and a very large proportion of the filth of this population of 135,000 is brought to the outlet. The most notable sanitary feature of this system, so far as the interests of the whole city are concerned, lies in the fact that the filth thus discharged enters the Delaware only about 4,000 feet from the intake of the Kensington water-works, the foul current flowing back and forth at every change of the tide.

The main outlet of the Cohocksink sewer is 18.5 feet wide and 12.66 feet high. Its sectional area is 188 square feet, and its fall in a distance of 1,500 feet is 3 feet.

The Mill Creek sewer of West Philadelphia, being of modern construction, is of much better character than the average of Philadelphia sewers. The total length of the sewer and its branch is about 12½ miles, the main being a tunnel of a width and height of 20 feet. It drains an area of 4,600 acres, and has a discharging capacity of 136,000,000 gallons per hour; 2,651 feet of its length (Mill creek proper) cost \$278,360 44, being about \$105 per foot. The cost of the whole Mill Creek system (1880) has somewhat exceeded \$500,000. The work affords an example of the most recent methods of engineering practiced in Philadelphia.

Much drainage still flows into the Schuylkill river above the dam; that is, into the main supply of the city. In a communication from the park commissioners to the chief engineer of the water department, June 16, 1877, enumerating the sources of pollution from the east and west parks, it is stated that "a very offensive sewer empties into the river just south of Girard Avenue bridge, passing underneath the same". This stream contains drainage from breweries, slaughter-houses, water-closets, etc.

All of the 21st ward, with a population of about 20,000, lies within a territory having no other outlet than the Schuylkill for its drainage. A large part of Germantown drains into various branches of the Wissahickon, which is a branch of the Schuylkill. Parts of the 28th ward above Nicetown are drained by a small stream leading to the Schuylkill. These outlying districts are not now sewered, and domestic waste is probably in great part discharged into cesspools or absorbed by the ground, so that little of it gets to the river; still the population is by no means uniformly distributed over the district, most of the inhabitants living along the river finding employment in or about the manufacturing establishments at Manayunk and at the falls of the Schuylkill. The waste of these establishments themselves, which is of a very objectionable character, is largely withheld from the Schuylkill and utilized. The probability is that the wastes withheld are mostly those which can be utilized with profit, and that much is still discharged into the river. From this cause or from the introduction of impurities into the river at higher points, where it loses the purifying action of exposure to the air, as when it is covered with ice, its flow, and consequently the water supply of the city, becomes extremely foul. Much of the former contamination of the Schuylkill basin has been intercepted by the construction of the sewer in Pennsylvania avenue. That the old

sewers of this part of the city, now taken into the park, have been perfectly intercepted by the Pennsylvania Avenue sewer is by no means certain. While the greatest pollution comes from the east park, the drainage from the west side of the river is not entirely unobjectionable; during the continuance of the Centennial exhibition it was extremely objectionable.

The most noticeable engineering feature of the sewerage of Philadelphia is the great extent of territory drained, in some instances to a single outlet, requiring main sewers of great size, such as the Hart Creek sewer and the Mill Creek sewer referred to above.

Excepting these great outlets, the sewers of Philadelphia are built now precisely as they were built forty years ago, with the exception of some slight improvement in the arrangement of the masonry. The cross-section remains, as it has always been, circular. By far the great majority of the sewers are what are called "branches", that is, not, strictly speaking, trunk sewers. These are 3 feet in diameter, built with a single 4-inch ring of brick, the lower half laid in ground shaped to receive it, and usually without cement or mortar of any kind. The upper half is laid in mortar over centers, as is usual elsewhere. House-connections are led into any part of the sewer, usually into the upper part to save cutting a deep trench. The connection-pipes are of whatever size the fancy of the householder may dictate, and the construction is made as suits the plumber or his laborers, all without inspection or control on the part of the city. The connection is usually made by knocking a hole in the sewer with a bar or hammer, placing a few loose bricks about it to cover the larger opening, and covering it with earth. These loose bricks are soon displaced by rats or by water, the earth falls into the sewer, and sometimes the sewer itself caves in. The laying of the invert without mortar is doubtless with a view to securing a better drainage of the subsoil. The adoption of the diameter of 3 feet has no apparent reference to the service the sewer is expected to perform. The size is usually so much too great for any demand that can come upon it that deposits may accumulate to an almost unlimited extent before they form an absolute obstruction to the flow of the water and cause inconvenience by back flow. In the mean time the perishable parts of the deposit putrefy and escape through the outlet-basins for house-connections into the atmosphere of the streets or of the houses. These branch sewers are channels for removal mainly with reference to the surplus water of heavy storms. So far as the wastes of houses are concerned, they are horizontal cesspools underlying the city in every direction, producing objectionable gases at every point.

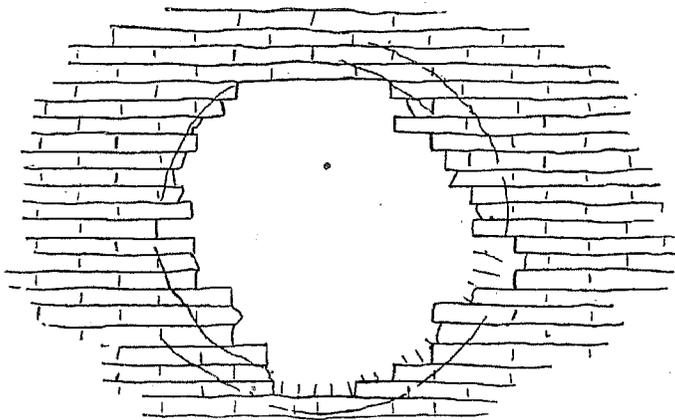
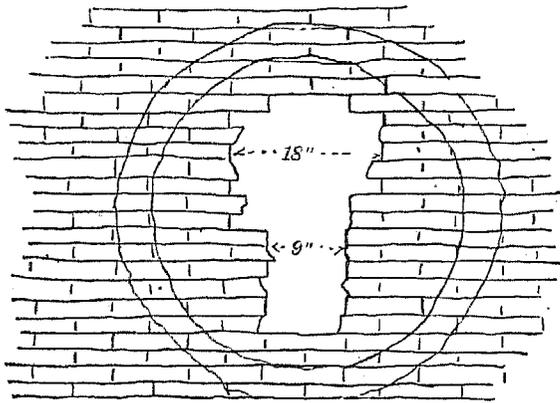
It is customary in Philadelphia to discharge kitchen and laundry slops, and probably much urine, by shallow or surface drains into the street-gutters, whence it finds its way through the inlet-basins into the sewers. Considering the city as a whole, few of its street-gutters are free from the peculiar laundry-colored flow of house drainage, and every inlet-basin connecting the gutters with the sewers is converted into a cesspool holding at all times more or less filthy water, grease, and nameless impurities. Mr. Baldwin found in his examination many instances of the discharge of refuse matter from markets and fruit-stands into the gutters and inlet-basins. This is especially true with reference to the waste of fish-stands along the streets.

Manholes are quite systematically supplied in constructing branch sewers. Many of their covers are buried under the pavement or under the dirt of the streets, and the examination gave every reason to suppose that they are generally rarely used for the cleansing and inspection of the sewers. Almost without exception, in those instances where the manholes could be found and their covers forced open, the escape of sewer-gas, vapors, and steam indicated the worst possible condition of the atmosphere of the sewer. So objectionable is this atmosphere that it is doubtful whether the ordinary device of perforating manhole covers could be adopted here without causing an intolerable nuisance.

There are 13 different sewer districts, each being represented by its own surveyor and regulator, who is elected by the people. These district surveyors together form the board of surveyors, of which the chief engineer of the city is the presiding officer. This board considers and decides all matters of laying out, grading, and regulating streets and public places, also drainage, sewerage, and other matters properly coming before such a board. A petition for a sewer is first examined by the board, with a view to its necessity. If to be built, the surveyor of the district is employed to make the survey and profile of the proposed line. From these notes plans are made in the survey office; the size of the sewer is fixed by an arbitrary rule based upon the acreage to be drained and the rate of fall of the sewer. The amount of water provided for is 1 cubic foot per second per acre, but no public sewer is less than 2.5 feet in diameter, so that the acreage rate applies only to trunk sewers. The plans and specifications being approved by the board of surveyors, the affair passes out of their control, and into the hands of the chief commissioner of highways, a different department, who receives proposals and enters into contract in behalf of the city. All main sewers are built under one form of specification, and all branch sewers under another. Branch sewers have to be maintained and repaired by the contractor for a space of three years after construction. Main sewers while under construction are under the control of the chief engineer of the city, but branch sewers are under the supervision of the chief commissioner of highways. The contractor is required to employ the surveyor and regulator of the district to give lines and grades for the work; also, he is required to make out assessment bills for the cost of the sewer, and to make the necessary returns and certificates. For this service the contractor pays the surveyor, who is the district officer supervising his work, and apparently in no wise responsible to the city. Practically the only security that the city has for good work is the interest of the contractor so to construct it that it will at least last in practical operation for three years after it is finished. No mention is made of the

chief engineer in the specifications of branch sewers, and none of the highway commissioner in the contract for main sewers. There is no certainty of a proper relation of grade between two connecting sewers. The invert is laid with or without cement, according to the judgment of the surveyor, and according to his ability to enforce his wishes. As a difference of opinion exists among the engineers as to the propriety of cementing the invert, there is a corresponding difference of practice. The remarkable consistency of the soil probably accounts for the apparent stability of imperfectly built single-ring sewers.

The manner of connecting a new sewer with an old one was observed in some branch sewers in process of construction and by examining main sewers with which branches had been connected in former years. The invert or lower half of the sewer is first built and finished against the outside of the old sewer, when a hole is knocked through its side somewhat smaller than the new sewer, and the upper half or arch of the sewer is then turned and finished against the outside of the old sewer. The flow of the new sewer enters the old one through an irregular opening with ragged edges. Two such openings, as seen from the inside of a main sewer, are shown in the sketches and cuts herewith given.



It is necessary to finish the invert of the new sewer before making the opening into the old one, as this latter frequently contains so much rubbish that if opened its water would run out and flow into the trench made for the new sewer. It is prevented from flowing far back in the invert by a temporary dam of clay and mud, and the new sewer is built in sections until its bottom rises above the level of the backwater. As an example, a branch sewer 3 feet in diameter, in Elizabeth street, was connected in this way with a sewer 2.5 feet in diameter in Emerald street, which was found, when the opening was made, to be nearly or quite half full of rubbish, brickbats, mud, and water. The connection of a 3-foot sewer with one 2.5 feet in diameter is not important, as neither of them would under any circumstances ever run half full.

The main sewers, built under the supervision of the department of surveys, are constructed according to more careful specifications. Proposals are always for constructing the whole work at a given price per linear foot, which price must cover masonry and excavations; including the supposed proportional part of rock, as estimated in advance; also foundations and all special constructions. The price must also cover all other contingencies, which it is impossible to estimate closely in advance.

This leaves a broad field for speculation, but it is regarded by the city officials as the more satisfactory method, since the cost to the city is known in advance,

and the appropriation can be made accordingly. The risk and uncertainty are all thrown upon the contractor, who, if he is subjected to an unexpected outlay in one item, must cover it by a corresponding saving in some other, unless thwarted by the vigilance and the integrity of the inspector. This is very well where, as in some cases, a proper inspector is employed by the city. "But in most instances this has not been done, for want of appropriation to meet the expenses."

Most of the workmanship on the larger main sewers is tolerably good, but much is also defective, several important sewers having settled out of shape or fallen in.

The maintenance and repair of sewers rests with the department of highways. The cleansing of the streets, however, as well as the removal of ashes, garbage, and swill, is controlled by the board of health. As a result of this divided responsibility, the health officer sometimes complains that he can not keep the streets clean, because the pavements are out of repair, while, on the other hand, the highway department declares that it can not repair the pavements, because they are not kept clean. The cleaning of streets and the emptying of catch-basins are included in one contract, so that the more street-dirt the contractor is able to have washed through the basins into the sewers, concerning which he has no interest, the greater his advantage. He shifts the cost upon the contractor who undertakes the maintenance, repair, and cleansing of the sewers. The specification for this contract is very simple but comprehensive. It requires the contractor to estimate in advance how many sewers are going to fall in

during the coming year, and how much it will cost to repair them, and to fix a round sum for which he will take all the chances. The contracts issued for the ensuing year (1881) are all held by one contractor, and amount to \$15,000.

When complaint is made, or when an inspector learns from any source that a sewer has caved in, the contractor is notified to repair the break. This is done by digging out a place for the workman to stand, provided the hole in the street is not already large enough for that purpose, removing from the sewer such bricks as are worth saving, and perhaps digging out some of the mud, if much is found within reach. An arch is then turned over the broken place and the hole is filled. If there is much water running through the sewer, the rubbish, mud, and *débris* may be carried along to another point or washed away. But if a break occurs in the upper part of the sewer it receives but little water; most of the rubbish is gradually spread along the invert, and the water flows over its surface. Owing to the great size of these branch sewers, an obstruction of considerable depth still leaves ample room for water to pass, and the presence of the obstruction is probably never found out unless the sewer gets entirely closed or becomes so foul as to give rise to complaint.

Mr. Baldwin reports that he saw workmen standing in water at least 12 to 15 inches deep, to repair a break within 500 feet of the head of the sewer. Such a depth of water of course indicates an obstruction, but the work was completed and covered in without its being removed (Twelfth street, opposite Wager, between Race and Vine). All notices for repair sent to the contractor are recorded, and each notice must be returned signed by the assistant commissioner in charge of the district, who acts as inspector, and whose signature is the voucher for the execution of the work. The probability of efficient service being rendered by these assistant commissioners may be estimated when it is considered that there are only six assistants for the entire city, and when it is considered that these have to inspect all repairs, not only of sewers, but of pavements, highways, roads, and bridges over about 2,000 miles of public highway.

Inlet-necks connecting basins with the sewers often cave in as the frost leaves the ground; sewers sometimes fail from the natural wear, cutting through or displacing the uncemented bricks of the invert. Another fruitful source of destruction is the careless and bungling manner of connecting house-drains and other drains, and it is thought that many sewers fail by spreading out laterally at the spring-line, until the crown settles, cracks, and finally falls in. Whatever the cause may be, during a single spring more than 300 breaks occurred and were repaired in the sewers alone. The nature of the repairing contract compels the contractor to economize as much as possible in all manner of repairs, and to spend no more than he is compelled to for removing obstructions; for he must always hold a sufficient margin to pay the heavy cost of repairing a large main sewer should a break occur in one of these. Apparently the cleaning of sewers is confined very largely to those in suburban districts, where sand and gravel are washed in from unpaved streets. The record of the location of cleansing shows a practical disregard of the very generally obstructed condition of the branch sewers of the thickly built-up part of the city. In the whole city below Poplar street, embraced in the first and second districts, there is a record of the cleaning of only four sewers, although 128 breaks have been mended. In the fourth district, above Poplar street and east of Broad street, embracing nearly one-third of the whole sewerage of the city, with 142 breaks mended, there is not a single instance of the cleaning out of a sewer. In so far as it is proper to draw one from this record, the inference would be, not that the sewers were clean, but that in spite of their obstacles they still furnish a sufficient water-way. Doubtless most of the organic and lighter matters are washed into the river in time of heavy rains; but the heavy rubbish, building-wastes, paving-stones, and sometimes bowlders and pieces of curbstone, falling in through the numerous breaks in the sewer, are not washed away. They remain to afford a serious obstacle to the flow of water and a serious cause of the deposition of solid matters, especially in the smaller sewers.

Mr. Baldwin made many special investigations by examinations at manholes and otherwise. His report is so important as indicating the general condition of the drainage works of this city, and is so in accordance with the inference that must naturally be drawn from the methods of construction set forth above, that it seems worth while to make copious extracts therefrom.

Mr. Baldwin's special examinations at manholes, at outlets, and in the sewers themselves, give instructive results:

There is no system of inspection of sewers in Philadelphia, and few persons have ever been in them except workmen to make the necessary repairs, and these only at rare intervals, for repairs and connections are almost invariably made from the outside; hence the condition of the inside of sewers is unknown and appears to be uncared for, so long as water turned into them gets away and does not come back to the surface or flow into cellars or basements. When, therefore, anybody proposes to go into a sewer for no other purpose than to find out its sanitary defects and condition, he is met with looks and expressions of genuine astonishment and surprise on the part of the city officials. The first intimation that a sewer is out of order is that the street caves in, when the break is mended and the street and pavement are restored; but what becomes of the rubbish, bricks, and paving-stones that have fallen into the sewer nobody knows or cares. It is supposed, and confidently asserted, that these are washed away by the water; but when one comes to walk through a sewer he learns better, for even in large mains where there is a great rush of storm-water, the heavier rubbish, such as brick-bats and paving-stones, are met farthest down stream, and behind these accumulate the different grades of pebble, gravel, sand, and mud, while the slack-water backed up behind all shows the deposits still to be in progress. This is observable, among other places, in the large main sewers in Huntingdon, Amber, and Sergeant streets, near the Frankford road, where the deposit of coarse gravel, sand, and stones is about 2 feet deep in a sewer 7 feet in diameter, having a strong flow of water, abundantly sufficient to keep the sewer clean under reasonable circumstances.

A similar instance may be mentioned in the Cohocksink sewer in Randolph street, sometimes called Mifflin street, from Thompson to Columbia avenue, especially in the vicinity of Master street, where piles of paving-stones, bowlders, and curbstones form a dam high enough to set back the water for several hundred feet. If this be true in the great mains, one can expect to find it still worse in the small branches, where the flow of water is too small to carry away even the lighter obstructions of sand and gravel. A branch sewer in Emerald street, below Lehigh avenue, recently opened to connect a sewer from Elizabeth street, was found half full of bricks and coarse rubbish. Where the flow is rapid and strong these obstructions throw the water into violent ripples, eddies, and waves, having a tendency to destroy the masonry and cut away the bottom, while if the flow is moderate they back up great deposits of sand and organic matter to decay and render sewers foul and filthy beyond all description.

