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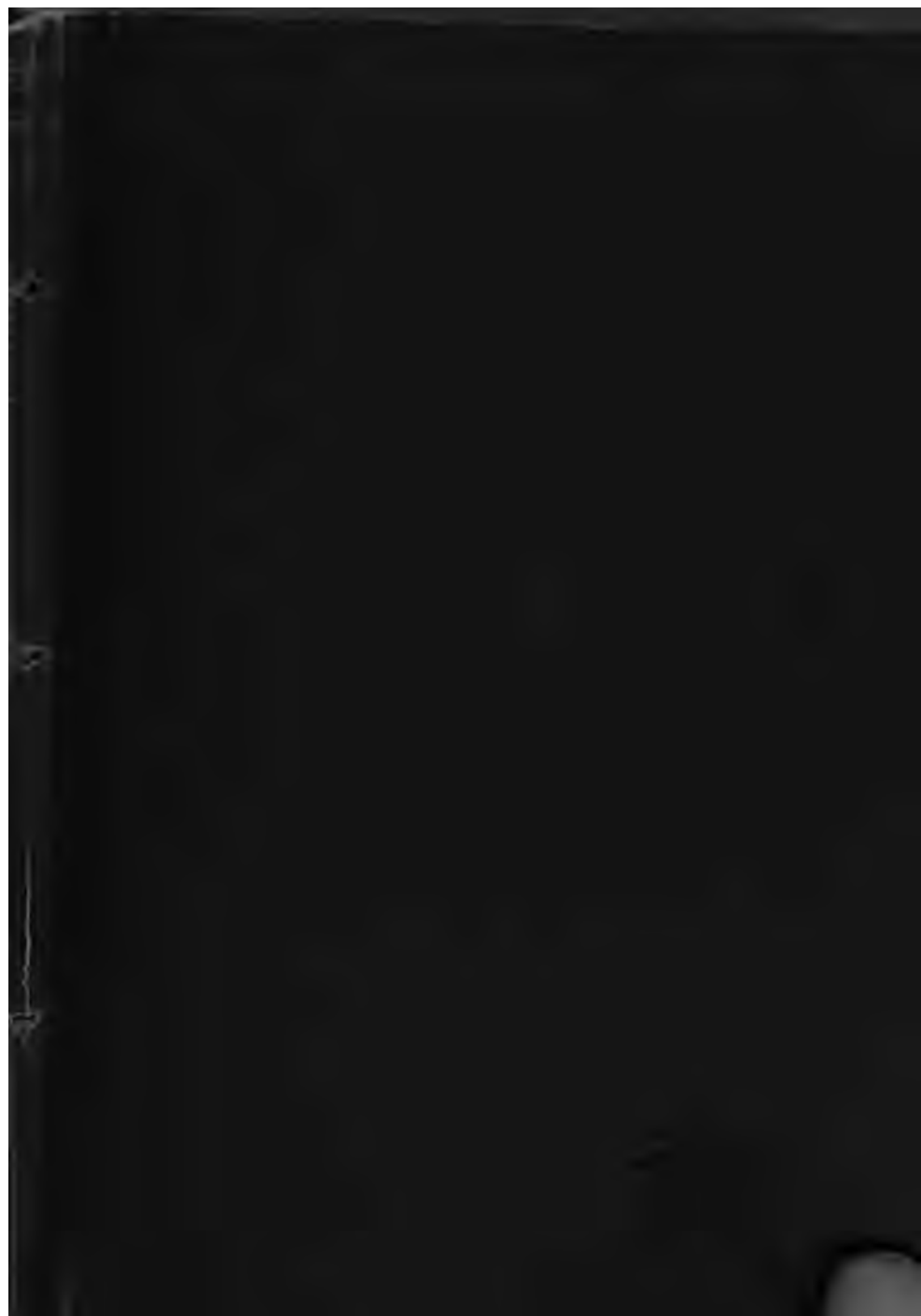
FAIRMOUNT PARK
AND
THE INTERNATIONAL EXHIBITION
AT
PHILADELPHIA.



Illustrated,

CENTENNIAL EDITION.



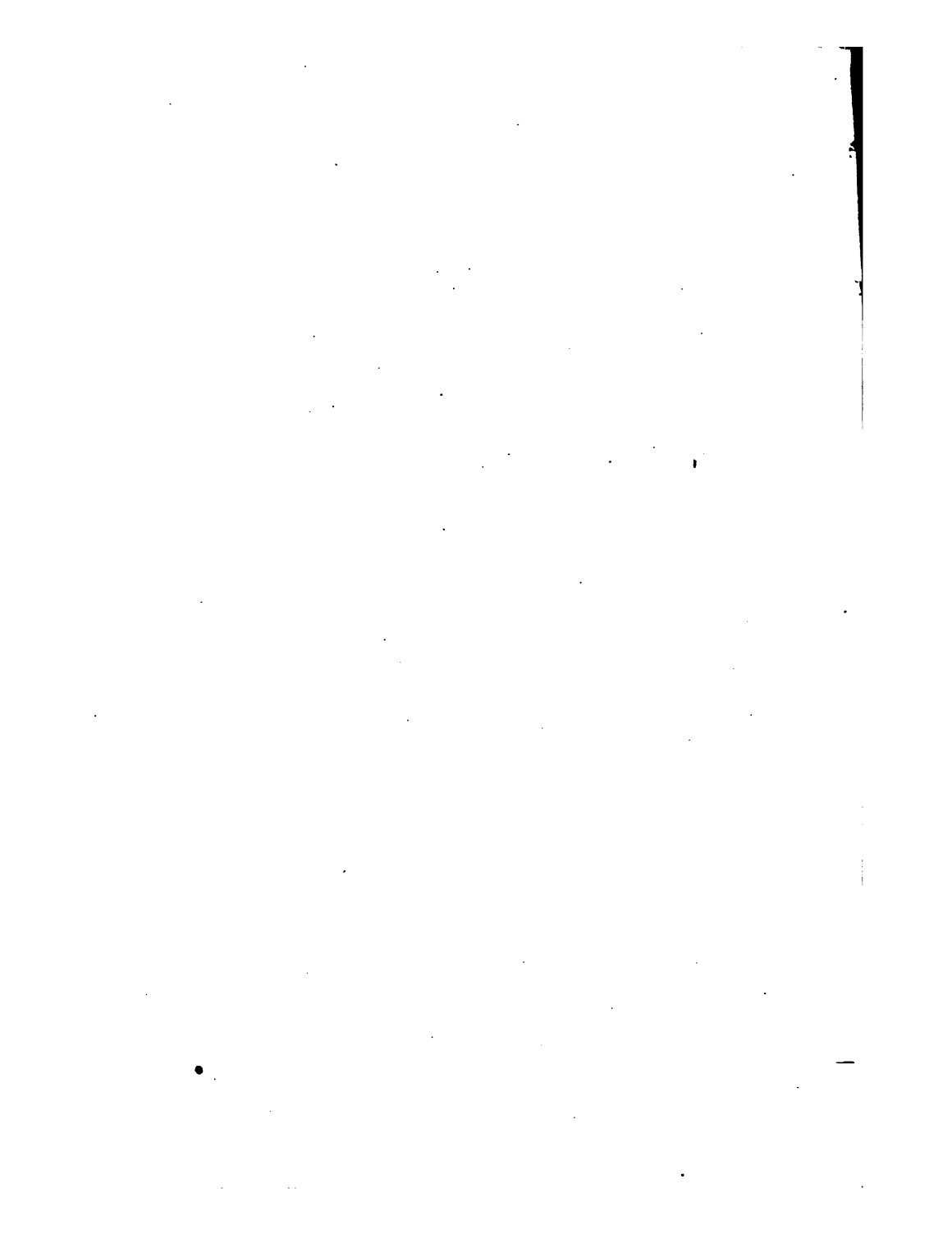




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The Centennial Edition of Fairmount Park is now made complete. The historical portion is prepared from letters and documents of the Peters, Breck, Burd, and other families; the titles from the briefs in the possession of the Fairmount Park Commission; the water works, reservoirs, etc., from the last report of Dr. McFadden, the Chief Engineer; the description of the buildings and grounds from notes of the engineers, contractors, and heads of bureaus of the commission; the list of birds by Mr. C. Few Seiss; the flora by Mr. Burk, Mr. Thomas Meehan, Mr. Howarth, and assistants; the ichthyology by Mr. Thaddeus Norris; the mineralogy by Mr. Theodore D. Rand; the Schuylkill Navy by the Commodore and officers of the several clubs. The book has been carefully revised, with new illustrations, and issued as the standard work of the Park. The Editor, Charles S. Keyser, Esq., is well known for his thorough knowledge of the Park history and grounds.



- 11 Lincoln Monument
- 12 Witherston Monument
- 13 State Building Monument
- 14 British Comm. Women's Dep.
- 15 Jury Pavilion
- 17 Landers' Restaurant

The Schuylkill Section
 from
 FAIRMOUNT
 to the
 WISSAHICKON SECTION

Theat. Boarder. Tech. Phila. Pa.

7

1

2



THOU Schuylkill, from whose cliffs I love to view
Thy gurgling Stream, its rocky Way pursue,
Shall own the Change—the Savage Yell no more
With rougher Sounds shall rend thy rugged Shoar;
O let thy Groves their richest Beauties wear,
And for approaching happier times prepare.

FRANCIS HOPKINSON, 1762.

And lo! the fulness of the time has come,
And over all the Exiles' Western home,
From sea to sea, the flowers of Freedom bloom.

And joy bells ring, and silver trumpets blow.

WHITTIER.

FAIRMOUNT PARK

AND

THE INTERNATIONAL EXHIBITION

AT

PHILADELPHIA,

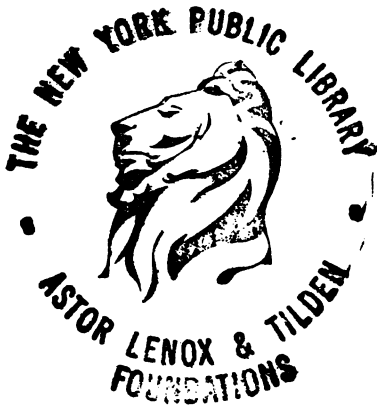


By CHARLES S. KEYSER.

Centennial Edition.

PHILADELPHIA:
CLAXTON, REMSEN & HAFFELFINGER,
624, 626 & 628 MARKET STREET.

1876.



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P R E F A C E .

THE Republic of the United States having determined to commemorate the close of the first Century of its existence by an INTERNATIONAL EXHIBITION, the City which was its birth-place was appropriately selected as the site of the Exhibition.

But, for ulterior reasons also, the selection was wisely made. By a liberal provision for the health and enjoyment of her citizens, Philadelphia alone, among the cities of America, has reserved a tract of ground adequate for such an Exhibition.

If to this be added the further consideration, that the city was founded in deeds of peace, it appears necessarily and appropriately the place where our Nation's purposes of Peace should be given expression, by this assemblage of the people of the Nation, and the peoples and rulers of other nations.

And, therefore, whatever proper desire there was to assemble this vast multitude around some other altar, dear to the memory of the people — when the delegates from the States and the Congress of the nation passed into the great natural amphitheatres of this pleasure-ground, a generous preference was given to Philadelphia as the place of the great Exhibition.

The City has proved worthy of the selection; recognizing this generous preference, in unity with the States and the Nation, she completed the preparation for the first assemblage in America of the nations of the earth in the interests of peace.

Fairmount Park.



FAIRMOUNT PARK, in which the International Exhibition of 1876 is being holden, is the most extensive and, in natural advantages the most attractive among the pleasure grounds of the cities of America.

It comprises over 3000 acres of ground, and is traversed by fifty miles of carriage drive, and one hundred miles of path for pedestrians and equestrians. It borders and includes the Schuylkill River and the Wissahickon, a tributary stream, and begins at Fairmount, a point on the former, distant about one and a half mile from the Centre Square of the city, and terminates at Chestnut Hill, on the latter, distance of over twelve miles.

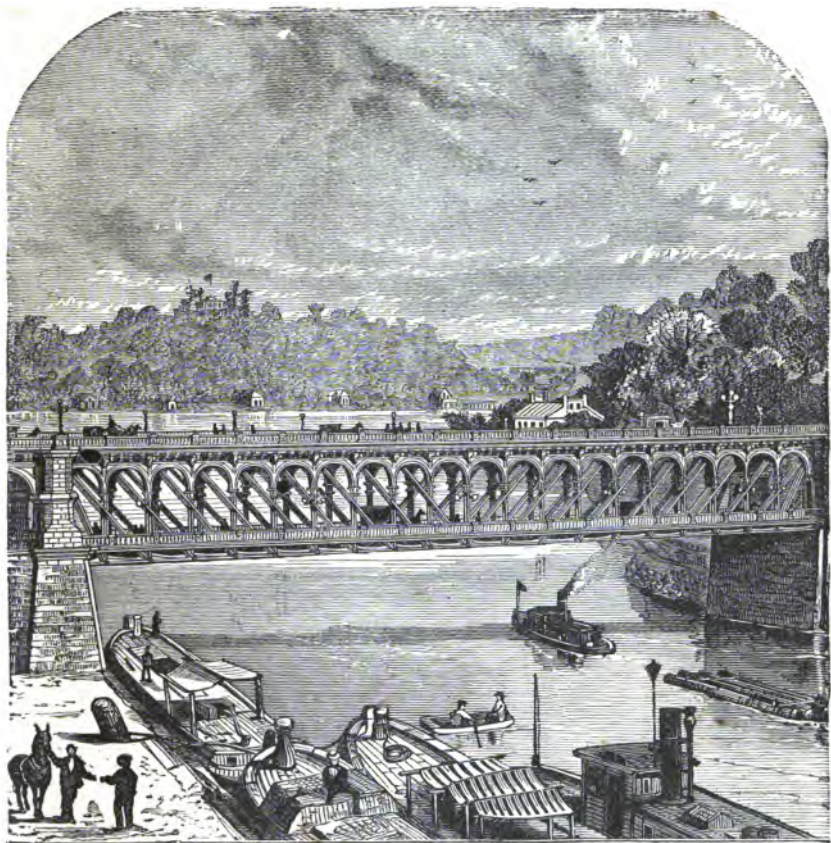
The Schuylkill, its principal river, has an average breadth of a quarter of a mile ; in some of its portions winding so as to present the appearance of broad lakes, at others showing a full silent flow for long distances. The Wissahickon is one of, if not the most remarkable of all known waters, as a type of the purely romantic in scenery. The Park has twenty small streams, tributaries of these, with four mineral springs, and one hundred and fifty of pure cold water, in some places found bubbling through the green-sward, in others trickling down the rocky hillsides. It has every variety of scenery—cascades, green and wooded islands, meadows, uplands, lawns, rocky ravines, high hill summits, and open fields. It contains two hundred thousand native, many foreign trees, shrubs, and vines, and a great variety of indigenous flowers. It has also the remains of the primeval forests as they stood in the days of the aborigines, and old historic mansions which connect the present era with the days prior to the Revolution, and preserve the memory of the greatest statesmen, jurists, and heroes of America.



The most prominent object near the main entrance of the Park is an ancient hill, formed into a reservoir. An entrance for pedestrians passes

along its lower side, under a bridge, into a garden, in which the principal water-works of the city are located. The main entrance of the Park for equestrians, pedestrians, and carriages passes along its upper side. The hill is terraced, with easy ascents, and planted with trees.

Its name, originally "Faire-mount," embraces as well all the near objects as itself; the Bridge, the Water-works, the Dam, the Landing, the Garden; and in the formation of the Park it was extended to the entire grounds. Fairmount has, with its first ownership, a noteworthy association with the founder of the State. His eye contemplated it as his place of residence; this purpose was not executed, but it assures us of a taste, which in this, as in all other things, meets the most unreserved approval, and among the men of those days, there is no one with whom our Fairmount could be more appropriately associated. The Founder was, with all beside for which we hold his name in veneration, a lover of nature; for himself, having most pleasure in the country life. He gave the hill beyond its first name, by causing a vineyard to be planted there. He designed Philadelphia to be and remain "a green countrie towne;" and laid out its four open squares to be so forever; he would have even kept the borders of the Delaware a grassy slope, and called his State *Sylvania*.



THE FAIRMOUNT BRIDGE,

Which crosses the river here, winds along the lower side of the hill, forming on both sides of the river the Park's southern boundary. It is a massive structure of granite and iron, with roadways on its upper and lower

chord. Its entire length, with the approaches, is 2730 feet; it crosses the river by a single span of 348 feet; the roadway of each chord, which is 32 feet broad, has outside footways 8 feet broad; the width of the bridge from centre to centre of each is 50 feet; the upper chord of the bridge crosses the entrance at a height of 30 feet over it, with spans 60 feet apart, and crosses the Pennsylvania Railroad at that height on the opposite shore; the towers and abutments are of mason granite. It is the fourth bridge which has crossed at this place; the first was a floating bridge, of which an engraving remains, made in 1796; this was succeeded by a single span wooden structure of graceful proportions, once described as a scarf thrown across the river.¹ It was destroyed by fire Sept. 1, 1838. Its successor was the wire-bridge—cables suspended over two granite columns on each side the river.² The present bridge was commenced in the early part of 1873, and opened July 4, 1875. It was designed by STRICKLAND KNEASS; iron work by the KEYSTONE BRIDGE Co.; masonry, WM. M. WILEY, of Lancaster; it replaced the former bridge without any interruption of travel. The bridge commands a view of the city and the Park to Belmont and river, and first glimpses of the Exhibition Buildings.

¹ Built by Lewis Wernwag in 1813.

² Built by Charles Ellet, and opened Jan. 2, 1842.



THE FAIRMOUNT WATER WORKS.¹

Philadelphia was first supplied with water from the Schuylkill in 1799; these works were commenced in 1812, and were put in operation three years afterwards.

They were originally run by steam-power. The Dam was commenced in 1819. Water flowed over it for the first time in 1821, and in the fall of 1822 the first wheel started and the use of steam was discontinued. The building in which these steam-engines were erected is still standing, and since 1835 has been occupied as a saloon. Adjoining the saloon is

¹ During the occupancy of Philadelphia, Sept. 26, 1776, to June 18, 1778, the British had pickets in the Robert Morris Mansion. Their line of redoubts began in Kensington and extended by Bush Hill, terminating at Fairmount. The redoubts were visible on the Fairmount Hill until the completion of the last reservoir.

the entrance to the first range of the water-wheel houses. A second range of wheel-houses, subsequently built at right angles with the first, extends towards the Dam. Very considerable changes have been made in the first range of houses since their erection, and all the old wheels have been replaced by turbines.

The works as now completed have a pumping capacity of 37,245,070 gallons per twenty-four hours.

The Dam was entirely rebuilt in 1842-3; its overflow is 1148 feet 10 inches in length, and 12 feet 6 inches in height above low tide.

The Hill at Fairmount contains four reservoirs supplied by these works, holding 26,996,636 gallons.

The water-level is ninety-six feet above the city datum;¹ the stand-pipe is fifty feet high from its base, and thirty feet above the level of the reservoir when full. Analyses of this water, made in 1845 and 1852, show a grade of purity higher than the supply of New York, and much higher than that of London. The monumental bust of Frederic Graff, the engineer by whom these works were designed, was erected here by the Councils of Philadelphia, June 1, 1848.

The fountain opposite the wheel-houses, Leda² and the Swan, was brought from the Centre Square, where the first works were erected.

The two colossal figures in the saloon, Justice and Wisdom, were carved for the occasion of Lafayette's reception in this city, in 1824, and were the supporters of the City Coat of Arms placed on a triumphal arch erected in front of the old State House, in Independence Square; when first done, they closely resembled marble.

The east side of the reservoir gives a fine view of Girard College.

¹ The datum is a grade based on a high-tide water-level of the Delaware.

² Modelled in 1812 from a celebrated belle of that day, Miss Vanuxen.

THE PICTURE GALLERY,

Located near the main entrance, is a temporary structure erected by the Park Commission in 1872. It contains Rothemel's Battle of Gettysburg, the property of the State of Pennsylvania, and a collection of pictures, the larger portion the gift of Sarah and the late Joseph Harrison; among these are West's celebrated picture of Christ Healing the Sick.

The main carriage road, after passing Fairmount, descends into an open plaza; in which are a fountain, a mineral spring, the Park carriage stand, the Steamboat and Boat Landing, and the Statue of Lincoln.

THE FOUNTAIN.

This fountain occupies the site of an ancient fish-pond; in this pond were many gold fish which found their way into the Schuylkill by canals dug through the plaza when the grounds were, some years ago, given over to speculative purposes. The fish now in the inclosure of the fountain are the lineal descendants of these.



THE PARK CARRIAGE STAND

Is located in a circle of willows at this point. Carriages may be taken here for all parts of the Park.

THE STEAMBOAT LANDING.

From this landing the river steamers depart, at frequent intervals, for the Zoological Garden, the Exhibition, Belmont, Rockland, Strawberry Mansion, the Falls, and the Wissahickon.

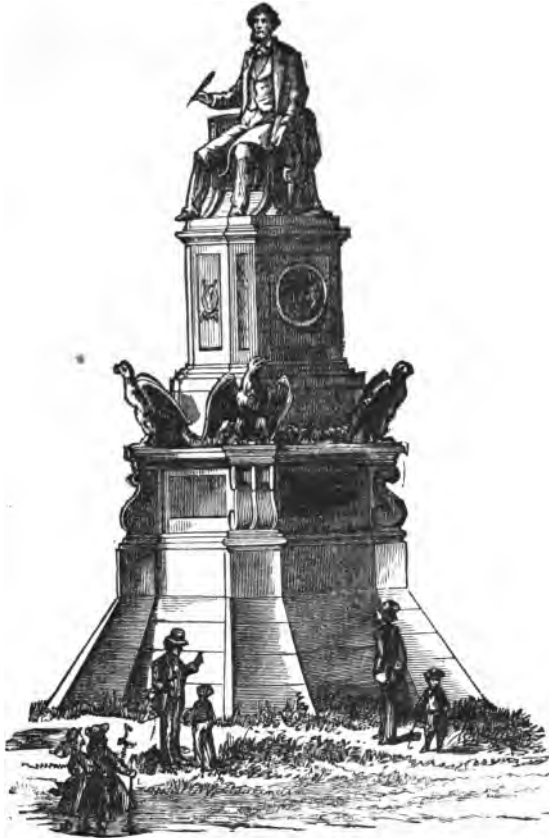
THE BOAT LANDING.

The visitor may, near the landing, procure row boats for water excursion by the hour, or day, and evening.

THE MINERAL SPRING.

Here, also, is found one of the Park mineral springs, famous through the century. Of these there are four: one at the Schuylkill Water works, near the Girard Avenue Bridge; another near Strawberry Mansion; and the fourth near the dam of Harper's Pond, at the Park's northern boundary.





THE LINCOLN STATUE.

This statue was dedicated on the 22d September, 1871, in the presence of a great concourse of citizens. It is of bronze, and represents the President seated. The right hand holds a pen, the left the

Emancipation Proclamation. The height of the statue is nine feet six inches. The pedestal is granite, with two four-sided plinths; on the faces of the upper are crossed flags, the United States arms, the arms of the State, and crossed swords; on the faces of the lower are these inscriptions:—

To

ABRAHAM LINCOLN,
From a grateful people.

Let us here highly resolve
That the government of the people,
By the people and for the people,
Shall not perish from the earth.

I do order and declare
That all persons held as slaves
Within the States in rebellion
Are and henceforth shall be
Free!

With malice towards none,
With charity for all,
With firmness in the right, as God gives us to see the right,
Let us strive on to finish the work we are in.

The main carriage road divides at the base of the Lincoln Statue; the left hand road¹ passes along the margin of the river by the Boat Houses, and through the tunnel to Fountain Green, Mt. Pleasant, Rockland, Ormiston, Swansonia, the Falls, and Wissahickon to Chestnut Hill; the right hand road passes over the Hills, and by the Girard Avenue Bridge to the Zoological Garden, the Exhibition Grounds, George's Hill, Belmont, Ridgeland, Metopton, the Falls, and Wissahickon to Chestnut Hill.

¹ See page 83 for description of all objects of interest on this route to Chesnut Hill.



THE SCHUYLKILL RIVER.

An ancient fisherman of the State in Schuylkill, thus describes to the writer this river as it was until the building of the Fairmount Dam and the removing of their old fishing house from the Park limits in 1822. On the east bank, from Fairmount to the Falls, there were bold rocks—two remarkable ones at the Hills, and one at the Columbia Bridge. On the west bank,¹ above the Fishing House, there was also a large rock; but, for the most part, the shore on that side was shelving to the river. There were more islands than now, among them was one above the Fishing House, thickly wooded, a favorite resort for the people; a narrow channel ran between it and the shore, and the trees on the island and along the shore interlaced their branches. The island known as Peters, at the Columbia Bridge, was larger. The feature which characterized most noticeably both the shores and the island was

¹ Nothing can equal the beauties of the *coup-d'œil* which the banks of the Schuylkill present in descending towards the south from the Falls to Philadelphia.—*Chastellux* (1780).

a great profusion of wild flowers, coloring them with their various hues. On the bluffs of the east bank, and along the ridges of the west, the landscape-gardeners on the country-seats had changed the natural characteristics of the grounds to the formal style of the times, but between these and the river all was untouched.

The river was then subject to the rise and fall of the tide; this made at places, where its bed was irregular and rocky, falls or descents; there at the going out of the tide it ran or fell with some violence and shock, giving rise to one of its Indian names, "The Noisy Water;" this ceased with the building of the Dam, and it then assumed its present broad, even, silent flow; this, and the submerging of some of the islands by the back-water, and a decrease in the size of those which remain, are the most marked features of the change from that early time. Portions of the bluffs, also, are concealed by the bridges which now span the river. Other portions of them have been used by quarrymen, but many of those old landmarks—bluffs, islands, and shelving shores—are still clearly traceable; and the placid beauty of its now broader and quiet waters is even more attractive than its rapid flow before the erection of the Dam. The grounds of the old country-seats have lost much by neglect, yet they have also gained by the removal of the narrower, separate designs and road-ways of the individual owner, and their absorption into broad general effects and avenues for the people. The flowers are also revealing themselves again along the shores, while the grounds around the old mansions, so dear to our remembrance, have been preserved and are being restored, so that this beautiful river, then so attractive, is returned again with a heightened effect to the condition of its earlier era. As one of its names¹ evidences that it was to the aborigines, so it is to us also,

¹ Called by the aborigines "Ganshewehanna," the noisy stream; and "Manayunk," our place of drinking. The present is a Holland name, originating with the first settlers.

“our place of drinking,” and it is to the popular determination to retain it for this purpose we owe mainly the preservation of its shores as a great public pleasure-ground. And surely never before in the world had a people in any city, even in the remote East or classic lands, such “flower-crowned bowl” from which to drink, as is this river; nor ever before beautified a common necessity of life with so perfect a measure of all its romance and poetry.

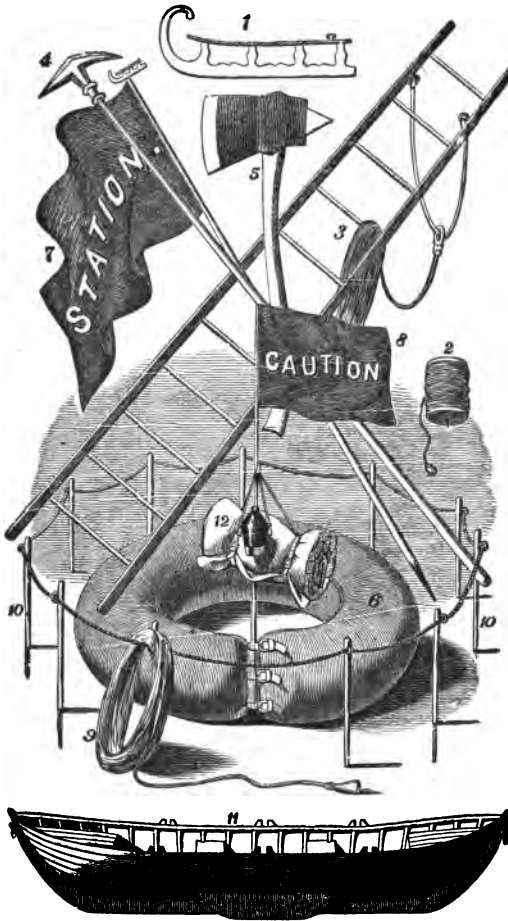


THE SCHUYLKILL NAVY.