Among the great sewers or underground rivers of Philadelphia may be mentioned the one 16.5 feet in diameter, known as Hart Creek sewer. \* \* \* Like the other great sewers of this kind, it receives the stream directly, without provision to keep out drift, wash, and rubbish during freshets; hence the bottom of the sewer is covered with gravel, cobbles, bowlders, and great stones to a depth of 3 feet or more, forming a bed precisely like that of the creek in the open water-way above, and the stream winds around among rocks, shoals, and sand-bars as if it were running in the open air and not in a great sewer. The bottom is so covered for a distance of about 3,500 feet. The depth of the deposit and size of the rocks and stones diminish as the distance increases. \* \* \* When the bottom of the sewer is not covered with stones and gravel it is exceedingly rough from the waste cement and brick-bats dropped by the workmen and never cleaned out. These have formed mounds and points projecting sometimes a foot or more high, and as solid as a rock. In one instance a pile of rubbish was mistaken for a dead horse, which it very much resembled in size and shape, but was found to consist of bats and bricks and cement as hard as stone. In several instances a tub of mortar had been thrown down and left to harden. \* \* \* Blocks of wood and pieces of timber left by the workmen in the well-holes, only 5 or 6 feet above the bottom of the sewer, have not been carried away, and the little sticks, straws, etc., clinging to the brick-work, do not appear above the middle of the sewer. \* \* \* Other great sewers of Philadelphia are in substantially the same condition as the one just described. An examination of the large flat-bottomed sewer in Germantown, built to carry a stream known as the Wingohockin creek, showed the bottom to be amply protected from the action of running water by the heavy deposit washed in, consisting of stones, gravel, mud, branches of trees, and all manner of rubbish. \* \* \* Access to the interior of most of the sewers is not very convenient, as there are no ladder-bars in the manholes, and one has to be let down by a rope and lifted out again in the same way. An attempt to enter the Huntingdon Street main from its mouth under the bridge over the Aramingo canal failed, for the whole bed of the canal is covered with a deposit of soft mud, in some places 2 feet deep, and in others apparently bottomless. The water overlying this black mud is filthy beyond description, and the bubbles of gas arising from it, especially when disturbed, pollute the atmosphere all around. A line of water-pipe has recently been laid along the middle of Huntingdon street, passing directly through the manholes of the sewer, hence making the means of access all the more limited. \* \* \*

Above Trenton avenue, and in the vicinity of the Frankford road, are large piles of brick, gravel, and paving-stones left in the sewer where repairs were made some years ago at a part which fell in. These accumulations of rubbish have held back deposits of gravel, sand, and mud, and have backed up the water to a depth in some places of 2 feet or more. The accumulations of sand and gravel are very irregular, and the water running over the surface has made them so compact and solid that they will probably remain until removed by some means other than the natural flow of the water. An instance was observed in the inside of this sewer where a house-drain 10 inches in diameter terminated in a cast-iron hinged valve or cover, intended by its weight to close against the house-drain and exclude sewer-gas, and prevent the back flow of water if the sewer should become full. It was entirely useless for either purpose, as such mechanical contrivances often are, for the cover had caught obstructions from the interior of the drain and was wedged open about 2 inches; hence it served as an obstruction to the overflow without accomplishing any good purpose whatever.

Concerning a main sewer in Palmer street, it is stated that—

\* \* \* All attempts to find a manhole between Girard avenue and the river were ineffectual; if manholes were ever built they are now concealed, perhaps paved over, but certainly a careful search did not bring any to light. \* \* \* From Girard avenue to Front street there is no difficulty in entering them if one is willing to be let down by rope through the manholes. \* \* \* There is considerable coal, ashes, and cinders also in this sewer, but the most troublesome thing encountered was the foul air and gas. In the upper part of the sewer, near Front street, the accumulation of illuminating-gas, probably from some leaky street-pipe, became so great that we had to put out the torches for fear of an explosion, and walk the rest of the way in the dark. Attempts to enter the sewers in the manufacturing districts of Philadelphia are useless at any time except nights or Sundays, on account of the discharge of steam and hot water, and even at such times an entrance is attempted with considerable risk and danger, and can accomplish nothing, for the steam fills the sewers so completely that no careful inspections can be made.

Thinking that current reports might be somewhat exaggerated, an attempt was recently made to go up the Cohocksink Creek sewer in a boat from its outlet at Laurel street. No inconvenience was experienced below the Frankford road. The outlet of the sewer is built of stone and is in good condition, but near the Frankford road the discharge of steam became so thick and heavy that no further observations could be made, and before reaching Front street two steam-pipes were encountered discharging from opposite sides, and the roar and noise was so great that we could scarcely hear each other speak, while the heat and suffocation were so great that the men declined to go farther for fear of being scalded by the jets of steam and hot water which it would have been impossible to avoid, because the atmosphere was so thick we could see nothing ahead, and we could scarcely discern each other. In other places in this part of the city, on lifting the lids of the manholes, the rush of steam was so great that it was manifestly impossible to make any examination. \* \* \* In the old sewer known as East Cohocksink, built in Randolph street (then called Mifflin) and Montgomery avenue, the flow of water is less rapid, but is from 10 to 12 inches deep. Considerable obstruction of stones, bricks, paving-stones, bowlders, and large pieces of curbstone and building-stones obstruct the flow in various places, especially about the old Master Street bridge, which is now part of the sewer. In several places, too, the crown of the arch has settled and cracked and the bricks have fallen out. In other places the sides have washed out, and in one instance both sides have lost the interior shell of brick for a length of several feet. The bottom of this sewer is also washed out in places, sometimes for a length of several feet, and, in one instance, the interior shell of brick was gone for a space 6 feet wide and 22 feet long (Montgomery avenue below Seventh street). In some places the water was running over the ground, and in others over the bottom of rock where the brick-work was gone. In one place the brick-work was destroyed opposite the entrance of a branch sewer, evidently carried away by the force of the water rushing in from the branch. This sewer is 10 feet in diameter and circular, and has a fall, according to the plans in the office, of 0.42 per hundred; it has evidently been full of water. A gas- or water-pipe passes through the crown of the arch at Columbia avenue, leaving a space of but 6 inches between the pipe and top of the sewer, and this space is filled with driftwood, branches of trees, and a pole about 5 inches in diameter, and estimated to be 16 feet long. \* \* \*

The sewers of Philadelphia are almost absolutely without ventilation, and when first opened the rush of vapor, gas, and sometimes of steam, is nearly suffocating. After leaving the manholes open awhile this passes off in part, and one can enter with some degree of safety by observing due caution. \* \* \*

Several things impress themselves very forcibly on the mind of any person on going into the sewers of Philadelphia; among others—

*First.* The necessity for a system of maintenance and repairs whereby the interior shall not be obstructed with the rubbish, bricks, paving-stones, and *débris* falling in from the many breaks constantly recurring all over the city, and from the connections made with house-drains and for other purposes. It may be assumed that any system of public works worth building is worth maintaining in repair when it is built. That if it is worth while to expend \$14,000 to \$15,000 a mile to build branch sewers, it is also worth while to pick up and remove the building refuse and rubbish left in them by the masons and workmen, so that the water may have some chance to flow through when they are done. There are about 200 miles of public sewers in Philadelphia, and in them about 400 to 500 breaks occur every year, or on the average not far from one break per year for every half mile of sewer; hence it seems quite essential that the rubbish and *débris* from so many places should be taken out before the whole system of underground work gets filled up. The improved shape and materials used for small sewers in many small cities have not been introduced in Philadelphia, but branches are still constructed precisely as they were in the beginning. This defect is very noticeable in the observations recently made, where in many instances the water now meandering over the surface of sand and mud in the bottom of a 3-foot circular sewer is amply sufficient, if contracted in a narrow channel of a sewer of improved shape and smooth surface, to shoot along like an arrow down the grades and rapid descents usually found in most sewers, and would be discharged into the river in less time than is now wasted in trickling away through a distance of a square or two, and at the same time would carry with it many tons of matter now left stranded along the way until washed out by storm-water, and some not even then. But even in their present shape a system of regular inspection and cleaning out of the coarser obstructions would greatly improve the condition of the sewers in almost every place where they have been examined.

*Secondly.* The sewers of Philadelphia are obliged to carry almost every thing which a great population wants to get rid of. Probably it is quite unavoidable that much kitchen waste, garbage, and swill should find its way into the sewers, but there seems to be no good reason why they should be filled up with ashes and cinders, cast-off clothing, boots and shoes, broken dishes and glass, nor why they should be expected to carry off the waste offal and entrails from slaughter-houses and markets, or the steam and hot water from factories and machine-shops. \* \* \* Many other matters are pointedly suggested by, and might properly be considered in connection with the interior inspection of sewers, such as the very apparent need of a better class of workmanship, amply illustrated by the dilapidated condition and appearance of some sewers built not very long ago; the necessity for improved water-way where the flow is so swift and strong as to wash out the bottom of sewers; the need of manholes at more frequent intervals, as they are seldom found nearer than a quarter of a mile from each other, and are sometimes even farther apart.

There is almost no provision for ventilation of sewers in Philadelphia. The outlets to the river are so low as to be sealed for several hours at a time when the tide is high. The manholes are closed with close covers, not only tightly fitting but often so rusted and jammed with mud and street-dirt as to be raised with difficulty; and many manholes have been covered and paved over so that their location is lost, and they can be found only from the inside. The inlet-basins are closed with a water-seal or trap, intended to make them air-tight, and they are so closed in time of rain, if not at all times. House-drains usually terminate in a slop-stone beneath the hydrant in the back yard, or are led directly into the interior of the dwellings. The traps of the house-plumbing are sufficient, usually, to cut off all circulation of air, but are forced the moment any pressure is brought to bear upon them, either by an inflow of water to the sewer, a change of temperature of the sewer-air, or any other disturbing influence; hence the dead air of the sewer stagnates, and is saturated with putrescent matter and organic germs, until its condition becomes not only indescribable but unknowable, and this most deadly of all imaginable compounds is separated from dwellings, kitchens, and, too often, sleeping apartments, by a few drops only of dirty water, lying in what is commonly known as a trap. These few drops or spoonfuls of water, if standing quietly at rest, allow the vapors to pass slowly through, as if through a piece of sponge, and finally evaporate or leak away entirely. If water is poured down the pipes, the gas bubbles up through, while if there is the slightest pressure from any cause the seal is worthless. A trap holding water 2 feet deep would resist a pressure of only 1 pound per square inch; while the ordinary trap, holding about 2 inches of water, would only resist a pressure of 1 ounce per square inch. Any disturbing influence in the interior of the sewer, whether caused by a rising tide, an unusual flow of water, a change of temperature, or any other of the many causes likely to occur at any time, forces the sewer-air directly into the houses, while if the slight body of water in the trap evaporates, or is sucked out by a flow of water in some other part of the house, as it often is, then a direct communication with the sewer is opened and the air circulates through in a constant flow. In view of these considerations, well known, but seldom thought of and not often mentioned, the necessity for some system of ventilation of the public sewers is perhaps the most important thing to be considered in discussing the sanitary condition of the sewerage of Philadelphia. Let any person raise the lid of a cover over one of the public sewers and attempt to look down, and he will be convinced of the need of ventilation without further argument. In fact it is necessary only to observe the offensive odors coming from the inlet-basins in many places, or even sometimes observable in the middle of the streets above some of the great sewers, as at Broad and Arch, Tenth below Market, Twelfth from Vine to Callowhill, to be convinced of this same fact.

The question of the sewerage of Philadelphia presents many serious difficulties. The present discharge is at different points along the river-front, mainly into the Delaware river, a stream which flows back and forth with a strong tide, and which can not be expected to dispose completely and properly of the sewage of the enormous population that the drained area is destined to bear at no distant day. This great extension of the city in area, hundreds of acres being covered by small houses occupied by single families, while it constitutes in many respects a most important sanitary advantage, is full of difficulty when we consider the question of the gathering together and the transportation to a proper outlet of the immense volume of foul sewage to be provided for. The working-classes of New York and other large cities are concentrated in limited areas. Tenement-houses of five and six stories, with four families on each floor (25 by 80 feet), are very far from being as well situated as are the houses occupied by the same class of people in Philadelphia, where each family has its own house, open to the light and air, front and rear, and generally with a front and rear approach. In the one case, however, the removal of liquid wastes is a simple proposition; in the other, so far as any limited district is concerned, it will be of most serious moment when an attempt shall be made to provide all of these thousands of scattered houses with proper connections with a proper system of sewerage.

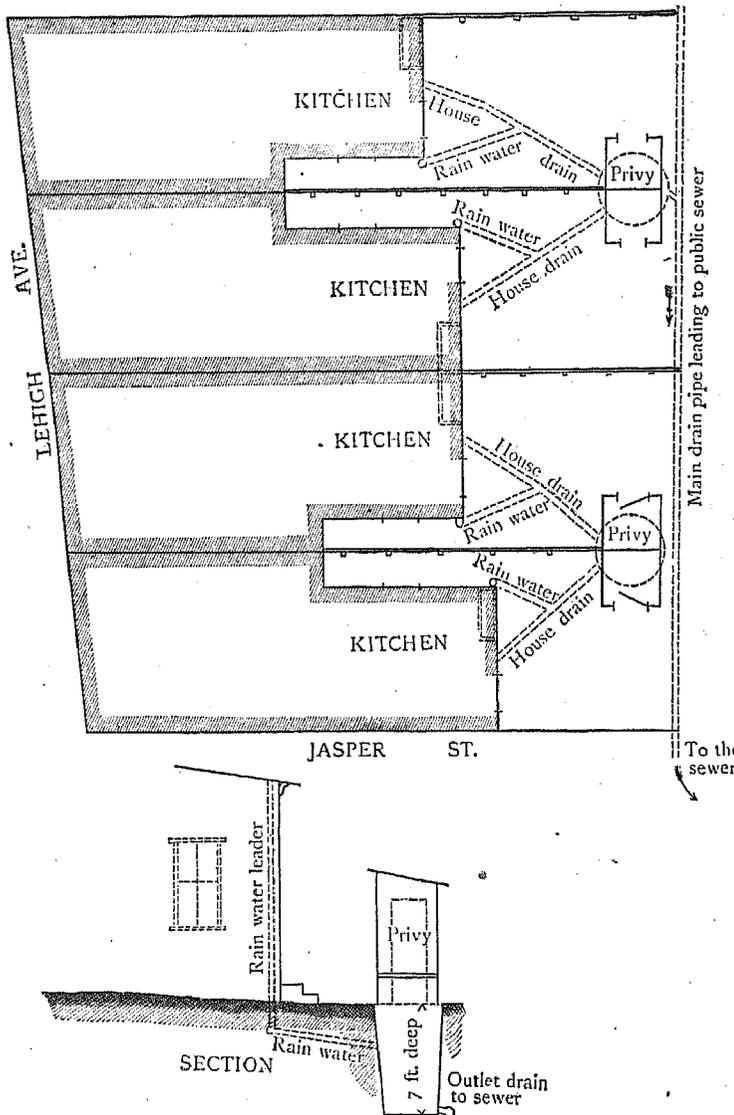
#### HOUSE-DRAINAGE.

The investigation of the system of house-drainage in Philadelphia shows a condition hardly to be expected at this day in a city of such importance.

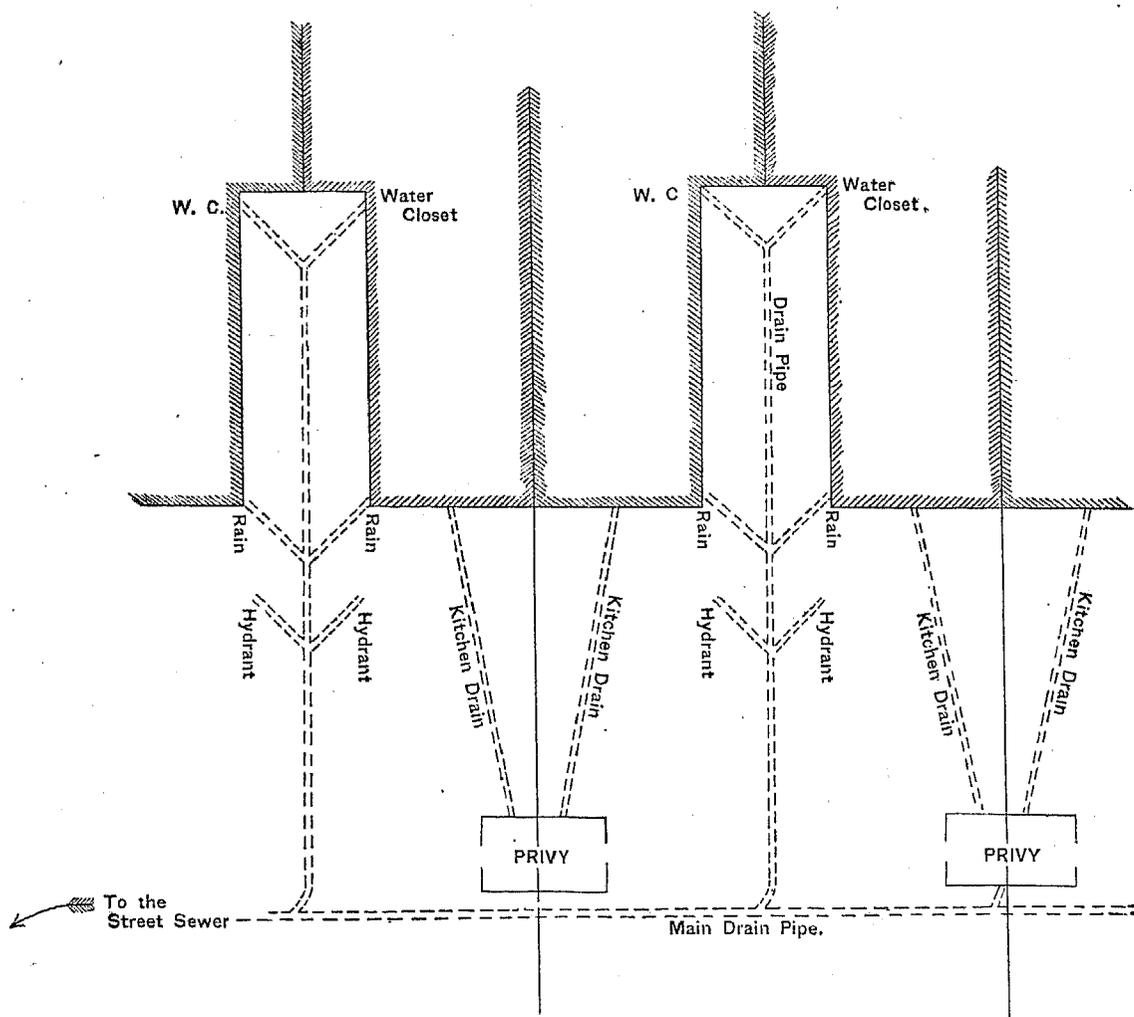
The remoter parts of the city, which are not supplied with water-pipes and sewers, depend largely on wells for their drinking-water, and their waste is turned into cesspools on the same lot, as in a small village. These wells and cesspools are almost invariably within contaminating distance of each other. As the water-supply system is extended, the wells are abandoned as a source of drinking-water, but the cesspools are still maintained, the abandoned well frequently being used to supplement the cesspool, either by an overflow from it or by a direct discharge into it from the house. "It is often remarked that the water of a spring or well will not rise above its source. It is equally true that by pouring in more water the well can not be filled above its normal level. The great underground flow will receive and carry off an amount practically unlimited." This is true not only of clean water, but of foul water added from any source. Under this arrangement, therefore, the contaminating substances held in solution in the water added to the well are carried by the underground water-bearing strata (gravel) to other wells from which the supply is still being drawn for domestic use. "The experience thus gained has induced many

householders to excavate cesspools deep below the water-bearing surface, so that in many parts of Philadelphia these cesspools, now almost universally called 'wells', probably from their origin, extend to a depth of 20 to 30 feet, and even sometimes many more feet below the surface of the ground." These wells, originally located in remote parts of the lot, which are afterward sold for building-purposes in a further subdivision of the property, come under the cellars or foundations of new buildings; some of the original large squares of the city have been subdivided by one, two, or three cross-streets laid through them, new houses built on these cross-streets being frequently built on land honeycombed with old receptacles of household filth. Probably cesspool-wells are never built within the walls of a dwelling-house, but when houses are built over existing wells, these are often used to receive their drainage. The position of drains from old houses is forgotten, and, in addition to its own drainage, the well under the house may still be receiving that of a neighboring house. The earth beneath and around these old drains is usually discolored for a distance of several feet in each direction, and the amount of contamination under the foundations and cellars of houses throughout the whole city is very serious.

In excavating for the foundation of the extension of a dwelling on Twelfth street, not far from Vine, two old wells were uncovered directly in the line of the foundation walls, and only 12 to 15 feet apart. As they were filled with a black, soft, oozy matter, and were apparently bottomless, the usual practice common among builders was resorted to, viz, to turn an arch over the well to sustain the wall of the house above it, and let it remain, disturbing the contents of the well as little as possible on account of the sickening stench given out when moved. An example of a well entirely within the



walls of a house, and still used to receive its drainage, was observed, not long since, in the cellar of a house on Race street, below Twelfth; workmen were cleaning out the deposit of black, greasy, putrescent matter, having first dipped out the liquid matter in buckets and poured it into the street-gutters. After emptying the well, the workmen measured its depth with a tape-line and pronounced it to be 27 feet below the board floor of the cellar, and said it extended to gravelly bottom and was walled up with brick. It might be presumed that, as the sewerage is extended, householders would make sewer connections at once and dispense with the cesspool or privy-well, but this is seldom done. It is only when the soil about the well becomes so saturated that it will no longer allow the liquid contents to work away, and hence the frequent visits of the scavenger become troublesome and expensive, that any remedy is sought, and then the first step in improvement usually is to lay an overflow-pipe from the well, so that when full the liquid contents may run over and discharge through the pipe into the street-sewer. Of course, in such cases, the well



continues to retain considerable solid matter until its surface rises above and closes the outlet-pipe. To diminish the accumulations of solid matter, the householder is advised by his plumber to turn in the rain-water from the roof to get the benefit of a large quantity of water at intervals to wash out and clear the overflow-pipe, and at the same time dilute the sediment and wash as much as possible of it into the sewer. This method of drainage is a gradual development, and one might think it would be found only in old houses where the owners put off a complete rearrangement on account of cost and inconvenience of pulling things to pieces and building anew. But the practice is not confined to old houses; for so great is the tendency on the part of workmen, builders, and plumbers, and even architects, to do work in the manner they have been accustomed to, that many blocks of houses built recently, and even now in process of construction, are drained in precisely the same manner. The sketch on page 826, made by observations on the ground, illustrates the drainage of a block of twelve houses now building on Lehigh avenue, near the Frankford road, where the drainage from the house and the rain-water from the roofs lead to privy-wells in the rear, each serving for two tenements, and being all connected by branches to one outlet-pipe, laid even with the bottom of the well and connecting finally with the street-sewer. Wells are about 7 feet deep, circular in form, and walled up with a 4-inch ring of brick, laid dry. They have no bottom but the ground. This is given, not so much to illustrate the drainage of this one block of twelve houses, as to show the arrangements of houses of that class which are usually drained on the same principle. These houses are 14 feet front on the street, two stories high, and will probably rent for from \$14 to \$16 per month. Houses of a more elaborate style, having interior water-closets and bath-room conveniences, are drained in substantially the same manner, where a back street or alley affords drainage in the rear, or where a block of buildings belonging to one owner enables a pipe to be laid along the rear of all the lots to make a single sewer connection. In such cases the roofs of houses pitch toward the rear, the rain-water from the front being conducted to the gutter of the roofs on the rear and lower stories, and thence, finally, to the drain-pipe by a leader from the lowest gutter. A hydrant in the back yard, for supplying the drinking-water used in the house, has a convenient slop-stone beneath to receive the waste, as well as the wash from the paved yard, and conduct it to the same drain-pipe. The water-closets and bath-rooms have the same outlet; but, for the accommodation of those on the first floor, a privy is built in the back yard, over a vault, which at the same time receives the kitchen-slops and overflows into the same main house-drain leading along the rears of all the houses until it finally discharges into the street sewer. The accompanying full-page diagram does not represent any particular house, but is furnished by an officer of the health board as an example of one of the most common methods of house-drainage where a main drain-pipe along the rear can be secured. Hundreds of houses in Philadelphia are said to be drained according to that plan, many of which are new, and some still in process of erection.

The foregoing remarks relate to cases where the main drain can be laid along the rear of dwellings, making a single connection with the sewer; this is frequently possible in Philadelphia, both on account of the narrow streets and alleys so often cut through the square in the thickly populated districts, and also from the fact that in so many instances a whole block of houses is built and owned by a single person, building association, or company. The interior arrangement of Philadelphia houses is such that the bath-rooms are usually in the center or rear of the building, and the kitchen is in the rear, on a level with the parlor-floor, basements being the exception rather than the rule. When, therefore, it becomes necessary to conduct drainage from the rear to the front of a house and thence to the street sewer, it is almost invariably done by means of a terra-cotta or ordinary clay pipe laid in the ground beneath the cellar. These pipes laid beneath the cellars are often of a size entirely disproportionate to the duty required of them, being 8, 10, or even sometimes 12 inches in diameter for a single building. The recent explosion of gas in a sewer on Master and Philip streets, already referred to, afforded an opportunity to observe the method of drainage in that locality, which is said to be in accordance with the usual practice. The elements of the system may be briefly stated: The position and depth of pipes beneath the cellar could be noted as they were blown up by the explosion. A privy-vault in the back yard serves to accommodate the occupants of the house, or to receive the drainage from water-closets, if any, in the upper stories. The vault is washed out by rain-water led to it from so much of the roof as inclines toward the rear. A terra-cotta or earthenware pipe from 8 to 12 inches in diameter serves as an overflow to carry the liquid contents of the vault, passing under the cellar, buried about 1 or 2 feet in the ground. The waste-pipes from the sinks on each floor connect with and discharge into the main drain-pipe beneath the cellar. A hydrant in the back yard affords a supply of water for all purposes, principally for the laundry, which, in the summer season, is usually in the open air. Beneath the hydrant is a slop-stone with an iron grating, through which the waste from the hydrant, the drainage from the yard, and the water from the wash-tubs pass underground to the same house-drain beneath the cellar. This is the common practice of drainage where houses present a solid front on the street and have no means of drainage to the rear. It may be seen in much of the older part of the city, especially in the district named, and in fact all along the Delaware front below Fourth street and elsewhere.

Such houses afford no access to the back yard, except by passing through the house, and that is very inconvenient; besides it does not admit of the occupation of back yards by building rear dwellings in them. To avoid this inconvenience, many blocks of buildings are furnished at intervals with a passage-way between the houses, usually not more than one story high, the second story of the house extending over and forming a continuous

floor. The passage-way serves as an outlet for two back yards, and, if wide enough, the division-line fence extends through the middle, affording a separate entrance for each property, often closed at the street with an iron or other open-work gate or doorway in the better class of houses. Sometimes the passage-way is too narrow for that purpose; in fact, an instance was recently observed in a street running from Twelfth to Thirteenth streets below Vine, where the passage-way was not more than 2 feet wide. Such a passage-way serves a double purpose, for it not only allows people to walk through without entering the house, but, also, being paved with brick, laid in the form of a shallow ditch, it allows the drainage to run through from the back yards across the sidewalks to the street gutters. It seems to make little difference if a street is sewered or not; the surface-drainage is used all the same in the older parts of the city. The water thus brought out on the surface consists of waste from the back yards, hydrant, the slops from the kitchen sink, and the water from wash-tubs, as well as the surface-drainage of the back yards, and the rain-water from the roofs. Sometimes after finishing a washing and emptying out the tubs, the careful housewife or servant will turn on the water from the hydrant and sweep out the back yard and passage-way until it presents as neat and cleanly an appearance as possible under the circumstances, but no ordinary amount of washing or sweeping will prevent such surface-drains from giving out foul odors in hot weather, especially where used by several families, or taking the drainage from rear tenements located in the back yard, and having no other outlet to the street.

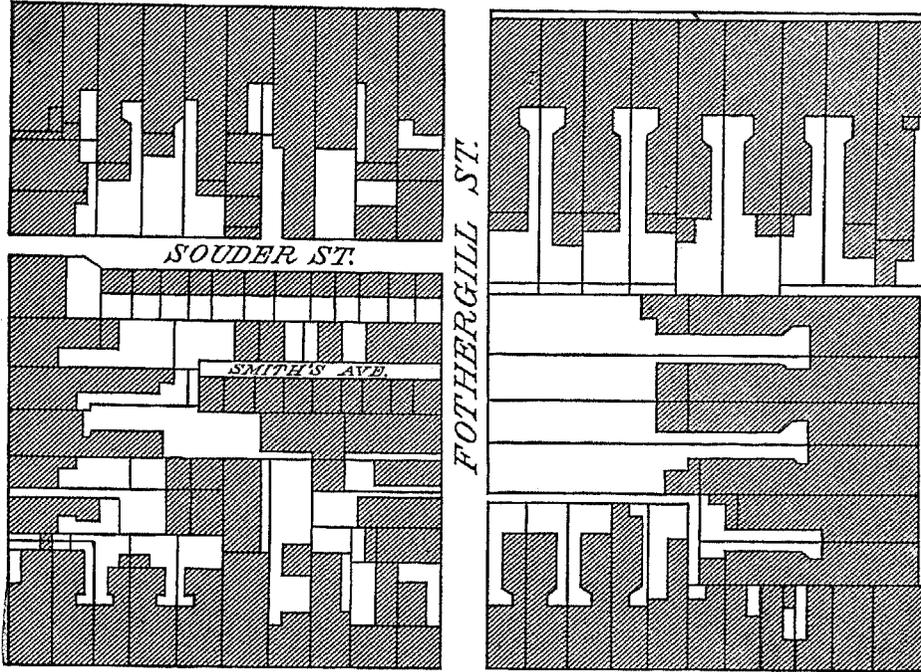
The narrow alleys extending through the blocks from one street to another form a common outlet for the back yards, and often conduct their drainage on the surface, being paved in the form of a shallow ditch. Besides the alleys there are many miles of streets only 25 feet wide and sometimes much narrower, built up with a solid row of houses on each side, used as dwellings and cheap boarding- and lodging-houses. A very common way of laying these streets is to have a narrow strip of cobble-stone pavement in the center, with a gutter on each side, and so arranged that the wheels of a wagon will run in the gutters while the horse travels along the paved center. A curbstone and brick pavement form a sidewalk on each side not over 3 feet wide, sometimes less. Even these narrow streets often serve as a line of departure from which still narrower alleys and lanes branch off, and it is difficult to ascertain at what limit an opening between two blocks of houses ceases to be a street, or where the limits of human habitation are reached. The houses in the crowded back streets and alleys are occupied by the same class of people that inhabit tenement-house districts in other cities. Little is known of these crowded districts, except as one may observe by looking or walking through them. Landlords build houses in any shape and arrange them so as to get the greatest possible income from the least possible investment.

A diligent inquiry has failed to discover the existence of any sanitary, hygienic, or other society or association intended to discover or improve the condition or character of the houses offered by landlords for rent to the poor. It is well known to officers and inspectors of the health department that hundreds of large buildings, once the residences of wealthy and aristocratic citizens, have passed through the usual stages of fashionable and unfashionable boarding-house and cheap lodging-house, and now differ from the ordinary tenement-house only in name. The most crowded portions of the city are along the Delaware side, below South street, and again above Vine street, where the average density of population by wards is from 100 to 150 per acre, as will be seen by the following table, the population given being for the year 1880:

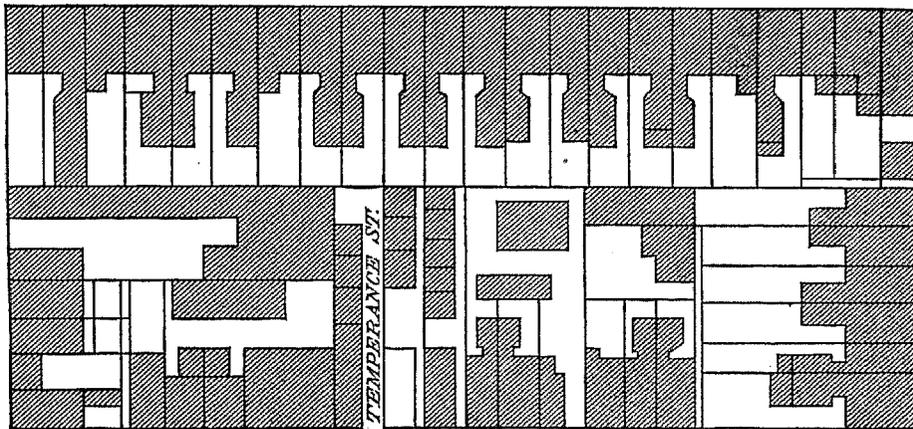
Wards.	Area in acres.	Average population per acre.	Total population.
2	263.0	108	28,527
3	128.2	143	18,370
4	123.4	153	18,864
7	248.0	126	31,310
11	116.7	111	12,942
12	115.0	128	14,694
13	161.4	116	18,690
14	192.5	116	22,359
15	560.4	85	47,873
16	145.0	123	17,802
17	151.4	135	20,452

The greatest population in any one ward, in proportion to its area, is in the 4th ward, situated between South and Fitzwater streets (two squares), and below Broad street, where the average density is 153 per acre, while in the upper wards, the 12th, 13th, 14th, 16th, 17th, in the vicinity of Willow street, Girard avenue, and Thompson street below Broad street, a district usually regarded as densely populated, the average per acre is from 115 to 135, a population not more than half so dense as in some parts of New York. The disposition of Philadelphia to enlarge its boundaries and take in the surrounding suburban and farming regions of Pennsylvania, with its towns and villages, has developed a tendency to spread out and cover great areas with low, small houses. This has been further encouraged by the naturally level surface, easily converted into streets and covered with cheap pavements of cobble, and cheaper sidewalks of brick. Contractors and builders have not been slow to take advantage of the

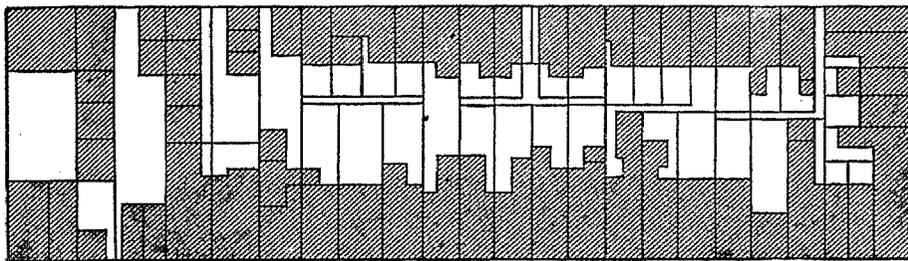
PINE



LOMBARD



RODMAN



SOUTH

TENTH

NINTH

situation, and building associations have been formed and co-operative systems introduced, until that part of Philadelphia now covered more or less densely with large blocks of such houses occupies an area of many square miles. Mention has already been made of a disposition to enlarge the exterior surface of houses by re-entering angles, court-yards, and area-ways, and by cutting narrow streets and alleys through the squares to afford access on all sides of houses, both for entrance and for drainage purposes. This is still further increased by constructing dwellings in pairs, with a single passage-way between.