“The healthful and manly exercise of rowing.”

Boating on the Schuylkill begins with the light canoe of the Indian. From this rude though graceful origin, and following close upon it, came the boats which composed the squadron of “the Colony in Schuylkill,” and the bateaux of Fort St. David’s. This squadron, called also “the Schuylkill Navy,” was composed of the “Shirk” and the “Fly;” their

successors, under an act passed in 1762, for the augmentation of "the Navy in Schuylkill," were the "Manayunk" and "Washington," respectively fifteen and seventeen feet long, they were built of mulberry timber, with ash oars; these remained until 1822 within the Park limits. The barge of the Founder, also, sometimes appeared on these waters; it was one of much stateliness—had a regular crew and officers—pulled six oars, and bore the broad pennant with the Proprietary's arms. The Founder had enough of the great Admiral's blood in his veins to delight in boats, for this barge he always manifested much solicitude, and in a letter to James Logan, whose words go straight to the true waterman's heart, he says: "But above all dead things, my barge; I hope nobody uses it on any account, and that she is kept in a dry dock, or, at least, covered from the weather." After these came the pioneer clubs, which preceded the present organization; the first of which, the "Blue Devil," was organized 1833. Its first barge, the "Blue Devil" participated in the earliest regatta of which we have record (Nov. 12, 1835). In this regatta, the Ariel, Nymph, Dolphin, and another were entered, four-oared barges; and the Cleopatra, Falcon, Sylph, Blue Devil, Metamora, Aurora, and Imp, eight-oared barges. The organization of the present Schuylkill Navy was effected in 1858, and the first regatta took place in 1859. It then numbered eleven clubs, the Bachelors, University, Keystone, Camilla, Independent, Undine, Neptune, Chebucto, Quaker City, Nautilus, and Excelsior; and twenty boats, the Linda, Iris, Gazelle, Ariel, Lucifer, Arab, Spree, Atlanta, Gipsy, Naiad, Whisper, Undine, Fawn, Irene, Menanka, Cygnet, Spider, Nautilus, Intrepid, and Falcon. It is now, both in its appointments and organization, the most complete association devoted to rowing in the world.



THE PHILADELPHIA SKATING CLUB.

Incorporated 1861. Its objects are improvement in the art of skating, and securing efficiency in the use of, and proper apparatus to rescue per-

sons breaking through the ice. The active members in 1864 were 260, honorary 10; they now number 350.

The house occupied by the Club is forty feet front by sixty feet in depth, two stories high, built of fine gray stone, and pointed. The building is of Italian architecture, and ornamented with a handsome cupola and flagstaff fifty-five feet high. The roof is covered with slat-work, and encircled with a secure and handsome railing, and has a cupola.

The first story, forty by sixty feet, is appropriated entirely for the life-saving apparatus and barge boats. The second story is divided as follows: A Ladies' or Reception Room, fronting on the water, with a Retiring Room, the Members' Room, Executive Committees' Room, and the Board of Surgeons' Room. This room is furnished with all kinds of the most approved apparatus for rescuing and restoring suspended respiration to persons drowning, consisting of—1. Badges; 2. Cord and reels; 3. Ladders; 4. Hooks; 5. Axes; 6. Life-floats; 7. Station flags; 8. Caution flags; 9. Life-lines; 10. Air-hole guards; 11. Boats; 12. Blankets, grapnels, and drags. The boats are made of cedar, small and light, about one hundred pounds in weight, and sixteen feet long¹ (see plate). The records of the Society show that two hundred and sixty-one lives have been saved through its instrumentality.

¹ All these are placed at the disposal of the Commission by the Society.





THE HILLS MANSION.

“The Hills,” division of the Park which extends from Fairmount to the Girard Avenue Bridge, was formerly the Estate of Robert Morris, the Financier of the American Revolution. The present mansion was built by Henry Pratt, a Merchant of Philadelphia; and the grounds, about 42 acres around it, became famous, under the names of Pratt’s Garden and Lemon Hill.¹ The estate remained in his possession from 1799 to 1836; in 1844, it was purchased by the City of Philadelphia, and leased for a summer garden until 1855, when it was dedicated by the City to public use, and the improvements commenced for its use as a Park, under the name—Fairmount Park; on the ground there are trees yet standing which

¹ An earlier name was “Old Vineyard Hill.”

stood there during the Revolution; and are noble representatives of the primeval forest. The general character of the grounds remains unchanged. The forms of the superb terraces are still visible, although the rare flowers, vases, and statues once there are gone. There is a good view of Fairmount, the river, and the city from the hall-door of this mansion.

In the old house,¹ which stood here, Robert Morris resided from 1770 to 1798, twenty-eight years—a period embracing the Revolution and the



Presidency of Washington. He had a fine mansion in the city, but his house on these grounds was his home; winter and summer his hours of rest and enjoyment were passed here. In 1776 (Dec. 29) he wrote to Baltimore, where Congress, having fled from the city, was sitting: "I have always been satisfied with Philadelphia and the Hills. At the same time I have been constantly prepared; my things packed up, horses and carriages ready at any moment; I dine at the Hills to-day, and have done so every Sunday. Thus, you see, I continue my old practice of mixing business with pleasure; I ever found them useful to each other."

¹ The cut is a fac-simile of Robert Morris's home, from a painting by the late Samuel Breck.

THE main carriage road passes next over the third of these hills, formerly known as

SEDGELEY

This portion of the grounds, a tract of thirty-four acres, was purchased by contributions from citizens of Philadelphia, and presented to the city, in 1857, for a public park and to preserve the purity of the Schuylkill water. The acceptance of this gift by the city was followed by its immediate dedication to the people for their use and enjoyment. A tasteful little structure stands here, formerly a porter's lodge, for a mansion which stood here overlooking the river; the view from this portion of the grounds gives the bridges—the nearer the Girard Avenue, and the farther the Railroad Bridge—the Solitude on the opposite shore with its fine grove, and the site of the old fishing-house of the State in Schuylkill. Here are found some trees worthy of notice—the most remarkable one the road passes on the right hand. The hill breaks off in bluffs along the margin of the river, and forms a ravine through which a little rivulet runs; and along whose border violets, spring beauties, quaker ladies, and the May apple, the first spring offerings, are found. This hill is about eighty feet above the river—it has been selected as the site for a monument to Humboldt. The most notable object in Sedgeley is an earthwork, yet traceable, constructed during the late war as part of the system of defences for Philadelphia; it is on its highest elevation near the bridge. There is also on these grounds another relic of those days—

GRANT'S COTTAGE.

The small frame house which stands on these grounds was brought here, at the close of the late war, from City Point. It was there occupied by General Grant as his headquarters.

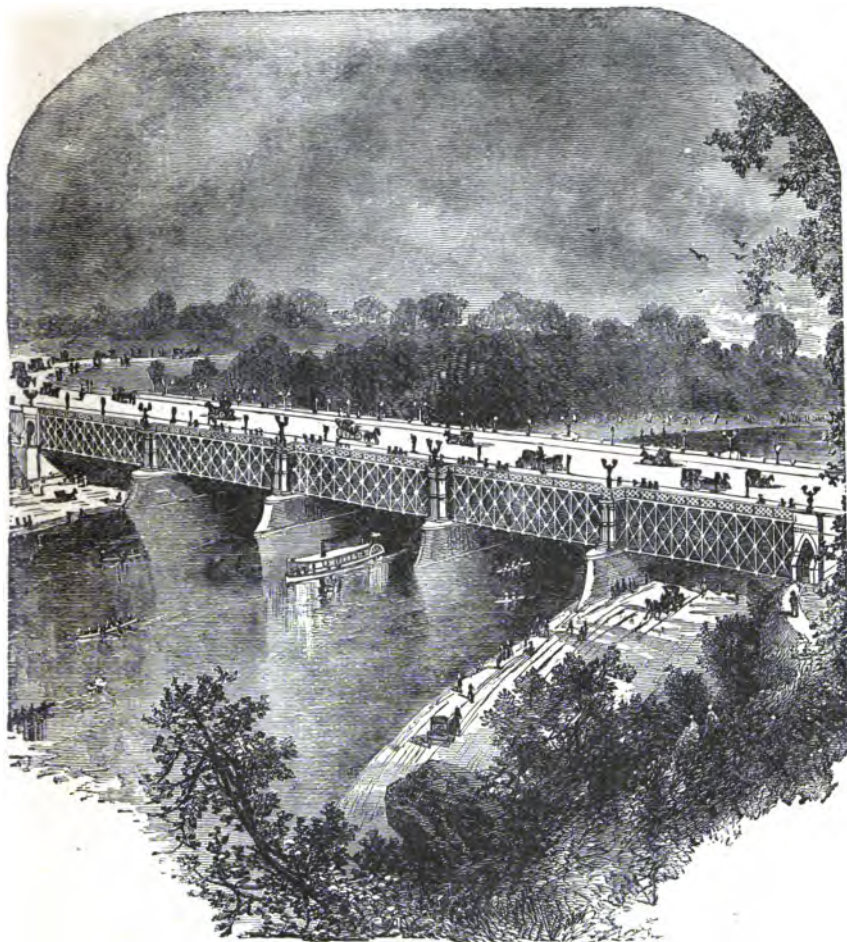
THE main carriage road gives a broad view of the river as it gradually descends the hill to the Girard Avenue Bridge.

THE SCHUYLKILL WATER WORKS.

These Works, brick buildings in the Egyptian order, stand in a ravine just beyond this bridge; they are operated by steam. Their pumping capacity is 23,018,976 gallons per diem. The storage room in the reservoir, attached to the Works, is 9,800,000 gallons. The Connecting Railway Bridge crosses here. The road unites railroad lines for all sections of the nation. Near its east abutment is

THE TUNNEL.

The hill, which forms the farther side of the ravine in which these works are situated, terminates in a huge rock, which rises abruptly from the water's edge to the height of sixty feet; this rock, Promontory Point, is tunnelled through for a road along the river. The tunnel is one hundred and forty feet long, forty-one feet wide, and twenty-two feet nine inches high, and is throughout solid natural rock, without any lining whatever; it is elliptical in section, with straight sides and an arched roof. It was begun October, 1870, and finished June, 1871.



THE GIRARD AVENUE BRIDGE

replaced a wooden structure on the same site. It was entirely rebuilt, from the foundation of the piers. It was begun the 12th day of May,

1873, and completed the 4th day of July, 1874. It is 1000 feet long, and 100 feet wide; has a central roadway paved with granite blocks for carriages and car-tracks, 67 feet wide, footpaths on either side $16\frac{1}{2}$ feet wide, paved with slate, with white marble borders. The bridge is constructed of iron and stone, with bronze ornamentation. It has five spans, three river, and two shore, the former each 197 feet long, the latter each 137 feet long. The bridge rises from the east to the west abutment arch four feet grade; the distance from the surface of the water to the western end pier is an average of 23 feet. The abutments are 108 feet long, and 18 feet wide; they are of granite, laid on a solid rock foundation, 25 to 30 feet below the water surface. The lines of the piers are 120 feet long and 10 feet wide at the water surface, and 113 feet long and $8\frac{1}{2}$ feet wide under the coping, with elliptical chords. The iron work at the arch abutment is 24 feet above the masonry, the roadway being an average of 50 feet above the water surface. The railings are panelled with rich designs in bronze—the Phoenix, the Eagle, and the cotton plant alternating; the bridge is lighted with 12 candelabra of graceful design. Constructors, CLARK, REEVES & Co.



THE ZOOLOGICAL GARDEN.

The entire tract, embracing "The Solitude," the grounds of the old Fishing-House, and an estate formerly known as Spring Hill, was transferred by a lease from the Park Commissioners to the Zoological Society of Philadelphia. It covers thirty-three acres; its boundaries are the River Road and the Pennsylvania Railroad, Thirty-fifth Street and Girard Avenue. The Garden has every variety of surface; it has a piece of old woodland — the Solitude Grove, large water supply, and the

most complete drainage. The Solitude Villa—the former residence of John Penn, has been restored and preserves an interesting association of the grounds. The improvements are of a very ornate, as well as durable, character. The collection of Birds and Animals is already large, and constantly increasing by the private agencies of the Society, donations, and contributions from officers and others in the army and naval service, made by permission of the Government of the United States.

The Society was incorporated March, 21, 1859. The Garden was first opened July 1, 1874. It is open for visitors every day during the entire year. A moderate charge for admission is made.

OFFICERS.

President.

WILLIAM CAMAC, M. D.

Vice-Presidents.

J. GILLINGHAM FELL.

GEORGE W. CHILDS.

Corresponding Secretary.

JOHN L. LECONTE, M. D.

Recording Secretary.

JOHN SAMUEL.

Treasurer.

FRANK H. CLARK.

Actuary,

CHARLES L. JEFFERSON.

Managers.

William S. Vaux,
Frederick Graff,
William Hacker,
J. Vaughan Merrick,
John Wagner,
William H. Merrick,

S. Fisher Corlies,
Theodore L. Harrison,
Henry C. Gibson,
Isaac J. Wistar,
Edward Biddle,
Charles W. Trotter.



THE CHILDREN'S PLAY-GROUNDS.

These grounds, called Sweet Brier, are fitted up with flying-horses and swings for children, and especially set apart for them. There are many fine forest-trees here, giving an agreeable shade, and it is a great resort for the little ones on Saturday afternoons. The grounds command a fine view of the river and of other portions of the Park. The mansion which stands here was the residence for many years of Samuel Breck.

THE EXHIBITION GROUNDS.

The visitor leaving the Garden may either continue on Girard Avenue to Elm Avenue, or under the Railroad Bridge. By the latter he passes over Eaglesfield, a knoll of land partly covered by a wood, over which the road rises and descends to a bridge, then winds around a second knoll, passing over grounds formerly known as Peterstone; these contain Sweet Briar Mansion;¹ passing again by a wood, the visitor enters the Exhibition Grounds.

These grounds were formally transferred by the Park Commissioners to the Commissioners of the International Exhibition on the 4th day of July 1873; and the Proclamation of the Exhibition made by order of the President of the United States. The reservation contains 236 acres; it extends from this point to George's Hill and Ridgeland, embracing two tracts — Lansdowne and Belmont; the first — Lansdowne, is bounded by the river, Elm Avenue — the Park's southern boundary, George's Hill, and the Belmont tract. It is a plateau known as the Lansdowne Plateau, and a second plateau lying north and westward — Lansdowne Terrace, separated by a ravine from the other. This first tract is the site of the National Memorial, the Main Exhibition Building, Agricultural and Machinery Halls, and the Horticultural Hall and grounds. Belmont, the second of these tracts, is bounded by the Lansdowne tract, Ridgeland, Elm Avenue, and the River; it is the reservation for Agriculture.

¹ Erected 1791, by John Ross, a merchant of Philadelphia;



THE TOUR OF THE GROUNDS.

In order to afford convenient access to visitors by every conveyance, and from every quarter of the Park and City, thirteen entrances have been provided for the Exhibition Grounds.

The grand entrance is from Belmont and Elm Avenues ; here is located the Pennsylvania Railroad Depot, the City Car's Concourse, and many of the Exhibition Hotels.

As the visitor approaches this entrance, he sees, on the right hand the office of the Centennial Commission, and on the left, of the Board of

Finance. Passing between these, he enters a rectangular garden, with a central Fountain ; and sees before him a broad road—Belmont Avenue—extending northward and rising in the distance between rows of trees to an eminence.

On the right side of this garden is the façade of the Main Building, and on the left the façade of the Machinery Hall. Immediately in front of the visitor is the Judges' Pavilion, on the right of this pavilion, the Department of Public Comfort, and on the left a Reserved Railroad space—back of the Department of Public Comfort are Japanese Dwellings, and back of the reserved space, the Photographers' Association.

Passing to the further border of the garden, the visitor sees a second road—the Avenue of the Republic, crossing the former road and extending along the entire line of the Main Building and Machinery Hall. Looking to the right along this avenue, he sees, next to the Department of Public Comfort, a long building—the Wagon and Carriage Manufactory, and next to this, the National Memorial—Art Gallery of the Exposition, marked by the two colossal Pegasus groups at its entrance, by the statues of Washington and the American Soldier on its east and west sides, and by the dome and figure of Columbia. On the right and rear of the Carriage Manufactory are the Swedish Buildings, and on the rear are the Pennsylvania Educational Department, and the Restaurant Sudreau ; beyond the Art Gallery is the Photograph Gallery, and back of this the reservation for the French Government and the Vienna Bakery ; in the rear of the Art Gallery are the Annexes to the same. Continuing along Belmont Avenue, the visitor passes on the right hand a ravine, and on the left a Lake ; near the head of the Ravine is the Medical Department, and near it the grounds of the Brazilian and German Governments ; further down the Ravine the Milk and Dairy Association, and Hunter's Camp.



THE NATIONAL MEMORIAL.

ART GALLERY.

This structure — one of the affixes to the Exhibition, is located on a line parallel with, and three hundred feet northward of, the Main Building.

It is on the most commanding portion of the Lansdowne Plateau, and is elevated on a terrace six feet above its general level.

The materials are granite, glass, and iron. The structure is 365 feet in length, 210 feet in width, and 59 feet in height, over a spacious basement 12 feet in height.

The Main Front looks southward ; it displays three distinctive features : A Main Entrance in the central section ; a Pavilion at each end ; and two Arcades connecting the Pavilions with the centre. The Central Section is

95 feet long, 72 feet high; Pavilions, 45 feet long, 60 feet high; Arcades, each, 90 feet long, 40 feet high.

The front, or south face of the Central Section, displays a rise of thirteen steps to the entrance 70 feet wide. The entrance is by three arched doorways, each 40 feet high and 15 feet wide, opening into a hall. Between the arches of the door-ways are clusters of columns terminating in emblematic designs.

The doors are relieved by bronze panels, having the coats-of-arms of all the States and Territories.

In the centre of the main frieze is the United States coat-of-arms.

The main cornice is surmounted by a balustrade with candelabras. At either end is an allegorical figure.

A dome rises from the centre of the structure to the height of 150 feet from the ground. It is of glass and iron: from it a colossal figure rises.

Groups, also of colossal size, stand at each corner of the base of the dome.

The pavilions display windows 30 feet high and 12 feet wide.

The arcades are intended to screen the long walls of the gallery. Each consists of five groined arches, looking outward over the grounds and interiorly over open gardens, which extend back to the main wall of the building.

The gardens are 90 feet long and 36 feet deep, ornamented in the centre with fountains and designed for the display of statuary. From them stairways reach the upper line of the arcades which forms promenades 35 feet above the ground.

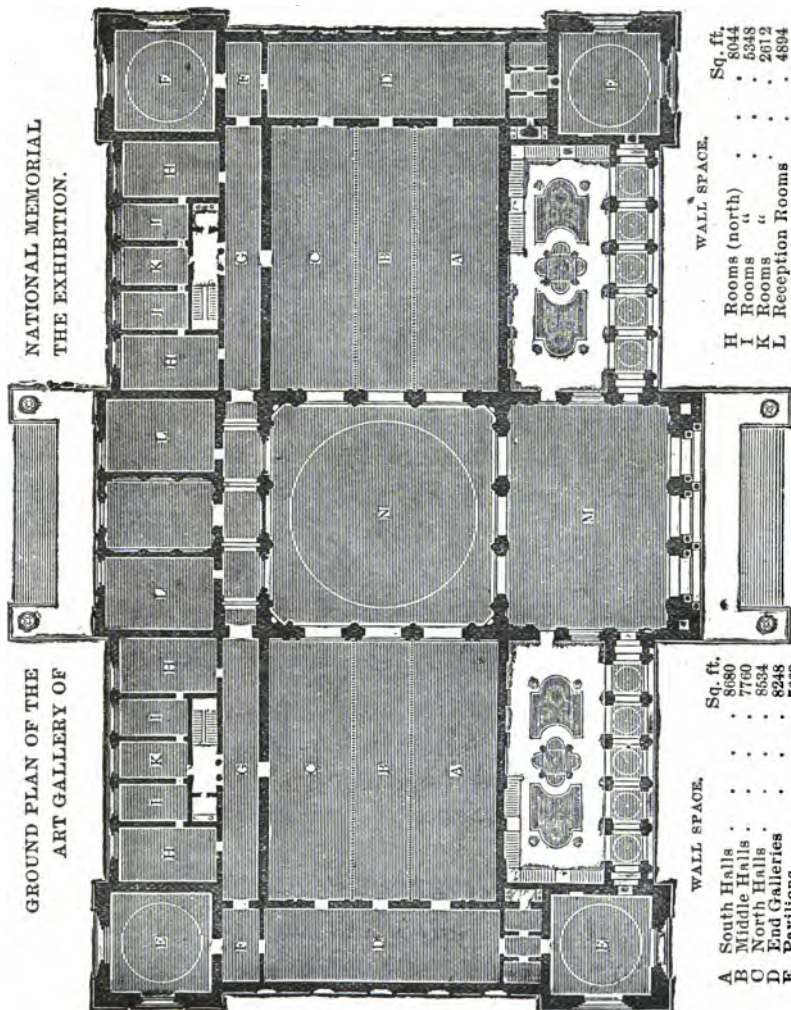
The balustrade is ornamented with vases, and is designed ultimately for statues.

The cornices, the atticas, and the crestings throughout, are highly ornamented.

FAIRMOUNT PARK.

GROUND PLAN OF THE
ART GALLERY OF

NATIONAL MEMORIAL
THE EXHIBITION.



WALL SPACE.

A South Halls	Sq. ft.
B Middle Halls	8680
C North Halls	7760
D End Galleries	8534
E Pavilions	8248
F End Rooms of Corridor	7688
G Corridors	2796
	7408

WALL SPACE.

H Rooms (north)	Sq. ft.
I Rooms "	8044
K Rooms "	6348
L Reception Rooms	2612
	4894

FLOOR SPACE.

M Reception Hall	4966
N Centre "	6833
E Pavilions	5088

Height of Pavilions and Reception Hall 52 feet. Centre Hall 77 feet.

The walls of the east and west sides of the structure are relieved by five niches.

The north front has, in place of the arcade, a series of twelve arched windows, and a central door; over these there is a promenade 275 feet long and 45 feet wide, elevated 40 feet above the ground, and overlooking, northward, the Park grounds.

The south entrance opens on a hall 82 feet long, 60 feet wide, and 53 feet high; on the further side of this hall, three doorways, each 16 feet wide and 25 feet high, open into the central hall; this hall is 83 feet square, the ceiling of the dome rising over it 80 feet in height.

From its east and west sides extend the galleries, each 98 feet long, 48 feet wide, and 35 feet in height. The central hall and galleries form one grand hall, 287 feet long and 85 feet wide. From the galleries, doorways open into two smaller galleries, 28 feet wide and 89 feet long. These open north and south into private apartments, which connect with the pavilion rooms, forming two side galleries 210 feet long. Along a corridor extends the north side of the main galleries and central hall, and opens into a series of thirteen rooms.

THE ANNEXES

To the Art Gallery give additional picture space of 63,000 square feet. South of the first annex, a gallery is now added, 102 by 55 feet, with six windows on the south side, for the display of stained glass. North of the annex, two galleries of 40 feet square are added, and one 20 by 40 feet. The whole width of the annexes is 270 feet, and length 350 feet. They are lighted from the roof, and situated north of the main gallery, overlooking the river.



THE MAIN EXHIBITION BUILDING

Is located on the Plateau east of Belmont and north of Elm Avenues. It stands 170 feet back from the north side of Elm Avenue, and 300 feet from the south side or front of the Art Gallery.

The building is in the form of a parallelogram, extending east and west 1,880 feet, and north and south 464 feet.

The larger portion of the structure is one story in height, and shows the main cornice on the outside 45 feet above the ground. At the centre of the longer sides of the building are projections 416 feet in length, and in the centre of the shorter sides or ends are projections 216 feet in length. In these projections are located the main entrances, which are provided with arcades upon the ground floor, and central facades extending to the height of 90 feet.

The East Entrance forms the principal approach for carriages.

The South Entrance for street-cars; the ticket-offices being located upon the line of Elm Avenue, with covered ways provided for entrance into the building itself.

The North Entrance communicates directly with the Art Gallery.

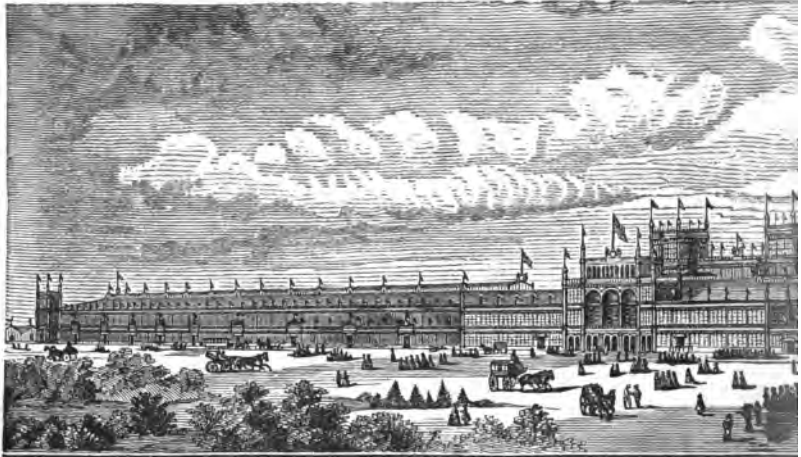
The West entrance gives the main passage-way to the Machinery Hall.

Upon the corners of the building are four towers 75 feet in height, and between the towers and the central projections or entrances, a lower roof, showing a cornice 24 feet above the ground.

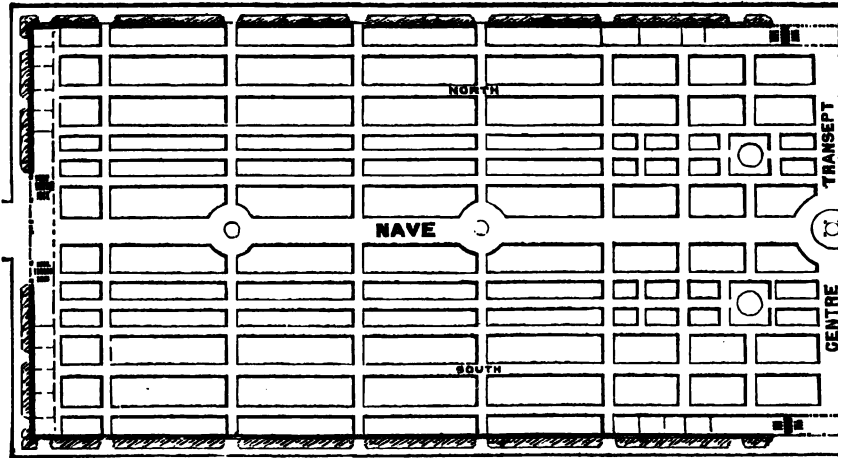
The foundations consist of piers of masonry.

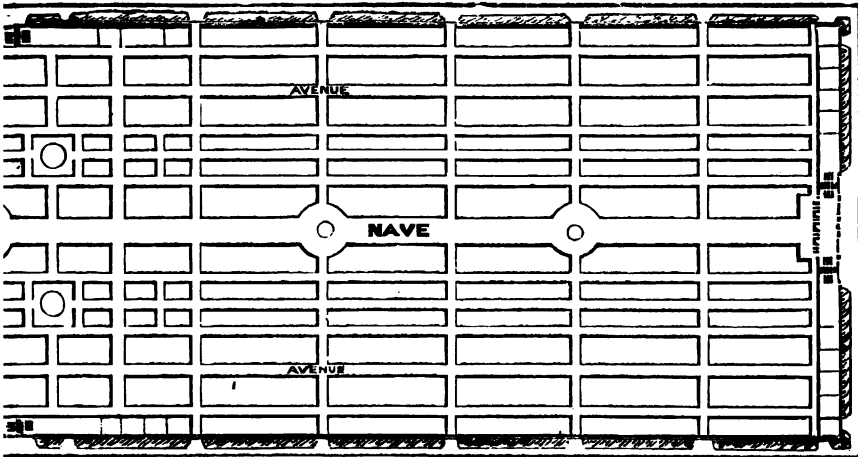
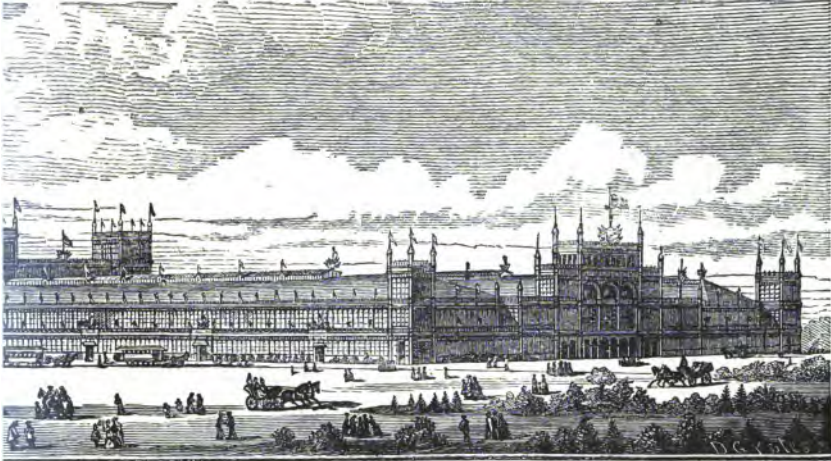
The superstructure, of wrought-iron columns and wrought-iron roof trusses.

FAIRMOUNT PARK.



MAIN EXHIBIT





The columns are placed lengthwise the building, at the distance of 24 feet apart; and the sides of the building, for the height of seven feet from the ground, are finished with timber framed in panels between the columns, and, above the seven feet, with glazed sash. Portions of the sash are movable for ventilation,

The wrought-iron columns are composed of rolled channel bars with plates riveted to the flanges.

The roof trusses are similar in form to those in general use for Depôts and Warehouses.

Upon the exterior of the building, around each corner column, is placed a light casing of galvanized iron, octagonal in form, and designed to appear as a slender turret extending from the ground to above the roof.

The roof over the central part, for 184 feet square, is raised above the surrounding portion, and four towers, 48 feet square, rise to 120 feet in height at the corners of the elevated roof.

The areas covered are as follows :

Ground Floor	872,320 square feet.	20.02 acres.
Upper Floors, in projections	37,344 " "	.85 "
" " in towers	26,344 " "	.60 "
	936,008	21.47

GROUND PLAN.

The Ground Plan shows a central avenue or nave 120 feet in width, and extending 1,832 feet in length. This is the longest avenue, of that width, ever introduced into an Exhibition Building. On either side of this nave is an avenue 100 feet, by 1,832 feet in length. Between the nave and side avenues are aisles 48 feet; and, on the outer sides of the building, smaller aisles 24 feet in width.

Three cross-avenues or transepts of the same widths, and in the same

relative positions to each other as the nave and avenues, run lengthwise ; viz. : a central transept 120 feet in width by 416 feet in length, with one on either side of 100 feet by 416 feet, and aisles between of 48 feet.

The intersections of these avenues and transepts in the central portion of the building result in dividing the ground floor into nine open spaces free from supporting columns — covering in the aggregate an area of 416 feet square. Four of these spaces are 100 feet square, four 100 feet by 120 feet, and the central space or pavilion 120 feet square. The intersections of the aisles result in four interior courts 48 feet square, one at each corner of the central space.

The main promenades through the nave and central transept, are each 30 feet in width, those through the centre of the side avenues and transepts 15 feet each. All others are 10 feet wide.

The Private Offices for the various Foreign and State Commissions are on the ground floor and in the second story on either side of the Main Entrances, in close proximity to their exhibited products.

Buffets or Restaurants for light refreshments are at four prominent points.

Water is supplied freely throughout the entire building, the most complete provision being made for protection against fire.

Sanitary arrangements, easy of access, are located at six different points.

ARRANGEMENT OF PRODUCTS.

The arrangement of products exhibited is that recommended by the Committee on Classification of, and adopted by, the U. S. Centennial Commission. It is known as the Dual System of Classification, and will be applied in this building as follows :

- Dept. I. Materials in their unwrought condition. Mineral, vegetable, and animal.
- Dept. II. Materials and Manufactures the result of extractive or combining processes.
- Dept. III. Textile and Felted Fabrics. Apparel, costumes, and ornaments for the person.
- Dept. IV. Furniture and Manufactures of general use in construction and in dwellings.
- Dept. V. Tools, Implements, Machines, and Processes.
- Dept. VI. Motors and Transportation.
- Dept. VII. Apparatus and Methods for the increase and diffusion of knowledge.
- Dept. VIII. Engineering, Public Works, Architecture.
- Dept. IX. Plastic and Graphic Arts.
- Dept. X. Objects illustrating efforts for the improvement of the Physical, Intellectual, and Moral Condition of Man.

In this building will be located portions of all of the above Departments, except No. VI., which will be placed in the Machinery Hall, and No. IX. to which the Art Gallery will be especially devoted.

The Departments will be arranged in parallel zones lengthwise the Building, the zones being of different widths, according to the bulk of the products exhibited in the particular department. The countries and States exhibiting will be arranged in parallel zones crosswise the Building; these zones also being of different widths, according to the amount of space required for the exhibits of each country. Between each Department and each country will be passage-ways, distinctly marking the limit of each.

The result of this dual system will be, that any visitor or student desiring to compare products of the same kind from different parts of the world may do so by passing through the building lengthwise, keeping in the zone devoted to the particular Department; or desiring to examine the products exhibited by any particular Country or State may do so by passing through the Building crosswise, in the zone devoted to the particular Country or State.

MACHINERY HALL

is located at a distance of 542 feet from the west front of the Main Exhibition Building, and 274 feet from the north side of Elm Avenue. The north fronts of the two buildings are on the same line, thus presenting from the east to the west ends of the Exhibition Buildings a frontage of 3824 feet on the principal avenue within the grounds.

The Hall is 360 feet wide by 1402 feet long, with an annex on the south side for hydraulic machines 208 feet by 210 feet. The entire area covered by the Main Hall and annex is 558,440 square feet, or 12.82 acres, giving, as arranged, 14 acres of floor space in the building.

The structure is one story in height, showing the main cornice 40 feet, and the ventilators 70 feet from the ground. The long lines of the exterior are broken by projections on the four sides; the main entrances are finished with façades, extending 78 feet in height. The east entrance is the principal entrance for visitors by the street-cars, from the Main Exhibition Building, and the Pennsylvania Railroad.

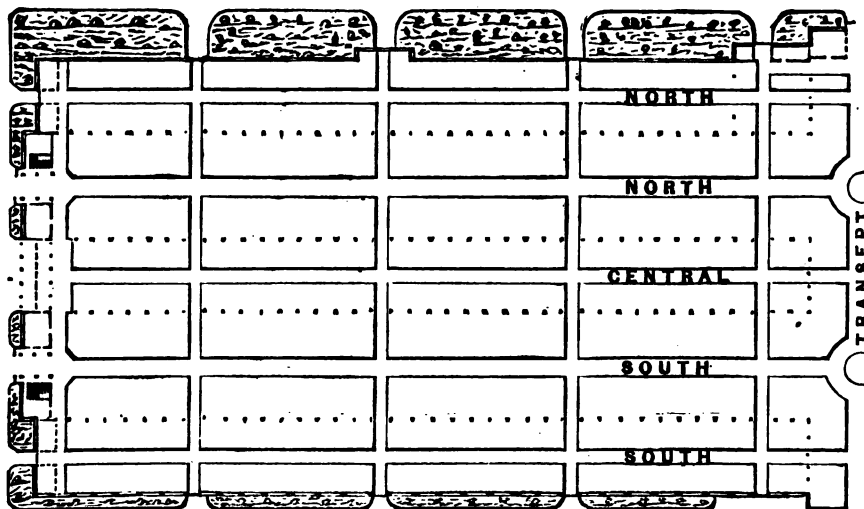
The foundations consist of piers of masonry. The superstructure consists of outer walls, solid timber columns supporting roof trusses, constructed with straight wooden principals and wrought iron ties and struts. The outer walls are built of masonry to a height of 5 feet, and above that are composed of glazed sash placed between the columns, and movable for ventilation. The columns are 16 feet apart, and placed lengthwise of the building. They are 40 feet high, and sustain the roof trusses over the avenues; the roof trusses are respectively 90 and 60 feet spans. Louvre ventilators are introduced in continuous lengths over both the avenues and the aisles.

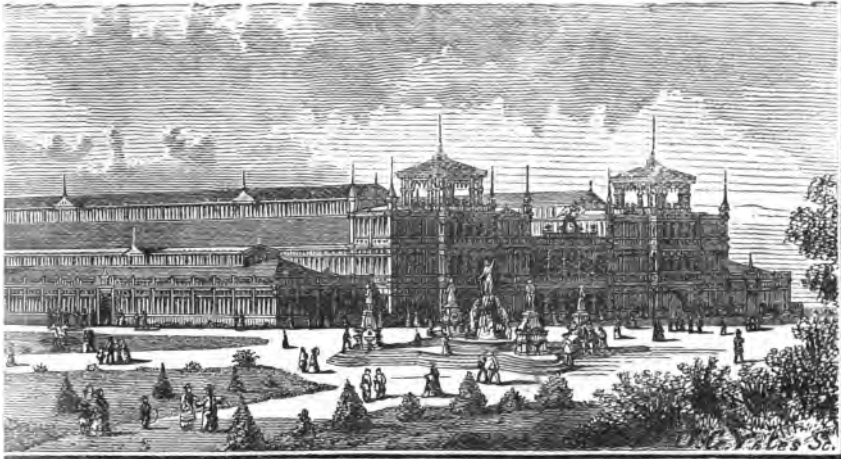
The shafting consists of eight main lines, extending nearly the entire

FAIRMOUNT PARK.

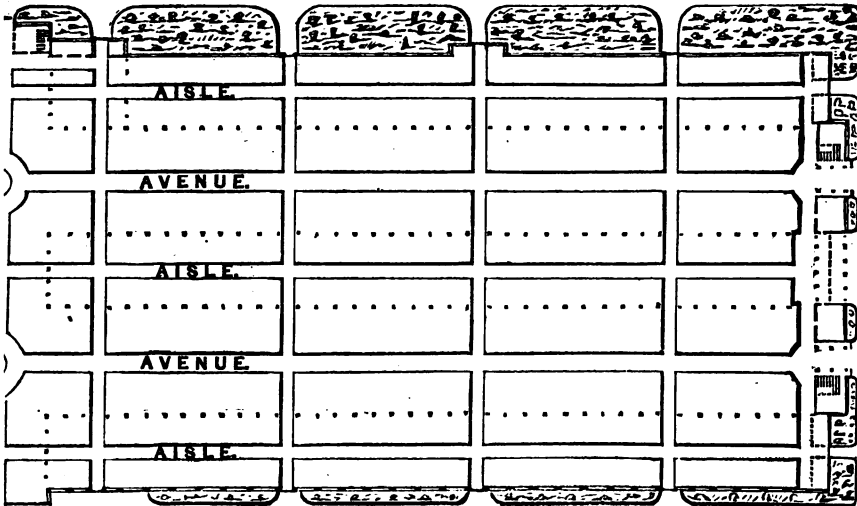


MACHINE





RY HALL.

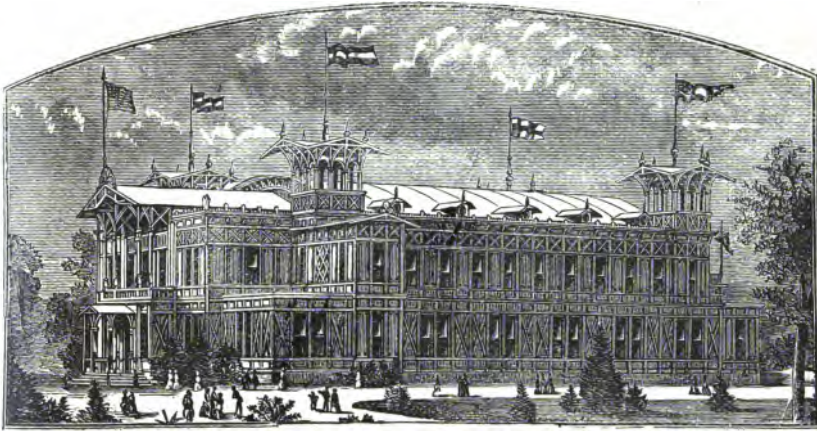


length of the structure, with counter-shafts introduced at points along the aisles. The hangers will be attached to the wooden horizontal ties of roof trusses, or to brackets especially designed for the purpose, projecting from the columns.

The boiler houses are along the south side of the Hall. The annex for hydraulic machines contains a tank 60 by 160 feet, with depth of water of 10 feet.

A central and four other avenues extend lengthwise the building, each 1360 feet long; these are crossed by a central transept, and four other avenues on either side; the central transept is 208 feet long, extending into the annex. The two avenues on either side of the central avenue and the central transept are each 90 feet wide; the others are each 60 feet. The promenades in the avenues on either side the central are 15 feet in width; in the central transept 25 feet, and in the other avenues 10 feet; exit doors are provided at the ends of the avenues.





THE JURY PAVILION

Is 152 feet long and 115 feet wide, two stories, with 4 towers. It consists of a main hall, on the first floor, 60 x 80 feet, 43 feet high, and an adjoining hall 25 x 60 feet, 25 feet high, separated by removable partitions; a corridor 10 feet wide, which extends around the main hall, and opens on committee rooms. There are also four rooms for offices on the first floor; the second floor is composed of a gallery around the main hall, and a third hall 22 x 60 feet, for committees; the material is wood.

THE TOUR CONTINUED.

Beyond the Lake, on the Belmont Avenue, is the Restaurant *Trois Frères Provencaux* ; here the visitor reaches a third avenue—Fountain Avenue, its east extremity terminating at the Conservatory, and its west at a fountain—the Centennial Fountain. Here is the grand centre of the Centennial Grounds—the Garden of the Exhibition.

Passing beyond this avenue the visitor, on the right hand, sees first the Woman's Pavilion ; next the New Jersey State Building ; and, still beyond, "the South"—Mercer's Restaurant. Back from this, the Kansas State Building, and near it the New England Log House and Modern Kitchen. On the left hand the United States Government Building, marked by its cannon and its hospital ; and in its rear, extending westward from the avenue, the State Buildings, in the following order : Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, New Hampshire, Connecticut, Massachusetts, Delaware, Maryland, Tennessee—each of these distinctive in architecture.

A walk along Fountain Avenue eastward, brings the visitor to the Conservatory, which is marked by some groups of single pines and a solitary and symmetrical oak tree—a relic of the century.

This ornate structure affords, from its east side, a superb outlook over the Park and river, and from its west side, looking toward the Fountain, the most charming effect in the whole grounds ; near the building are located Lauber's and the American Restaurant, shaded by cedars and deciduous trees, and the Pavilion for the City Authorities of Philadelphia.





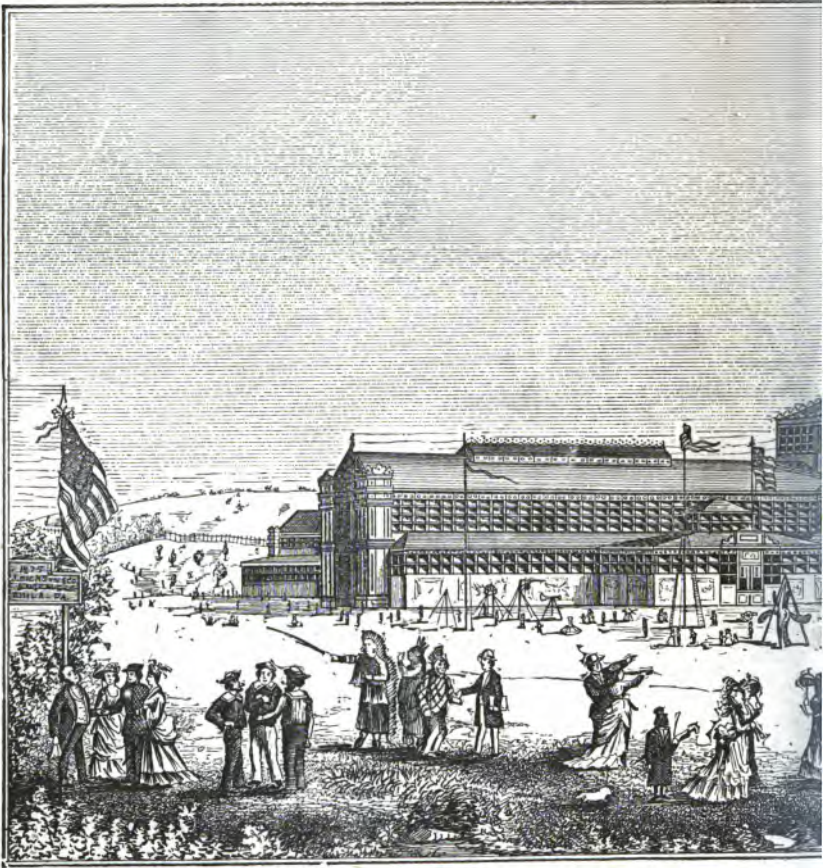
THE BUILDING FOR UNITED STATES EXHIBITS

Has a front width of 340 feet, and depth of 480 feet; it consists of a central nave 60 feet by 480 feet; a cross transept 60 feet by 340 feet, with aisle and annex section covering a floor area of 102,840 square feet.

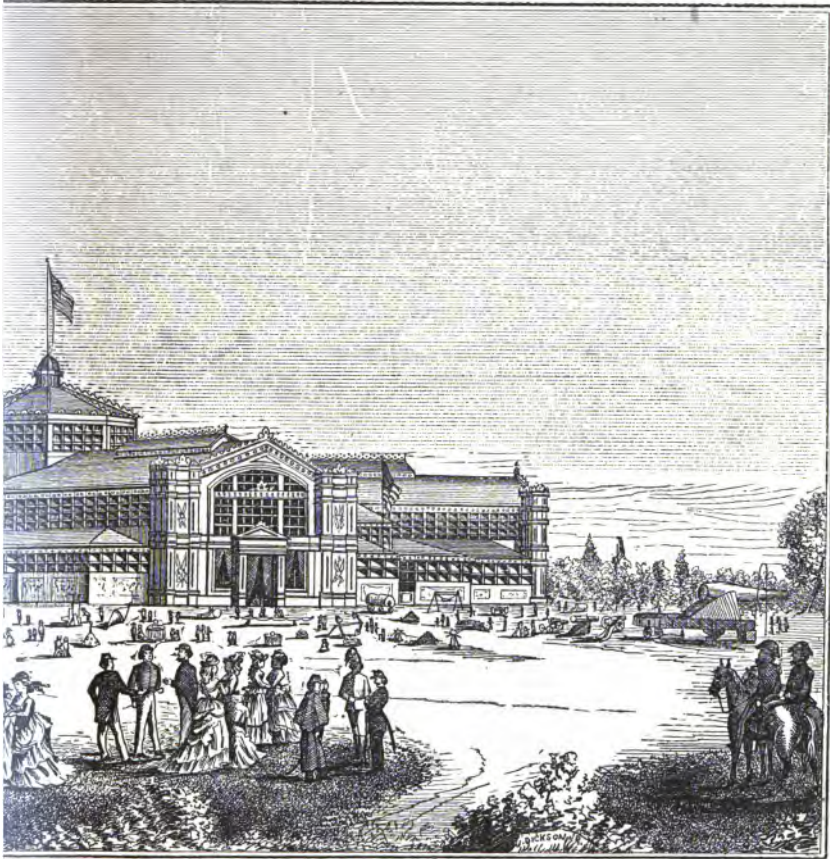
The centre of each façade has a principal entrance, the architecture of which relieves the simplicity of the shed construction of the general building.

It is well lighted and ventilated, and provided with water stations distributed through the building; it is built of timber, the exterior faces only being painted.

FAIRMOUNT PARK.



UNITED STATES GOV



ERNMENT BUILDING.

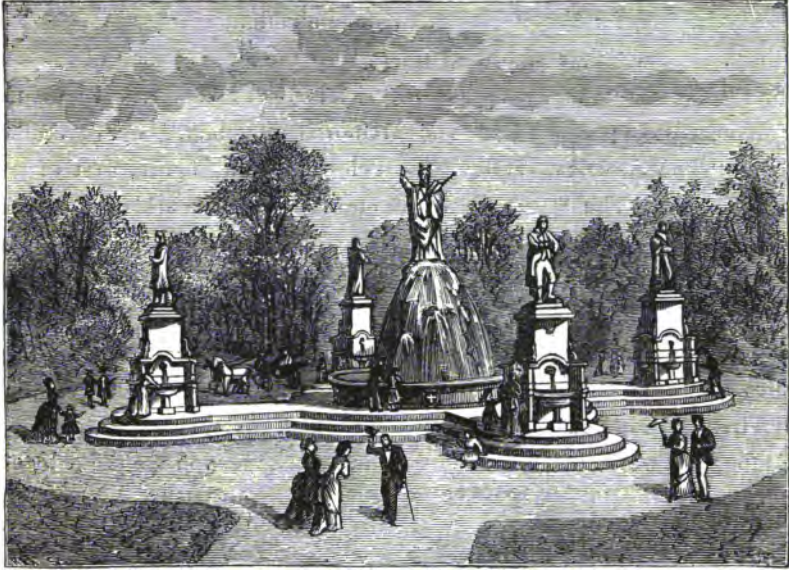
In the rear of this building is a Government Hospital, on either side of its entrance are pieces of artillery—army and navy.

The collection will embrace, ores, metals, ornamental stones, and gems; building stones, artificial stones, pigments, grinding and polishing substances, fertilizers, sulphur salts, and minerals used in chemical manufactures.

Group of the principal species of American birds, fishes, and mollusks; quadrupeds, leather, and fur. Stone images, implements of Indian domestic use and warfare, insects, antique jewelry, skulls, and coins. The war department exhibits ordnance, signals, models, and sanitary appliances.

The treasury department, coins, notes, and machinery for coining; there will be a complete exhibit of the postal service. The department of agriculture will have in addition to the display of specimens a geographical grouping by States, to more fully show the extent and distribution of our iron, coal, silver, gold, and other minerals, in their several localities.





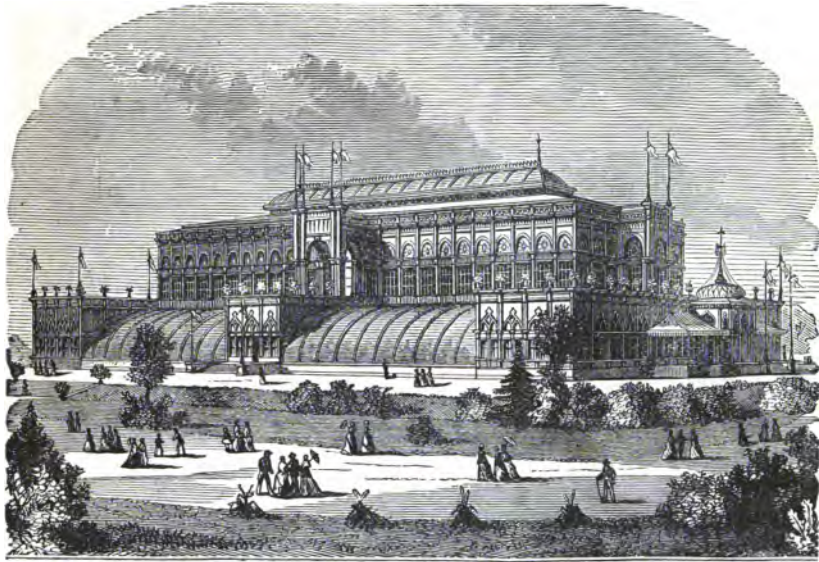
STATUARY IN THE GROUNDS.

The display of art work in the exhibition will be large, representing nearly every nationality. For the open grounds, the following memorial works are being prepared in honor of the anniversary. "The Hebrew Monument," to be placed between the Art Gallery and the temporary annexes; it is a group emblematic of Religious Liberty. "The Statue of Columbus," now being executed in Italy, for the Christopher Columbus Monument Association of Philadelphia, to be placed at the intersection of Belmont and Fountain Avenues, both of these to be of Cararra marble. "The Statue of Humboldt," now finished in bronze, at Berlin, to be placed near the Hills Mansion, for the great demonstration of the Germans

of the nation. "The Statue of Dr. Witherspoon," now finished in bronze in Philadelphia, for the Presbyterian denomination, northeast of the Art Gallery. "The Statue of Bishop White," by the Episcopal denomination. "The Statue of Emancipation," by Harriet Hosmer, in Rome, for the Woman's Department. "The Memorial Fountain," by Bartholdi, Paris. "The American Soldier," a colossal granite figure, west of the Art Gallery. "The Statue of Washington," colossal marble figure, east of the Art Gallery. "The Catholic Total Abstinence Fountain," representative of Temperance and Patriotism; this is placed at the intersection of the Avenue of the Republic and Fountain Avenue, and is a colossal group of white marble, with a central figure of Moses, and surrounding figures of Comm. Barry, Bishop Carroll, Charles Carroll of Carrollton, and Theobald Mathew, the world's Apostle of Temperance.

Among the works of general interest in this connection are the colossal group, "America," from the Albert Memorial, which will be placed in the Art Gallery (Memorial Hall); and the colossal bronze figure of "Liberty," by Bartholdi.





THE HORTICULTURAL BUILDING

Is located on the Lansdowne Terrace, northward of and separated by Lansdowne Ravine from the National Memorial. It occupies the site of a mansion formerly the residence of John Penn,¹ the last colonial governor of Pennsylvania. The design is the Moresque style of the twelfth century; the principal materials are iron and glass. The length of the building is 383 feet, its width 193 feet, and extreme height 72 feet.

The main floor is occupied by the central conservatory, 230 by 80 feet, and 55 feet high, surmounted by a lantern 170 feet long, 20 feet wide, and 14 feet high.

THE HORTICULTURAL GROUNDS.

The horticultural grounds comprise forty acres, near the centre of the exposition inclosure. The whole space, exclusive of walks, borders, and building sites, has been allotted to countries in various parts of the world. These will make exhibits of ornamental gardening, trees, shrubs, and plants of commerce. All the trees of the United States will be represented, and also the plants recently introduced into this country from China, Japan, and other parts of the East. The space reserved for the display of ornamental gardening will contain about seventy thousand flowering, and as many foliage plants, arranged in the ribbon and geometrical styles of gardening. Other adornments, such as statuary, kiosks, summer-houses, will surround the terraces of the Conservatory. The building, exclusive of the main hall and the four green-houses, is divided into several compartments for the individual exhibits of florists and gardeners. On the north and south sides are the two green-houses, each thirty by one hundred feet in size. These and the main hall are heated by hot water, and are specially for the exhibition of choice plants of commerce, tropical, and other exotic productions. The main hall is ornamented by a marble fountain in the centre, surrounded by statuary and specimens of the ceramic art. The heaters of this large building are placed in the basement of the main hall, and are connected by a system of iron pipes laid underneath the floor of the passage way. A large number of the most attractive decorations of the conservatory have been received as donations from the Congressional Library Committee, the Agricultural Department of the Government, and from prominent private citizens, here and abroad.



THE VIEW FROM THE FOUR TOWERS.

The Main Exhibition Building has for its chief characteristic, a minimum of material for a maximum of strength; it differs from the great English building, in the fact that it lacks in the exterior a character of entire originality; in the interior it only adopts the consummate completeness of the Paris Exhibition for the arrangement of its exhibits; it lacks also the great dome of the Vienna building, yet it has a certain delicacy and aerial effect in its vast upbuilding of material, which is even more interesting and attractive than any one feature of all these former ones; this is rendered all the more effective as the visitor approaches from either entrance the base of the central towers; the massive cases and inclosures of some of the exhibitors, the great bulk they make together over the whole ground floor of the building, towering almost to the roof in some sections, gives the iron ties by which the structure is suspended, in their delicate coloring, at the great height of these four towers, one hundred and thirty feet above, the effect of gossamer threads; story after story, all open and full of light, these iron threads, touched here and there with the sunlight, cross and recross to the upper air. By like secure, yet slightly lifted spirals, the visitor ascends to four successive floors: at the first, he is in the midst of the vastness of the structure and its

exhibits ; at the next, he is looking along the never-ending aisles, with their lofty constructions, flags, and nations' names and works ; at the next, he is midway above the world of the exhibition, and beneath the outlook over the outer world ; at the next, a panorama of indescribable interest and beauty breaks on his vision.

At this extreme height of these four towers there is a promenade : first, looking northward, the visitor is confronted with the façade of the Art Gallery and its groups of figures standing silent and colossal—beneath, the wide streets, the confusing out-spread of the buildings, and the multitudes that throng there—and beyond, the silent and far flowing river, and the further outlook over the green glades, and meadows, and forests of its further horizon ; eastward and southward the great city of Philadelphia, and the throngs of the ever gathering multitude ; and westward the far hills, the throngs, and the great buildings of the exhibition once more ; and down through the centre of the towers, the throng within, moving slowly, confusedly intermingled, their features not distinguishable.