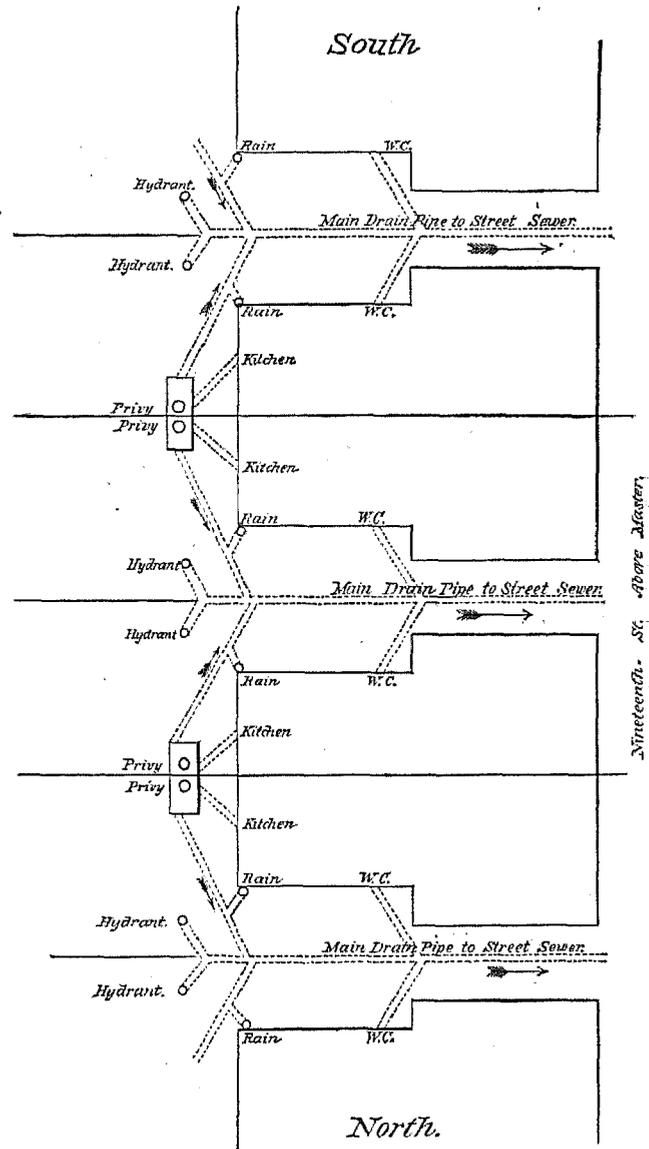
The passage-ways observed in the older and more crowded part of the city, already described, where they are but one story high, are, in the up-town regions, extended upward through the entire building; or, in other words, the blocks of houses are cut up in pairs, each pair consisting of two dwellings, with hall-ways and front doors together in the center, and separate side entrances between the buildings, the houses for this purpose being 8 or 10 feet apart. Hundreds of such houses may be seen in all the uptown parts of the city, especially on Broad, Fifteenth, Eighteenth, and Twentieth streets, above Master and Oxford, and also in West Philadelphia, and in other parts of the city. A block of such now being erected on Nineteenth street, above Master, may be taken as an example. Of course, in districts still farther out of town, as at Tioga and Germantown, the distance between houses is greatly increased; but even there the tendency to build in pairs is very noticeable. This arrangement of houses affords peculiar advantages for drainage and ventilation, and may be regarded as a type of the almost universal practice of building in Philadelphia among the better class of houses. Whether the space between the houses actually divides the block into separate dwellings, or extends but a story high, it affords, in either case, a very convenient means of drainage without laying pipes under the house. It will be observed that the system is the same if the drainage be conducted beneath the surface in pipes, or if the water from the roofs and kitchens be allowed to flow on the surface, as it often is. It is a matter of opinion in Philadelphia which is to be preferred—to turn sink-water on the paved court-yard and alley-way along the surface of the ground, or to pour it into the privy-vault and thence by an overflow to the street sewer. Both methods are practiced, and both have been described in the preceding pages.

There is a strong popular prejudice in Philadelphia against connecting dwellings directly with the sewers, doubtless caused or encouraged by the bad atmospheric condition and entire absence of ventilation of the public sewers. But, on the other hand, the custom almost universally practiced of turning sink- and slop-water on the ground, allowing it to flow across the sidewalks and stagnate in the street-gutters, has such a pernicious influence upon the atmosphere that one feels an indescribable sense of relief on going to the park or moving out of town, where the air is not laden and polluted with the fetid vapors and foul odors everywhere prevailing in Philadelphia.

No attention is paid to the fact, if indeed the fact is recognized, that while household filth of all kinds may be safely delivered into a self-cleansing sewer of rapid flow while yet in its fresh condition, any device for retaining such matters in privy-vaults, cesspools, or elsewhere, long enough for them to become putrid, the surplus overflowing into the sewer, must inevitably lead to a permanent and dangerous contamination of the contents of the sewer-system, and to the production therein of sewer-gas of the worst description.

#### CESSPOOL- AND VAULT-EMPTYING.

Since 1876 it has been unlawful to remove the contents of any privy-vault, sink, or cesspool within the city limits, or to transport the same through any public thoroughfare, except by air-tight apparatus (the "odorless-excavating" system). No such removal or transportation is permitted after sunset or before sunrise in any day. The price charged for cleaning privy-vaults is 12½ cents per cubic foot for wells measuring less than 100 feet, and



10 cents for wells of 100 cubic feet or over. During the year 1876 twenty different companies were licensed for the emptying of vaults, etc., by the "odorless" apparatus. A permit is required for the emptying of each vault, etc., but this hardly gives information as to the amount of material removed, as the capacity of the various places of deposit varies widely. In the year 1880 the total number of permits was about 9,000. The president of the principal excavating company estimates the total amount of waste removed by all to be about 27,000 tons per year. Of this, probably 22,000 tons is matter sufficiently fluid to be handled with pumps and hose, the remaining 5,000 tons consisting largely of "coal ashes and cinders, brickbats, broken dishes and glass, bottles, kitchen-utensils, boots, shoes, tin cans, cast-off wearing apparel, and, in fact, every imaginable thing which servants and others find it more convenient to hide in the privy-vault than to expose in the ash-barrel or to throw into the streets". The matters removed are largely used by farmers and market-gardeners of the vicinity, the liquid portions generally by surface application after a considerable dilution with water in vats and cisterns constructed for the purpose.

#### SEWAGE DISPOSAL.

Roughly speaking, the entire discharge of the sewers is delivered into the rivers—into the Schuylkill mainly below the water-works dam, and into the Delaware along the whole river-front below the mouth of Gunner's run, by which much of the drainage of the eastern slope is intercepted. The tidal movement in the Schuylkill is, owing partly to the presence of the dam, much less active than that of the Delaware, and the condition of its waters is obviously more foul. The sewage of the whole eastern slope below the foot of Otis street, a distance of about 3.5 miles, including the discharge of the Aramingo canal, flows directly to the Delaware river. The river-front is provided with long and solid piers, between which are slips, which are only indirectly influenced by the tidal movement, permitting a considerable deposit of putrescible matters. Aside from the silting up of the slips, the chief point of interest in this connection is to be found in the fact that that part of the city lying north of Callowhill street and east of Broad street as far as the connecting railroad to the north, occupying about 3,450 acres, and with an estimated population of 208,000, is supplied with water pumped directly from the Delaware river. The pumping-station of the "Delaware and Kensington water-supply district" is at the foot of Otis street. Within 6,000 feet of the intake of these works there is discharged the drainage and sewage of an area of the city containing a population of 347,000, the most distant point of discharge being a little more than 1 mile distant from the works. The great Cohocksink system, with an estimated population of 135,000, discharges only 4,000 feet below; and the mouth of the Aramingo canal, draining 2,858 acres, with an estimated population of over 80,000, is only 350 feet below. "The mean duration of the rise above mean tide is 4 hours and 45 minutes, and of the fall below mean tide is 7 hours and 36 minutes, indicating that the direction of the current must be against that of the river, or up stream, for several hours in succession—quite long enough to convey the water polluted by sewage within reach of the pumps, even when the sewers discharge at a considerable distance down stream." It is to be considered in this connection that the pumps operate principally during the higher portions of the tide.

#### GENERAL CONCLUSIONS.

The foregoing brief account of the house-drainage and sewerage of Philadelphia, while far from complete, seems to be sufficient to indicate in the clearest manner the general character of these works as existing and as still being constructed in the second city of the United States.

While the work done includes some well-planned and well-constructed main sewers, the system as a whole is totally and inexcusably bad, violating nearly every accepted principle of sanitary engineering, and inevitably counteracting those natural influences which are so conducive to the health of a population. It is, however, proper to call attention to the generally accepted and doubtless correct statement that the death-rate of Philadelphia is lower than that of other cities which have fewer palpable defects in their public and private sanitary works. This low death-rate can be ascribed only to the very favorable conditions under which the working classes of the population live. As a general rule—and this is a very marked and most interesting feature of Philadelphia—every family lives in its own house, and every individual lives and sleeps in a room well lighted and ventilated by outer windows. This condition removes from the problem the most important feature of "overcrowding", to which is due so much of the mortality of large cities the world over.

The proper inference would seem to be that, this factor being absent, if a proper system for the removal of household wastes could be extended to all parts of the city of Philadelphia, it might reasonably be hoped that there would thereby be secured a lower death-rate, even much lower than that of any other city of the world.

The question of the universal sanitary improvement of the city in the respect referred to is one of the greatest magnitude. There are about 2,000 miles of streets in the city, and population is rapidly extending in every direction. There are at this time (1880) less than 200 miles of sewers, all told, and a very large proportion are entirely unsuited for the use for which they were intended.

To construct proper sewers throughout the city, to secure the needed remodeling of house-drainage, and to provide for the permanent unobjectionable disposal of the city's filth, would involve an expenditure of money and an application of engineering skill hardly called for in any other city of the civilized world.

## CEMETERIES.

The first movement made in Philadelphia for the establishment of a cemetery not under the direct control of a religious organization was in 1825, when a "mutual association" purchased a lot of ground in what is now called Washington avenue, between Ninth and Tenth streets, which was divided into burial-lots and apportioned among the members. Two years later *Ronalson's Cemetery*, on Tenth street, was started, and in 1836 the beautiful piece of ground known as *Laurel Hill Cemetery* was set aside for the same purpose. This cemetery is divided into three portions, known as North, Central, and South Laurel Hill. It is situated on the east bank of the Schuylkill, is picturesquely placed and wooded, and contains many fine monuments. The other cemeteries of Philadelphia are:

*West Laurel Hill*, on the west bank of the Schuylkill at Pencoyd station, 110 acres.

*Monument Cemetery*, west side of Broad street, between Montgomery avenue and Diamond street.

*Mount Vernon*, Ridge avenue, immediately opposite Laurel hill.

*Glenwood*, northeast corner of Ridge avenue and Islington lane, 23 acres.

*Woodlands*, Darby road, 80 acres.

*Mount Moriah*, near Darby road, between Sixty-first and Sixty-fourth streets.

*Old Oaks*, Township Line road and Venango street.

*Odd Fellows' Cemetery*, Islington lane, 32 acres.

*Mechanics' Cemetery*, adjoining cemetery of Odd Fellows.

*Mount Peace Cemetery*, Nicetown lane, near Ridge avenue.

*Greenwood*, belonging to the Knights of Pythias, Adams street.

*Cedar Hill Cemetery*, Main street, above Paul.

*Leverington Cemetery*, Ridge road, Roxborough.

*Fairhill*, Germantown, above Cambria, belongs to members of the society of Friends (Hicksite).

*Cathedral* (Roman Catholic), Lancaster avenue, between Forty-eighth and Fifty-first streets.

*New Cathedral* (Roman Catholic), corner of Second street and Nicetown lane.

*Mount Sinai* (Jewish), Bridesburg.

*Beth El Emith* (Jewish), corner of Fishers avenue and Market street.

## MARKETS.

The provision supply of Philadelphia is superior to that of most cities, and her markets have always had a wide celebrity. In 1709 the first permanent market-house was erected in High street, west of Second. Additions were gradually made until the line of market buildings extended in an unbroken line from the Delaware to Eighth street and beyond. In 1859 the demolition of these old buildings began, and one by one they were pulled down, their place being taken by large separate buildings in different parts of the city. Philadelphia now contains from 35 to 40 public markets, of which the principal are:

The Farmers', Market street, between Eleventh and Twelfth streets.

The Eastern, corner of Fifth and Merchant streets.

The Central, Market street, between Sixteenth and Seventeenth streets.

The Franklin, northeast corner of Twelfth and Market streets.

Southwestern, corner of Market and Nineteenth streets.

Fairmount, southwest corner of Twenty-second and Spring Garden streets.

Delaware Avenue, two buildings, extending from Delaware avenue to Front street, the great depot for oysters, fish, and Jersey products.

Lincoln, southeast corner of Broad street and Fairmount avenue.

Germania, southeast corner of Poplar and Seventeenth streets.

Federal, southeast corner of Seventeenth and Federal streets.

Callowhill Street, south side, extending from Sixteenth to Seventeenth street.

West Philadelphia, Market street between Fortieth and Forty-first streets.

There are few cities in the world in which such strict attention is paid to the quality of food as in Philadelphia. The supply of butter, eggs, poultry, and milk from the neighboring counties is almost unlimited in quantity and of superior quality. Prices are moderate, and the diet of the poor is of unusual excellence. The price of beef by the carcass varies from 8 to 12 cents a pound. The principal depots for the sale of cattle, sheep, and lambs are at the Park drove-yards, Thirty-second street and Lancaster avenue; the Abattoir; the Stock-yard, Forty-fourth street and Belmont avenue; and the new stock-yards at Paschalville, in the southwest portion of the city.

## SANITARY AUTHORITY—BOARD OF HEALTH.

The chief sanitary organization of Philadelphia is vested in the board of health, an independent body composed of 12 members, 9 of whom are appointed by the board of judges of the court of common pleas and 3 by the city council. The act creating the board does not designate any fixed number to be selected from the medical profession, but at present one-third of the members are physicians. The board is in no way subject to the control of the city

government, except through the amount of appropriation made by the council. The annual expenses of the board in absence of any declared epidemic vary. For 1880 the appropriation is \$254,871 55, of which \$192,839 78 is expended for street-cleaning, collection of garbage and ashes, etc., leaving \$62,031 77 for the usual sanitary purposes, divided as follows: For quarantine station, \$14,949; for hospital for contagious diseases, \$6,900; and for expenses of general office, salary of health officer, port physician, medical inspector, etc., removal of nuisances, and incidentals, \$40,182 77. During an epidemic the board may increase its expenses to any amount the city council may approve. The authority of the board, as defined by laws and ordinances, is practically unlimited over the health and sanitary condition of the city, and the control of diseases of a contagious nature. The chief executive officer of the board is the health officer, who receives a salary of \$2,100 per annum, as fixed by an act of the assembly, and in addition the sum of \$2 for every vessel liable to health fees, making his yearly compensation about \$5,000. He is required to examine the weekly accounts of the inspectors of vessels, and report monthly to the board; to keep a cash account of the daily receipts as they occur; to keep a record of all bills; to consult with the city solicitor in all business regarding legal proceedings; to see that all orders of the board regarding quarantine, abatement of nuisances, etc., are enforced; to keep a record of all diseases of an infectious or contagious nature; to publish weekly a list of all deaths, and annually a list of all births and marriages; and to have a general superintendence over the registration department. The other executive officers are the port physician, the lazaretto (or quarantine) physician, and the quarantine master, their duties being indicated by their respective titles. In addition to the above the following assistants are regularly employed: 1 medical inspector, 1 chief inspector of street-cleaning, 10 inspectors of street-cleaning and nuisances, 2 messengers (to collect record of births), 2 inspectors of privy-cleaning, 2 vessel inspectors, and 18 vaccine physicians. All receive regular salaries except the last-named, and they are paid according to the number of persons vaccinated. With the exception of the medical inspector, all the inspectors have sufficient authority conferred on them by the mayor to arrest parties for violating the health ordinances.

#### NUISANCES.

Inspections are made only as nuisances are reported, except when specially made in certain localities. When a nuisance is reported an inspector is sent to investigate, and when the complaint is well founded the owner or agent of the property is called upon to abate the nuisance. If this is not done within the time specified in the notice the health officer does the work under instructions from the board, and, if the owner or agent fails to pay for the work, a lien is filed against the property. Whenever the cost of removing the nuisance exceeds the sum of \$25, the health officer writes proposals and lets the work out to the lowest bidder. The following is the time allowed to parties for the removal of nuisances after notice has been served:

To remove dead animals, slaughter-house offal, and other matter in a state of decomposition, and to cleanse and disinfect infected houses, 24 hours.

To cleanse overflowing and leaky privy-wells and water-closets, to disinfect foul wells, and to cleanse slaughter-house manure-pits during quarantine season, 3 days.

To cleanse full privy-wells and manure-pits, filthy houses, cellars, yards, alleys, and vacant lots, and to repair and regulate surface-drainage and leaky and defective drain-pipes, 5 days.

To remove hog-pens, to cleanse slaughter-houses and cow stables, and to fill up or drain ponds of stagnant water, 10 days.

For defective sewerage appeal is made to the city council to remedy defects through the survey and highway departments. Street-cleaning is entirely under the control of the board, and there are two ways of remedying any defects—one by doing the work at the expense of the contractors for street cleaning, and the other by annulling the contract.

The board sees that all garbage is removed, but its final disposal rests with the contractors who remove it. Ordinances prohibit the pollution of streams, and the board has full control over the removal of excrement.

#### BURIAL OF THE DEAD.

No interment of a body is allowed unless a death certificate signed by either a physician, a coroner, or the health officer is first obtained, and to which must be appended the certificate of the undertaker. In addition, the superintendent of the cemetery must furnish a certificate of burial. No disinterment or removal of a body from one grave to another in the same cemetery, or from one cemetery to another, is allowed unless a permit is first obtained from the health officer. The undertakers are required to return all certificates and permits to the office of the board once a week. The burial of a body in the inhabited or thickly settled part of the city at a distance of less than 8 feet below the surface of the ground, or in the rural districts at a less depth than 6 feet below the surface of the ground, is decided by the board to be prejudicial to health, and is positively forbidden.

#### INFECTIOUS DISEASES.

Small-pox patients are isolated only with their own consent, being then sent to the hospital for contagious diseases, which is situated outside the built-up portion of the city. Scarlet-fever patients are kept at home, but without special rules except for the lower classes. Sometimes cases are sent to the hospital for contagious diseases.

During time of severe epidemics the public schools are closed, disinfected, etc. Vaccination is compulsory only so far as concerns children attending the public schools. It is, however, done at public expense by the physicians appointed for the purpose.

## REGISTRATION AND REPORTS.

The registration of all births and deaths is under the charge of the health officer, undertakers returning all death certificates to the registration office, while messengers collect from physicians, etc., the number of births. The board reports annually to the mayor, and this report appears as an appendix to the mayor's annual message. It is also published separately by the board.