THE RAILROAD IN THE GROUNDS.

A novel feature, and one conducive to the comfort of the visitor, is a railroad which traverses the entire grounds of the Exhibition. Cars of great convenience and elegance are placed on this road, affording a good mode of obtaining the general character of the arrangement of the grounds and the buildings. The cars starting from and returning to the east entrance of the Main Building, pass along the avenue of the Republic, giving the visitor, first, a view of the Empire Transportation Company Building, and showing back of this, the Vienna Bakery, next the Photograph Gallery, next the Art Gallery—its bronze Pegasi and its grand façade and dome with the figure of Columbia, next the Carriage Builders' Building, the Department of Public Comfort, and the Judges' Pavilion. Here the view opens along the grand avenue of the Exhibition—Belmont Avenue, and shows the lake and all the grand buildings lying northward—first, on the right hand of the avenue, the Photographic Association, and on the left, Cook, Son, and Jenkins—the world-famed tourists' agents; the car, passing beyond the avenue, traverses the long extent of the Machinery Hall, giving a complete panorama of the whole western portion of the Exhibition buildings; the restaurant *Trois Freres* on the west border of the Lake, the United States Government Buildings, the long line of the State Buildings. At the west end of the Machinery Hall; the car makes a short detour southward, passing around the C. T. A. Centennial Foun-

tain, and Campbell's Printing Press, affording a view of the south side of the Machinery Hall, and the group of annexes there; curving around northward, it passes between a saw-mill on the right, and a glass factory on the left, and the foot of George's Hill—at the location of the West Point Cadets; it again approaches the Fountain at a group of buildings of great interest—the British Commission Buildings—a group of three red-tiled roof houses, the Arkansas, West Virginia and Spanish Pavilions, and Spanish Agricultural Buildings, and the curious and elaborately finished building of the Japanese; passing along the front of these buildings, it traverses the entire front of the long line of the State Buildings, the rear of the United States Government Building, and crosses Belmont Avenue, giving an excellent view of the Women's Building and the State of New Jersey's tiled and turreted House. Here the car runs northward along the foot of Belmont Hill, to the doors of the great Gothic structure for agriculture, then eastward by the Wagon Builder's Annex, and the Brewers' Building; here it curves again, overlooking the river, and returns to the Agricultural Hall, passing on the left hand a ravine near to Lauber's, and by the American Restaurant, and return to the same point on Belmont Avenue, where "the South" Restaurant is located; continuing down Belmont Avenue, it passes on the right, the State of New Jersey's and the Women's Building, and on the left the Government Building, crosses Fountain Avenue at the Restaurant Trois Freres, and gives, looking right the Conservatory at the east, and left the Fountain and George's Hill at the west, end of Fountain Avenue. Continuing down Belmont Avenue it passes, on the right, Clark & Co., the Photographic Association, Japanese dwellings, and the Buildings of the German Empire, near the head of Lansdowne Ravine, on the left, the Lake, and so reaches the rectangular garden, between the Main Building and Machinery Hall, and thence along the Main Building to the entrance.

THE AGRICULTURAL BUILDING

Stands north of the Horticultural Building, and east of Belmont Avenue. The extreme dimensions of the building are 540 feet in front, by 800 feet in depth, consisting of a central nave 800 in depth, by 100 feet in width, with a central transept 100 feet in width by 540 feet in depth, and two side transepts 80 feet in width by 540 feet in depth. The nave and transept section are constructed of Howe trusses, built curvilinearly, and set to the form of two sides of an equilateral Gothic arch, springing from the ground line. The principals are set to uniform spacings of 20 feet between centres, the depth of truss being 4 feet 6 inches for the 100 feet span, and 3 feet 9 inches for the 80 feet spans.

At the intersection of the nave and central transept the diagonal trusses are coupled, separated 8 feet by lattice bracing, converging from 10 feet in depth at the foot to 6 feet at the base of dome and lantern. The intersection of 80 feet transepts with the nave are proportionately less, but of similar construction.

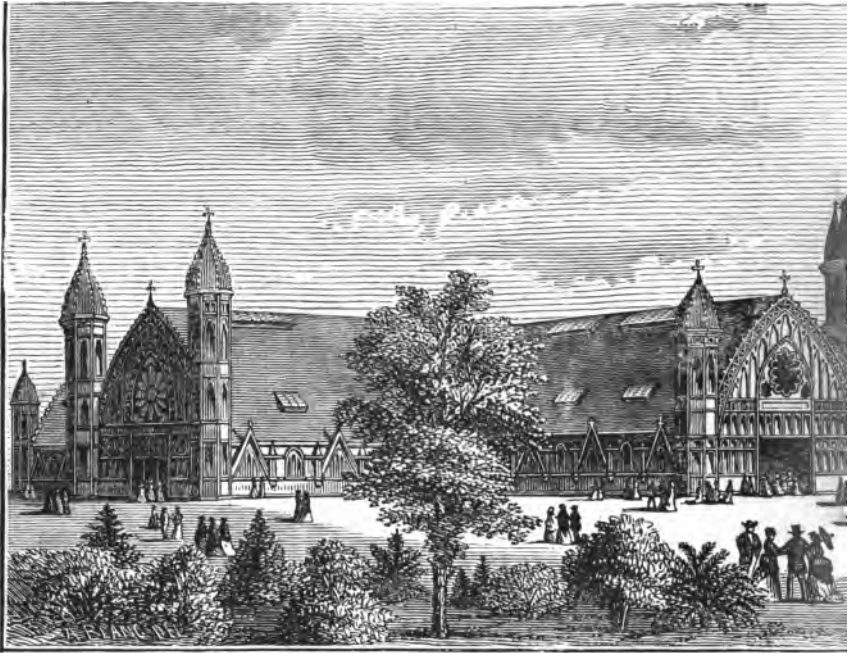
The intervening areas between the nave and transept sections are inclosed by shedding.

The entire structure is of timber left from the saw, finished upon interior surfaces by alum-sized color wash.

The exterior siding and frontal lines are planed for painting.

The section of building formed by the arch trusses receives light direct—by glass sections in planes forming roof cover—their stilt at the base constructed as louvres for ventilation.

The descriptions of the several buildings have been prepared from specifications and notes furnished by the architects and engineers to the author.



THE AGRICULTU

The intervening shedding **has lantern lights continuous** through their depth, in each bay of 60 feet.

The truss system adopted for the major portion of the building provides roof and wall construction, in the one element a truss, and incloses the extended floor area in the simplest manner; the elevation of the roof section converging to the ridge lessens the effect of the sun's heat, to which with-



TRAL BUILDING.

out the protection of a ceiling beneath, a building inclosed by temporary roof cover would be subject in the summer season.

An object of the structure is economy of space, and in this view simplicity of construction has been sought, rather than embellishment.

The building is drained by sewage beneath the floor. The Architect is JAS. H. WINDRIM; Contractor, PHILIP QUIGLEY.



THE DEPARTMENT EXHIBITS.

The Department of Agriculture embraces a larger variety of articles than any other of the Exhibition. It is arranged as follows:—

Group 1st, *Forest Products*. Trunks of trees, and timber in its various shapes of masts, boards, etc., ornamental woods, dye woods and barks, rosin, gutta percha, etc. Seeds and nuts.

Group 2d, *Pomological*, exhibits the fruits of all climates—which will be displayed during the Exhibition as follows:—

Pomological products and vegetables	May 16th to 24th.
Strawberries	June 7th to 15th.
Early grass butter and cheese	June 13th to 17th.
Early summer vegetables	June 20th to 24th.
Honey	June 20th to 24th.
Raspberries and blackberries	July 3d to 8th.
Southern pomological products	July 18th to 22d.
Melons	August 22d to 26th.
Peaches	September 4th to 9th.
Northern pomological products	September 11th to 16th.
Autumn vegetables	September 19th to 23d.
Cereals	September 25th to 30th.
Potatoes and feeding roots	October 2d to 7th.
Autumn butter and cheese	October 17th to 21st.
Nuts	October 23d to November 1st.
Autumn honey and wax	October 23d to November 1st.

Group 3d, *Agricultural Products*. Wheat, rye, hay, vegetables, tobacco, tea, coffee, and spices, etc.

Group 4th, *Land Animals*. Breeds of animals, from Europe, Canada, the United States, etc. Competitive displays are arranged as follows:—

Horses	September 1st to 14th.
Dogs	September 1st to 8th.
Neat cattle	September 21st to October 4th.
Sheep	October 10th to 18th.
Swine	October 10th to 18th.
Poultry	October 27th to November 6th.

The grounds for the live stock shows are most favorably located between two of the main avenues of access to the grounds—41st Street and Belmont Avenue. 750 stalls, 14 feet square each, are erected for horses: to be subsequently divided into half sections for cattle: and these again subdivided into pens for sheep and swine. Hay and grain barracks are erected, offices for the attendants, and a large track or ring for the exercise of the animals.

Group 5th, *Marine Animals—Fish Culture and Apparatus*—with an aquarium, containing both salt and fresh-water fish, and displaying the methods of hatching and raising fish. Shells and shell-fish, corals, and pearls; whalebone, isinglass, and fish oils; nets, baskets, fish hooks and lines, etc. etc., are also included in this group.

Group 6th, *Animal and Vegetable Products used as food*. Sponges; milk, butter, and cheese; hides, furs, and leather; ivory and glue; eggs and feathers; honey and wax; animal perfumes; canned goods; flour, starch, sugar, liquors, bread, cakes, and crackers. Vegetable oils, butter, and cheese displayed in a special building, and in the American Dairy-men's Association Building.

Group 7th, *Textile Substances*. Cotton, hemp, flax, ramie, wool, silk, hair, and bristles.

Group 8th, *Agricultural Implements and Machines*. Hand, horse, and steam implements; field trials for these will be held as follows:—

Mowing machines, tedders, and hay rakes	June 15th to 30th.
Reaping “	July 5th to 15th.

Ample and very eligible grounds have been secured on the line of the Pennsylvania Railroad between New York and Philadelphia, 16 miles from the Centennial grounds.

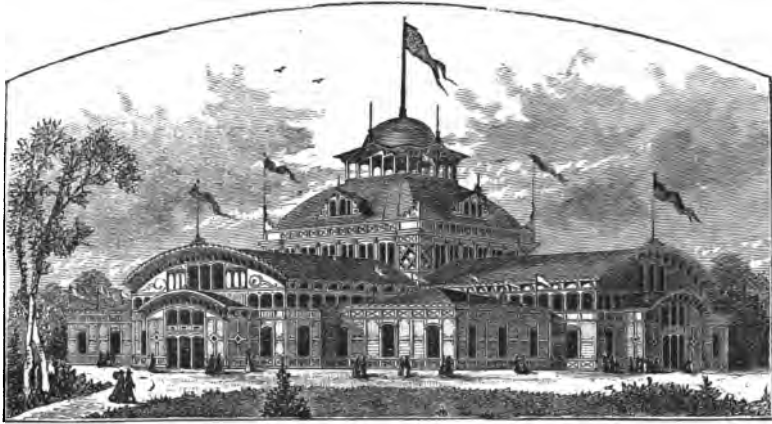
Group 9th, *Fertilizers, Wagons, Farm Buildings, fences, drains*. Farm wagons to be displayed in a separate building.

Group 10th, *Systems* of planting, draining, and breeding, illustrated by models, or by the literature of the farm.

Special prizes will be awarded by the Commission for excellence in these displays.

The author is indebted to Mr. Burnet Landreth, Chief of the Bureau of Agriculture, for the above official information.





THE BUILDING FOR THE WOMAN'S DEPARTMENT,

Situated near the Main Exhibition Building, is a structure covering 30,000 square feet; it exhibits a nave and transept each 192 feet long, and 64 feet wide, terminating in porches 8 x 32 feet. Four pavilions, each 48 feet square, occupy the angles formed by the nave and transept. The centre of the structure rises 25 feet above the exterior portions, and terminates with a cupola and lantern, 90 feet from the ground; the entire superstructure rests on the exterior walls and four interior columns; the material is wood roofed over by segmental trusses. It contains, in addition to space for exhibits, toilet and reception rooms.



exhibits ; at the next, he is looking along the never-ending aisles, with their lofty constructions, flags, and nations' names and works ; at the next, he is midway above the world of the exhibition, and beneath the outlook over the outer world ; at the next, a panorama of indescribable interest and beauty breaks on his vision.

At this extreme height of these four towers there is a promenade : first, looking northward, the visitor is confronted with the façade of the Art Gallery and its groups of figures standing silent and colossal—beneath, the wide streets, the confusing out-spread of the buildings, and the multitudes that throng there—and beyond, the silent and far flowing river, and the further outlook over the green glades, and meadows, and forests of its further horizon ; eastward and southward the great city of Philadelphia, and the throngs of the ever gathering multitude ; and westward the far hills, the throngs, and the great buildings of the exhibition once more ; and down through the centre of the towers, the throng within, moving slowly, confusedly intermingled, their features not distinguishable.





THE RAILROAD IN THE GROUNDS.

A novel feature, and one conducive to the comfort of the visitor, is a railroad which traverses the entire grounds of the Exhibition. Cars of great convenience and elegance are placed on this road, affording a good mode of obtaining the general character of the arrangement of the grounds and the buildings. The cars starting from and returning to the east entrance of the Main Building, pass along the avenue of the Republic, giving the visitor, first, a view of the Empire Transportation Company Building, and showing back of this, the Vienna Bakery, next the Photograph Gallery, next the Art Gallery—its bronze Pegasi and its grand façade and dome with the figure of Columbia, next the Carriage Builders' Building, the Department of Public Comfort, and the Judges' Pavilion. Here the view opens along the grand avenue of the Exhibition—Belmont Avenue, and shows the lake and all the grand buildings lying northward—first, on the right hand of the avenue, the Photographic Association, and on the left, Cook, Son, and Jenkins—the world-famed tourists' agents; the car, passing beyond the avenue, traverses the long extent of the Machinery Hall, giving a complete panorama of the whole western portion of the Exhibition buildings; the restaurant *Trois Freres* on the west border of the Lake, the United States Government Buildings, the long line of the State Buildings. At the west end of the Machinery Hall; the car makes a short detour southward, passing around the C. T. A. Centennial Foun-

exhibits; at the next, he is looking along the never-ending aisles, with their lofty constructions, flags, and nations' names and works; at the next, he is midway above the world of the exhibition, and beneath the outlook over the outer world; at the next, a panorama of indescribable interest and beauty breaks on his vision.

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tasty little box, in the most charming spot nature could embellish," remains with little alteration, and is a very excellent specimen of the houses of that early period. Its principal characteristics are a broad hall and small dormitories, small window-glass and heavy sashes, highly ornamented and high wooden mantel-pieces, a comfortable dining-room, and open fireplaces. One of these in the hall is still used; the panel over it formerly held a landscape; the coat of arms of the family remains perfect on the ceiling. Other ornamental devices about the mansion are recognizable as belonging to that early period. The roof has been raised; the third story and piazza are modern. A library, which adjoined the main house, has also been removed since the Judge's time. The date of the erection of the main out-building is fixed by a monogram, T. W. P. 1745, cut on a slab set in the wall. There was a chestnut-tree near this mansion, planted by Washington, known as the Washington tree,¹ and an object of great interest in former times. There is still standing there a white walnut, which was planted by Lafayette, on his visit here as the nation's guest, in 1824.

¹ Washington and Judge Peters proposed walking one afternoon. When a few steps from the back hall-door of the mansion, the Judge handed the General a large chestnut (a Spanish nut). Washington suggested planting it; thereupon the Judge, who carried a cane (Washington never carried a cane), made a hole with it in the ground, Washington dropped the nut, the Judge earthed it over. The shoot from it was watched and tended with care; it grew to be a large tree, and bore nuts of extraordinary size. This tree stood on the right hand, a few steps outside the hall-door. The two trees near the dining-room are its lineal descendants.

See page 120.





TOM MOORE'S COTTAGE.

“Alone by the Schuylkill, a wanderer, strayed.”

The old beech tree, which in former times shadowed this cottage, which Moore immortalized in his song, has long since fallen under the axe, or time. But the cottage retains the same appearance which it had during his sojourn in Philadelphia. The sumac reddens in the autumn, and the violets still come up as freshly in the spring-time as when he wrote “Where Schuylkill undulates through banks of flowers.” The cottage has borne his name from the time of his visit here, and the stanzas in which he has so well described its homely influences will always keep it with his memory. These quiet waters were to Moore as attractive as they have been to all others. He passed much of his time, during his sojourn in Philadelphia, in visits to the estates along their borders, and, in his

loving correspondence with his mother, wrote, "only in Philadelphia had I one wish to pause, in all my travels in America." He was a visitor at the hospitable home of the Burds, at Ormiston, and at the mansion of Judge Peters, on the opposite bank of the river. This little cottage—the counterpart of the one with thatched roof, his home at Sloperton, and of his little Mayfield cabin—lay between these two estates, and thus came naturally to have its place in his poetic fancies. A letter from an inmate of the Burd family, at the time of his visit here, states that one of his poems was written at this cottage; that it suggested the lines,

"I knew by the smoke that so gracefully curled,
Across the green elms, that a cottage was near,"

there can be little or no question—and to these facts we may very probably attribute its connection with his name.

THE BELMONT WORKS.

These works supply the reservoir at George's Hill, and are operated by steam. Their pumping capacity is 19,749,726 gallons per twenty-four hours.





MOUNT PROSPECT MANSION.

METOPTON.

Metopton was a tract of 400 acres surveyed to Swan Lom, a Swede, under a warrant issued from the Court, at Upland, first month twelfth, sixteen hundred and seventy-seven.¹ The portion embraced in the Park, twenty-six acres, was in 1760 divided from the remainder, and made subject to an 80 years' lease at two shillings an acre; in 1794 the title and lease came into the possession of Thomas Mifflin, by whom the lease was

¹ Hill's map, settled 1676.

extinguished ; the property remained in his possession until the winter of 1799, when it was purchased by George Plumstead, a merchant of Philadelphia, engaged in the India trade ; he erected the present mansion in 1802. The original name of the entire tract is Metopton. The immediate ground around the house bore in Plumstead's time the name Mount Prospect, and subsequently the unsuggestive name—Chamouni. It now bears, by resolution of the Park Commissioners, the former name. The view looking up the river from the concourse below the mansion rivals Belmont, and is the most charming feature of the Park in midsummer ; the view from the upper rooms of the mansion, looking southward, is more extensive even than that from George's Hill ; the view looking from the front of the mansion has, at eventide, a peculiarly solemn and interesting character. The woodland and ravine are full of natural attractions of leaf and flower—and the three trees, the Black Walnut, the Chestnut, and Tulip tree, near the mansion, are the most notable of all the Park forest trees.





EAST BANK OF THE RIVER.





THE EAST BANK OF THE RIVER.

After passing the Skating Club house, the last of these houses,¹ the road turns at a high promontory of rock, follows the river border, passes under the Girard Avenue Bridge, and, leaving the Schuylkill Water Works on the right, enters the tunnel. Emerging from this it passes under the Connecting Railway bridge, and, turning to the right, ascends an acclivity. At this point a fine view of the river opens.—Sweetbrier Mansion on its opposite shore, with the Exposition grounds and buildings and Lansdowne terrace, with the Horticultural buildings and its groups of pines—beyond, higher and further, Belmont Mansion, its dark crown of hemlocks and observatory. The road turns at a corner of rocks and crosses the railroad at Mifflin Lane Station. Here a bridle-path leaves it and passes along the margin of the river; after crossing the railroad the road ascends, passing on the left a hillside on which are two noble tulip trees, and on the right hand a piece of wood, a fair representative of the wood of the Pennsylvania farmland, with its heavy summer undergrowth and carpeting of flowers in the-spring time; as it reaches the crest of the hill it passes through the edge of the wood and turns to the left at the Lake Reservoir.

¹ See p. 18.



THE LAKE RESERVOIR

Covers a tract of 106 acres, and has an interior water surface of 89 acres. It extends in an angular form bordering three portions of the Park, and is divided into three compartments—the largest of which has a capacity of 326,939,009 gallons, the next in size 311,639,614, and the third 62,740,931 gallons—an entire capacity of 701,319,554 gallons. The water level is 133 feet above the city datum, and the depth of reservoir 25 feet. It was begun in 1871.

At the Reservoir the road divides into two roads. One passes to the right, directly to the eastern border of the Park at Columbia Avenue, following the course of the old Mifflin Lane;¹ the other passes along the border of the reservoir, leaves on the left hand the woodland, and ascends to Fountain Green. Here another road leaves the carriage road and descends, through a ravine shadowed with fine forest trees and vines, to the copious spring of clear cold water, which gives the place its name.

FOUNTAIN GREEN.

Fountain Green was a portion of the tract located in the autumn of 1680, by the John Mifflins—father and son, and confirmed by the founder in 1684. It remained in possession of the Mifflin family until 1753; Samuel Mifflin being its last owner of that family. In 1768 John McPherson bought a portion of the tract upon an agreement to pay the

¹ A road of the early times.

expenses of opening coal mines, and the titles for 28 years thereafter were made subject to a reservation of the coal rights underlying these grounds. It was also burdened, at the time of McPherson's purchase, with a quit-rent payable to the chief lord or lords of the fee. A canal was among its possibilities, and, in 1796, it was sold to a company for that purpose. But fortunately these endeavors to divert it from its natural condition went no further than intention. An unsuccessful effort was made in 1854 to make it a built-up portion of the city. For some years before its acquisition by the city it was one of the chief pleasure grounds of our German population—a place on festal days lit with the banners, shaken with the footsteps of the dancers, and the shouts and songs of the Rhineland; these joyous multitudes have in their turn passed away; but leaving also the natural attraction of the place without change. From the high elevation on the river border the grounds overlook Sweetbrier and Lansdowne on the opposite side of the river, and command a full view of the river itself. The old and noble forest trees which adorn them give grateful shadows in the summer, and the strong perennial spring—the largest in the whole Park, its cool refreshment to the visitor. The romantic ravine in which it flows, traversed by an old road overhung by vines and bordered by wild flowers brightening the deep shadows, remains year after year a continuous pleasure. A meadow bordered by a strip of woodland separates this estate from Mount Pleasant.

THE road continues along the border of the reservoir toward the Mount Pleasant Mansion. As it passes the strip of woodland it divides; the most direct route continues along the border of the reservoir—the other turns to the left and ascends to the mansion. This latter road is skirted on either side by broad slopes of green-sward, edged on the right by pines and cedars.



MOUNT PLEASANT.

This notable estate embraced a portion of the great Orion,¹ and also a portion of the Mifflin, tract. It included Rockland, a tract now covered by the reservoir, and the present grounds; these, nearly 100 acres, all merged finally in the estate of Edward Mifflin—a descendant of that Mifflin family. By him it was conveyed to John McPherson—merchant and mariner of Philadelphia, a Scotchman of the clan of the McPhersons of Clunie. He built (1761) the present mansion, after the plan of the residence of one of the chiefs of his clan. McPherson was a large owner

¹ William Orion, a blacksmith and constable of the High Court of Upland, one of the first settlers on the river.

of city and other properties—was very appreciative of the beauties of this estate, and made it very notable for its fruits and flowers. His son, William McPherson, was, at the breaking out of the Revolution, an adjutant in the British army, and stationed in Florida. He promptly returned on the breaking out of hostilities, declared he would not serve against the cause of his country, and resigned from that service. He joined the army of the young Republic on the Hudson River in 1779; served through the whole war, was made major by brevet, and stood high in the confidence of Washington. Some time before 1779, McPherson leased it to Don Juan Mirailles, the Spanish Minister, and in 1779 conveyed the whole estate, subject to this lease, to Benedict Arnold, for £16,240, subject also to a mortgage of £1760. Arnold made the property a marriage settlement for his wife, reserving a life interest in the estate to himself; under an Act of the General Assembly of the Commonwealth of Pennsylvania, passed March 6, 1778, entitled An Act for the attainder of traitors, his life estate in the property, subject to the lease to Don Juan Mirailles, was forfeited, and on the 6th of October, 1781, was conveyed by Joseph Reed, President of the Supreme Executive Council of Pennsylvania, to Colonel Richard Hampton. In 1783, the property passed into the possession of Blair McClenahan, and in 1784 was purchased by the Honorable Edward Shippen, Chief Justice of Pennsylvania, and by him, February 10, 1792, conveyed to General Jonathan Williams, also of Revolutionary memory. The property was the residence of General Williams until his death in 1815. It continued in the possession of the family until 1853, and in 1868 became the property of the city.

The most notable association of the house is with Baron Steuben, who lived there after Arnold's defection, and who it is accredited wrote there his famous "REGULATIONS," through which, in the opinion of Judge Peters, he created out of men without discipline the army of the Revolution.

From his letters this house must have witnessed the depression of his spirits at times very notably, for one is addressed, "On Schuylkill, February 4, 1784, Belisarius Hall, on a long evening." This mansion might well have, with its beautiful surroundings, and comfortable rooms, even in winter, a less miserable name than Belisarius Hall, but like the old house at "The Hills," poverty found its home there when its tenants were patriots. Our German fellow-citizens occupied the place for many years in our times, and gave it the name of Washington's Retreat, and there kept the memory of the grand and grandly decorated Baron, of whom Bishop Ashbel Green said: He seemed the God of War. The mansion has not been used since its acquisition by the city for any purpose, and remains in quite the same condition it was when first erected. It stands on a considerable elevation, the front overlooks the river, and a broad lawn extends from its rear. On either side of the mansion are two out-buildings in the same style, and in the rear are two barns or carriage houses. The ceilings are of good height, with heavy girders. The rooms of the second floor are peculiar to the time, and small. The fireplaces for the old wood fires still remain.

The road leaving Mount Pleasant continues on to Rockland.





ROCKLAND.

Rockland was also a portion of the Orion tract. Its pleasant environing of noble trees, and its convenience of access by the cars and boat, have made this portion of the Park a favorite resort. Free excursions for children, and for old men and women, have been its distinguishing feature for the past four years. The large white tents for the general dinner, hospital tent for sick babies and adventurous boys, pantomimes, balloons, music, and the shouts of the children perpetuate Rockland in many memories. From the lawn in the foreground, a line of river shows, and the island near the opposite shore, Moore's Cottage in a frame of forest trees, and in the distance Belmont lifted over all. The rock that rises from the steamboat landing, which gives the place its name, is the usual terminal point for regattas. From its top a broad view of the river stretches away like a great lake surrounded by hills. From 1756 to 1765 the estate was in the possession of John Lawrence, in those years a councilman and alderman and mayor of the city. In the last year it passed from his ownership to John McPherson, and subsequently through other owners to the city.

The two roads which divide at Mount Pleasant come out near Ormiston. The point where they unite is a very interesting feature of the ground. Fountain Green, Mount Pleasant, Rockland, and Ormiston, surround the visitor, and the border of the reservoir completes a natural amphitheatre of

greensward, wood, and waters, filled with the fragrance of the lilac and the apple-blossom in the spring-time, shadowed by the forest trees, and grateful by the brooks in the ravines in midsummer, gorgeous with crimson and gold in autumn, and in the winter by the pine trees and cedars kept a perpetual greenery among the snows.

As the drive approaches the Ormiston House it still skirts on the right the reservoir, and in the winter and early spring shows a vista open to the river, which flows broad and silent below.



ORMISTON.

These grounds were also a portion of the Orion tract, and were granted subsequently by letters patent by the Founder.

At the opening of the Revolution they were in the possession of Joseph Galloway, who was Lieutenant-Governor of Philadelphia while the city

was in the occupancy of Lord Howe. By reason of the conviction of Galloway of high treason, his estate in Pennsylvania was forfeited, and in pursuance of an Act of the General Assembly of 6th of March, 1778, and of another Act, 29th of April, 1779, this tract was exposed to public sale, and on the 23d of July, 1781, was conveyed to Dr. James Hutchinson, Provost, for the Trustees of the University of Pennsylvania for £24,400.¹ The purchase seems to have been only a mode of transfer of title, for two days after (July 25, 1781) he made conveyance of the estate to Joseph Reed, President of the Supreme Executive Council of Pennsylvania, in whose possession it remained until his death, March 5, 1785. His executors sold the estate, April 26, 1793, the year of the great fever, when these estates along the Schuylkill remained healthy localities. Edward Burd, Prothonotary of the Supreme Court of Pennsylvania, the then purchaser, erected the present house, and laid out and adorned the grounds.

It remained in the possession of the family until its purchase by the Park Commissioners in 1868. The name it now bears—Ormiston, was given it by Mr. Burd from the ancestral estate in Scotland, of his wife, Jane Hali-burton, daughter of the Lord Provost of Edinburgh. It is an interesting remembrance of the place that an aged member of this family in her will requested "no trees shall be cut down upon the estate, except those which have gone or may go to decay," and also the fact that among the many visitors of distinction to this house was the poet Moore; it is to a member of the family living at the time of his visit that we have been able to trace the connection of the fact and the tradition that has given the cottage on the opposite side of the river his name. From the front of the house a lawn descends steeply to the border of the river. On the opposite

¹ The trustees reserved in the sale a yearly rental of 12½ bushels of good merchantable wheat at 10 shillings a bushel redeemable on delivery of 183 bushels.

shore, looking southward, are the pines of Lansdowne and the Conservatory, the flag at George's Hill in the distance. Nearer the hemlocks and mansion of Belmont, the observatory towering above, and the cottage below on the river shore—the commanding eminence, Mount Prospect, north and westward overlooking the river. The house borders on Ormiston ravine, one of the finest in the whole Park. Dogwood and chestnut rising up from it, and ferns and wild flowers bordering the edges of the rivulet that their shadows cherish. In the spring-time the whole lawn is a bank of violets. Along the rivulet the delicate fern unrols, and the May-apple and *Houstonia cærulea* are found in the spring time, and the Golden rod and *Eupatorium* in the autumn.



LEAVING Ormiston the road continues bordered on the right by the line of the reservoir, and on the left by this grand ravine, to its head. Here it leaves the reservoir and passes around the further side of the ravine. At this point a road diverges from it leading to the Ridge Avenue depot, while it continues on skirting the ravine on the left; on the right it passes a solitary and distinctive tree, and broad reach of greensward, and so nears a pine tree and the river border at Edgley. Here it passes along its precipitous and rocky side; a bridle path leaves it and descends through the ravine, a vista opens much hidden by the foliage in summer, and Peters' Island shows a green spot in the river with scattered trees. The Coleman mansion comes into view on the right, and directly before you on the road-line rises Strawberry Mansion. This tract bears the name—

EDGLEY.

The comfortable looking old house on this tract, the grand view of the river, its grove, and the wondrous carpeting of flowers on its steep hillside in the early days of spring, make it a very attractive portion of the Park to the visitor. The grounds were a part of the Orion tract, and retain the name of the whole, Edgerlie—Edgley. It was, from 1828 to 1836, the summer residence and estate of Dr. Philip Syng Physic, and came into possession of the city under the general act for obtaining Park grounds in April 1869. Passing the house the grove with its seats invites to rest. A little beyond is a concourse at a point where the road leaves this estate which is marked by a tulip tree. Here, before the visitor, widens the grandest river view in the Park. It lies a broad silent lake below; at its furthest border the Falls, on its opposite bank Mount Pleasant. At the visitor's feet a ravine deepens and rises in an opposite slope of greensward over which a monarch tulip tree standing alone casts its shadow. On the

crown of this slope stands Strawberry Mansion. The road follows the border of this ravine, Edgley ravine—and passes the Coleman mansion.



WOODFORD.

The mansion on this tract bears a date anterior to the Revolution. The bricks were imported from England, and it is built to stand through another century. The grounds—12 acres—surrounding the mansion were a portion of the Orion tract. The property was in the possession of William Coleman from 1756 to 1769, and the mansion has since borne his name. In 1771, David Franks, whose son had a distinguished career in the Revolutionary army, became its owner. His daughters were reigning belles and wits of the times. The son was the bearer in 1784 of the ratification of the treaty of peace to London. The Park green-houses are on this portion of the grounds, and the mansion is the residence of the Park Superintendent, General Thayer.

LEAVING the mansion the road sweeps around and descends half way to the river, passing on the right the Swansonia estate, marked by the mansion.

SWANSONIA.

This tract of ground is a portion of the larger tract which was conveyed by the Founder to the brother-Swedes—Swen, Oele, and Andreas Swenson [Swanson], 3d 6mo. 1683, they having given him in exchange therefor the groundplot of the old city of Philadelphia, of which they were the patentees in 1664. Their name survives in an old street of the first located portions of the city and in this remainder of the great tract of 600 acres of ground which they held here. The mansion dates from an early period, probably contemporaneous with the Coleman mansion; the wings are a later addition. It has undergone but little change, and is now used as one of the Park restaurants. The view looking down from the mansion is as attractive in its character as Belmont. Its name, Strawberry Mansion, has no peculiar significance. The house was, after 1821, the residence of Judge Hemphill, and prior to that time had been the residence of William Lewis, one of the most distinguished members of the bar of Philadelphia.

THE road descends the side of the hill at a great precipice of rock, and is joined by the bridle path which keeps close along the river margin, and here merges in the main carriage road passing along the cemeteries to the Falls





THE FALLS OF SCHUYLKILL.

The Falls, a name now applied to a village, was in former days the name of a natural cascade. A long rock projected from the foot of a hill at this point, and extended two-thirds the distance across the river, forming a dam. In the spring the water poured over it in a beautiful cascade; at other seasons it forced the river into a narrow channel, on the western side, with turbulence and great rapidity; the sound could be heard on still evenings a distance of several miles. The rock itself was characterized by singular indentations, caused probably by ages of attrition; among them was the apparent impression of a human foot, showing the heel, the

hollow of the instep, the ball of the foot, and toes; it bore name the Devil's foot. It was believed to be an evidence of his real presence here. Time has made great changes in this place; factories have taken the place of fishermen's houses, paved streets of forest pathways, and the irregular and foam-bearded cascade, which gave the place its name, has yielded its inheritance to its smooth-faced younger brother, the steady-going mechanic at Fairmount. Tradition says this was the last place about Philadelphia deserted by the Indians. That it must have been much resorted to by them is proved by the fact that very numerous Indian relics have been and are still found here—stone axes, arrow-heads, and other instruments. As late as 1817 it was a famous fishing-place for shad,¹ perch, rock, and a migratory species of catfish, which came regularly about the 25th of May in numbers so numerous as to blacken the narrow passages of the river.²

¹ These were preserved by smoking, and were in great request in the winter. Our wise Founder did much belove them in this way, "Pray send us," he writes to his steward from Penn's Manor—"pray send us some two or three smoaked haunches of venizon; get them from the Swedes: also some smoaked shadds and beef—the old Priest at Philadelphia had *rare shadds*."

² This fish-story, unlike many others, is reliable, and within well-authenticated limits. Old John Holmes confirms it in this wise:—

"We plenty have of many sorts of fish,
As choice and good as any man could wish;
Eels, rockfish, trout, shad, herring, perch, and pike,
So plenty that I never saw the like."

The contests between the fishermen and the canoe-men, who traded on the river about 1722-32, were the subject of legislative action. The depositions of many canoe-men are in the archives of Pennsylvania (1732); among them, one Jonah Jones "Saith that in the month of February, it being extreme cold, he stroke fast on a fish-dam, and, to save his boat of wheat, was obliged to leap into ye river to ye middle of his body—afterwards proceeding with ye said wet clothes, they were frozen stiff on his back, by means whereof he underwent a great deal of misery." The first law passed by the State of Pennsylvania was an act to make this river navigable, and for the preservation of its fish.



THE STATE IN SCHUYLKILL.

“Atte the leest he hath his holsom walke and mery at his ease a swete ayre of the swete savoure of the meede floures that makyth him hungry, and if the angler take fyshe surely there is noo man merier than he is in his spyryte.”¹

A tract² beginning at Solitude, and extending to the Sweet Brier Mansion, was formerly called “Eaglesfield.” Its first owner, a contemporary with the aborigines, was one William Warner,³ an amiable and worthy man, and a member of the durable order of plain colors and rectitude. Nearly a century and a half ago (the year 1732), certain gentlemen, fol-

¹ Book of St. Albans.

² The estate was of late years the property of the Borie family, of Philadelphia.

³ William Warner died Sept. 12, 1794.

See page 25.

lowers of "Walton," leased one acre of this tract; this they inclosed with a worm-fence.

For the ground, they formally delivered on a large pewter plate to William Warner, as a yearly rental, every spring, "three sun perch fish," and they elevated him to the dignity of a Baron, so that he might be the more worthy to receive the service of this feudality. After securing the title to the one acre of ground, it is said they got together some of the same Indian chiefs who signed "the Treaty" with the Founder, and as they had no Elm trees, they sat them down under their Black Walnut trees.

They smoked many calumets of peace with them, and entered into a similar solemn treaty for the privilege of hunting and fishing at all times forever along these shores. The consideration for the privilege they ladled out to these swarthy granters from a large bowl, and if the courses of their signatures along the parchment were devious ones, it would assure, what we might credit without the assurance, that no advantage was taken of them in the consideration. The preliminaries thus arranged, these fishermen, with their sturdy arms, hewed down trees enough and erected themselves a hut. Then they constituted themselves, by letters patent, a colony, by name "The Colony in Schuylkill." For the Colony they elected a Governor, to order its general affairs; a Sheriff, to serve writs of execution on the feathered denizens of the forest and the restive trespassers of the stream; a Coroner, to view their inanimate forms after execution and pronounce them dead and edible. Having done all this, they then sat down to fish; and what is an incredible thing to all but fishermen, they continued to sit there ninety years; at the end of this time, one morning their spirits became sorrowful, their corks rested on the water motionless. Looking around them, they perceived that civilization had been advancing steadily towards them, while they had been uncon-

sciously sitting there, and that "an anathema"¹ fatal to fishermen had been levelled against them at Fairmount; a barrier through which their faithful fish could reach their hooks no longer. Then they got up, and, carrying their house with them, followed the course of the finny tribe further down the stream, and beyond the Park limits, where they and the house still remain, but where the limits of this book forbid us to follow them. When these patient fishermen sat down to fish, one hundred and forty years ago, from the old Independence Hall to the borders of this Park was one unbroken wilderness. The canoe of the Indian was still there, and the deer drank at the borders of this stream; now, a city, with nearly a million of people, covers this whole area; the silver shad come to them no more, the rock more and more rarely, and the memory of the one trout fish they caught in this stream, a century ago, grows dimmer every hour, but they still sit quietly beside its borders, and they say to us, in their master's words, "No life is so happy and so pleasant as the life of a well-governed angler, for when the lawyer is swallowed up in business, and the statesman is preventing or contriving plots, then he possesses himself in quietness;" and it is truly said of angling, what Dr. Boteler said of strawberries, "Doubtless God could have made a better berry, but doubtless God never did." And so, if we may be judges, God never did make a more calm, quiet, innocent recreation than angling, nor, it may be well added, worthier types of the good virtues of the angler than themselves. May they long continue to enjoy the savory shad upon the smoking board, the crisp, white catfish, and the steaming rock, "dishes of meat too good for any but anglers, or very honest men."

¹ The Fairmount Dam.



FORT ST. DAVIDS.

Fort St. Davids was also a fishing company of the Schuylkill, which merged in the State of Schuylkill after the Revolution. It was located near the Falls; and now this year the Park Commissioners have granted these merged companies the privilege to return again to their first home. Near the Falls, on a slope of wooded ground, on the margin of the river below the mouth of the catfish creek—the Wissahickon, they are to be installed once more; from below they follow the bass fish, they sent on before them, and which now stock the river for their and our good pleasure.

At the Falls, on an eminence on the east side of the Ridge Road, stands the former residence of Governor Mifflin. The house is a noticeable object in this vicinity.

Here was, also, the old School House of Joseph Neef, a pupil of Pestalozzi of Switzerland, the pioneer of the Common School System of Pennsylvania.

LEAVING the Falls, and passing along the Ridge Road for the distance of three-quarters of a mile, we reach the mouth of the Wissahickon, marked by a high bridge, under which, crossing the stream, the road passes over

THE BATTLE GROUND.

The Ridge Road, from its intersection with Thirty-third Street to the south line of Laurel Hill, as also here, forms one of the boundaries of the portion of the Park lying on the east bank of the Schuylkill. Long before the Revolutionary War it was one of the principal roads leading from the city.

While the British under General Howe occupied Philadelphia, the surrounding country was open to their incursions through this road. To check them, Washington, from his camp at Valley Forge, ordered two thousand two hundred men, under the command of Lafayette, to make a sortie; and if, as then appeared probable, the British should evacuate the city, to hang upon and harass their rear-guard. Lafayette took a position at Barren Hill, on the Schuylkill, just above the upper boundary of the Park, and about ten miles from Washington's camp at Valley Forge. Howe determined to attack him without delay. On the morning of the 20th May, 1778, a detachment of five thousand men under General Grant, marching by a circuitous road, succeeded in turning Lafayette's left wing, and established itself nearly a mile in the rear of his position; another detachment, under General Gray, followed this road along the Schuylkill; the rest encamped at Chestnut Hill. These movements were discovered during the night by Captain McClane, a vigilant partisan officer, who hastened to the camp of Lafayette and apprised him of his danger. With great promptitude the General took the only course to pre-

serve his detachment. With a few men he showed a head of column^s as though moving on Grant to attack him, while, by a rapid movement of the flank, his principal column crossed at Matson's Ford to the opposite bank of the river. Grant, finding them advantageously posted, did not choose to attack them; and his whole army returned to the city, having effected nothing. It was to this incident of the war that Lafayette alluded while partaking of the hospitalities of the ancient and honorable fishermen.

As a memento of the gratitude of the country for the services which he had rendered, Congress directed that a sword should be presented to him. It was prepared in France, under the supervision of Franklin. On the guard was engraved, among other memorable events in which Lafayette was distinguished by his prudence or his courage, "Retreat of Barren Hill."

In this section of the Park also was fought a portion of the memorable Battle of Germantown; the British line of redoubts extended back of the Wissahickon Creek, along the east side, for a distance of two miles. During the battle the Americans occupied the hills, and until recently the remains of their temporary redoubts were visible, extending along the west side in a semicircle, a considerable distance.

In building the Railroad Bridge which crosses here, these old landmarks were destroyed. A monumental shaft, at Roxborough, commemorates some Virginia soldiers slain a short distance above this spot. Soldiers of other colonies moulder in the earth that lies between these sections of the Park.





THE WISSAHICKON.

This romantic stream, which still retains its Indian name,¹ lies between ranges of precipitous hills.

¹ Wisamickan, cat-fish creek ; Wisauksickan, yellow-colored stream.

Self-guarded by these rock battlements,¹ it retains that primeval character in which let us hope it will be always preserved. Along its banks through its whole extent, trees and vines hang down to the water's edge, and frequent springs drip from the rocks. Except at times in the spring and autumn when swollen with heavy rains, its waters have in many places scarcely a perceptible motion; it seems to be the bosom of a lake. Its unbroken quiet, its dense woodland, its pine-crowned hills, its sunless recesses, and sense of separation from the outer world, contrast strongly with the broad lawns, the open flowing river, and the bright sunshine which characterize the banks of the Schuylkill.

It is a chosen spot for youth and for old age, for all those whom simple love of nature contents; and it has been the home of romance, the theme of song, the source of illusions and of legends accredited in places not always obscure, from the earliest times to our own days.

¹ Until 1826 the Wissahickon was inaccessible except by by-roads and lanes. At the Ridge Road a mass of rock stood on one side and a precipice on the other. During that year the rock was removed, and the present road begun.

Until 1822 it emptied into the Schuylkill over a very picturesque fall of water, ten or twelve feet high.





PASSING along the margin of the Wissahickon, the main carriage drive reaches first,

WISSAHICKON HALL.

At this saloon, which is a place of considerable resort, refreshments and ices are sold during the summer, and "catfish and coffee" at all seasons.

A SHORT distance further on, the road passes a second restaurant,

THE MAPLE SPRING.

The restaurant which bears this name contains a collection of very grotesque figures of animals, birds, beasts, and serpents; these are all the

uncut roots of the laurel, found in these forms in the earth. They are the labor of the proprietor's lifetime in the forests of this State.

Bateaux may be obtained at this restaurant, as also at the lower one, by the hour or for the afternoon or day, for excursions. The west bank of the stream at these points is most conveniently reached by this mode of conveyance.

THE HERMIT'S WELL

Is outside the Park limits; it is reached by crossing a bridge above Maple Spring, and passing along a lane which ascends through the woods. The well was dug by John Kelpius; the stonework yet remains. A venerable cedar, believed to have been planted by his hands, still throws its grateful shadows over it.

A QUARTER of a mile above Maple Spring, and also on the opposite bank of the stream, a short distance above the bridge which crosses to the Hermits' Lane, is a high bluff; it is a striking object from the carriage road. The rock which rises from the bluff is called

THE LOVER'S LEAP.

The Lover's Leap overlooks from its crest a wild gorge. It is the scene of one of the numerous traditions which survive here. There is an illegible inscription in Latin, said to have been chiselled by Kelpius, on the face of the rock, and at various places around it aspiring Vandals have cut their initials. This rock stands two hundred feet above the surface of the stream.



THE HOUSE IN WHICH RITTENHOUSE WAS BORN.

Following the main road a short distance further, a half mile in all above the Log Cabin, we reach a bend in the stream. Here it is joined by a creek coming down from the north; this creek, Paper-mill Run, is scarcely less picturesque in places than the Wissahickon. It joins the latter by a series of waterfalls. The lower of these has a perpendicular descent of about twenty feet over dark shale-like rocks. Near it stands the old house in which David Rittenhouse was born, and near its source the first-paper mill in America was erected by his ancestors in 1690.

BEYOND these points, the road reaches a bridge, over which it crosses to the opposite bank of the stream—the Red Bridge.

BEYOND the bridge, half a mile further, on the opposite side of the stream, towers

MOM. RINKLE'S ROCK.

This is a precipice which begins at the stream's edge, and rises abruptly, a solid mass of rock, like a wall among the forest-trees. It has also its legendary story clinging around it; doled out around old firesides to credulous ears, while there were yet firesides and credulous natures.

That a poor old woman, as the story says, lived there, is very possible; that she fell from this giddy precipice, seems most probable; that she was a witch, drank dew from acorn cups, had the evil eye, and floated down the stream to the sea without sinking, is credible to witnesses only. Her name certainly survives, and adventurous boys, climbing this giddy height, shout it out to be called back to them from all the hills around, and so preserve it from generation to generation.

The rock, with the exception, perhaps, of Indian rock, is the grandest monarch of them all, and should have a name and association more appropriate than this legendary one. To ascend to its summit from the stream is difficult, and requires care; crossing the first bridge this side the monastery, turning immediately to the right, and keeping a woodspath, which in the spring has a continuous border of violets, you reach a steep hill-slope through which the rock rises—a friendly tree-branch here

and there to grasp, a few minutes' rest after passing some piece of ground which slips the foothold, enables you with a little exertion to reach its summit. The rock juts out along its crest in an almost level ridge; it overlooks all the surrounding country; the lofty tops of the pine-trees show far below; yet further below, the dark recesses of the stream and the old monastery. All around, remote and near, is nature alone; city and town and busy haunts of men are all shut out by trees and hills and fields, the rock stands over all in solitude—and here, at sunset, when the always shadowy stream and dark pine-trees and deep recesses of the woods lie in a deeper shadow, this high rock stands lit with the golden light of the declining day, like a rich illumination on some missal's dark page—
itself and all the scene a greater page of nature—an

. . . “elder Scripture writ by God's own hand;
Scripture authentic, uncorrupt by man.”

A quarter of a mile further, two miles above the mouth of the stream, the road turns abruptly and continues on the same side, overhanging a precipitous chasm; another road at this point leaves the Park road, descends to and crosses the stream by a bridge; at the summit of the rise of the Park road, you see below: the bridge—a deep gorge—the stream abandoning its customary quiet, rolling, tumbling, and plashing over rocks—a mill in the gorge—and behind the mill a steep hill; on its summit stands an oblong stone building known for a century as

¹This rock is on a tract of twelve acres, which skirt the stream, presented to the city by John Welsh.

THE MONASTERY.

Some of the windows of this building have been closed up, but the three encircling cornices above each story, the durable character of its masonry, the tall chimney, and a sort of venerable expression which looks out from its rough faces, indicate that it is a landmark of a past generation.

It was once used for a monastery. It stands upon high ground, but the tall ranges of hills tower high above it. A lane winds around the bend of the bluff and climbs up its steep side, forming in front of the house a semicircular lawn. In the valley below ("Willow Glen") there is a spot known as the Baptistry. Here the monks immersed their converts. The yard in the rear of the dwelling was used by them for the burial of their dead. Three steps of stone, rounded by the rains of years, lead to a sort of elevated plot encompassed by an old wall. Here the ritual was said, and the brothers chanted their burial-service. This building has stood there considerably over a century. Some accounts affirm that its inmates were of a Baptist order; others, which have a documentary attestation, that they were mystics, whose followers in manners and custom are still scattered along the region of Ephrata. Men certainly they were who came down close to nature, to the earth, and solitude, and sought out from the silence of desert places, however vainly, a pathway to THE LIGHT ILLIMITABLE.





THE MONASTERY.

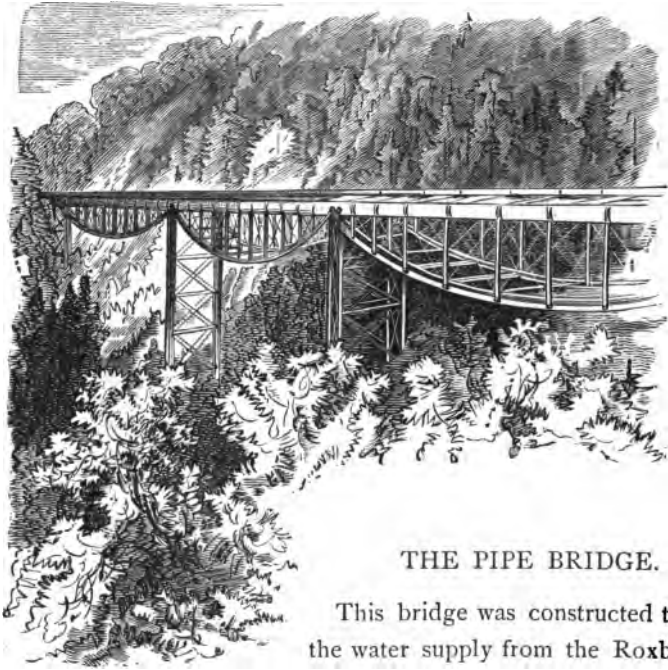
“Or painful Kelpius, from his hermit den
By Wissahickon, maddest of good men,
Dreamed in the chiliast dreams of Petersen.
Reading the Books of Daniel and of John,
And Behmen’s morning redness, through the stone
Of Wisdom, vouchsafed to his eyes alone.

Whereby he read what man ne’er read before,
And saw the visions man shall see no more.”

THE CAVES.

The caves are situated in a lovely valley formed by the junction of a small stream with the Wissahickon. The most remarkable of them is referable to a certain period. It was excavated by miners led to the work by visions and witch-hazels indicating treasures there. Over it the rocks are about eighteen or twenty feet high, and much broken. Large forest-trees are growing on the summit. The cave or excavation extends into the solid rock thirty feet. It is five feet high, and five and a half wide; at the back part a man can stand erect. Fifty years after it had been closed, a venturesome antiquary succeeded in getting under the huge root of a buttonwood which had grown across its mouth, and threaded its dark and narrow passages. He there witnessed the useless labors of the men in whose imaginations heaps of glittering gold had lain, luring them on to waste the best years of their lives, and, in a certain sense, to dig their own graves. The others of these caves are natural, have legendary histories traceable to no certain origins, perhaps holes for the bears and foxes, the resorts possibly of Indians; it may be Logan's wild Irish hound made in them his home.

A SHORT distance beyond (three and a half miles from its mouth), a bridge crosses the stream at one of the most striking pieces of landscape along this whole section of the Park. As you approach this bridge, on the opposite shore, in early spring, winter, and autumn, there is a strange effect of deciduous trees among evergreens; skeletons, as Doré would draw them, rising up along the verdure-crowned steep.



THE PIPE BRIDGE.

This bridge was constructed to carry the water supply from the Roxborough to the Mount Airy reservoir at German-town. It is a graceful structure, lifted a considerable height above the stream, and presenting the appearance of three light festoons hanging between the piers. The bridge is iron, and has four spans, each 172 feet 9 inches; its whole length is 691 feet, and it is supported by three iron piers, 83 feet high, set on masonry 20 feet high; an altitude of 103 feet above the level of the stream. Two twenty-inch water mains form the

top chord of the bridge.¹ The water is now carried by a siphon under the stream.

¹ Dr. Franklin in his will (1780) recommends, "as a mark of his good-will, a token of his gratitude, and a desire to be useful to us after his departure," that a portion of the legacy left to accumulate for the benefit of the city of Philadelphia, be employed "at the end of one hundred years, if not done before, in bringing by pipes the water of the Wis-sahickon Creek into the town so as to supply the inhabitants." This would have formed, had the waters been collected by a dam, with the high hills on either side for its borders, if made of sufficient proportion for the city supply, the largest reservoir in the world.





THE DEVIL'S POOL.

A spot frequented first by the superstitious in the early days of the province, and now, for more than half a century, by artists and all lovers of nature. It is certainly a wild place; rocks are thrown together in great masses, and the long trunks of hemlocks and pines jut up from the darkness around the pool into the sunshine above.

The waters of a small tributary of the Wissahickon run into this pool, whose depth has been very suggestive to the superstitious minds which gave it its name.

The place is very readily accessible, and artists' sketches through our galleries have made it widely known. It was the scene of an engagement during the battle of Germantown, and its waters once had stains best now forgotten.

There is another incident, however, connected with these hills, which may have its place and memory here : in 1776 a body from the people of Roxborough left their homes to join the army of the Revolution ; on the morning of their march they were followed by their wives and sisters, and the old men and women—their fathers and mothers ; on the opposite bank of the stream they at last separated, and on the rocks by the highway, all kneeling together, the old men raised their voices, and, with tears and cries of the women and children, commended the patriot band to the protection of the God of Battles.





VALLEY GREEN BRIDGE.

A quarter of a mile beyond, the hills open out into the sunlight ; here a stone bridge with strong buttresses winds across the stream. This bridge has one arch, and the arch and shadow on bright days (so clear is the reflection) seem one piece of masonry, an entire oval.

The transition from the close surroundings of the road below this point, to the widening hills beyond it, is very pleasing. The hotel here is a favorite stopping-place for carriages passing through this portion of the Park.

HALF a mile further, on the left-hand side of the road, under rocks, covered with ferns and wild-flowers, is a marble water-basin.



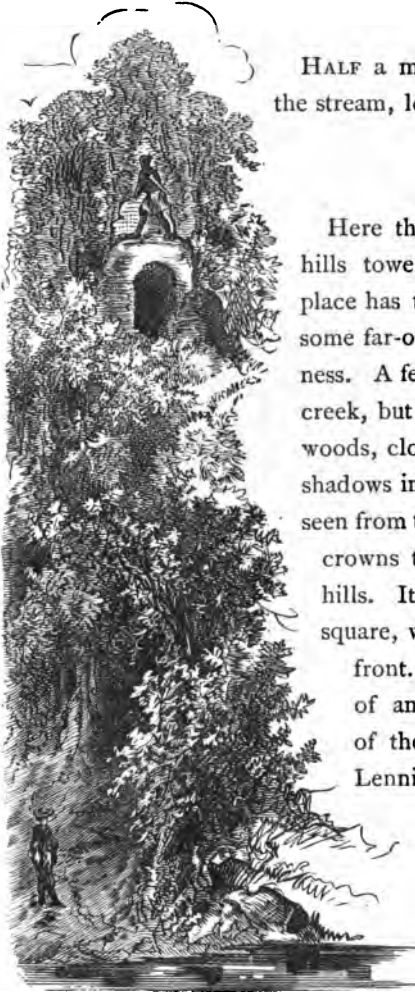
THE FIRST FOUNTAIN.

This is the first drinking-fountain erected in Philadelphia. It bears date 1854. A clear, cold mountain spring constantly fills the basin. On a slab above it are cut the words "Pro bono publico," and below, "Esto perpetua" (For the public good; Let it remain forever); which liberal desire and prayer the dedication of these grounds, after sixteen years, has invisibly, though not less really, lettered over every spring along the borders of the stream. "Cast thy bread upon the waters, for thou shalt find it after many days."