## MUNICIPAL CLEANSING.

*Street-cleaning.*—The streets are cleaned at the expense of the city, by contract, the inspectors of the board of health watching and directing the contractors. Very little of the work is done by hand, sweeping-machines being used on all the streets except some in the suburban districts. From November 1 to April 1 all the streets are cleaned once a week, and during the balance of the year some of the streets are cleaned daily, some three times a week, some twice a week, and some weekly. The work is generally well done, considering that most of the streets are paved with cobble-stones. The better-paved streets are kept in excellent condition. The annual cost of the work, including the removal of garbage and ashes, was, for the past year, \$192,839 78. The sweepings, in some instances, are used for grading the outskirts, but generally are sold to farmers. The merits of the street-cleaning of Philadelphia rest in the simplicity of the system and the economy of the administration. A new plan is to go into operation next year (1881) which it is said will be more economical, as it seeks to remedy defects now existing, *i. e.*, improper dumping-grounds, inefficient sweeping-machines, and tardy removal of street-dirt after sweeping. A new and systematic disposal of refuse will go into operation at the same time.

*Removal of garbage and ashes.*—All garbage and ashes are removed at the expense of the city. The work is done under contract, and the inspectors of the board of health supervise it. While awaiting removal garbage is kept in receptacles not larger than a half-barrel, inside private premises until the collector makes his visit, when it may be placed temporarily on the sidewalks. It is not allowed to keep garbage and ashes in the same vessel. The garbage is mainly used for feeding swine, a small portion of it going to rendering-establishments, while the ashes are used for grading in the suburbs. So far no injury to health has resulted from the manner of keeping, handling, or disposal of the garbage, though occasionally a nuisance does arise owing to neglect on the part of the contractors. The merits of the system are frequency and cheapness of removal, while its principal defect, a non-systematic manner of disposal, will be remedied in the new plan to go into effect next year.

*Dead animals.*—Dead horses are removed by private parties, and the carcasses are utilized. The carcasses of all small animals are removed by the street-cleaning contractor and buried. Dead animals on vacant lots are removed at the expense of the owners of the lots. The rendering establishments in which dead horses are utilized are under the regulations of the board of health.

The cost of the removal of dead animals, except where the removal is from vacant lots, is included in the cost of street-cleaning, etc. No record is kept of the number of animals removed annually, and the system is reported as working satisfactorily.

*Liquid household wastes.*—Where sewers exist, all the liquid wastes from houses pass into them; where there are no sewers, chamber-slops are deposited in privy-vaults, while kitchen-slops and laundry wastes are disposed of by surface-drainage. No definite estimate has ever been made as to the proportion of wastes that pass into the street-gutters. Dry wells are used only to a limited extent, and they are porous, the idea being to sink them to gravel. The cesspools are nominally tight and have overflows connecting with the sewers. They receive the wastes from water-closets, and are cleaned out in the same manner as vaults. The street contractors are required to flush the gutters as often as they clean the streets.

The board of health reports that there have been cases in the suburbs of the city where the contamination of drinking-water by the overflowing or underground escape of the contents of cesspools and privy-vaults seemed probable.

*Human excreta.*—The board of health estimates that out of the 145,000 buildings in the city about 26,000 are provided with water-closets, the remainder depending on privy-vaults. Nearly all the water-closets deliver into the sewers, either direct or by cesspools that are connected with the sewers by overflows, though in some of the old houses they connect with the privy-vaults. The privy-vaults are open below, with brick and mortar walls. All vaults, sinks, and cesspools are emptied in the day-time, by the odorless-excavator process, the persons doing the work being licensed by the board of health. Privy-cleaners must obtain a permit from the board before cleaning any vault or cesspool, and this permit must be returned to the health officer the day after the work has been performed. The dry-earth system is used only to a limited extent. The night-soil is generally used as a fertilizer, in the untreated state, but none of it is so used on land within the gathering-ground of the public water-supply, so far as the jurisdiction of the city extends.

*Manufacturing wastes.*—All the liquid wastes that are not utilized for other purposes flow into the sewers. The solid wastes, if of any value, are used, and the remainder carted beyond the built-up portion of the city.

## POLICE.

The police force of Philadelphia is appointed and governed by the mayor of the city. The chief of police—salary, \$2,325 per annum—is the chief executive officer, and has direct control of the force, under the direction of the mayor. The remainder of the force in the several grades, and the salaries of each, are as follows: 4 captains at \$1,350 each per annum; 8 detectives at \$1,080 each per annum; 27 lieutenants at \$1,035 each per annum; 57 sergeants at \$974 16 each per annum; 1,200 patrolmen at \$2 25 each per day. In addition, there are a lieutenant and 24 men, with 2 tug-boats, who act as harbor police. The force is assigned to one central station and 24 police districts. The central station is at the city hall, whence it has telegraphic communication with the district stations.

The uniform is of dark-blue cloth, with gilt buttons, and each man furnishes his own, the city allowing each policeman \$20 annually in addition to the regular pay for this purpose. The men are equipped with a badge or shield having on it the coat of arms of the city, and a belt, a club, a rattle, and a revolver. The force in each district is divided into No. 1 and No. 2 squads. No. 1 squad goes on duty at 5 p. m. and remains until midnight. No. 2 relieves No. 1, and remains on duty until 7 a. m., when it is relieved by one-half of No. 1 squad. The first half of No. 1 squad remains on duty until noon, when it is relieved by the other half of the squad, which remains on duty until 5 p. m. Thus half the men are on street duty at night, one-half remaining in the station-houses; and during the day one-quarter of the men are on duty in the streets, one-quarter having a day off every four days, and the remainder are on duty in the station-houses. The police force patrols nearly the whole area of the city. During the past year (1880) there were 44,315 persons arrested, the principal causes being for intoxication and disorderly conduct. Some of these were disposed of by fines, and other cases were returned to court and then disposed of. No account is kept of the amount of property lost or stolen in the city, but during the year the police recovered lost and stolen property to the value of \$75,026 89, and returned the same to the owners. The number of station-house lodgers during 1880 was 90,202, as against 109,673 in 1879.

The police force is required to co-operate with the fire department by preserving peace at all fires and preventing persons from crowding on the "fire-grounds". Special policemen are appointed, at the request of citizens, for duty as watchmen, etc. They are paid by the persons who have them appointed, and are required to assist the regular force when called on so to do. The yearly cost of the police department, including the expenses of the mayor's office, is \$1,270,633 37 for 1880.

## PRISONS.

The Eastern penitentiary of Philadelphia occupies a lot of about 11 acres, extending from Fairmount and Corinthian avenues to Twenty-second street and northward to Brown. The building has a frontage of 670 feet. It was begun in 1823 and finished in 1829. The original intention was to conduct it on what was called the Pennsylvania plan of solitary confinement; but this, carried out strictly, proved productive of insanity among the prisoners, and the system, though still called solitary, has gradually been relaxed, even to the extent of occasionally putting two persons into one cell. The prisoners are taught various handicrafts, they are allowed to write and receive letters under inspection of the officers, and a library of 6,000 volumes is open for their use.

The Moyamensing, or Philadelphia County prison is situated on Passyunk road near Tenth street. The building was finished in 1836. It is solidly built of Quincy granite, and contains 400 cells for male and 100 for female prisoners. The appropriation for the support of this prison in 1879 was \$124,396.

The house of refuge occupies a lot extending from Parish street to Poplar and from Twenty-second to Twenty-third street. It was incorporated in 1826 for "the employment of the idle, the instruction of the ignorant, and the correction of the depraved". It has separate departments for boys and girls and a special department for colored children. It will accommodate about 600 inmates.

The house of correction is on the south bank of the Pennypack creek at its junction with the Delaware. It occupies a piece of ground from 200 to 300 acres in extent, which is in part devoted to farming and industrial purposes. The building is intended for the reception of vagrants, drunkards, and persons guilty of slight offenses against the peace and good order of the community. There is attached to it a chapel capable of holding 2,500 persons.

## PUBLIC SCHOOLS.

The public schools of Philadelphia are supported by taxation, and are conducted for the benefit of all residents of the city. They are governed by a board of education, and there are school directors for each section, who are elected annually by a vote of the citizens. The schools are graded with primary, secondary, consolidated, and grammar schools. There are besides a high school for boys, and a normal school for girls, which latter is meant for the education of young women who intend to become teachers. In 1879 the subdivisions of the educational system of Philadelphia included the following schools: 1 high school for boys, 1 normal school for girls, 1 school of practice, 64 grammar schools, 30 consolidated schools, 137 secondary schools, 238 primary schools; making a total of 472. The total number of teachers employed was 2,070. The total number of pupils under instruction was 105,567. The amount expended for the support of the schools was \$1,430,942 33, and the amount appropriated for the erection of new school-houses was \$79,256 11.

## LIBRARIES.

Philadelphia is rich in public as well as in private libraries. According to the returns of the census of 1870 there were not less than 3,700 libraries in the city, comprising 2,985,770 volumes. During the intervening decade these numbers have doubtless increased considerably. *The Philadelphia*, the most important of the public libraries, is one of the oldest in the United States, and, so far as is known, was the first to inaugurate the lending system, now so prevalent. It was founded in 1731 by that "Junto" of which Franklin was a prominent member. At his suggestion the members of the little club brought each his small store of books to their club-room, that they might be ready for consultation and a "common benefit". Later, the plan proving to have inconveniences, Franklin started a project for a subscription library, and from the small beginning grew the present inestimable collection, amounting, with the Lyceum library, which is united with it, to over 100,000 volumes.

Until 1878 the Philadelphia library continued to occupy the brick building on the corner of Fifth and Library streets, erected for its accommodation in 1790. Its more valuable books and collections were then transferred to a splendid fire-proof building on Broad street, bequeathed to the Philadelphia library on the condition that it should henceforth be known as the "Ridgeway library". This building has accommodations for 400,000 books. The fiction and modern works are now placed in a building designed in imitation of the old edifice but nearer to the center of the city.

*The Mercantile Library* is located on the west side of Tenth street, between Chestnut and Market, in a building 300 feet deep by 80 wide, erected in 1869. The number of volumes in the library is over 130,000, and its membership is estimated at over 12,000.

*The Athenaeum Library and Reading Room* is on the corner of Sixth and Adelphi streets, below Walnut. It was instituted in 1813, and in 1847 was removed to its present building, one of the finest in the city.

*The Apprentices' Library*, on the southwest corner of Fifth and Arch streets, is the only free library in the city. It was established in 1820 "for the use of apprentices and other young persons, without charge of any kind for the use of the books". It contains some 25,000 volumes, has a free reading-room for men, and it is estimated that nearly 80,000 young people have since its beginning enjoyed the advantages which it furnishes.

*The Friends' Library*, 304 Arch street, began with a bequest of books from Thomas Chalkley in 1741. It contains 7,000 volumes, largely relating to the history and progress of the Quakers.

*Friends' Library*, Race street, west of Fifteenth, established in 1834, has an equal number of books.

*Law Association Library*, southeast corner of Sixth and Walnut streets, was founded in 1802 by members of the bar for the sake of keeping a complete collection of law books within reach of the members of the profession.

*Southwark Library Company*, Second street, below German, is a stock company, founded in 1822, and has about 10,000 volumes.

*Mechanics' Institute*, Southwark; about 4,000 volumes.

*City Institute*, Eighteenth and Chestnut streets; 3,000 volumes.

*Spring Garden Institute*, corner of Broad and Spring Garden streets; 5,000 volumes.

*Moyamensing Institute Library*, corner of Eleventh and Catherine streets; founded in 1852; 4,000 volumes.

*Kensington Institute Library*, corner of Girard avenue and Day street.

*Historical Society of Pennsylvania*, 820 Spruce street; founded in 1824; 17,000 volumes.

*Library of Numismatic and Antiquarian Society*, southwest corner of Eighteenth and Chestnut streets.

*Library of Friends' Historical Collection*, in the Pennsylvania Historical Society building.

*Library of Baptist Historical Society*, 550 Arch street.

*Library of Methodist Historical Society*, 1018 Arch street.

*Library of Presbyterian Historical Society*, 1334 Chestnut street.

*German Society Library*, 24 South Seventeenth street; 10,000 volumes.

## FIRE DEPARTMENT.

The following regarding the fire department of Philadelphia is taken from the annual report of the chief engineer for the year ending December 31, 1879:

The department as now organized consists of 1 chief engineer, 5 assistant engineers, 33 foremen, 28 enginemen, 28 firemen, 33 drivers, 5 tillermen, 260 permanent hosemen and laddermen, and 8 temporary hosemen located in the rural districts. They are arranged into 33 companies—28 engine companies and 5 truck companies. The apparatus of the department consists of 34 steam fire-engines and 6 trucks.

At present there are in use at the different stations about 35,000 feet of hose of all kinds, and of this quantity it is stated that only a small portion can be relied on in case of emergency. It is stated that 50,000 feet are necessary to thoroughly equip the department. Regarding the fire-alarm telegraph, the chief engineer says:

The present method of conveying the alarms is so faulty and uncertain, it is hardly worthy the name of "telegraph", as understood by the public. The boxes are unreliable, sparsely scattered, and utterly worthless. The whole system is so completely run down for the want of necessary repair that it is almost worse than useless. \* \* \* So uncertain has it become that the men now wait for several rounds from the box before starting, preferring to remain in the house rather than go several miles out of the direction of the flames.

During the year 1879 the whole number of fires attended by the department was 742, with a loss of property amounting to \$1,373,920. This loss was covered by an insurance amounting to \$5,860,660. The total cost of the department for the year was \$442,798 37.

## COMMERCE AND NAVIGATION.

[From the reports of the Bureau of Statistics for the fiscal years ending June 30.]

Customs district of Philadelphia, Pennsylvania.	1879.	1880.
Total value of imports .....	\$24,377,271	\$35,961,292
Total value of exports:		
Domestic .....	\$47,013,751	\$49,612,195
Foreign .....	\$64,951	\$37,498
Total number of immigrants .....	8,266	21,727

Customs district of Philadelphia, Pennsylvania.	1879.		1880.	
	Number.	Tons.	Number.	Tons.
<b>Vessels in foreign trade:</b>				
Entered .....	1,840	1,315,649	1,825	1,391,312
Cleared .....	1,624	1,221,048	1,580	1,240,364
<b>Vessels in coast trade and fisheries:</b>				
Entered .....	1,064	551,336	1,128	583,600
Cleared .....	1,325	740,400	1,474	769,751
Vessels registered, enrolled, and licensed in district..	979	209,527	985	215,001
Vessels built during the year .....	40	21,164	43	21,295

## MANUFACTURES.

The following is a summary of the statistics of the manufactures of Philadelphia for 1880, being taken from tables prepared for the Tenth Census by William Arrott, chief special agent:

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
All industries.....	8,567	\$187,148,837	113,075	56,818	15,634	\$64,265,966	\$199,155,477	\$324,342,935
Agricultural implements .....	8	454,000	336		8	170,547	302,875	739,808
Artificial feathers and flowers (see also Millinery and lace goods).....	6	81,500	34	264	34	65,330	91,070	229,500
Artificial limbs (see also Surgical appliances).....	5	10,300	16			5,324	2,000	11,700
Awnings and tents .....	14	42,900	79	50	11	25,964	65,989	143,984
Bags, other than paper .....	5	198,000	42	110		40,215	473,820	551,000
Bags, paper .....	11	305,200	96	261	6	94,548	510,327	712,128
Baking and yeast powders (see also Drugs and chemicals).....	3	9,000	7	6	1	3,548	26,000	48,500
Baskets, rattan and willow ware.....	11	26,900	16		26	7,154	20,291	33,011
Belting and hose, leather .....	8	279,750	74		6	41,165	361,871	467,545
Billiard tables and materials .....	3	25,000	16			10,300	26,300	49,700
Blacking .....	4	175,000	42	97	5	44,488	220,061	479,466
Blacksmithing (see also Wheelwrighting) .....	258	397,730	611		23	209,259	347,786	926,533
Bluing .....	4	50,200	17	19	1	12,500	25,438	75,300
Bone-, ivory-, and lamp-black.....	3	418,000	76	2	16	28,900	213,500	282,000
Bookbinding and blank-book making .....	51	853,250	312	795	138	557,419	709,317	1,631,070
Boot and shoe findings .....	15	95,450	53	57	2	40,821	100,230	174,420
Boot and shoe uppers .....	4	7,800	6	14	3	5,370	13,893	23,175
Boots and shoes, including custom work and repairing.....	551	2,970,190	4,931	2,337	267	2,788,409	4,810,017	9,034,496
Boxes, cigar .....	12	59,150	51	25	13	28,145	70,480	145,612
Boxes, fancy and paper.....	33	417,000	208	1,172	55	283,216	370,762	833,683
Boxes, wooden packing .....	46	329,870	369	11	47	169,990	443,531	723,767
Brass castings (see also Bronze castings).....	38	732,001	541	19	65	246,312	332,830	1,369,151
Bread and other bakery products .....	349	2,633,998	2,014	221	113	918,600	3,613,201	5,735,533
Brick and tile (see also Terra-cotta ware).....	78	2,342,453	2,646		311	836,108	444,561	1,698,536
Bronze castings (see also Brass castings) .....	4	110,150	41		1	21,533	394,589	501,412