HALF a mile further, on the opposite side of the stream, looms grandly up,

INDIAN ROCK.

Here the stream enters a deep gorge. The hills tower almost perpendicularly, and the place has the solemn stillness of the shores of some far-off waters in the yet unbroken wilderness. A few huge rocks lie in the bed of the creek, but make no eddies in the water. The woods, clothing the inclosing steeps, bury their shadows in its dark surface. The rock, plainly seen from the road, very wild, grand, and lofty, crowns the summits of the eastern range of hills. It is shaped like a fireplace or a pulpit, square, with a deep cavity or hollow in its front. On its top stands the rude figure of an Indian, set there in remembrance of the last chief¹ of the aborigines (the Lenni Lenape tribe) on these grounds. This chief, with forty other Indians, mostly women (the men had gone before), left this section about the time of the Revolution. They had remained long



¹ Tedyuscung, whose name this rude figure improperly bears, was no true savage—was litigious, was frequently drunk, and showed also other evidences of a tendency to lapse into civilization.

after the others of their tribe on these old hunting-grounds, but they had kept their savage nature and costume unchanged. The chief, with his blanket wrapped about him, and his tall plume of feathers on his brow, strode before; and the women, with their packs strapped across their backs and across their foreheads, followed after. So they joined the others in their journey toward the setting sun,

"To the land of the Dacotahs,
To the land of the hereafter."

Is it hard in this wild place still to imagine their light canoes stealing along through the evening or morning shadows?

Tedyuscung, whose name this rude figure improperly bears, was no true savage—was litigious, was frequently drunk, and showed also other evidences of a tendency to lapse into civilization.

THE road continues on a mile further, through the same general character of scenery, to the northern limits of the Park, at Thorp's mill lane, which crosses a bridge and by a steep ascent reaches





CHESTNUT HILL.

This hill is the site of many of the best suburban residences of Philadelphia. Here all the wild scenery of the Wissahickon, so closely shut

in, opens outward over broad tracts of farm-land and distant mountains. It is a fitting terminus to this section, affording a view northward as grand in its character as from Mount Prospect over the lower section of the Park; each completing the idea, conceived in the appropriation of these grounds, to lead the visitor from attraction to attraction, and close with an effect in nature which leaves nothing to desire.





THE HOMES AND PERSONAGES
OF
FORMER TIMES.



SAMUEL BRECK.

A golden link of the days of the Revolution and our own times.

Mr. Breck was born in Boston, in 1771. He was educated near Toulouse, in Languedoc, in the Royal and Military School of Sorenze. His

See page 33.

instructors were Benedictine monks. He remained at this school from his eleventh until his sixteenth year. His companions were the Prince de Carignan, ancestor of the King of Sardinia, several Italian and Spanish noblemen, Dessaix, and others, whose lives passed away into obscurity or ended in the violence of revolutions.

His own life was kept for gentler and better uses.

After a sojourn in his native place, he again visited Europe in the dark dawn of the French Revolution. He saw the King, Queen, and the Dauphin, the prisoners of the populace, about to expiate their predecessors' crimes. He saw the old teachers and pupils he loved driven from their ancient seat of learning, some to perish in the September massacres, some themselves to urge on the tide of crime.

These scenes made the quiet and calm progress of our Republic intensely dear to him.

He lived at Sweet Brier thirty-eight years. In the leisure hours of his business he cultivated here the sciences, the arts of music and design, and was foremost in every good work.¹

"Farmer Breck," as his good friend and neighbor, Judge Peters, always called him, had here a model place; and while the Judge theorized, and saw the State rise through his theories to wealth, Farmer Breck, in their practical application, made his place a marvellous example of their value.

He gave a due proportion of his life to public affairs.

He served four years in the State Senate, where he laid the foundation of our system of internal improvements, and further made his name memorable by his bill for the final emancipation of the slaves in Pennsylvania.

¹ He was accomplished in all the graces of his time, and thoroughly read in its literature. In his life he never passed an idle hour, nor uttered an uncourteous word.

He served afterwards in the National Legislature (the 18th Congress), among the most memorable men our nation ever possessed, and in halcyon days of the Republic.

He again served in the State Senate, and there drew the bill for the establishment of the Common School System of Pennsylvania.

His services, from that time, were in positions of the very highest trust and importance in Philadelphia, and continuous to the year of his death.

Although a business man, Mr. Breck knew what the legitimate claims of business were, by what means money should be made, how much time should be given to its acquisition, and to what uses it should be applied. At the outset of his life, rather than live where illegitimate gain was sanctioned by common consent, he deliberately sacrificed an easy, safe, and rapid road to wealth which lay before him, and began with a small capital to make slower gains through longer years. He was a gentleman of the old school, and he preserved its courtesies on the street, in the counting-room, at the social board, with child and man, servant and dignitary of the State, the same. His salutations were formal, yet under them a gentle kindness shone which lifted up the hearts of all to him in affection and reverence.

He was true to his party predilections, but with this preference ran evenly an earnest love for the whole country.

He was careful in all formal religious observances, but within he kept burning brightly that inner light, without which all religious observances are vain.

His life covered¹ the most momentous periods of our country's history. He welcomed Lincoln, the great representative of freedom of our generation, to this city in 1861, where he had also stood in the august pres-

¹ Born July 17, 1771. Died August 22, 1862, aged 91 years and 46 days.

ence of Washington. He had been held up a child in his nurse's arms to witness the smoke and flame of Bunker Hill, and he was yet living when Sumter's smouldering ruin lit the flames of civil war. Through all these long years he was changeless in his love and devotion to our institutions. His last words were (uttered among those dark days of civil war)—what of—my country.

There is something peculiarly appropriate in the selection of Sweet Brier as the children's play-ground, not only because he first gave legal direction to our common school system, but was a dear friend to little children. He was a constant visitor to the parish school of his church (the Episcopal), took the most lively interest in its progress, and by the sprightliness and benignity of his manner completely won the hearts of all the pupils. They looked forward to the day of his coming as to a holiday.

He was also one of the founders, for many years president, and to the last year of his life a visitor of the Institution for the Blind, and by these most afflicted of God's children best beloved. His step was recognized by them among all the others as he entered their hall.

THE SOLITUDE.

THE Solitude Estate now forms a portion of the Zoölogical Society's grounds.



The Villa, as its first owner described it, “near Philadelphia, built by me while I resided in America,” was erected in 1785 by John Penn—the poet, a grandson of the Founder. It remained in the Penn family until its purchase by the Park Commissioners. The house, except from age, remains quite as the builder left it, and is a pleasant poet’s home. It

has a small drawing-room; a room adjoining, which served both for a hall and sitting-room; a chamber with an alcove, for his hours of rest; a library, where at once he was his author and auditor; and deep and roomy cellars for his wine. This fortunate poet's old bookcases, set in the wall, give the same quiet to the room they did the days when he lived there. His sunny sitting-room is quite the same. The secret door by which he shut himself from visits of intrusive friends, closes as quietly to as it did so many years ago. The life of the builder of this mansion is in strong contrast with the severe and broad virtues of William Penn and the other great historic characters who have made these grounds memorable. John Penn, the poet, loved solitude, but he made this place an enviable solitude; and though he loved his own poems and read them all day long, and though they had no other reader, yet they show what guests assembled in his solitude. Dante was there; Chaucer, "the well of English undefiled;" Petrarch and Tasso; and Anacreon. Here he sat dreaming through the summer days, the leisure days of a life which all was leisure. In one of the volumes of his poems, printed in London in 1801, he gives a view of this villa, of which the above is a fac-simile, and calls it "The Solitude." The white dove he has had the artist picture flying close along the lawn had been a favorite bird, and he there deploras, with Anacreon's pleasant thoughts and in these old-time words and verse, its death:—

"Thine, oft I said (nor hoped¹ so near thy end),
 Are all things round,² the grove, and cloudless sky;
 While cheers the enlivening ray; sport and enjoy;
 Thine are yon oaks that o'er the stream impend,
 And rocks that, as I stray with musing eye,
 Or wonder³ from the shed,⁴ can never cloy."

¹ Hope, expect.

² Round, around.

³ Wonder, admire.

⁴ Shed, door.

It is said he planted every tree about this house with his own hands ; this there is reason to believe, and for the many trees which yet remain, and for that picture of the dove flying across the lawn, we keep his memory.

GRANVILLE JOHN PENN.

Granville John Penn, the great-grandson of the Founder, the last private owner of Solitude, and the last of the Founder's name, visited this country in 1851. His father in his time one of the most learned laymen of England, and himself a kindly old English gentleman, he was the recipient, from our old-time citizens and from the authorities, of suitable attentions. In acknowledgment of these attentions, he gave a collation at "The Solitude." It is interesting to remember that this house was the last property here of a family which was once the owner of the broad State of Pennsylvania ; the descendants of a wise and good man, whose title, unlike so many others in this and other countries, was founded "in deeds of peace," kept with "unbroken faith." Mr. Penn wished that the city should become its owner, and keep it for the Founder's name. He did not live to see this pious wish fulfilled, which since his death, to our advantage, has been done. The sale of this property to the city, and the release by himself in 1852 of the render of a red rose at Christmas from the good people of Easton, closes the long account of that great Founder's name with ourselves ; its own account on earth now also closed forever.

Granville John Penn died at Stoke Pogis, England, March 29, 1867. He was the last (save one since deceased) of that line.

THE STATE IN SCHUYLKILL.

With the Revolution, this Colony, along with the others, rose naturally to the dignity of a State, in which condition it now remains. The last Governor of the Colony, and the first of the *State* in Schuylkill, was Samuel Morris, known as "Christian Samuel," a member of the Society of Friends; he was Governor for forty-six years, a member fifty-eight years. He was also a captain of our City Troop. When the Revolutionary War began, he quietly laid down his angle and took up a sword; he laid down also his broad-brim hat, because it was, like his angle, unsuitable for warfare. When the war was over, he laid down the sword with sad memories of death and suffering that had come very near to him, but with the quiet satisfaction of a duty done. He put on his hat, took up his angle again, and sat down beside this stream to fish as before. He was still sitting here when a very old man, seventy-eight years old. He died in 1812, full of years and peace.

The most memorable days of this company are—

The 10th October, 1767. The great repast, when a turtle was served which cost, when beef was three cents a pound and Madeira thirty cents a bottle, four pounds and ten shillings, one-third the cost of their house.

The 14th June, 1787. The entertainment of his Excellency General Washington, with the officers of the army and navy, in their old court-house; its most memorable day.

July 4th, 1788. When the great National Jubilee was celebrated there with great pomp and circumstance.

March, 1789. When one of the members caught with a lay-out line a fifteen-inch trout. A marvellous feat for all time.

May 1, 1832. The day of their centenary, a great festive occasion, made beautiful with tributes of flowers gathered on the banks of this river, and song and honor to the dead of the Republic, and their own; and good Isaac Walton, of blessed memory. Among their toasts that day he was not forgotten, as never are forgotten the fathers of the Revolution.

¹ See page 99.



LANSDOWNE MANSION.

The noble estate of Lansdowne contained two hundred acres, extending from Sweet Brier to Belmont and George's Hill.¹ The mansion was built before the Revolution. It was a grand structure for those times. A broad carriage drive led to it from an entrance beyond the Belmont Road, where formerly stood a large gateway. It had extensive conservatories, and the grounds were adorned with vases, fountains, and box cut in the formal style of the period. A private passage led from the mansion to the river. It was in later times the residence of Joseph

¹ During the occupancy of Philadelphia in the winter of 1777, the British had an encampment on these grounds.

Bonaparte, ex-King of Spain. Its last owner, prior to its purchase by the city, was the late Lord Ashburton. The mansion had been much neglected, although still in good preservation until a recent period. It was accidentally destroyed by boys with fireworks, celebrating the fourth of July, 1854.



JOHN PENN.

“The Honorable John Penn,”¹ called “the Governor,” was Lieutenant-Governor and Commander-in-Chief of the Province of Pennsylvania and Counties of New Castle, Kent, and Sussex on Delaware from 1763 to 1771 and from 1774 to 1776. He was a not unworthy representative of “the Founder;” his first act, followed by many like actions, was to carry out

¹ Cousin of John Penn, of Solitude.

See page 63.

that great man's intentions to the Indians who remained in the Province, and to protect them from outrage and violence. But his good record does not end there; during the whole term of his office, a prolonged one, he gave a wise and serious attention to the public affairs, and supported the honor and dignity of his family and of the Province. He maintained royal state on these grounds, and sumptuous surroundings, but also a clear record of wise government. His times were troublous ones; he was the last representative of the Founder who had authority here, and the last representative of kingly power in Pennsylvania. He bore up bravely against the coming violence of the storm of the Revolution, but, like some stately and unyielding tree, broke down before it. The bold free airs which swept about our land those days made sad havoc among the royal oaks transplanted to this uncongenial soil.¹

¹ He retained throughout that season of trial the good-will of the worthy of all parties. After the dissolution of the government, though politically restrained, he was treated with the respect due to his exalted station and private worth. His successor was the sterling fisherman and patriot, Thomas Wharton. He was called from the old court-house, at the Baron Warner's, to preside over Pennsylvania, *vice* the fallen governor, in 1776.

John Penn resided in this mansion after the war; was visited by Washington in 1787. He died in Bucks County in this State, February 9, 1795, at the age of sixty-seven. His remains were taken back to England.

"The Penn estate," says the late Judge Conrad, "was the largest one ever sequestered in civil war; it was estimated at £10,000,000 sterling. The heirs received as a compensation from the British Government an annuity of £4000; and the State of Pennsylvania, in remembrance of the founder, awarded them £130,000." Their private estates were not divested, but have been held and inherited by succeeding members of the family down to our own day. "Solitude," as stated before, was purchased from them by the city. The governor, by his will, dated January 2, 1795, devised Lansdowne to his wife, Mrs. Anne Penn, and by subsequent conveyances through her title it also became the property of the city.

GEORGE'S HILL.

Among the first and the most grateful of all the acquisitions by the Commissioners was this fine tract of ground. Soon after they began their labors they received a letter from Jesse George, an aged and estimable member of the Society of Friends, who, with his sister, were then its joint owners.

In the letter Jesse George stated that this property had been the uninterrupted home of his ancestors for many generations, and had retained very much the appearance it bore from the first settlement of the country. That, with a view of preserving it to their memory in the same rural condition in which they occupied it, he had declined all offers to sell it; but that considering the benefits of a public Park, and that a disposition of the property by him for that purpose would carry out his wishes for its preservation, he offered it to his fellow-citizens as a contribution to their pleasure-ground. Rebecca George joined with him in the same offer.

The Commissioners accepted this generous gift, reserving for these estimable persons, at their request, the undisturbed enjoyment during their lives of the water of a little brook which runs along the foot of the hill.

The tract comprises eighty-three acres. An oval concourse two hundred feet in diameter crowns its summit, which is two hundred and ten feet above the river.

The presentation of the ground was made 12mo. 11th, 1868. Jesse George survived his sister, and died at the old homestead adjoining the hill Feb. 14, 1873, aged 88 years.



BELMONT IN THE OLDEN TIME.

JUDGE PETERS.

Richard Peters, the beloved friend of Washington, was born in this mansion, and died here August 22, 1828, at the age of eighty-four. He was the son of William Peters, and the nephew of Richard Peters, Secretary of the Land Office under the Penns. The father and son in the Revolution severed in their opinions. The father adhered to the crown, returned to and died in England. Judge Peters at the outset ignored social, family, and business relations, assumed and adhered to the cause of the colonies. He was born in the den of the British lion, and in a good-humored manner bearded him there.

Judge Peters filled the office of Secretary of the Board of War during the Revolution; was a Representative in Congress, and had, at the time of his death, sat as a Judge of the United States District Court thirty-nine years. He was not alone distinguished as a patriot, a legislator, and a jurist, but in the department of agriculture he was the pioneer in those improvements which restored the wasting farm lands of this State. He sang †

best song,¹ grave or gay, was the most noted wit of his times, and was also the most genial and hospitable of men.

¹ This fragment of a song in his clear handwriting lies before me; it was written at a meeting of the St. George's Society, September 28, 1774:—

When Britain first, by Heaven's command,
Arose from out the azure main,
This was the charter of the land,
And guardian angels sang this strain;
Rule, Britannia, rule the waves,
Britons never will be slaves.

Let us, your sons, by freedom warmed,
Your own example keep in view;
'Gainst tyranny be ever armed,
Tho' we our tyrants find—in you.
Rule, Britannia, rule the waves,
But never make your children slaves.

With justice and with wisdom reign,
We then with thee will firmly join
To make thee mistress of the main,
And all the shore it circles thine.
Rule, Britannia, rule the waves,
We're subjects still, but not your slaves.

A portion of the Judge's song of the Treaty Tree may be also appropriately quoted here:—

Whilst the natives our forests in freedom shall roam,
Thy remembrance they'll cherish through ages to come.
Tho' sorrows their bosoms should oft overwhelm,
With delight they'll reflect on *good Onas's Elm*.

For that patron of justice and peace there displayed
His most welcome good tidings, beneath its fair shade,

And furnished examples to all future times,
That Justice and Peace may inhabit all climes.

The *Oak* may be fam'd for its uses in war,
Or waiving wealth's idols to regions afar;
But the *Elm* bears no part in such objects as these,
Its employment is solely in fabrics of peace.

The *Olive* abounds where stern despots bear rule,
And their slaves pluck its products in Poverty's school;
But the *Elm* delights most in the mountains and dells,
Where *Man* is ne'er shackled, and Liberty dwells.

Tho' time has devoted our tree to decay,
The sage lessons it witness'd survive to our day,
May our trustworthy statesmen, when called to the helm,
Ne'er forget the wise *Treaty* held under our *Elm*.

Many anecdotes of Judge Peters are preserved in the manuscript of his biographer. They were a constant glimmer on the full deep flow of his earnest, enduring life. On the occasion of a brewer's death, when a dull man expressed surprise to the Judge because the brewer seemed to have been in good health: True, he was, said the Judge, a *stout* man. What could then have carried him off? said the dull questioner. Something *aled* him, and the *beer* carried him off, said the Judge. Ah! said the questioner: I did not know he drank. Nor did I, either, said the Judge, slowly shaking his head and walking away.

When the Judge's health began to fail, a report of his death got into circulation and produced general sorrow. He was riding, and was met by a stranger, who told him the sad news. Well, said the Judge to the astonished man, I, for one, am very glad to *hear* it. I have lived very long, but I never thought I'd live long enough to hear that that man was dead.

In his 76th year, dining with the Cincinnati Society, he saw that, of the 300 original members, but 40 remained. I am the oldest survivor, he said, cheerfully, and as this is a military association which places the senior officer in the rear of the procession, I shall take my place there, and so see you all out, and reach the dismal goal last. Seeing Smith, who had become entirely bald, he said: Smith, you must be a very happy man. Why, said Smith, innocently. Because, said he, Smith, there's not a hair between your head and heaven.

Among the guests of Judge Peters assembled in this mansion were the Chevalier de la Luzerne, the French Minister, whose house was at the Falls, Franklin, "Christian Samuel," Rittenhouse the astronomer, Bartram, President Wharton, and distinguished men of science from Europe. Lafayette, while in Philadelphia, on his return to this country as the nation's guest in 1824, was constantly with the Judge, and passed much of his time at this house. The Baron de Steuben, Inspector-General during the Revolution, was on relations of much intimacy with the Judge, and, whenever he was in Philadelphia, visited his house. Here also Talleyrand and Louis Philippe were received. Robert Morris, the Count de Surveilliers, John Penn the governor, Alexander J. Dallas the advocate, whose house was near the Falls, John Adams, and, before all these, the author of the great Declaration,¹ were his neighbors.

¹ During Washington's administration, Thomas Jefferson lived below the Park limits at Gray's Ferry. He continued to reside there until he retired from public life in December, 1793, and these fair shores witnessed an interview in those days of our transition from monarchical ideas following the close of the Revolution, which shows the influence Washington held even over this great man. Jefferson, then Secretary of State, had finally determined to resign his office; nor was it credited, so decided were the positions he had taken, that his determination was alterable. Washington, unbending from the place of his superior rank, visited him, and in a long interview (August 6th, 1793) beside these waters besought him to remain in the discharge of his office. Jefferson had then written to his life-long friend and companion Madison (June 9th, 1793), in a spirit of utter weariness of public affairs. "The motion of my blood," he said in this letter, "no longer keeps time with the turmoil of the world, my happiness lies in the lap and love of my family, in my books and in the society of my neighbors, in an interest and affection in every bud that opens and breath that blows around me. I am worn down with fruitless labor." To Washington he yielded. It is a pleasant recollection that this great instructor of his age, who so loved also the passing air and opening flower, had for that then worn-down spirit the relief of these fair scenes of nature, and that the scenes themselves are thus associated with his name and widening influence over our race.

Washington's memory is the most sacred legacy of these fair grounds; the biographer of Judge Peters says: In its beautiful gardens, beneath the shadows of the lofty hemlocks, he would sequester himself from the world, the cares and torments of business, and enjoy a recreative and unceremonious intercourse with the Judge."

On occasions of ceremony, however, at receptions and entertainments, Washington maintained surroundings of state in keeping with his time and military habitudes, although incongruous with these later days. The old shell of the royal era remained long after the soul and heart of the thing were gone. In the details of his household, also, he was very stately, and among all the equipages which rolled up to the door of Judge Peters's mansion, his was the most decisive in its appointments. His coach, which is still in good preservation, was of a cream color, drawn by six horses of the old dominion stock. His motto was engraved on the harness plates; his crest on the panels; his postilions wore bright tasselled caps, and his coachman maintained a dignity and style in perfect keeping with the whole.

He rode here also on the white charger which bore him in the Revolution, sometimes with attendants, sometimes alone.



ROBERT MORRIS.

Robert Morris was the representative of the capitalists of the Colonies, the most honorable, and the most unfortunate. As such, he has left, of his public life, three records, intelligible to his own and to after generations. His first record is a letter, a short extract from which follows; it was written on these grounds.

From the Hills on Schuylkill:—

“July 20th, 1776.

. . . “It is the duty of every individual to act his part in whatever station his country may call him to, in a time of difficulty, danger, or distress.”

His second record is his signature to the great Declaration, and the pledge of his financial abilities and his private fortune to the cause of the Colonies.

His third record is the ledger of his counting-house and the folios of the Government, of which he was the Treasurer from the year 1781 to the close of the Revolution. These show that he held the army together, from hour to hour, through the Revolution, by the credit of his individual name.¹

Among the items of the accounts of this faithful steward are some which illustrate the whole. 1779 and 1780 were the most distressing

¹ “The individual notes of Robert Morris circulated *as cash* through the Colonies.”—*Chastellux* (1780).

years of the war. On a pressing occasion, during this period, Washington communicated to Judge Peters the condition of the public stores: his army was without cartridges, those in the men's boxes were wet; if attacked, retreat or destruction was inevitable. In this emergency the Board of War, of which Judge Peters was Secretary, was powerless; all the lead accessible was exhausted, even to the lead spouts of the houses, and the Board was then offering for it, without obtaining any, the equivalent in paper of two shillings in specie a pound. Judge Peters showed Washington's letter to Mr. Morris, who was with others at a reception at Don Juan Mirailles's, the Spanish Minister.

By a fortunate concurrence, a privateer had that day arrived at the wharf at Philadelphia, one-half consigned to Mr. Morris. He said to Judge Peters, one-half of the Holker's cargo is consigned to me; she is at the wharf, take the one-half of the fortunate supply—it is ninety tons of lead; the owners of the other half are standing there; get theirs also. But, said Judge Peters, they will make no further advances to the government. Then, said Mr. Morris, I take myself their portion and deliver it to you. The arrangement was at once made. That night one hundred hands were employed. Before morning a supply of cartridges was on its way to the army.

Again, December, 1776, from his broken army on the Delaware, Washington wrote that without specie an offensive movement could not be made. This letter was sent by a confidential messenger to Mr. Morris; but it seemed impossible, in the general confusion and flight of the citizens, to raise the sum required. Among his acquaintances, however, was a cautious but straightforward capitalist. To this man he made his wishes known. What is the security for this sum? said the capitalist. My note and my honor, was the answer of Morris. On that security I will loan

the money, was his answer. With this money Washington was enabled safely to cross the Delaware and secure the decisive result at Trenton.

At the most critical period of our nation's early history, 1781, Judge Peters, Robert Morris, and Washington were together at the Headquarters of the Army, on the North River. Washington received on that occasion a letter from the Count De Grasse, announcing his determination to remain in the West Indies with the French fleet. Washington read the letter, which destroyed at one blow his plan of operations on the city of New York, and resolved at once on the expedition to Virginia. Turning to Judge Peters, he said, What can you do for me? With money, everything; without it, nothing—was the brief reply, as he turned with an anxious look to Morris. Let me know the sum you desire, said the Patriot Financier. Washington's estimates were made that night. Morris placed, within the required time, the amount of the estimates in Judge Peters's hands—the army moved. The result was the surrender of Lord Cornwallis, at Yorktown—the successful close of the war for the Independence of the Colonies.

Judge Peters gives the requirements of Washington, for this brilliant and final effort, as follows: "Seventy to eighty pieces of battering cannon, and one hundred of field artillery, were completely fitted and sent on for service in three or four weeks, progressively; and the whole together, with the expense of provisions for, and pay of, the army was accomplished on Mr. Morris's credit, which he pledged in his notes, which were all paid, to the amount of one million four hundred thousand dollars. Assistance was, 'tis true, afforded by Virginia and other States, from the merit whereof I do not mean to detract. We had no money in the War Office chest; the Treasury was empty; and the expedition would never have been operative, had not most fortunately Mr. Morris's credit a

superior exertions and management supplied the indispensable *sine qua non*."¹

These are items in the account of this faithful steward. And when it is considered that bills of credit finally would buy nothing; that cattle died on the road to the army for want of public money to buy provender; that the Colonies themselves ceased to comply with the requisitions upon them; that clothes for the soldiers were sold to pay the more suffering needlewomen who made them—we may estimate how constant were those drains upon his private fortune, and how large was their aggregate.

From the spirit and the word of that letter from "the Hills," Robert Morris, from the first to the last, never swerved. The signature which he appended to the Declaration was repeated again and again to notes which were met as they matured, and which amounted to millions; but this expenditure of his private fortune, princely as it was, was not the measure of his service. The folios of the Government show a reduction of expenses, while its finances were in his hands, from eighteen to four millions annually, and this still was not the full measure of his service. These pledges of the individual wealth of a man, who was himself the national coffer, *inspired* as well as sustained the country; this completes the measure of his services, for this he was called in his day the right arm of the Revolution.

¹ Judge Peters to Alexander Garden, Esq., Belmont, Dec. 20, 1821, MS.

John Adams was for some time his near neighbor. His house was at Bush Hill.

See page 75.

EXTRACT FROM THE DIARY OF WASHINGTON.

1787. August.

Monday 20th. Dined and drank tea with Mr. Morris.

21st. Did the like this day also.

22d. Dined at Mr. Morris' farm at the Hills.

23d. Dined and drank tea with Mr. Morris.

24th. Did the same this day.

25th. Dined with the Club at Springsbury.

Sunday 26th. Rode over the country for exercise 8 or 10 miles. Dined at the Hills, and spent the evening in my chamber writing letters.

27th. In Convention. Dined at Mr. Morris', and drank tea at Mr. Powell's.

28th. In Convention. Dined, drank tea, and spent the evening at Mr. Morris'.

Wednesday 29th. Did the same as yesterday.

Thursday 30th. Again the same.

Friday 31st. In Convention. Dined at Mr. Morris', and with a party went to Lansdowne, and drank tea with Mr. and Mrs. Penn.

September.

Saturday 1st. Dined at Mr. Morris'.

Sunday 2d. Rode to Mr. Bartram's and other places in the country. Dined and drank tea at Gray's Ferry, and returned to the city in the evening.

SAMUEL MIFFLIN,

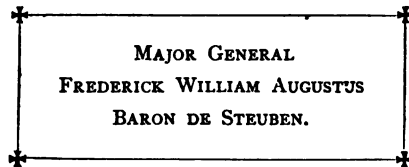
One of the owners of Fountain Green, died in 1781. He was a merchant, and an active and influential citizen. He was one of the Associators of 1748, captain of the Association Battery Company afterward, and colonel of an artillery battalion during the Revolution. He was appointed to the command of the Pennsylvania State fleet in September, 1776, but declined the office. He was elected a member of Common Council in 1755, and an alderman in 1766. He was a member of the Council of Safety, elected in July, 1776.

STEUBEN.

Major-General Frederic William Augustus Baron de Steuben, the organizer and Inspector General of the armies of the Revolutionary War, was born at Magdeburg, Prussia, November 15, 1730; in 1762 he was appointed adjutant general on the king's staff, and in 1764 grand marshal and general of the guard. December 1, 1777, he arrived at Portsmouth, N. H., offered his services to Washington, joining him at Valley Forge, and May 5, 1778, was appointed Inspector General, with the full rank of major general. He was the author of the manual for the Continental Army that was adopted in 1779, and which introduced the thorough organization and discipline among the troops inaugurated that year. He contributed largely clothing and camp equipage from his personal means, and labored unceasingly to promote the comfort of the enlisted men.

Upon the disbandment of the army in 1783, Steuben, after spending some time in New York, came to Philadelphia. At Mount Pleasant he spent several years in poverty, waiting for the adjustment of his claims on Congress and the country.

After much delay, caused by the impoverished condition of the country, the claims of the Baron were adjusted, and a pension of \$2500 given him. In 1786 the State of New York granted to the Baron sixteen thousand acres in Oneida County. This tract was formed into a township, which bears the name of Steuben. At his farm, in this then wilderness, he died on November 28, 1795; two days afterwards he was interred at the foot of a hemlock tree, a spot he had once pointed out as a good place for burial. Some neighbors gathered to pay their last respects to the old soldier. "No mourning, parade, or music was there; no crape-covered eagles or colors were to be seen; no cannon fired a military salute; no word was spoken; no funeral oration delivered. Some handfuls of earth and the tears of a few manly and sincere friends were the last tribute paid to the citizen-soldier, who, having contributed in no small degree to the attainment of American Independence, now found lasting repose in the unbroken stillness of her primeval forest." A stone marks the spot, with this inscription:—



His will is dated in 1794. By it he gives a year's wages to each of the servants living with him at the time of his decease, on condition, however, "that, on my decease, they do not permit any person to touch my body, nor even to change the shirt in which I shall die, but that they wrap me up in my old military cloak, and, in twenty-four hours after my decease, bury me in such a spot as I shall, before my decease, point out to them, and that they never acquaint any person with the place wherein I shall be buried."

BLAIR McCLENAHAN,

A lessee of Mount Pleasant, was a native of Ireland. He was in business in Philadelphia before the Revolution, but, on the breaking out of the war, engaged in privateering. He was most ardent and devoted to the cause of liberty, and one of the founders of the first troop of Philadelphia city cavalry, in which he served during the war. He co-operated most liberally in all the patriotic exertions and schemes of Robert Morris and his compatriots in urging on, sustaining, and establishing the cause of American freedom. He subscribed £10,000 in 1780 to supply the starving army, and, on various occasions, aided Congress by his money and his credit, and suffered much thereby in a pecuniary way. His generosity, patriotism, and self-sacrifices in the cause of his adopted country, render his memory dear to the people. He died at Philadelphia.

JOHN LAWRENCE,

One of the owners of Rockland, died in 1798. He was elected a member of Common Council in 1762, an alderman in 1764, and was mayor of the city in 1765 and 1766.

JOSEPH REED

Was born in New Jersey, August 27th, 1741, graduated at Princeton in 1757, studied law in New Jersey with Richard Stockton, and at the Temple in London. He was upon the committee of May 20th, 1774, to answer the circular from the town of Boston; member of the Committee of Correspondence, of June 18th, 1774, to ascertain the sense of the people of the provinces with regard to the appointment of deputies to a general congress, and to institute a subscription for the relief of the sufferers in

Boston. He accompanied Washington to Cambridge upon his taking command of the American Army, in July, 1775, and was his aid and secretary during that campaign. He was adjutant general in 1776, and engaged in the battle of Germantown. He was chosen a member of Congress in May, 1778, and was president of the Supreme Executive Council, Oct. 17, 1778, until October, 1781. He resumed the practice of the law, visited England in 1784, and died soon after his return.

EDWARD SHIPPEN, LL.D.

Edward Shippen, an eminent lawyer of the early times of the city, was born in Philadelphia, Feb. 16, 1729. He began the study of law in his native city, and completed his studies in London.

He was distinguished especially in commercial law, held minor judicial offices, and was appointed in 1799 Chief Justice of the Supreme Court of Pennsylvania. He resigned in 1805, and died the following year. His daughter was the celebrated belle of the Revolution, the wife of Benedict Arnold.

PHILIP SYNG PHYSICK,

Whose summer residence was the Edgley House, was born in Philadelphia in 1768, and was the son of Edward Physick—the keeper of the great seal under the Colonial Government, and after the Revolution, the custodian of the estates of the Founder's family. He was educated in Medicine in Philadelphia under Dr. Rush, and subsequently under John Hunter in London, where he was House-Surgeon at St. George's Hospital; in 1791 he received his license from the Royal College of Surgeons, London, and in 1792, took his degree of Doctor of Medicine at the University of Edinburgh. He was distinguished by his faithful services in his profession

in Philadelphia, during the fatal fever of 1793. He filled the chair of surgery in the University of Pennsylvania, and subsequently (in 1819) of anatomy; in 1825, he was elected a Member of the French Royal Academy—an honor then for the first time conferred on a citizen of America. He died in 1837, recognized everywhere as one of the founders of Philadelphia's great fame in her universities of medicine.

WILLIAM LEWIS,

The senior of the Bar of Philadelphia, and the first of the three great lawyers of the Revolutionary era of America, was born in 1745. To the time he began his legal studies, he was self-educated, and during them, he mastered sufficient Greek and Latin to read the old entries. He came to the bar before the adoption of the Constitution of 1776, and distinguished himself in the treason cases of which there were many in this centre of "the divisions" of those days. He adhered to the great Declaration, but not proscriptively, and stood by the defenceless, broken down by popular clamor.

He consented to serve for one year, 1791-2, as a District Judge for Pennsylvania; the doors of the Senate of the United States were opened for the first time to counsel, in a cause for him, in 1794. He was determined in his adhesion to the rights of the Judiciary—he was absolute in his vindication of the rights of the Bar. In his voice he never failed; in his confidence he was supreme. "Without grace of diction or manner," says his biographer, the late Horace Binney, who was himself the great lawyer of our later times, "he rose to the highest eloquence of reason."

He was a great lawyer, not only in criminal causes, but in the common, the commercial, the maritime, and the law of nations.

In personal appearance, he was no less outside of the common pale. He stood, a cadaverous man, six feet high ; by his nose alone, which dominated his face, they drew his portraits ; glasses overhung it, a powdered wig framed it, and a queue hung down behind it. So, in knee breeches and buckles he stood—his head dropping and rising as he spoke—his eye lighted with every emotion.

He was an inveterate smoker ; he would smoke in his bed, in the street, in the chimney-corner of the old court-house, in the library, by night and day, "even in the church," says his biographer, "had he ever gone there." He was true and kindly disposed, moreover, all his life long. He fell fainting at the Bar, worn out at last and old, and died 1819.

THOMAS MIFFLIN.

General Thomas Mifflin, whose house yet remains near the Falls, was born at Philadelphia in 1744, and descended from a Quaker family. He was elected member of the Assembly, representing the city from 1772 to 1776. The Assembly elected him a delegate to the first Congress in 1774, and to the second Congress in 1775. Immediately after the battle of Lexington, he was made major of a regiment, joined Washington's camp at Boston, distinguished himself by bravery, acted as quartermaster general and adjutant general, and was commissioned brigadier general May 16th, 1776. He was commissioned major general February 19th, 1777. He was in active service until after the battle of Germantown. Returning to civil life, he was elected a delegate to Congress in November, 1782, and served till 1784, being a portion of the time president of that body. In 1785 he was elected a member of the Assembly of the State, and became speaker of that body. He became president of the Supreme Executive Council of the State in 1788. He was a member of the convention to

form a Federal Constitution. He was elected Governor in 1790. He was re-elected twice, and relinquished the office to Governor McKean in 1799; the Governor, on the 1st of January, 1800, appointed him major general of the First Division—which included the city and county of Philadelphia. On the 20th of that month he died, after a short illness, at Lancaster.

WILLIAM ORIAN.

In 1648, Upland (now Chester) first appears as a location in America; a village of the Swedes, and the seat of their magistrates' court.

The court was established

“by the authority of our Soueraigne Lord Charles the Second by the grace of God of England, Scotland, France & Yreland King, defender of the faith, the 14th of November and in the 28th yeare of his s^d mag^{ties} Raigne, Anno Domini 1676.”

Under this category of titles and dates, one William Warner got his place as Undersheriff, and William Orian as Constable. In 1678 this court granted the latter permission “to seat and improove” a tract on the Schuylkill, to which he gave the name—Edgerlie, and he thereafter resigned his office as Constable for the larger title of Landowner.

Orian was by trade a blacksmith, by the habits of his life, hard working, and litigious, and beyond the necessities of his existence, having no further interest than the aggregation of acres in various localities. His education was limited; he appears to have got no further than the writing of his name, and this he effected by the use of two letters only *M. O.*, one of which he wrote upside down, and if it had been possible, would, for aught he had been the wiser, so written the other—but to him the credit belongs,

which has lent lustre to even a very noble name. In the Records of the Upland Court appears this mention—

“upon ye Request of william warner & william orian; ordered that ye severall people that hold Lands; of that w:^{ch} ye peticon:^r bought of ye Indians Lying in ye Schuylkill Every one to repay to ye peticon:^r proportionable to ye: quantity of Land they hold there—the whole purchase w:^{ch} ye peticon:^r paid being 335 gilders;”

So that, illiterate and litigious as was the first owner of Edgerlie, without ancestors' fame or posthumous remembrance, to him and to William Warner belongs the record of the first duly certified purchase of land, and to the Schuylkill within the Park limits, rather than the Delaware, the honor of the sheltering tree, whatever its species, under which the treaty was made, between the first settlers of Pennsylvania and the aborigines.

WILLIAM COLEMAN,

The intimate associate and life-long friend of Franklin, was a merchant of Philadelphia. He was an original member of the Junto in 1730; he was treasurer of the American Philosophical Society 1744; was elected a member of the Common Council 1739, and held the office until his death; he was appointed a Judge of the Supreme Court in 1758, and reappointed in 1760. He died about 1770. Franklin says of him, “he had the coolest, clearest head, the best heart, and the exactest morals of almost any man I ever met with.”



JOSEPH NEEF.

“The Jolly old Pedagogue long ago.”

For the school-children with whom once a year the city passes a day of unalloyed pleasure on these grounds, we wish to keep the memory green, of a man who taught school in this section of the Park, and in the octagon house.

He first brought school-children to the Park, and was himself all his life-long only one of these of larger growth.

And of all men who ever taught school, he was the best beloved by his scholars. He read the rules laid down by Solomon, backwards—spared the children and spoiled the rods. He built the Temple of Science at the foot of the hill, and made it as easy to get there as to coast on sleds in winter-time. He was out of doors with the boys all summer; never had a hat on his head nor a cent in his pocket; never got tired running up and down the hills; was the best swimmer and the best skater, and his boys the best swimmers and the best skaters in the whole neighborhood; he never had a book in his school, and could whistle through his fingers like a steam-whistle.

The old octagon house was full from the garret to the cellar of boys of all kinds, sizes, and dispositions, and everything was as pleasant in the school as if it had been "home in the holidays," and for many boys a great deal pleasanter. But what was best of all in that school, the smart boys grew smarter and the dull boys grew brighter, so that at last when a great prodigy¹ who had been born with his head full of figures, came there to puzzle them, they gave him harder puzzlers in return, and when he grew angry and struck out boldly with a switch which he carried, they doubled up hands and whipped him, and the old man laughed all the while. So here is to the memory of "the Jolly old Pedagogue" who first brought into this country the system of Pestalozzi² which revolutionized and humanized education, and the good influence of which is felt to this hour in all the common schools of America.

¹ Zerach Colborn.

² We are indebted to Mr. William McClure, the philosopher who endowed the Academy of Natural Sciences, for his sojourn and its good results here. He met him in Switzerland, and induced him to return with him to be his Master's Apostle in the New World.—*Hagner's Sketch of the Falls.*

See page 102.





FORT ST. DAVIDS.

Fort St. Davids was a rude but strong structure of heavy timber, cut from the opposite forests and erected long anterior to the Revolution. It was located at the foot of a hill, from which the rock forming the falls projected. On the hill a tall flagstaff was erected, from which floated King George's flag. In the interior hung a picture of his majesty and Queen Charlotte, and of Hendrick, King of the Mohawks. The room was decorated with an immense hat four feet in width, and other paraphernalia, dried fish, turtles, and Indian curiosities; a large bowl of "the great Mr. Pitt," wineglasses and decanters of curious workmanship, and a set of china with the Schuylkill arms. The company had also a flag on which were a moon, a fish, and a crown.

The Society of Fort St. Davids, the builders of this house and its garrison, were companions of the Founder; and, like the former catfish of this stream, were accredited as a superior species; but, like those steadfast fishermen below, they had immense good times on all suitable occasions, and they never failed to make all unsuitable occasions suitable. They ultimately voyaged down the stream¹ to their brothers, then at the Baron Warner's, with whom they still dwell in indissoluble connection, capacious² both for good-humor and for fish. This garrison, during the Revolution, has a very noble record, in which good-humor was laid aside and its whole duty to the country sternly and fully done.

JOHN DICKINSON.

Among the names on the rolls of this Society is John Dickinson, the Author of "the Farmer's Letters."

This "shadow," rather than man, "slender as a reed, pale as ashes,"³ this great writer, has been suffered to lapse almost into oblivion, yet it was in him God first lighted the fires of the Revolution. His letters made the cause of the Colonies heard before the throne of Great Britain, and it is his name only which is associated with Jefferson's as the writer

¹ Their house, in revenge for the part they took in the Revolution, was reduced to a heap of ruins by Hessian soldiers, who were quartered near Rock Fish Inn, under Gen. Knipphausen. They remained here some time after the Revolution, and rebuilt their house. The print represents the second house; it was destroyed by an accidental fire.

² Godfrey Schronk, a noted fisherman, assured John Watson, the chronicler, that the small garrison at Fort St. Davids cooked and put away often forty dozen catfish at a meal. At the house at Gray's Ferry, a notice of catches (1830) averages to one fisherman from five to twenty dozen white perch, and the aggregate catches, before their removal from the Baron Warner's, on fishing-days, ran fifty, eighty, and one hundred dozen.

³ John Adams's description of Mr. Dickinson.

of the first official assertion of grievances which preceded the great Declaration. His words were the battle-cries of the Revolution. On these grounds they gave evidence of their power; although gentle blood ran in the veins of the peaceful inmates of Fort St. Davids, and their meats were set before them on heraldic plates, and the flag of English George floated over their house, yet Dickinson's words swept through its hewn logs like a storm; the flag went down—they answered his appeal with the sword. Here he might be fitly honored, as he was in his day and generation. The historic troop,¹ four of whose captains have been Governors of the State in Schuylkill, and the bar of Philadelphia, of which he was so worthy a representative, might unite and place on these grounds his monumental stone; and the words once written in his honor might well be graven there.

PRO PATRIA
JOHN DICKINSON
OF THE
CITY OF PHILADELPHIA.
THE AUTHOR OF THE FARMER'S LETTERS.
ITA CUIQUE EVENIAT
UT DE REPUBLICA MERUIT.

¹ The First Troop Philadelphia City Cavalry.



JOHN KELPIUS.

" My food shall be of care and sorrow made,
 My drink naught else but tears fallen from my eyes;
 And for my light in this obscure shade,
 The flames may serve which from my heart arise;
 And at my gates despair shall linger still,
 To let in death when love and fortune will."

Among the stories of the former dwellers on the Wissahickon, and of which reliable record remains, that of John Kelpius¹ holds a remarkable place. A scholar and a mystic, he came from Germany with his followers towards the close of the seventeenth century. They located themselves on this stream and dwelt in religious meditation, awaiting with anxious prayers the coming of the "Woman of the Wilderness."

Kelpius wore his young life away here, enduring to the end in patient expectation, fast and vigil, waiting morning and evening "the woman clothed with the sun, with the moon under her feet, and the twelve stars on her forehead; she who had fled into the wilderness."

¹ According to the *Chronicon Ephratense*, 1786, Kelpius was from Siebenburgen, and was of a wealthy family. He studied at Helmstadt under Dr. Fabricius, and was versed in the languages. His companions were all men in easy circumstances (*freyen standes*), and settled on the Ridge, which at that time was a wilderness, whence they named themselves "the woman in the wilderness." He died at the early age of thirty-five years, sitting in his garden, and attended by his followers weeping as for the loss of a father. The title of one of Kelpius's hymns reads: "Colloquium of the Soul with itself over her long during purification. Set in a pensive longing in the wilderness, Anno 1698, January 30."

Bartram, in 1761, makes this characteristic allusion to Dr. Witt, the favorite scholar of Kelpius, then eighty-three years of age: "Poor old man, he was lately in my garden, but could not distinguish a leaf from a flower." He was buried, at his own request, at the feet of Kelpius.

Some of his followers, who were afterwards known as the Hermits of the Ridge, fell away from the faith, others never woke from the strange delusion that brought them so long a journey. They also waited on in their caves among these rocks, with ever-renewing faith, the sign and visible presence, until, their weary limbs shrinking down and their eyes wearing out with watching, they died there, and the foxes made their burrows among their bones.

DAVID RITTENHOUSE.

Kelpius had long gone to his rest, and Dr. Witt, his beloved scholar, almost blind with age and watching, was bending hopelessly over his grave, when David Rittenhouse raised his eyes also to the heavens, and with a stronger vision, by faith and by sight, penetrated their remote recesses.

David Rittenhouse, the astronomer, was of Holland ancestry ; he followed first the plough, but was found so often with the plough lying in the furrow, and the fence full of figures, that he lost that service, and took up the trade of a clockmaker. His first great work, among many others—marvellous in their time, constructed wholly at night, his idle hours as he called them—was the famous orrery now in Princeton College. His next was a series of calculations for the transit of Venus over the sun's disk. This wonderful mechanical contrivance, the universe in motion on a frame, and these accurate and profound calculations, and their verification by his own observation, gave him a wide-spread reputation in this country and in Europe. The life of David Rittenhouse was mainly connected with the world of science, and his fame there rests ; but, yet, his mind was also an invaluable machine for the business uses of his generation.

He was State Treasurer from 1777 to 1789, afterwards Director of the Mint, and for many years President of the Philosophical Society.

Of him Thomas Jefferson says: "We have supposed that Rittenhouse must be considered second to no astronomer living; as a genius first, because self-taught; as an artist, because he has exhibited as great a proof of mechanical skill as the world ever produced. He has not indeed made a world, but he has by imitation approached nearer his Maker than any mere man who has lived from the creation to these days." And this is further said, he gave no time to earn money beyond the most simple necessities of life, and although called to high offices, he had interest in them only as the performance of duties which were necessary for the well-being of his fellow-citizens. He lived—the first and most famous of that illustrious line through which America is rising to pre-eminence among the nations—a devotee of science; he died a sincere believer in the Christian revelation.



STATISTICS OF THE WATER DEPARTMENT,

COMPILED FROM THE

REPORT OF DR. WM. H. McFADDEN, CHIEF ENGINEER, 1875.

Contents of the reservoirs:—

	<i>Gallons.</i>
Fairmount	26,996,636
Schuylkill	9,800,000
Belmont	40,000,000
The Lake Reservoir	750,000,000
In the Park limits	826,796,636
Corinthian	37,312,000
Roxborough	11,771,700
Frankford	35,750,000
Mt. Airy	4,390,000
Delaware	25,757,720
	114,981,420
All the reservoirs	941,778,056

Pumping capacity of the works, 1875:—

Fairmount (water-power)	34,880,821
Schuylkill (steam)	23,033,376
Belmont, "	19,749,726
Roxborough "	6,863,673
Delaware "	15,085,923
Fairmount "	2,364,249
All the works, per twenty-four hours	101,977,768

Average daily flow of the Schuylkill River, 1,542,533,881 gallons.

Water-level :—

Belmont reservoir, when full, 212 feet above city datum, depth 25 feet.

The Lake ¹	“	“	133	“	“	“	25	“
Corinthian	“	“	120	“	“	“	27	“
Schuylkill	“	“	120	“	“	“	16	“
Delaware	“	“	113 $\frac{7}{10}$	“	“	“	12 17	“
Fairmount	“	“	94	“	“	“	12	“ 3 inches.
Roxborough	“	“	365 $\frac{7}{10}$	“	“	“	18	“ 6 “
Mt. Airy	“	“	363 $\frac{8}{10}$	“	“	“	15	“
Chestnut Hill	“	“	370 $\frac{2}{10}$	“	“	“	11	“

Distributing pipes, 662 miles.

The average daily supply for the month of July, 1875, was 49,909,337 gallons.

From Fairmount	14,326,853
“ (steam)	3,284,741
Schuylkill	11,625,460
Delaware	8,255,037
Belmont	9,000,898
Roxborough	3,261,509
Chestnut Hill	154,839
	49,909,337

The amount of water pumped by all the works in—

	<i>Gallons.</i>
1870	13,392,808,272
1871	13,498,399,481
1872	13,100,018,461
1873	14,223,198,443
1874	14,533,425,097
1875	15,097,160,069

¹ Theoretic capacity; for actual supply see p. 85.

The supply delivered in the year 1850 was 18 gallons for each of population; in 1860, 48 gallons for each of population; in 1870, 55 gallons for each of population.

Supply of water:—

	<i>Gallons.</i>	<i>Population.</i>
1820	1,537,200	119,325
1830	3,074,644	167,811
1840	4,922,257	225,359
1850	7,432,337	408,763
1860	27,345,176	565,592
1870	37,249,385	673,726
1875 (Census taken April 3, 1876)	47,639,741	817,448

Population, April 1, 1876, 817,448; dwellings in the city, 143,936.



TABLE OF DISTANCES.

FROM FAIRMOUNT:

To Girard Avenue Bridge	1 mile.
“ Lansdowne Entrance •	1¼ “
“ Lansdowne	2¼ miles.
“ George’s Hill, direct	3¼ “
“ “ “ <i>via</i> Belmont	4¼ “
“ Belmont, direct	3¼ “
“ “ <i>via</i> George’s Hill	4¼ “
“ Mount Prospect, <i>via</i> Belmont	4¼ “
“ “ “ George’s Hill	5¼ “
“ The Falls, <i>via</i> River Road	4¼ “
“ “ “ George’s Hill	6¼ “
“ The Wissahickon, <i>via</i> River Road	5¼ “
“ “ “ “ George’s Hill	7¼ “
“ “ “ “ East Bank	4 “
From the Falls to Wissahickon	1 mile.
To Maple Spring Hotel	1¼ “
“ The Pipe Bridge	4¼ miles.
“ Valley Green	4¼ “
“ The First Fountain	5¼ “
“ Indian Rock	5¼ “
“ Thorp’s Mill Road	7 “
“ Chestnut Hill	7¼ “





THE PARK ORNITHOLOGY.

A closer study of the birds visiting or remaining in the Park during the year will be instructive and interesting to the visitors. Some of them do not suffer us to remain in ignorance of their presence, as the unobtrusive but constant companions of our walks and drives. The swallows at Rockland, inward and outward instantly passing from the river to the shore, and circling about the rock and bridge; and in the low bushes here and there through the Park, the nervous motion and peculiar note that give the catbird his name, are familiar to every one. Some have had the pleasure, which lingers long in the memory, after a summer shower, or late in a quiet summer afternoon, in the woods on the Metopton tract or Ormiston, or other ravine, to hear the plaintive series of notes of the wood thrush.

The black and yellow brilliant plumage of the oriole sometimes startles the sight of very casual observers. The red mottled breast of the robin, with his quick flight, his nervous hops along the ground, his raised attentive head; and the bluebird—spring's harbinger; gulls from the sea in the early days of spring, following the fish up the river, poising over them, dropping fatally, and lazily lifting upward with their long strong wings; and the steadfast raven—some or all of these will be recalled in the memory of every visitor.

To Mr. Seiss we are indebted for a careful classification of these with the rest, the brilliant and untamable cardinal, with his determined beak, angry look, and resolute flight; the shy meadow lark; our new English favorite—the sparrow; the partridge; the little brown wren, we have found under some log covered by the winter snows—sometimes the only seeming living thing in all its borders; and the woodpecker tapping on the hollow branch, to which Moore has given in our Park an immortality; the miserable relic of the days of chivalry—the hawk, watching from some lofty tree; the snowbird, keeping remembrance of the summer time, while winter reigns: these and many others will be found in the very full list which follows, so arranged that we may study them in their season.

LIST OF THE BIRDS.

OBSERVED AND CLASSIFIED BY C. FEW SEISS.

RESIDENT.

(Remaining during the whole year.)

Tinnunculus sparverius, <i>Sparrow Hawk</i> . Rare.	Ceryle alcyon, <i>King-fisher</i> . Mostly seen in summer.
Buteo borealis, <i>Red-tailed Hawk</i> . Rare.	Turdus migratorius, <i>Robin</i> . Occasional in winter.
Scops asio, <i>Mottled or Screech Owl</i> .	Sialia sialis, <i>Blue-bird</i> . Two seen in winter.
Trichopicus pubescens, <i>Downy Woodpecker</i> .	Ampelis cedrorum, <i>Cedar-bird</i> .
Melanerpes erythrocephalus, <i>Red-headed do</i> . Rare in winter.	Certhia americana, <i>Brown Creeper</i> .
Colaptes auratus, <i>Golden-winged do.</i> , <i>Flicker</i> .	Sitta carolinensis, <i>White-bellied Nuthatch</i> .

- Parus atricapillus*, *Black-cap Titmouse*.
Lophophanes bicolor, *Tufted do*.
Chrysomitris tristis, *Thistle Finch*. Rare in winter.
Melospiza melodia, *Song Sparrow*.
Cardinalis virginianus, *Cardinal*, *Red-bird*.
Sturnella magna, *Meadow Lark*.
Corvus americanus, *Crow*.
Passer domestica, *European Sparrow*.
Zenaidura carolinensis, *Common Dove*. Rare in winter.
Thriothorus ludovicianus, *Carolina Wren*.
Agialitis vociferus, *Killdeer*. Rare in winter.
Ortyx virginianus, *Partridge*, or *Bob-white*.

SUMMER RESIDENT.

(Which come in the spring and depart in the fall.)

- Coccyzus americanus*, *Yellow-billed Cuckoo*.
erythrophthalmus, *Rain Crow*.
Trochilus colubris, *Humming-bird*.
Chaetura pelagica, *Chimney Swallow*.
Chordeiles popetie, *Night Hawk*.
Tyrannus borealis, *King-bird*.
Sayornis fuscus, *Peewee*.
Contopus virens, *Wood do*.
Empidonax minimus, *Least Flycatcher*.
acadicus, *Small Green-crested do*.
Turdus mustelinus, *Wood Thrush* or *Wood Robin*.
Geothlypis trichas, *Yellow Throat*.
Seiurus aurocapillus, *Golden-crowned Thrush*.
Dendroica aestiva, *Yellow Warbler*.
Hirundo horreorum, *Barn Swallow*.
Cotyle riparia, *Bank do*.
Progne purpurea, *Martin*.
Vireo olivaceus, *Red-eyed Vireo*.
gilvus, *Warbling do*.
Mimus carolinensis, *Cat-bird*.
Harporhynchus rufus, *Brown Thrush*.
Troglodytes aedon, *House Wren*.
Spizella socialis, *Chipping Sparrow*.
Cyanospiza cyanea, *Indigo-bird*.
Pipilo erythrophthalmus, *Ground Robin*.
Agelaius phoeniceus, *Swamp Blackbird*.
Icterus baltimore, *Golden Robin*, *Balto Oriole*.
spurius, *Orchard do*.
Quiscalus versicolor, *Crow Black-bird*.
Molothrus peccoris, *Cow do*.
Butorides virescens, *Green Heron*.
Tringoides macularius, *Spotted Sandpiper*.

WINTER RESIDENT.

(Which visit us in the autumn and depart in the early spring, mostly breeding in the far North.)

- Sitta canadensis*, *Red-bellied Nuthatch*.
 Rare.
Troglodytes hyemalis, *Winter Wren*.
Chrysomitris pinus, *Pine Finch*.
Zonotrichia albicollis, *White-throated Sparrow*.
Junco hyemalis, *Snowbird*.
Spizella monticola, *Tree Sparrow*.
Passerella iliaca, *Fox-colored do*.
Bucephala albeola, *Buffle-head Duck*.
 Rare.