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
Brooms and brushes.....	60	\$447,884	455	56	199	\$180,105	\$416,276	\$792,179
Buttons.....	16	156,400	317	166	112	164,113	141,339	377,482
Card cutting and designing.....	5	8,993	15	12	6	8,665	10,920	33,320
Carpentering.....	326	1,556,630	2,695	.....	6	1,338,545	3,614,618	5,131,862
Carpets, other than rag (see also Woolen goods).....	170	7,194,483	5,686	2,378	759	3,629,331	8,964,581	14,263,510
Carpets, rag.....	58	61,375	146	1	12	47,254	97,419	190,660
Carriage and wagon materials.....	4	75,600	48	.....	.....	20,200	65,200	161,000
Carriages and sleds, children's.....	8	44,800	80	2	1	37,761	96,651	171,742
Carriages and wagons (see also Wheelwrighting).....	110	1,921,300	1,562	.....	16	767,834	828,643	2,057,119
Cars, railroad, street, and repairs.....	19	1,397,792	1,192	2	3	567,852	2,321,956	3,174,145
Cleansing and polishing preparations.....	4	176,300	31	3	7	16,100	37,175	110,000
Cloth finishing.....	5	107,000	64	11	17	32,702	36,236	92,000
Clothing, men's.....	426	8,726,276	6,718	10,849	81	4,085,239	11,853,139	18,506,748
Clothing, women's.....	49	792,950	308	2,300	48	479,436	1,593,610	2,466,410
Coffee and spices, roasted and ground.....	16	509,500	121	64	4	75,753	1,068,586	1,294,986
Coffins, burial cases, and undertakers' goods.....	33	191,300	119	12	2	70,147	131,720	369,660
Combs.....	4	46,500	62	2	3	31,906	39,200	81,420
Confectionery.....	173	1,236,390	742	412	163	355,339	1,834,108	2,653,674
Cooperage.....	72	424,650	643	.....	17	258,270	586,245	997,601
Coppersmithing (see also Tinware, copperware, and sheet-iron ware).....	8	145,500	87	2	1	47,104	139,749	238,823
Cordage and twine.....	10	925,500	301	178	158	229,033	1,096,500	1,541,748
Cork cutting.....	7	45,050	33	12	10	19,264	26,810	59,060
Corsets.....	10	62,800	20	171	2	44,018	129,061	265,565
Cotton goods (see also Hosiery and knit goods; Mixed textiles).....	145	8,332,550	3,724	5,699	1,810	3,073,791	8,422,633	14,268,696
Crucibles.....	5	170,250	50	.....	.....	26,060	144,271	212,189
Cutlery and edge tools (see also Hardware; Tools).....	33	1,120,192	784	6	68	349,917	395,873	942,622
Dentists' materials.....	4	715,060	255	69	11	156,175	159,600	564,060
Drugs and chemicals (see also Baking and yeast powders; Patent medicines and compounds).....	54	10,185,164	1,856	337	44	1,063,056	7,481,367	11,804,793
Dyeing and cleaning.....	11	32,650	48	1	2	10,747	23,540	49,660
Dyeing and finishing textiles.....	57	2,359,846	1,462	188	202	789,799	1,773,696	4,310,465
Electrical apparatus and supplies (see also Telegraph and telephone apparatus).....	3	15,000	16	.....	1	7,472	7,149	20,770
Electroplating.....	20	83,463	71	4	11	34,102	32,175	100,564
Engravers' materials.....	3	5,300	7	.....	1	6,920	3,700	11,764
Engraving and die-sinking.....	14	41,150	52	1	4	28,288	18,421	74,546
Engraving, steel.....	5	49,550	41	10	18	30,630	24,695	89,463
Engraving, wood.....	20	17,725	72	3	2	46,688	12,965	95,550
Fancy articles.....	18	153,600	127	39	13	76,155	129,512	254,566
Fertilizers.....	13	610,400	259	.....	1	114,101	668,281	977,750
Files (see also Saws).....	12	229,450	266	4	69	115,275	145,628	312,513
Fire-arms.....	3	65,000	53	.....	3	25,500	18,500	64,760
Flouring- and grist-mill products.....	17	237,800	82	.....	.....	37,947	1,693,531	1,954,715
Food preparations.....	10	376,500	100	83	10	61,127	226,722	371,603
Foundry and machine-shop products (see also Steam fittings and heating apparatus).....	226	12,231,058	9,305	68	563	4,635,977	6,178,841	13,455,238
Fruits and vegetables, canned and preserved.....	7	252,000	72	138	32	59,442	454,060	553,760
Furnishing goods, men's.....	21	123,740	61	331	36	87,540	317,736	498,567
Furniture (see also Mattresses and spring beds; Upholstering).....	195	3,149,073	2,821	60	108	1,337,410	2,461,654	4,839,853
Furniture, chairs.....	23	90,850	237	12	45	132,058	164,163	389,194
Furs, dressed.....	15	235,000	50	151	5	58,900	290,800	493,700
Galvanizing.....	5	330,000	210	.....	5	163,632	678,320	912,875
Gas and lamp fixtures.....	5	251,500	283	43	11	133,759	93,085	355,228
Gas machines and meters.....	9	468,500	354	7	15	151,653	223,498	464,804
Glass.....	10	1,202,419	1,358	128	751	655,023	694,393	1,621,959
Glass, cut, stained, and ornamented.....	13	55,100	102	12	10	49,545	47,393	134,962
Glue.....	3	1,657,500	438	75	47	157,000	1,190,700	1,626,000
Gold and silver leaf and foil.....	7	224,000	156	157	10	134,800	339,750	519,344
Grease and tallow.....	11	268,975	68	.....	1	39,379	933,943	1,120,198
Hairwork.....	18	84,100	23	57	6	20,677	40,260	83,737
Hand-knit goods.....	6	82,100	16	566	315	82,700	107,335	215,000
Hardware (see also Cutlery and edge tools; Tools).....	39	575,700	496	9	73	246,017	423,770	853,588
Hat and cap materials.....	6	39,600	21	2	5	11,430	79,600	132,160

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
Hats and caps, not including wool hats.....	63	\$792,253	1,237	549	50	\$702,880	\$1,058,601	\$2,300,786
Hosiery and knit goods (see also Cotton goods; Woolen goods).....	95	3,402,690	2,103	4,935	1,268	2,000,528	4,530,480	8,173,415
Ink.....	11	395,800	79	4	11	60,508	168,175	358,050
Instruments, professional and scientific.....	26	847,086	224	7	14	137,798	87,307	349,126
Iron and steel.....	16	2,999,245	1,897	.....	171	1,045,570	2,580,512	4,257,179
Iron bolts, nuts, washers, and rivets.....	10	876,500	801	60	218	307,581	767,388	1,305,006
Iron forgings.....	10	323,800	325	.....	20	128,422	323,893	561,487
Iron nails and spikes, cut and wrought.....	4	21,350	11	1	5	5,383	17,735	30,518
Iron pipe, wrought.....	3	615,000	574	1	12	92,000	319,000	510,000
Iron railing, wrought.....	15	100,250	108	.....	1	35,845	99,648	180,682
Ivory and bone work.....	10	208,750	251	29	63	111,638	151,409	353,019
Japanning.....	5	13,100	33	8	4	8,705	8,298	26,625
Jewelry.....	29	426,901	378	24	27	210,369	410,106	789,886
Jewelry and instrument cases.....	3	25,000	37	13	.....	11,300	13,000	35,000
Kindling wood.....	27	93,550	103	.....	14	34,162	102,698	177,620
Lamps and reflectors.....	11	123,550	86	12	6	47,958	51,326	137,030
Lasts.....	6	37,400	29	8	16	18,295	10,890	44,234
Lead, bar, pipe, sheet, and shot.....	3	365,000	29	.....	2	23,076	620,500	758,600
Leather, curried.....	22	261,706	123	1	2	72,950	761,037	907,552
Leather, dressed skins.....	54	2,584,747	2,068	102	88	1,158,148	4,895,942	6,741,796
Leather, tanned.....	6	440,165	47	.....	.....	28,717	231,725	308,970
Liquors, malt.....	96	7,258,350	1,311	.....	1	720,069	3,469,205	5,897,811
Lithographing (see also Printing and publishing).....	23	647,550	472	64	59	259,978	255,692	743,331
Lock and gun-smithing.....	20	57,400	48	.....	4	23,922	27,330	81,573
Looking-glass and picture-frames.....	55	760,143	663	18	67	312,889	558,094	1,180,400
Lumber, planed (see also Sash, doors, and blinds; Wood, turned and carved).....	5	269,000	112	.....	5	47,366	184,371	292,634
Lumber, sawed.....	9	383,300	151	.....	.....	89,386	444,635	610,460
Malt.....	18	2,075,000	225	.....	.....	79,902	1,441,280	1,879,400
Mantels, slate, marble, and marbleized.....	8	61,800	124	.....	2	47,812	86,851	174,136
Marble and stone work.....	110	1,764,488	1,418	.....	2	663,818	1,026,580	2,104,721
Masonry, brick and stone.....	78	256,100	550	.....	1	246,727	328,641	735,888
Matches.....	3	106,300	18	32	11	14,363	69,485	181,000
Mattresses and spring beds (see also Furniture).....	25	121,250	112	46	13	46,469	250,090	353,390
Millinery and lace goods (see also Artificial feathers and flowers).....	40	593,300	85	1,139	54	205,942	1,063,779	1,518,578
Mineral and soda waters.....	13	167,000	155	.....	1	61,338	135,570	242,615
Mixed textiles (see also Cotton goods; Silk and silk goods; Woolen goods).....	87	8,391,651	4,009	5,394	1,212	3,120,014	8,759,101	14,098,779
Models and patterns.....	23	58,525	94	10	4	52,132	27,151	117,639
Musical instruments and materials (not specified).....	6	16,200	21	2	.....	13,222	7,180	29,500
Musical instruments, organs and materials.....	8	37,000	40	.....	5	14,254	8,340	32,164
Musical instruments, pianos and materials.....	5	169,500	153	.....	1	87,044	81,145	217,924
Oil, lubricating.....	3	43,000	40	.....	.....	16,480	267,311	330,870
Painting and paperhanging.....	349	727,227	1,986	3	30	792,067	784,481	2,097,052
Paints (see also Varnish).....	21	1,776,742	375	24	2	219,450	1,546,326	2,068,505
Paperhangings.....	4	820,000	263	1	137	161,120	384,252	708,979
Paper.....	7	960,000	343	109	.....	201,850	871,000	1,411,830
Patent medicines and compounds (see also Drugs and chemicals).....	35	1,648,800	141	112	2	130,995	366,934	1,159,198
Perfumery and cosmetics.....	8	132,867	34	53	3	32,515	148,488	229,305
Photographing.....	47	267,450	169	85	10	109,203	86,381	317,120
Photographing materials.....	3	41,000	11	27	2	13,510	50,400	81,000
Pickles, preserves, and sauces.....	6	21,900	23	3	1	7,312	55,662	86,280
Pipes, tobacco.....	5	70,600	219	13	42	89,565	66,800	209,500
Plated and Britannia ware (see also Silverware).....	9	136,200	140	30	10	52,474	70,542	149,805
Plumbing and gasfitting.....	241	719,744	954	.....	28	402,186	758,213	1,510,645
Pocket-books.....	5	250,000	271	209	48	120,000	219,500	412,000
Printing and publishing (see also Lithographing).....	181	5,728,911	3,707	470	909	2,141,415	2,840,013	6,834,964
Printing materials.....	5	45,200	38	.....	5	23,470	18,298	52,366
Pumps, not including steam-pumps.....	3	27,500	10	.....	.....	3,890	20,355	36,984
Refrigerators.....	6	75,992	39	.....	1	20,595	68,180	107,963
Regalia and society banners and emblems.....	11	78,890	46	123	6	24,273	75,085	139,834
Roofing and roofing materials.....	105	365,755	439	3	4	185,748	288,982	620,107

Mechanical and manufacturing industries.	No. of establishments.	Capital.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Value of materials.	Value of products.
			Males above 16 years.	Females above 15 years.	Children and youths.			
Saddlery and harness .....	116	\$333,964	434	7	13	\$178,725	\$369,038	\$729,299
Safes, doors, and vaults, fire-proof .....	4	117,000	110			67,500	81,015	195,930
Sash, doors, and blinds (see also Lumber, planed; Wood, turned and carved).	25	819,771	543		8	265,263	420,896	892,109
Saws .....	3	1,402,500	1,051	6	134	587,750	566,780	1,517,000
Scales and balances .....	7	123,000	151		9	77,511	56,350	195,500
Sewing-machines and attachments .....	6	1,170,300	434	8	51	223,500	221,650	618,977
Shipbuilding .....	51	3,321,731	1,706			1,273,322	1,529,504	3,267,981
Shirts .....	49	708,294	171	2,169	52	531,994	1,028,104	1,790,311
Shoddy (see also Mixed textiles) .....	8	125,500	56	33	2	28,997	400,977	481,895
Show-cases .....	7	19,950	30		3	15,410	22,540	53,515
Silk and silk goods (see also Mixed textiles) .....	47	1,313,960	953	1,708	259	620,620	1,615,455	3,162,340
Silverware (see also Plated and britannia ware) .....	6	102,000	68	3	4	44,131	75,283	169,384
Slaughtering and meat-packing, not including retail butchering .....	19	1,965,625	359			165,353	7,042,781	7,869,114
Soap and candles .....	32	1,410,262	345	60	27	266,985	1,412,038	2,023,403
Sporting goods .....	3	26,600	30	11	1	19,500	20,000	55,000
Springs, steel, car, and carriage .....	7	297,500	158		4	77,062	47,770	611,960
Stationery goods .....	8	52,500	41	15	24	18,557	205,600	263,912
Steam fittings and heating apparatus (see also Foundry and machine-shop products).	12	215,600	239		11	104,906	220,342	451,380
Stencils and brands .....	10	68,100	42	2	6	19,592	36,452	85,683
Stereotyping and electrotyping (see also Type founding) .....	5	220,000	172	17	2	104,982	51,070	233,560
Stone and earthen-ware .....	7	297,500	195	20	20	76,760	40,410	187,900
Straw goods .....	6	46,200	46	187	6	46,000	105,704	222,218
Sugar and molasses, refined .....	11	6,072,000	1,073		5	474,017	21,943,943	24,294,929
Surgical appliances (see also Artificial limbs) .....	6	129,500	63	44	4	43,314	69,821	149,273
Telegraph and telephone apparatus (see also Electrical apparatus and supplies).	3	37,000	23		3	9,643	21,344	37,840
Terra-cotta ware (see also Brick and tile) .....	4	71,000	55			16,150	18,150	57,000
Tinware, copperware, and sheet-iron ware (see also Coppersmithing) .....	272	1,334,322	1,480	48	118	698,297	1,305,687	2,660,909
Tobacco, chewing, smoking, and snuff (see also Tobacco, cigars and cigarettes).	4	274,000	79	54	15	40,400	288,351	500,570
Tobacco, cigars and cigarettes (see also Tobacco, chewing, smoking, and snuff).	473	1,268,465	1,742	253	143	892,540	1,085,525	2,617,725
Tools (see also Cutlery and edge tools; Hardware) .....	6	1,541,282	601			279,214	216,458	695,160
Toys and games .....	8	79,100	99	77	149	50,278	51,225	138,886
Trunks and valises .....	21	113,100	139		3	62,485	160,022	280,742
Type founding (see also Stereotyping and electrotyping) .....	4	810,000	279	2	25	146,694	89,400	417,132
Umbrellas and canes .....	28	1,868,900	616	996	105	478,847	1,777,304	2,804,874
Upholstering (see also Furniture) .....	71	189,000	218	60	18	114,563	292,950	554,230
Upholstering materials .....	3	95,000	15	49		24,160	71,000	122,000
Varnish (see also Paints) .....	5	228,000	53		7	29,140	159,275	307,910
Vinegar .....	8	50,285	26	1	3	19,280	81,644	120,960
Washing-machines and clothes-wringers .....	3	2,500	5			1,700	850	4,050
Watch and clock repairing .....	14	46,065	16	1	2	9,184	9,995	30,772
Watch cases .....	9	530,175	363	54	10	208,722	492,480	908,180
Wheelwrighting (see also Blacksmithing; Carriages and wagons) .....	87	140,275	188		6	86,568	86,932	252,997
Whips .....	5	23,500	23		6	8,250	13,200	44,000
Window blinds and shades .....	23	95,950	104	17	16	40,133	133,767	230,016
Wire .....	3	60,500	24	12		13,300	77,810	109,950
Wirework .....	14	97,250	109	1	51	58,816	142,441	268,282
Wood, turned and carved (see also Lumber, planed; Sash, doors, and blinds).	31	170,950	302	17	48	113,383	108,743	280,652
Wooden ware .....	8	196,000	86			35,950	40,500	112,315
Woolen goods (see also Carpets, other than rag; Mixed textiles; Worsted goods).	89	11,752,900	5,316	4,543	1,385	3,506,951	14,211,518	21,349,810
Worsted goods (see also Woolen goods) .....	24	4,459,639	1,477	2,071	789	1,295,168	6,000,940	8,327,282
All other industries (a) .....	55	4,974,144	1,506	804	107	858,368	4,796,307	7,080,504

a Embracing carboard; carpets, wood; cheese and butter (factory); clothing, horse; coal-tar; collars and cuffs, paper; dentistry, mechanical; foundry supplies; gloves and mittens; gold and silver, reduced and refined; grindstones; hand-stamps; housefurnishing goods; iron work, architectural and ornamental; lard, refined; lightning rods; liquors distilled; millstones; mucilage and paste; oil, lard; oil, linseed; oilcloth, floor; oleomargarine; paving materials; pens, steel; registers, car-fare; rubber and elastic goods; sand and emery paper and cloth; sewing-machine cases; soda-water apparatus; spectacles and eyeglasses; stamped ware; taxidermy; tinfoil; wood pulp; and zinc.

From the foregoing table it appears that the average capital of all establishments is \$21,845 32; that the average wages of all hands employed is \$346 40 per annum; that the average outlay in wages, in materials, and in interest (at 6 per cent.) on capital employed is \$32,059 11.

### THE CENTENNIAL EXHIBITION.

As the centennial anniversary of American independence drew near, the question of its proper celebration was much discussed. To John L. Campbell, esq., of Indiana, afterward secretary of the centennial commission, belongs the credit of suggesting, in 1866, the International Exhibition, which ten years later so well commemorated the great event. In 1866, and again in 1868, Mr. Campbell brought this subject to the notice of the mayor of Philadelphia, who, urged it upon the attention of influential citizens and of the Franklin Institute. The city authorities heartily adopted the suggestion of an appeal to the general government for national aid.

On the 9th of March, 1870, a bill was introduced in Congress by Mr. Morrell, of Pennsylvania, "to provide for holding an international exhibition of arts, manufactures, and the products of the soil and mine in the city of Philadelphia in the year 1876". The opposition to the bill was great and the delays were discouraging. Other cities strove to secure the honor and advantages of the exhibition for themselves. The many historical and other claims of Philadelphia were either forgotten or ignored, and it was only after a visit to that city by the congressional committee on manufactures, accompanied by many members of both houses of Congress, that a decision in its favor was finally made.

Fairmount park was selected as the site of the exhibition.

Not until March 3, 1871, was the bill passed and approved, authorizing the exhibition to be held in July, 1876, under the direction of a centennial commission, whose members should be nominated, within a year from the passage of the act, by the governors of all the states and territories, and confirmed by the President. The centennial commission thus formed was organized March 4, 1871, and active preparations were at once begun.

No financial provision for the undertaking had been made by the government, and the commission was at once confronted by the serious problem of raising money. The initial expenses had been paid by Philadelphia, \$25,000 having been raised for the purpose, but that the burden of a national enterprise should be borne by one city was undesirable.

The commission declining to assume the responsibility of the financial management of the exhibition, it was decided to place the enterprise on a business footing, so that the whole country should have an opportunity to contribute funds and should have a voice in the management. Congress was applied to for the charter of a corporation which should have power, under the direction of the centennial commission, to raise \$10,000,000 by the issue of stock, and upon which corporation should "devolve all duties and powers necessary to conduct the work to a successful issue". In June, 1872, this act incorporating the "centennial board of finance" passed Congress and received the approval of the President. It named two corporators from each congressional district and four for each state and territory. This board had authority to secure subscriptions to the capital stock to an amount not exceeding \$10,000,000, to be divided into shares not exceeding \$10 each. Books of subscription were opened in all the states, and the commissioners were requested to name banks or bankers who might act as agents for securing subscriptions, and for a period of 100 days the people were invited to subscribe. At the expiration of this time the commissioners called a meeting of the corporators and subscribers, and elected a board of 25 directors from a list of 100 stockholders, which election was to be held annually.

Until the organization of the board of finance, Philadelphia had defrayed all the expenses, and in addition to the \$25,000 subscribed for the initial meetings she had again contributed \$50,000 for current expenses of the commission and for opening the books of subscription.

It was important to inform the general public of the nature of the enterprise, and articles were accordingly published in the newspapers of the country giving an idea of the work. Circular addresses were sent to all societies and associations, and also to the clergy and professional men throughout the country.

According to the act of Congress, sufficient provision must be made for the necessary buildings before any formal announcement of the exhibition could be made by the President. Renewed efforts were therefore made to dispose of the stock and to obtain aid from the city and state treasuries. Deputations from the committee of centennial commission, citizens' committees, committees of Philadelphia councils, and the Fairmount Park commissioners made personal application to the senate and house of general assembly at Harrisburg on the 28th

of January, 1873, setting forth the benefits of the exhibition to the state and country, and asking for an appropriation of \$1,000,000. The city councils were also asked for an appropriation of \$500,000. Memorials were prepared and signed in all parts of Pennsylvania urging these appropriations, which were designed for the erection of the permanent buildings.

The opposition to these appropriations was very great, and many legislators fancied that, under the plea of erecting a memorial building, Philadelphia would build one suitable for legislative purposes, and thus effect the removal of the capital from Harrisburg. These fears were soon removed by the manifestation of public interest in the exhibition all over the country, and especially by a mass-meeting held in Philadelphia, in which eminent men from all parts of the country took part, and at which a large increase to the stock subscriptions was announced.

On the 27th of March the bill was passed appropriating \$1,500,000 for the erection of permanent buildings, which, with the stock subscriptions, amounting to \$722,740, enabled the governor of Pennsylvania to notify the President that the required sum had been raised.

On the 24th of June, 1873, the formal transfer of the grounds was made in the presence of representatives of the national government, and the Secretary of the Navy read the President's proclamation announcing and commending the centennial exhibition. Copies of the proclamation and regulations for the exhibition, with a letter from the Secretary of the Navy, were sent to each diplomatic representative.

Through an omission in the President's proclamation this notification was not considered by the foreign governments as an official invitation, and not being responded to, the centennial commission remained in ignorance of their intentions in regard to taking part in the exhibition. This caused much delay and embarrassment to the commission. On June 5, Congress, by resolution, directed the President to invite the co-operation of these governments in regular diplomatic form. This was done, and the responses were prompt and cordial, thereby seven nations expressing an intention to participate.

Mr. J. W. Forney was appointed special commissioner to visit Europe and Great Britain for the purpose of giving general information and awakening public interest in the exhibition.

Under the direction of the board of finance every effort was made to increase the capital.

An important feature of the work was the woman's committee, of which Mrs. E. D. Gillespie, of Philadelphia, was the head. In February, 1873, the board of finance invited thirteen ladies to form an auxiliary committee, which should aid in securing subscriptions. This was done, and these ladies were recognized by the executive committee of the centennial commission, and at the following session of the full body by the commission itself, under the title of "The Woman's Centennial Executive Committee".

Chairmen were immediately appointed in each ward of the city, with a number of aids and corresponding local and state committees throughout the country. The work of the woman's committee proved most effectual, and much visiting and personal solicitation was done. In three months from its organization, in Philadelphia alone, subscriptions to the amount of \$42,060 were obtained. At an early date the woman's committee conceived the idea of having an exhibition of woman's work distinct from other displays. This was accomplished. The entire cost of the building and exhibits was defrayed by women through subscriptions, etc.; by the proceeds of entertainments in various states, and without expense to the board of finance.

In spite of all these aids the board of finance found itself unable to meet the requirements of the exhibition, and in this dilemma decided to apply to Philadelphia for a further appropriation of \$1,000,000 for the erection of two more buildings—Machinery hall and Horticultural hall. A large public meeting was held, at which the plan was indorsed. Memorials were prepared, signatures obtained, and, the council speedily granting the required sum, the work was rapidly moved forward.

At the close of the year 1875 the board of finance was again in need of funds, and application was made to Congress for an appropriation of \$1,500,000, which was granted, although subsequently held by the United States Supreme Court to be in the nature of a loan, to be repaid to the United States before the distribution of the assets to any of the stockholders. Congress had also appropriated \$649,250 toward certificates of stock, custom-house expenses, and a collective exhibit from the executive departments.

The plans submitted by Mr. Henry J. Schwarzman for the permanent buildings were accepted, and he was also made chief of the department of engineering.

Fairmount park was admirably situated for the exhibition. It lies in the northwestern section of Philadelphia, adjoining the closely built districts. Extending on both sides of the Schuylkill river, it has the advantage and attraction of a beautiful water front. Four hundred and sixty-five acres were allotted to the exhibition, with an average elevation above the Schuylkill of about 100 feet, of which 230 acres were inclosed for exhibition purposes by a fence. This portion of the park was entirely uncultivated, and much was to be accomplished in a short time. Two years were allowed for this work, which comprised transplanting and arranging many trees with a view to the future improvement of the grounds.

The water-supply was ample. Large water-works were provided independent of the Philadelphia reservoirs, but connected with them so that these could be drawn upon in case of need.

The principal buildings connected with the exhibition were the Main building, Memorial hall (art gallery), Machinery hall, Agricultural hall, Horticultural hall, Woman's pavilion, United States Government building, and Judges' hall; besides these there were many minor buildings and accessories.

The Main building covered 20 acres of ground, and provided for three out of the seven departments into which the exhibits were divided. It was the first building reached either from the railroad termini or from the city. It stood on Lansdowne plateau, a short distance from the west bank of the Schuylkill. The main entrance was upon an open space which formed the principal approach for carriages. The building was designed only as a temporary structure properly to protect and display the exhibits; no unnecessary decoration was therefore indulged in. The necessities of the case required 20 acres to be covered, and for this purpose \$100,000 per acre was appropriated; the actual cost was \$75,569 65 per acre. The larger portion of the building was one story in height. Opposite the center, on each side of this building, were projections 416 feet long, and also at the ends like projections 216 feet long. In these projections were the main entrances. The central nave was 1,832 feet long and 125 feet wide. This was the longest nave ever introduced into an exhibition building. Memorial hall was intended as a permanent building, to contain a museum similar to the South Kensington in London, and was erected from the sum appropriated by the state of Pennsylvania and the city of Philadelphia, \$1,500,000 having been appropriated for the erection of two permanent buildings. It is situated north of the main building and parallel with it, and was built on a terrace 60 feet above Lansdowne plateau. Its style is that known as "modern renaissance"; the materials used were granite, glass, and iron, rendering it fire-proof. It is 305 feet in length, 210 feet in width, and is surmounted by a dome rising from the center of the building to a height of 150 feet from the ground.

The central portion of the building is connected with pavilions by arcades 90 feet long on either side. The main entrance opens on a hall 82 feet long and 60 feet wide with renaissance decorations. This leads to another hall 83 feet square, under the dome.

East and west the galleries open 98 feet long and 84 feet wide, which admit of temporary division for the most advantageous exhibition of paintings. From these galleries doors open into two smaller galleries. Parallel with the main galleries are corridors opening into a series of private rooms, designed for studies and small exhibition rooms.

In September, 1875, when the bureau of art was organized, it was found from the number of definite applications that the accommodation was insufficient, and an "art annex" was erected as a temporary building.

Machinery hall was built from the appropriations made by the city of Philadelphia, \$800,000 being set apart for it; its actual cost was \$542,306. It was situated west of the Main building, and separated from it by a plaza 542 feet wide. It consisted of a main hall 360 feet wide by 1,402 feet long, with projections beyond these dimensions. An annex 208 feet long was designed for hydraulic machinery in motion, containing in the center a large open tank. Four boiler-houses were in connection with Machinery hall. The central feature of the building was the great Corliss engine, which drove "13 acres of machinery". The board of finance contracted with Mr. George H. Corliss, of Rhode Island, for \$77,000, to furnish an engine to produce 1,400 horse-power.

The boiler-houses were to be built and fuel supplied by the board of finance. These contracts were fulfilled, and on the day specified the engines were started, and never stopped during the hours of exhibition until the closing day.

In addition to the Corliss engine 1,720 horse-power was obtained free of expense by manufacturers offering boilers for exhibition and use.

The exhibits relating to agriculture were displayed in Agricultural hall. The live-stock exhibition and machinery tests were held in its outlying grounds.

This building was 820 feet long and 540 feet wide, having a nave 820 feet long. The materials used were of the simplest nature, the interior having a cathedral effect, and the object of inclosing the given amount of space in the most economical manner was obtained. The necessary steam-power was furnished by two boilers situated in an annex.

Horticultural hall was designed as a permanent building, and its location was selected with a view to that end. It stands on Lansdowne terrace, in full view of the Schuylkill river, and is built in the Moresque style. Its length is 383 feet; its width, 193 feet. In the main hall is a large conservatory, and in the north and south sides of this, and connected with it, are four houses for cultivation and propagation. It is suitably provided with heating appliances. The out-of-door features of the display were very fine in spite of the short time allowed for preparation.

By the propagation of foreign plants and the interchange of duplicates, Horticultural hall will become a valuable botanical garden and an interesting and instructive addition to Fairmount park.

The Woman's pavilion was entirely provided for by the woman's executive committee, no expense coming upon the board of finance. It covered an area of 26,368 square feet, and, although so commodious, could not afford accommodation for all that was offered for exhibition.

The United States Government building was designed to receive the exhibit of the general government. A board was organized in pursuance of an order of the President of the United States, consisting of an officer from each of the executive departments, and a total sum of \$578,500 was appropriated by Congress for this special

exhibition. The building was in the form of a Greek cross, with a total floor area of 102,840 square feet. To the right and left of the main entrance the building was flanked by light and heavy artillery of the land and naval service, respectively. In addition to the main structure were four smaller buildings—one a laboratory of the ordnance department, another a model post hospital of the medical department, both under the direction of the War Department; a fog-horn building of the light-house board under the direction of the Treasury Department. The fourth building, on the margin of the lake, was for the life-saving service, under the Treasury Department.

The display made by the government in these buildings was most complete, and many critical reports have been made in regard to it both here and in Europe. It was considered by scientific men to be one of the most interesting and instructive parts of the exhibition.

The Judges' hall was admirably adapted for the purpose required, containing a large hall for the judges, and small committee-rooms for judges and officers, and for members of the centennial commission and board of finance.

Foreign, state, and municipal governments and individual exhibitors erected minor buildings, numbering altogether 204. These added greatly to the attractions of the exhibition.

To complete the organization of the work, the director-general created administrative bureaux and departments, having charge of the installation of exhibits, the transportation of visitors and goods, admissions, etc. The regulations for exhibitors were issued July 4, 1874; only manufacturers and producers were allowed to be represented. Their total number was 9,266. Three months before the opening of the exhibition, exhibitors were able to make a preliminary examination and to learn the exact location of their spaces. No financial provision was made for the American exhibit, each exhibitor bearing the expense of his individual display. It soon became evident that Great Britain, France, Germany, and the United States would be the largest exhibitors, and desirable central positions were accorded to them. The proper amount of space to be set aside for foreign governments was determined by the precedents of Vienna and Paris. Great care was taken in utilizing the space, and the groups of exhibitors were, as far as possible, placed under the care of a division superintendent, who treated them as separate exhibitions. The services rendered by the railroads was invaluable. The Pennsylvania and the Reading roads built many miles of tracks, and arranged passenger-train service between the exhibition and that part of Philadelphia crossed by their lines. All the railroads running to Philadelphia arranged to deliver passengers at the exhibition grounds. Unfortunately, until the middle of September, 1876, there was very little reduction of passenger fares on any of the roads, and the good effects of reduction were shown after that time by the greatly increased attendance on the exhibition.

The transportation of the foreign goods brought into service the principal lines of ocean and railroad travel of the world, and favorable rates were secured. The exhibits were transferred to the exhibition grounds in sealed cars and the custom-house examinations were there made.

The terminal service consisted of an organized body of men who unloaded cars and placed goods in the spaces assigned. Sidings were constructed and the goods were delivered as near their destination in the buildings as possible. The transportation of visitors within the inclosure was accomplished by a narrow-gauge railway which made the circuit of the grounds in thirty-five minutes, running from 8 a. m. to 7 p. m. In the buildings large numbers of wheeled chairs were kept in readiness. For transportation to and from Philadelphia there was ample provision. The steamboats, horse-cars, etc., had a complete system of exchange tickets, and people of Philadelphia and vicinity could be taken from their doors to the exhibition and return for about 15 cents. A centennial guard was organized, and a special division of police was assigned to the exhibition; these with the assistance of a detective force rendered great service. A magistrate was appointed, and station-houses were erected on the grounds for the speedy trial of persons arrested. There was also a special fire department. The medical bureau was admirably arranged and was most efficient in its work.

The rate of admission was fixed at 50 cents, and only notes and coins of that denomination were accepted for tickets. There were one hundred and six gates of admission, divided into three classes; for those who paid, for those who had complimentary tickets, and for exhibitors, workmen, and attendants. Each gate had a strongly built turnstile connected with a register, the gate-keeper being held responsible for the number of admissions worked on the register.

On the 10th day of May, 1876, this great enterprise which had been so long in preparation was completed, and with proper and appropriate ceremonies, in which the President of the United States, his majesty Dom Pedro, Emperor of Brazil, and other dignitaries took part, the great exhibition was thrown open to the public.

The question of awards was carefully studied by the centennial commission, and, after many discussions, it was decided to abolish the former system of an international jury and awards by prize medals. A body of two hundred and fifty judges was appointed, and the awards were based upon reports made in writing by these judges. The awards were to consist of diplomas signed by the executive officers, bronze medals of uniform value, certified reports of the judges recommending the awards. One thousand dollars was allowed for the personal expenses of each of the foreign and \$600 for those of each American judge. Each judge was required to recognize impartially the interests of the exhibitors and the merits of the articles judged. The judges were assigned, according to their special qualifications, to the various groups indicated below. The recommendation for each award was based upon the examination and report of one judge. The others of the group were required to pass upon the report, but the

judge reporting was held responsible for the award. The work of the bureau of awards was confined to assisting the judges, conferring with them individually, and bringing exhibits to their notice, but in no case influencing their decision.

This new system of awards was an experiment, and, viewed from its results, was on the whole the most successful, the judges working together with singular harmony.

Much difficulty resulted from the delay of the exhibitors in filing their exhibits, and the first catalogue was exceedingly defective. The original date fixed for the completion of the judges' work was July 31, but it was the middle of September before it was substantially completed. September 19 the centennial commission appointed a committee to receive appeals from exhibitors who complained that justice had not been done them. With this committee were associated ten judges, seven of whom had served on one or other of the groups. Six hundred and twenty-eight awards were issued by this committee to exhibits which had originally been rejected. To facilitate the labor of the judges the exhibits were divided into groups, and the groups were subdivided into classes.

The character of the display in each of the groups may be briefly noticed as follows:

*Group 1.—Minerals, mining, and metallurgy.*

The display of coal from the United States was unequal, many states being unrepresented. From Pennsylvania, which is so largely a coal district, there was a most inadequate exhibit. Canada made a large and fine display, only equaled by that of West Virginia. This state made a very complete exhibition of its resources. From foreign countries there were but few coal exhibits.

The display of building and ornamental stone was rich and varied. There were more than five hundred exhibits of construction stones, and more than twice as many of gems and ornamental stones.

The building stones were principally from the United States and Canada, and the eastern states were best represented, the difficulties of transportation preventing large displays from the West.

The display of marble, both ancient and modern, was large and varied.

The largest display was from America, and the principal exhibit of foreign marbles was made by American importers, although Belgium, Portugal, and Spain were well represented.

The geological display, showing the mineral resources of the United States, although not complete, was excellent. The display made by the Canadian geological survey was most interesting, showing the mineral wealth of Canada. Other countries exhibited ores, rocks, and fossils. A very fine exhibit of minerals was contributed by the Smithsonian Institution.

*Group 2.—Pottery, porcelain, bricks, clays, cements, etc.*

The display of pottery and porcelain was very extensive and important. It included biscuit, faience, and porcelains, tiles of all descriptions, also cements and specimens of crude materials.

Europe was very inadequately represented. Some of the largest English houses made no exhibits; some of the collections were, however, quite complete. China and Japan made very extensive displays. That of Japan was especially noticeable, being the most important display of pottery ever shown at the exhibition of a single nation.

The American display was creditable, showing a marked improvement in a newly developed industry. A large space was occupied by exhibits, showing the resources of the United States, including materials for good porcelain, which abound in this country.

An interesting collection of American pottery was shown, principally obtained from the grave mounds of Ohio, Tennessee, etc.

The exhibits of glass did not equal those of the Vienna and Paris exhibitions, but possessed points of great interest. The American display of glass showed great progress within the last twenty-five years.

*Group 3.—Chemistry and pharmacy, including apparatus.*

The judges of this group included in it sugar and its manufacture. The United States fell short both in quality and in quantity. Russia made the largest and perhaps the finest display of sugar. Cuba, although at the head of sugar-producing countries, was not adequately represented.

In the grosser chemicals, potash, petroleum, etc., the United States excelled, and these products won the admiration of the foreign judges.

The display of the finer chemicals was confined chiefly to England, France, and Germany.

*Group 4.—Animal and vegetable products, and machinery for their preparation.*

Nearly every nation furnished cereals, the United States making the largest contribution. Japan, China, and Brazil exhibited tea, and the latter country excelled all others in its coffee.

The United States exhibit of beer in Brewers' hall was very extensive, showing the rapid development of this industry in this country. Germany, Russia, Norway, and Sweden were also well represented.

The display of wines from California and other states was creditable. Spain showed the largest collection of European wines.

The exhibit of cheese and butter was confined to the United States and Canada, and was very creditable, notwithstanding the great heat.

*Group 5.—Fish and fishing products, apparatus of fishing.*

This group afforded the best opportunities for contrasting the fish products of various countries ever offered at an international exhibition. It was difficult to preserve the fish alive, owing to the unusual heat and to the defective condition of the aerating machine. Fish preserved in alcohol were exhibited in great variety, and also every description of fishing apparatus. In many modes of preparing fish for food much was to be learned from the display of Europe, but America took the lead in the apparatus of fishing.

*Group 6.*—Timber, worked lumber, parts of building, forestry.

The exhibit of woods and lumber was very large. Many of the states were not represented by separate exhibits, but the Department of Agriculture made a collective display of the varieties found in the United States.

Great Britain made no exhibit of woods. Spain had a very well arranged display, and many other countries exhibited native woods.

*Group 7.*—Furniture, upholstery, wooden ware, and brackets.

This group was a limited one. Although representing the productions of but a few of the manufactures of the principal nations exhibiting, it was extremely creditable. The English display was noted for its solidity, and the American for the superiority of the machine work. Many specialties were from the United States, and much inventive skill was shown.

*Group 8.*—Cotton, linen, and other fabrics.

One class in this group comprised woolen fabrics of mineral origin; also an excellent display of goods prepared with asbestos, rendering them fire-proof. In coarse grass, as rattan, cocoa-nut, and bark fabrics, there was a most satisfactory exhibit.

The cotton exhibited was almost exclusively American, and there was but little competition. The amount exhibited was small, but of the finest quality.

There were complete assortments of fibers, such as hemp, flax, etc., both in the primitive and cultivated forms. The display of cotton yarns and fabrics showed the wonderful progress made in these goods by the United States within the last few years. Canada also made a remarkable display. The display of cotton fabrics made by New York and New England mills was most complete. The few foreign goods exhibited showed that America had nothing to fear in comparison with them. The linens of Great Britain and Ireland took the lead. The only countries exhibiting textile machinery were Great Britain and America, and no comparison could here be made, the machines being very different.

*Group 9.*—Wool and silk fabrics.

The display of wool was chiefly made by Australia, and was very large and of great excellence. It was much to be regretted that the American exhibit of wool was so incomplete, for the high character of American manufactured wool goods shows the value of the wool product of the United States.

In manufactured goods, American cassimeres took a very high stand, and the display of flannels was chiefly American.

The American blankets also elicited the highest praise from the foreign judges.

Different in quality, but of high grade, were the blankets exhibited by Australia and the Netherlands. England did not do herself justice in the exhibit of worsted goods, but in that made by the royal school of needlework was a branch of manufactures, in the application of stuffs, of worsted, and silk and worsted, in which England was at that time unrivaled. There was a large display of carpets at the exhibition, and ample opportunities were given for studying this art. The Persian carpets took the lead; many very beautiful carpets from other countries were shown, an especially high class of goods coming from English houses.

The carpet manufacture of the United States has become a characteristic feature, and the skill in this branch of industry elicited much admiration. In the cheaper grades of carpets there was no competition by other countries.

The display of silk and silk fabrics was very large. France took the leading position, and showed the best results attainable in this department. Although Germany ranks second in the production of manufactured silk, she was not largely represented. Her silk exhibit was, however, of excellent quality. From Russia came beautiful fabrics, especially damasks and brocades of silver and gold. Although China and Japan were unequalled in their display of raw material, their manufactured goods were inferior in artistic character to those of India and Java. Great Britain made no adequate representation of her manufactures.

The American display of silks was a noticeable one, showing the most remarkable achievements in textile fabrication made by any nation in a corresponding space of time.

*Group 10.*—Clothing, india-rubber goods, ornaments, and fancy articles.

In this group, especially the classes consisting of india-rubber goods, the display was almost exclusively from the United States, and showed the enormous extent to which this industry is carried.

*Group 11.*—Jewelry, watch-cases, silverware, bronzes, etc.

The display of jewelry and silverware made by foreign countries did not adequately represent their resources, with the exception of Prussia, which made a large and beautiful display of manufactured gold and silver and fine bronzes. There was an admirable display of bronzes from Japan, chiefly ornamental and decorative. The American display of jewelry was extremely small. The higher grade of articles, however, compared very favorably with those of other nations.

The exhibit of silverware was of the highest rank; the increasing demand has stimulated the manufacturers, and the articles exhibited were of a very superior quality and workmanship.

There was a very excellent display of silver and electroplate ware made by Messrs. Elkington & Co., of London, showing very high artistic talent.

Watches were referred to this group, to be judged from the ornamental and commercial point of view, the movement and chromatic qualities being judged by group 25.

There were but two displays from American watchmakers—the Elgin Manufacturing Company, in Illinois, and the Waltham, Massachusetts, company—and the watch-cases displayed by them were generally of the highest excellence for the mechanical qualities, decorative engraving, and diversity of pattern. Many organizations are on foot in Europe for the production of watch-cases and also watch-movements on the American system, showing that there will be much competition.

*Group 12.—Leather and manufactures of leather.*

The exhibits in this group were numerous, varied, and of superior quality. Almost every nation was represented, and the display being brought together under one roof, in a building designed for the purpose, an excellent opportunity was afforded for comparison. The foreign display of manufactured leather was extremely good.

The larger part of the American exhibit was from Pennsylvania and New York. The other states were not as well represented as the condition of this industry warranted.

The American calf-skins were of excellent quality and equal to any exhibited, but in other upper leathers there was not any special merit or excellence shown.

*Group 13.—Paper industry, stationery, and book-making.*

This was a large group. The stationery department made a very large display, but there was little that was new or original. Great ingenuity was shown, however, in perfecting the articles composing it.

The best lead-pencils are imported; but one line of American pencils were exhibited which showed great excellence.

The exhibit of American writing-papers of fine grade was creditable, but in producing a light paper European manufacturers have attained a greater degree of perfection. The blank-book display was remarkably great. There was an excellent exhibit of wall-papers, especially from England, but it was to be regretted that France sent none of her best wall-papers.

The display of paper-making machines was very small; America excels in this manufacture, and foreign exhibitors did not care to incur the expense of transporting their machines where there was no hope of prospective remuneration. The display of printing-presses was very remarkable. The presses exhibited were principally American, the most notable foreign presses coming from England, France, and Germany.

*Group 14.—Apparatus for heating, lighting, ventilation, and drainage.*

The exhibits in this group were principally from the United States, and marked progress was shown in the several departments. It was to be regretted that there was not a larger display from other countries of their systems of ventilation and drainage.

*Group 15.—Builders' hardware, edge-tools, and cutlery, safes, safe-locks, etc.*

This was an important and interesting group, and the contrast between the foreign and American manufactures was strongly marked. The ingenuity and inventions to guard against burglars made the American safes more complete than those of other countries. In the other articles in this group the American departments showed the greatest advance, although England still stands first in the manufacture of cutlery. The display of manufactured horseshoes was large and remarkable.

*Group 16.—Military and sporting arms, weapons, explosives.*

The display of implements of war was chiefly confined to the United States government. It was much regretted that England made no exhibit of her resources for war, and confined herself to the exhibition of sporting arms. Germany made a fine exhibition of heavy and light artillery.

*Group 17.—Carriages, vehicles, and accessories.*

There was a very large display of carriages, especially from the United States, where the expense of forwarding goods to be exhibited was not a matter to be considered.

The American springs compared favorably with those of other countries, and in the manufacture of carriage-wheels the American mechanics far excel those of other countries, many wheels being exported by the United States. The display of harness was very complete.

*Group 18.—Railway plant, rolling-stock and apparatus, road-engines.*

The principal railway appliances were derived from the United States and Canada. The display from Europe was very limited, although of peculiar merit.

An excellent opportunity was afforded for tracing the improvements that have taken place in the various systems of signaling and brakes.

The only notable exhibit of signals was made by England, the American system not being so complete.

The American system of brakes was the most perfect. The only locomotives exhibited were those of American manufacture.

*Group 19.*—Vessels and apparatus of transportation.

This group was not a large one.

The only models and drawings of vessels worthy of note were those of Mr. Areny, of Norway. The display of ropes and cordage, especially from the United States, was excellent.

One building was taken up by exhibits of the United States Government works, among which was the model of the mining works at Hell Gate. Samples of material used in government works, and of animal, vegetable, and mineral products of the country formed an interesting and comprehensive exhibit of the industry, wealth, and progress of the United States.

*Group 20.*—Motors, hydraulic and pneumatic apparatus.

The exhibits in this group included motors operated by vapors, gases, or fluids, and apparatus for generation of steam; machinery for moving and operating upon gases and fluids, also apparatus for transmission of power, and many incidental devices relating to the several subjects. All of these branches were well represented, and many practical tests were made. The exhibits were principally American, and the greatest fertility of invention was shown. The machinery from large establishments showed most admirable workmanship, and every working part to the smallest detail bore evidence of careful study.

*Group 21.*—Machine tools for wood, metal, and stone.

The display of machine-tools has never before been equaled at any exhibition, and, with the exception of Great Britain, no country besides America made any great display. The exhibit of the United States made the competition American rather than international, and great advance was shown in the manufacture of tools.

*Group 22.*—Machines used in sewing and making cloth.

This group comprised watch-making machines, as well as those used in sewing and making cloth. The display was principally American, and showed the perfection to which these machines have been brought.

*Group 23.*—Agricultural machines, implements of agriculture, horticulture, and gardening.

In this group the American and Canadian exhibits indicated great progress. England did not contribute, and France, Germany, and Prussia contributed in a most limited manner.

*Group 24.*—Medicine, surgery, and prosthesis.

Although almost every country was represented in this group, America was largely in the ascendant, and fully made up for the deficiencies of other countries, especially in the display of surgical instruments, which was remarkably perfect.

*Group 25.*—Instruments of precision, research, experimental, and illustrative, including telegraphy and music.

In this group the most advanced state of science and art was represented. The larger astronomical instruments were not exhibited, as they are made only for a specific duty and can not be spared from the places assigned them. The American display of surveying instruments showed a most flourishing branch of industry. The physical and chemical instruments of England, France, and Germany were particularly distinguished.

A special feature of this group was the application of electricity to different arts and social economy, and many ingenious and remarkable inventions were shown.

America made the largest exhibition in the musical division of this group, and as a whole the collection was entitled to high praise. The American pianos took a very high stand. There were but six organs exhibited, that shown by Mr. H. L. Roosevelt being of the first rank, showing all the best European methods, with many improvements entirely new and American in their origin.

This was the first international exhibition at which American horological products had ever been displayed, and there was ample opportunity afforded for contrasting them with the products of the best English, French, German, and Swiss houses. The American marine chronometers were carefully tested and examined and found to be as good as the most renowned foreign exhibits. The display of American watches was most extensive, and it was a surprise to the foreign manufacturers to see the extent and high state of perfection to which American watch-making has been carried.

*Group 26.*—Architecture and engineering.

This group, although offering much that was interesting in the art of architecture, was far from realizing the hopes of those most interested. The exhibition buildings themselves were well adapted for their purpose, but the buildings erected by the various states and special exhibitors were, with a few exceptions (and those were generally buildings erected by foreign nations), unworthy of notice. The architectural designs submitted by the American architects were, as compared with the designs of other nations, overloaded with ornament. The state of Massachusetts made a most satisfactory exhibit. Complete sets of geometrical drawings accompanied the perspective views of the building.

The architectural display of Great Britain was not large, especially when compared with her art exhibit. The displays of Russia, France, and Germany were also small. Switzerland, although exhibiting designs of minor importance, had a very complete display, and much ability was shown in the plans.

The display of building materials was very extensive. A large variety of woods was shown, almost every country being represented. The exhibit of building stone was principally from the United States, which exhibited granites, marbles, and sandstone of every variety.

The display of engineering works was confined chiefly to the Netherlands, France, and America. The exhibition made by the Netherlands was a remarkable one, and was the most conspicuous feature of the Dutch exhibit. Plans, maps, drawings, and photographs, and in some cases models of the principal engineering works of Holland, were to be seen.

The engineering department of the French government made an excellent exhibit. Models, plans, and maps were displayed in the best manner, and the engineering system of France was shown most effectively. A large section of the exhibit was devoted to light-houses and beacons, and many large models and colored drawings were shown. The American display was principally confined to that made by the United States government. Models of the work at Hell Gate were shown, and of other works in the United States.

Many models of light-houses, varying in material and form, were displayed, and the American engineers were most highly commended.

*Group 27.—Plastic and graphic art.*

This was a most interesting exhibit; that of Great Britain especially so. She sent her very best, not only works of the present day, but the most valuable works of deceased masters.

France was not represented at her best, and her exhibit did not leave a favorable impression of the high state of French art. With but few exceptions there was nothing especially remarkable in the exhibition of other countries. The American display was extremely creditable, and would have been more so but for the indiscriminate admission of unworthy work. There was a most interesting display of the work of older portrait painters—Stuart, Copley, etc.—and on the whole the art exhibition was a very excellent one.

The display of sculpture was very unsatisfactory.

*Group 28.—Educational systems, methods, and libraries.*

It is to be regretted that the educational exhibition was not so complete as it might have been. The United States display was crowded and much scattered, and there was not any generally accepted plan of co-operation. Many of the foreign exhibits were small and inadequate, but those of Belgium, Holland, Switzerland, Brazil, and Canada were very good; that of Sweden was especially instructive and complete. A model school-house was erected, and a complete system of illustrative teaching shown.

A large space was given to the exhibition of drawing and designing, the exhibit of the normal art school of Massachusetts being especially praiseworthy.

There was a large display of works of general and professional literature which attracted much attention, especially the collective exhibits of the booksellers of Paris and the book trade of Germany. There was also an extensive exhibit made by the American Book Publishing Association.

*Group 29.—Horticulture, ornamental flower-gardening.*

There were many disadvantages attending this display; the short time allowed for preparation, and the heat, were adverse, but on the whole it was a successful exhibit.

*Groups 30, 31, 32, 33, 34, 35.—Horses, cattle, sheep, swine, dogs, poultry.*

These six groups were live-stock exhibitions, and were all of great excellence, especially the display of draft-horses, for there is seldom an opportunity for comparative exhibition, and large numbers were exhibited from Canada, France, the United States, and England.

The bench show of dogs excited great interest, no trouble having been spared to make it complete.

*Group 36.—Pomology.*

On account of their perishable nature it was difficult to have a complete exhibition in this group, but the display of plums and peaches was remarkable.

The interest felt in the exhibition all over the country was most satisfactory; there was a steady increase in the number of visitors from the opening day, with the exception of a few days in the aggravated heat of July. The attendance was very large, an average of 62,333 entering each day during the six months of the exhibition. Philadelphia was as lavish in her hospitality as she had been in her gifts of money, and ample provision was made for strangers. About the exhibition grounds there grew up a colony of hotels, boarding-houses, shops, etc., which were a curious and marked feature of the exhibition period. The punctuality with which the arrangements were completed, the size of the inclosure, and the convenience provided were never equaled by any previous exhibition.

The success of the exhibition showed the wisdom of its having been international rather than national. Comparison is necessary to progress, and the products of the world being brought together afforded to millions of people, unable to travel, opportunities for cultivating their taste, enlarging their ideas, and contrasting the products of their own country with those of other nations.

The grand total of persons admitted to the exhibition during the six months of its continuance was 10,164,489, of whom 8,004,296 paid admission fees amounting to \$3,833,636 49.

After the repayment of the \$1,500,000 loaned by the United States a partial distribution was made to the holders of shares of capital stock. Interest at the rate of 6 per cent. was paid on all installments paid in between May 1, 1873, and January 1, 1876, and in addition to this interest \$1 75 on each share of stock was distributed.

It is difficult to sum up the results of the exhibition as a whole, so widespread are they. Particularly did Philadelphia benefit. Her foreign and domestic relations were materially enlarged, and her commerce and manufactures are increasing annually. As in Philadelphia, so in other large cities of the United States, the benefits have been great, with this difference, that they did not share in the expense. No event in the history of the United States has produced so widespread an influence abroad in exalting her reputation and in extending the demand for her industrial products. Representatives and experts in every branch of industry came from other nations, examined the railways and canals, informing themselves as to the variety and resources of the country, and in the exhibition compared the American products with those of other nations. The result of these studies were embodied in reports to their various countries, which, being widely published, have caused the United States to be known as it never was known before.

There has been a marked improvement in trade since the close of the exhibition, especially in household decorations of pottery, porcelain, and furniture, and a better judgment in art and architecture is recognized by the manufacturers. In woman's work, also, the good effects of the exhibition have been felt, and the societies for the advancement of decorative art which have since been organized all over the country are entirely an outgrowth of the centennial exhibition. In England a revolution in public sentiment was wrought which led to a greatly increased respect for the United States in regard to her powers and her resources, as well as for the attainments and abilities of her people; nor was the influence less happy among the nations of continental Europe, Asia, South America, and the islands of the sea.