MIGRATORY.

(Which generally visit us in the spring on their way North, and in the autumn on their way South.)

- Regulus calendula*, *Ruby-crowned Wren*.
Mniotilta varia, *Black and White Creeper*.
Dolichonyx oryzivorus, *Reed Bird*.
Helmitherus vermivorus, *Worm-eating Warbler*.
Dendroica coronata, *Yellow-rump Warbler*.
maculosa, *Black and Yellow do*.
Pennsylvanica, *Chestnut-sided do*.
striata, *Black-poll do*.
Larus argentatus, *Herring*, or *Silvery Gull*.
 Seen only in the spring.

The Rail, *Porzana carolina*; *Common Snipe*, *Gallinago wilsonii*; *The Water Thrush*, *Seiurus noveboracensis*; and the *Woodcock*, *Philohela minor*, have also been observed; and several species of *Flycatchers*, *Finches*, and *Warblers* are omitted for want of proper identification.



THE PARK ICHTHYOLOGY.

The Schuylkill within the Park limits in early times was very famous for the abundance as well as the good quality of its fish—"an old Priest at Philadelphia" did disclose to the Founder "rare shadds," in his possession—and the evidence is very sure in the records of "the companies,"¹ and in the Legislature of the State,² that the fisheries of the river did long remain a notable feature of its pleasures and advantages. Even until the close of the first quarter of the present century, the trout and sturgeon still met together from its sources and mouth, while in the last century it paid its tribute to the State in Schuylkill regularly, feeding the rich and

¹ See page 99.

² See page 98.

poor from their hospitable board, and its shad fisheries were very valuable franchises.¹

The building of the Dam at Fairmount was a barrier to the course of the migratory fish, although the rock fish still come up to it to be caught in the old manner, and the eels continue their migrations over it and through the rocks, in the spring and autumn.

All the local fish remain; sunfish and minnows give pleasure to the juveniles, gold fish largely populate the river, the catfish perpetuates the river's earliest fame, and black bass, the local kings of its waters, are caught in liberal quantities, and afford genuine sport to the angler.

LIST OF FISH IN THE PARK WATERS.

BY THADDEUS NORRIS.

LOCAL.

Cyprinus auratus, <i>Goldfish</i> . Imported by Mr. Pratt in the early part of this century.	Leuciscus rutilus, <i>Roach</i> . May be caught all winter.
Leuciscus phoximus, <i>Minnows</i> .	Pimelodus catus, <i>Catfish</i> (round-tailed or yellow).
Catostomus communis, <i>Sucker</i> .	Pomotis vulgaris, <i>Sunfish</i> . Sunnys, kivers.
Leucosomus rhotetus, <i>Chub</i> or <i>Fallfish</i> . Caught 18 inches long.	machrochira, <i>do.</i> (yellow-bellied).

MIGRATORY.

Grystes fasciatus, <i>Black Bass</i> . Introduced by the State in Schuylkill, 1869.	Anguilla vulgaris, <i>Eel</i> . Descend to the sea in November.
Perca flavescens, <i>Yellow-barred Perch</i> . Below the dam.	Galeichthys marinus, <i>Salt-water Catfish</i> (the supper fish). Now become local.
Labrax pallidus, <i>White do.</i> Below the dam.	Osmirus viridescens, <i>Smelt</i> . Taken by Mr. Norris below the dam.
lineatus, <i>Rockfish</i> . Taken at Fairmount.	

¹ One at Manayunk yielded an income of \$600 annually.



THE FLORA OF THE PARK.

From the earliest times the Park grounds have been remarkable for their flora; "where Schuylkill undulates through banks of flowers" is not the Poet's license, but a notable fact of the river in its course within the Park borders.

These flowers, like the visitors, have their favorite places, and may still be found in them as they have been for many centuries.

The arbutus, the first spring flower, was once found at Rockland, and may be in other localities along the Schuylkill, but its home is the Wissahickon, along the high wooded ledges of rock hidden beneath the leaves; the star of Bethlehem, around the old spring house at Sweet Brier, and on the river road from Belmont Station to the Falls; the dogtooth violet in the Lansdowne ravine, and in all of these places the Indian turnip's graceful

flower; in the Belmont tract and in the woods generally through the Park, the wild indigo plant; the wild anemone and star anemone in the Ridgeland, Rockland, and Lansdowne ravines. Spring-beauties in all the woods—and these and the anemone very notably in the ravine and wood above Belmont—itsself a garden spot of ferns and wild flowers; the common violet did cover till this year the slopes of George's Hill, and still covers all the slopes to Metopton, and is found everywhere in the Park, and very notably on the Fountain Green tract; columbines had their especial locality on the Swansonia tract near the river towards Laurel Hill, and may still be found there; in the woods of the Belmont tract, and at many places on both sides the Schuylkill and along the Wissahickon, the wild rose; the lilac at Mt. Pleasant and Rockland; buttercups make a great display in the meadow lands in June. In the Master's woods by the connecting railroad, in the Ormiston and Edgley ravines, the Lansdowne and Belmont valleys, the Ridgeland and Mount Pleasant woods, and along the east border of the river, are found Quaker ladies, May apples, and blackberry blossoms; and on these, and along the east bank of the Wissahickon, the wild honeysuckles. On the low ground east of the Belmont avenue where the road crosses to George's Hill, a great bed of asters; and these are also found along the river, and Wissahickon drive. Belmont valley is fragrant with vine blossoms in the spring, and the black and red berries keep their places there in the winter snows; Swansonia and Ormiston at the head of its ravine are conspicuous in the autumn for the clematis and the golden rod; the Edgley tract toward the river is closely set with the *Dicentra cucularia*—a carpeting of innumerable drooping sprigs of flowers in the early spring days, covering three or four acres of the slope on the river border. This delicate flower is also found in the ravines between Sweet Brier and Lansdowne. The Ormiston meadow, which is purple with violets in these days, grows golden with the buttercups as the

season advances; and here red and white clover is closely set around a group of the white blackberry blossoms; the woods on either side whiten with the dogwood flowers, and here the chestnut trees with their blossoms show like gigantic bouquets of viridescent flowers. In the summer along the river border will be found the white water flowers with their broad green leaves; and the remains of old orchards lend a grateful fragrance to the air in their season. Notable trees in the woods with their blossoming in the spring and the gorgeous dyes of their autumn foliage will be found—some the relics of the two centuries. Hawthorn, pines, and tulip trees at the old Vineyard Hill and Mt. Sidney; beeches and many maples and mulberries, at Fountain Green, Rockland, Belmont, and Lansdowne terrace; pines at Rockland and Swansonia; and a weird dark growth of pines along the Wissahickon—set in the spring with the laurel flower; cedars at Lansdowne, magnolias along the railroad below Columbia Bridge, and the judas tree, the lilac, and the privet, relics of the old estates at Belmont; dogwood blossoms on the Wissahickon and in all the ravines; the tulip tree, the black walnut, and chestnut—notable specimens of these at Mt. Prospect and Ormiston; and these, and horse chestnuts, hickories, and elms all through the Park—

“So many that I cannot name them all,”

And stately among them all, the tulip tree—in form, foliage, and flower—the noblest of all the forest trees of America. A very complete list of the flowers and of many of the trees also, follows.

The cultivated flowers, a less conspicuous and attractive feature of the Park flora, are found at George's Hill, Fairmount, and “the Hills” near the Lincoln Monument.

LIST OF TREES IN THE PARK AND TIME OF BLOSSOMING.

BY ISAAC BURK, WITH ADDITIONS BY THOMAS MEEHAN.

- Abies alba*, *White Spruce*. May.
nigra, *Black or Double do.*
canadensis, *Hemlock do.*
balsamea, *Balsam Fir.*
- Acer saccharinum*, *Sugar Maple*. Apr.
dasycarpum, *Silver-leaved do.* Apr.
platanoides, *Norway do.* Apr.
pennsylvanicum, *Striped do.* May.
campestre, *English do.* Apr.
pseudo-platanus, *English Sycamore.*
 Apr.
rubrum, *Red Maple*. Mar.
- Æsculus hippocastanum*, *Common Horse Chestnut* (nat. India). May.
glabra, *Ohio do. do.* (nat. West and South).
rubicunda, *Ruddy do. do.*
pallida, *Pale-flowered do. do.*
flava, *Pale-flowered do. do.*
- Allanthus glandulosa*, *Tree of Heaven, Ailanthus* (nat. China). June.
- Aralia japonica*, *Japan Aralia.*
Asimina triloba, *Papaw.* May.
- Betula alba*, *White Birch*. Apr.
nigra, *Black do.* Apr.
lenta, *Cherry do.*
- Broussonetia papyrifera*, *Paper Mulberry* (nat. Japan). May.
- Buxus arborescens*, *Treebox.*
Carpinus Americana, *American Hornbeam.* Apr.
- Carya alba*, *Shellbark Hickory*. May.
sulcata, *Large-fruited do.*
tomentosa, *Mockernut do.* May.
amara, *Bitternut do.*
porcina, *Pignut do.* May.
microcarpa, *Small-fruited do.* May.
olivæformis, *Pecan-nut* (nat. South and West).
- Castanea vesca*, *Common Chestnut*. June.
- Catalpa cordifolia*, *Catalpa* (nat. South). June.
- Celtis occidentalis*, *Western Beaver Wood or American Nettle*. May.
- Cerasus pendula*, *Weeping d fl. Cherry.* May.
Virginiana, *Virginia Bird do.* May.
serotina, *Wild do.*
Pennsylvanica, *Wild Red do.*
avium, *Ox-heart, Duke do.*
- Cerasus vulgaris*, *Sour, Morello do.* (impt. from England).
Cercis Canadensis, *Judas Tree.* May.
Cydonia Japonica, *Japan Scarlet Quince.*
vulgaris, *Common do.* (nat. Europe). May.
- Diospyros Virginiana*, *Common Persimmon.* June.
Fagus sylvatica, *White Beech.* May.
ferruginea, *Red do.*
- Fraxinus Americana*, *White Ash.* May.
juglandifolia, *Walnut-leaved do.* May.
sambucifolia, *Elder-leaved do.* Apr.
excelsa, *European do.*
tomentosa, *Red do.*
- Gleditsia triacanthos*, *Three-spined Honey Locust* (nat. South and West). July.
inermis, *Thornless do.*
- Gordonia pubescens*, *Franklin Tree* (Ga. and Fla.).
- Gymnocladus Canadensis*, *Canadian Ky. Coffee.* May.
- Ilex opaca*, *Holly.* June.
myrtifolia.
- Juglans regia*, *English Walnut* (nat. Persia). May.
cinerea, *Butter-nut do.* May.
nigra, *Black do.* May.
- Juniperus virginiana*, *Red Cedar.* Apr.
Kœlreuteria paniculata (nat. China) July, Aug.
- Larix americana*, *Black Larch.* May.
europæa, *European do.*
- Liriodendron tulipifera*, *White Wood and Cannon Wood, Tulip Tree.* May, June.
- Maclura aurantiaca* (nat. Arkansas), *Osage Orange.* May.
- Magnolia cordata*, *Heart-shaped Leaf Magnolia.* June.
tripetala, *Umbrella Tree do.* June.
purpurea, *Purple-flowered do.* June.
purpurea gracilis, *Slen. Purple-flowered do.* June.
glauca, *Swamp Sassafras.* June.
conspicua, *do.*
- Morus alba*, *White Mulberry* (nat. Asia). May.
rubra, *Red do.* May.

- Negundo aceroides*, *Ash-leaved Box Elder*. Apr.
Nyssa villosa, *Hairy Sour Gum*. May.
Ostrya virginica, *Iron Wood*. Apr., May.
Paulownia imperialis, *Imperial Paulonia* (Japan). May.
Pinus inops, *Jersey or Scotch Pine*.
strobilus, *Scotch do.*
excelsa, *Himalayan do.*
palustris, *Scotch do.*
austriaca, *Austrian do.*
Platanus occidentalis, *Buttonwood*. Apr.
orientalis, *Oriental Plane*.
Populus tremuloides, *American Aspen*. Apr.
graudidentata, *Large-toothed do.*
nigra, *Black Poplar*.
dilatata, *Lombardy do.* (nat. Persia).
balsamifera, *Balsam do.*
alba, *Abele, Silver do.* (nat. Europe).
Prunus americana, *Red Plum*.
Pyrus aucuparia, *English Mountain Ash*.
americana, *American*. May.
malus, *Apple* (nat. Europe). May.
communis, *Pear* (nat. Europe). May.
coronarius, *Siberian Crab*.
Quercus nigra, *Black-Jack Oak*. May.¹
falcata, *Spanish do.*
alba, *White do.*
bicolor, *Two-colors, Swamp Wh. do*
 May.
rubra, *Red do.* May.
prinus, *Chestnut do.* May.
heterophylla, *Bartram's, Various-leaved do.* May.
montana, *Rock Chestnut do.* May.
coccinea, *Scarlet do.* May.
palustris, *Pin do.* May.
Quercus castanea, *Yellow do.* May.
sessiliflora, *British do.* May.
macrocarpa, *Overcup White do.* May.
Phellos, *Willow-leaved do.* May.
Cerris, *Turkey do.* May.
obtusiloba, *Post do.* May.
tinctoria, *Black do.* May.
Robinia pseudacacia, *Yellow Locust*. May.
viscosa, *Clammy do.*
hispidula, *Rose Acacia*.
Salisburia adiantifolia, *Gingko* (nat. Japan).
Salix fragilis, *Brittle Willow* (nat. England). Apr.
annularis, *Ring-leaved do.*
nigra, *Black do.* Apr.
vitellina, *Golden do.* (nat. Europe). Apr.
Russelliana, *Russell's do.* Apr.
laurifolia, *Laurel-leaved do.* Apr.
babylonica, *Weeping do.* (nat. East). May.
caprea, *Goat do.* Apr.
Sassafras officinale, *Sassafras*. Apr.
Taxodium distichum, *Bald Cypress*.
baccata, *Yew Tree*.
Thuja occidentalis, *American Arbor Vitæ*. May.
orientalis, *Arbor Vitæ* (nat. China and Japan). May.
Tilia Americana, *American Linden, Bass Wood*. July.
alba, *White do.* July.
Europaea, *European do.* June.
Ulmus Americana, *White Elm*. Apr.
fulva, *Slippery do.*
campestris, *English do.*

SHRUBS.

- Alnus glauca*, *Mealy-leaved Alder*.
serrulata, *Common do.* Mar.
Amelanchier canadensis, *Juneberry, Shad Bush*. May.
Amorphia fruticosa, *Bastard Indigo*. June.
Amygdalus persicus flore pleno, *Persian Almond*.
pumila, *Double-flowered do.*
Azalea viscosa, *Rosebay*. May.
nudiflora, *Wild Honeysuckle do.*

¹ It is one of the objects of the Park Commission to make the Park a centre for the distribution to other Public Parks of the United States of oaks of every variety capable of cultivation in our climate, and a fund (the Michaux Legacy) is set apart for the purpose of collecting, cultivating, and distributing these and other trees; two hundred and sixty-seven species and varieties of trees have been added to the Park under this fund.

- Benzoin odoriferum**, *Spice Bush*. Apr.
Berberis vulgaris, *Common Berberry*.
 May, June.
atropurpurea, *Dark-purple do.* May,
 June.
Buxus suffruticosa, *Dwarf Box*.
Calycanthus floridus, *Sweet Scented Shrub*
 (nat. South). May.
Ceanothus Americanus, *New Jersey Tea*.
 June.
Cephalanthus occidentalis, *Button Bush*.
 July, Aug.
Chionanthus virginica, *Fringe Tree*. May,
 June.
Clethra alnifolia, *Sweet Pepper Bush*. July,
 Aug.
Cornus florida, *White-flowering Dogwood*.²
 May.
mascula, *Cornelian Cherry*.
sericea, *Silky do.* June.
stricta, *do.*
sanguinea, *Red do.*
Corylus Americana, *Hazelnut*. Apr.
avellana, *Filbert* (nat. Asia Minor).
 Feb., Mar.
Crataegus oxyacantha, *English Hawthorn*.
 May.
spatulata. Scarce.
cordata, *Washington Thorn* (nat. Vir-
 ginia). June.
apiifolia, *Parsley-leaved do.* June.
coccinea, *Scarlet-berried do.* May.
tomentosa, *Black or Pear-leaved do.*
crusgalli, *Cock-spur do.*
parvifolia, *Dwarf do.*
Deutzia scabra, *Rough Deutzia* (nat.
 Japan). June, July.
gracilis, *Slender do.* May, June.
crenata, *Pink-flowered do.*
Euonymus americanus, *Burning Bush*.
 May, June.
atropurpureus, *Dark Purple do.* May,
 June.
Forsythia viridissima, *Green-leaved Golden*
Bell (nat. China). May.
Gay-Lussacia dumosa, *Dwarf Huckleberry*.
 June.
frondosa, *Seedy do.*
resinosa, *Black do.*
- Glycine** } *frutescens*, *Glycine*.
Wistaria }
Halesia tetraptera, *Four-winged Snowdrop*
Tree. June.
diptera, *Two-winged do.* June.
Hammamelis Virginica, *Witch Hazel*.³ Oct.,
 Nov.
Hydrangea arborescens, *Common Hydran-*
gia. July, Aug.
Ilex verticillata, *Black Alder*. May.
Jasminum nudiflora, *Winter-flowering Jas-*
sumine.
Juniperus communis, *Common Juniper*.
 May.
virginiana, *Red Cedar*.
Kalmia latifolia, *Broad-leaved Laurel*,
Spoon Tree. May.
Kerria japonica, *Japan Globe Flower*.
 May.
Laburnum vulgare, *Golden Chain* (nat.
 Europe).
Ligustrum vulgare, *Privet* (nat. Europe).
 May.
Lonicera tartarica, *Tartarian Honeysuckle*
 (nat. Russia). Apr.
alba, *White do.* Apr.
sempervirens, *Trumpet do.* Apr.
xylostemum, *English Fly do.* Apr.
rubra, *Red do.* Apr.
Philadelphus coronarius, *Common Mock*
Orange. May.
grandiflora, *Grand-flowering do.*
Ptelea trifoliata, *Shrubby Trefoil*. June.
Rhamnus Caroliniana, *Buckthorn*. June.
Rhododendron maximum, *Mountain Lau-*
rel. June.
Rhus glabrum, *Smooth Sumac*. June.
typhinum, *Staghorn*. June.
toxicodendron, *Poison Oak*, *Poison*
Joy. June.
radicans, *Poison Vine*. June.
cotinus, *Venetian Sumach*, *Mist Tree*.
 June.
Ribes aureum, *Golden-flowered Currant*.
 June.
rubrum, *Red-flowered do.* (nat. Europe).
 June.
nigrum, *Black-flowered do.* (nat.
 Europe). June.

¹ The leaves were dried and used like tea in the American Revolution, hence the name.—
 BARTON.

² Used for divining rods to find ores and water.

³ The distaff was made from the branches.

- Rosa parviflora*, *Small Wild Rose*. July.
rubiginosa, *Sweetbrier*. June.
Rubus fruticosus, *Blackberry*, *Bramble*.
 May.
Sambucus Canadensis, *Elder*. June.
Spiraea prunifolium, *Plum-leaved Spirea*.
 May.
Reevesii, *White-flowered do.* May.
opulifolia, *Nine Bark*. June.
salicifolia, *Common Meadow Sweet*.
 July.
Staphylea trifolia, *Three-leaved Bladdernut*.
 May.
Symphoricarpos racemosus, *Snowberry*.
vulgaris, *Common do.* July.
Syringa vulgaris, *Common Lilac* (Hungary). May.
- Syringa alba*, *White do.* May.
persica, *Persian do.* May.
Vaccinium stamineum, *Deerberry*, *Squat Huckleberry*. May.
pennsylvanicum, *Dwarf Blueberry*. May.
corymbosum, *Swamp Blueberry*. May.
Viburnum prunifolium, *Plum-leaved Black Haw*. May.
lantanoides, *Lantana-like do.*
oxycoccus, *Tree Cranberry do.* May.
roseum, *Snowball do.*
Weigelia rosea (*Diervilla japonica*), *Weigelia*. June.
Xanthoxylum americanum, *Prickly Ash*. May.

LIST OF FLOWERS IN THE PARK AND THEIR TIME OF BLOOM.

FROM THE COLLECTIONS OF GEORGE WORLEY, WILLIAM HOWARTH,
 E. PRICE, AND THE AUTHOR.

- Achillea millefolium*, *Milfoil Yarrow* (nat. Europe). May, June, and Aug.
Agrimonia eupatoria, *Agrimony*. June, July, and Aug.
parviflora, *Small-flowered*.
Aletris farinosa, *Star Grass*, *Colic Root*.
 July. Scarce.
Alisma plantago, *Water Plantain*. July, Aug.
Allium tricoccum. *Lance-leaved Garlic*.
 June.
canadense. *Canadian do.* June.
vineale, *Field do.* (nat. Europe). June.
Amarantus albus, *White Cock's Comb*.
 June, July.
hybridus, *Hybrid Amaranth*. June, July.
spinosis, *Spiny* (India). June, July.
hypocondriacus. *Prince's Feather*.
 June, July.
Ambrosia trifida, *Fall Ambrosia*. Aug., Sept.
artemisiæfolia, *Hogweed*. Aug., Sept.
Ampelopsis quinquefolia Virginia, *Five-leaved Virginia Creeper*. June.
- Anagallis arvensis*, *Scarlet Pimpernel*, *Poor Man's Weatherglass* (nat. Europe).
 June.
Anemone nemorosa, *Wood Anemone*. Mar., Apr., May.
thalictroides. Mar., Apr., May.
virginiana, *Wind Flower*. June.
Antennaria plantaginifolia, *Mouse Ear*, *Plantain-leaved do.* May, June.
margaritacea, *Pearl-flowered Everlasting*. Aug.
Anthemis arvensis, *Mayweed* (nat. Europe). June.
nobilis, *Camomile*.¹ July.
Anychia dichotoma, *Forked Chickweed*.
 July.
Aphyllon uniflorum, *One-flowered Cancer Root*. Apr., May.
Apios tuberosa, *Ground-nut*, *Wild Bean*.
 Aug., Sept.
Aplectrum hyemale, *Putty Root*, *Adam and Eve*. May.
Apocynum androsemfolium, *Dog's Bane*.
 July, Aug.
canabinum, *Indian Hemp*. July, Aug.

¹ Called the Whig plant during the American Revolution

- Aquilegia canadensis*, *Wild Columbine*, Apr., May, June.
- Arabis falcata*, *Sicklepod Wall Cress*.
lyrata. Apr., May.
thaliana. Mar., Apr., May.
canadensis, *Sicklepod*. Apr., May.
lavigata. Apr., May.
- Aralia nudicaulis*, *Wild Sarsaparilla*.
hispida, *Hispid Aralia*.
racemosa, *Spikenard*.
spinosa, *Angelica Tree*.
- Arisæma triphyllum*, *Indian Turnip*. May.
dracontium, *Green Dragon*.
- Aristolochia serpentaria*, *Small Snakeroot*.
 July.
- Asarum canadense*, *Wild Ginger*.
- Asclepias cornuti*, *Common Silk Wort*. Aug.
quadrifolia, *Four-leaved Milkweed*.
 Aug. to Oct.
tuberosum, *Butterflyweed*. July, Aug.
 Nearly disappeared.
incarnata, *Flesh-colored Milkweed*.
 July.
- Ascyrum crux andrea*, *St. Peter's Wort*.
 June, July.
- Aspidium acrostichoides* (*Polistichum*).
 May.
- Aster corymbosus*, *Corymbed Aster*. Aug.,
 Sept.
cordifolius, *Heart-leaved do.* Aug.,
 Sept.
patens, *Spreading do.* Aug., Sept.
punicens, *Red Stalked do.* Aug., Sept.
prenanthoides, *Prenanther-like do.*
 Aug., Sept.
miser, *Starved do.* Aug., Sept.
simplex, *Willow-leaved do.* Aug., Sept.
præaltus. Aug., Sept.
- Atriplex hastata*. June, July.
- Baptisia tinctoria*, *Wild Indigo*. July,
 Aug.
- Barbarea vulgaris*, *Winter Cress*. Apr.,
 May.
precox. *Early Mustard*.
- Bidens frondosa*, *Leafy Burr Marigold*.
 July, Sept.
bipinnata, *Spanish Needles*.
connata, *Swamp Beggar Ticks*.
chrysanthemoides, *Large Burr Mari-*
gold.
- Bignonia radicans*, *Trumpet Flower*. July,
 Aug.
- Boehmeria cylindrica*. *False Nettle*. July,
 Aug.
- Brunella vulgaris*, *Heal All* (nat. Europe).
 July, Aug.
- Callitriche verna*, *Water Star Wort*. Apr.
autumnalis, *Star Wort*.
- Calystegia sepium*, *Hedge Bindweed*. July,
 Aug.
- Campanula americana*, *American Bell-*
flower. June, July.
aparinoides, *Marsh do.* June.
- Cannabis sativa*, *Hemp*. July, Aug.
- Capsella*, *Bursa pastoris*, *Shepherd's*
Purse.
- Cardamina pratensis*, *Field Cardamine*,
Bitter Cress. May.
rhomboidea, *Bulbous-rooted Carda-*
mine. May.
pennsylvanica, *Lady Smock*.
hirsuta, *Small Bitter Cress*. May.
- Cassia marilandica*, *American Senna*.
 July.
chamæchrista, *Sensitive Pea*, *Dwarf*
Cassia. June, Aug.
nictitans, *Wild Sensitive Plant*. June,
 Aug.
- Caulophyllum thalictroides*. *Pappoose*
Root.
- Celastrus scandens*. *Staff Tree*, *Shrubby*
Bitter Sweet. May, June.
- Centaurea nigra*, *Knapweed*. Aug.
cyanus, *Blue Bottle*.
- Cerastium vulgatum*, *Mouse Ear*, *Chick-*
weed. Apr., July.
viscosum, *Sticky*, *Large Mouse Ear*.
 Apr., June.
nutans, *Nodding Chickweed*. May.
oblongifolium, *Long-leaved do.* May.
arvense, *Field do.* May.
- Chærophyllum procumbens*.
- Chelidonium majus*, *Large Celandine*.
 May to Sept.
- Chelone glabra*, *Snake Head Salt*, *Rheum-*
weed. July, Aug.
- Chenopodium album*, *Pigweed*. June,
 July.
rhombifolium. June, July.
ambrosioides, *Ambrosia*, *Goose-foot*.
 June, July.
anthelminticum. June, July.
glaucum, *Sea Green*. June, July.
urbicum, *Green Goose-foot*. August,
 Sept.
murale, *Wall do.* Aug., Sept.
hybridum, *Maple-leaved do.* Aug.,
 Sept.

- Chimaphila umbellata*, *Pipsissewa*. June, July.
maculata, *Spotted Wintergreen*. June, July.
Chrysosplenium americanum, *Water Carpet*. July, Aug.
Cichorium intybus, *Succory*, *White and Blue-flowered*. Aug., Sept.
Cicuta maculatum, *Water Hemlock*.
Cimicifuga racemosa, *Black Snakeroot*. June.
Circea lutetiana, *Enchanter's Night Shade*. July.
Cirsium arvense, *Canada Thistle*. Aug., Sept.
horridulum, *Yellow do.* Aug., Sept.
pumilium, *Pasture do.* Aug., Sept.
discolor, *Thistle*. July, Aug.
altissimum, *Full do.* July, Aug.
muticum, *Swamp do.* July, Aug.
Claytonia virginica, *Spring Beauty*. May.
Clematis virginiana, *Virgin's Bower*. July, Aug.
Cochlearia armoracea, *Horseradish*. June, July.
Collinsonia canadensis, *Richweed*, *Stone Wort*. July, Sept.
Commelina angustifolia, *Day Flower*.
Comptonia asplenifolia, *Sweet Fern*. Apr., May.
Conoclinium caelestinum, *Mist-flower*. Aug., Sept.
Convallaria majalis, *Lily of the Valley*. May, June.
Convolvulus arvensis, *Small Bindweed*. July, Aug.
panduratus, *Man of the Earth*. July, Aug.
purpureus, *Morning Glory*. June to Aug.
Corallorhiza multiflora, *Coral Root*. July, Aug.
innata. May, June.
odontorhiza. May, July.
Corydalis aurea, *Golden Corydalis*. Apr., May.
flavula. May.
Crotalaria sagittalis, *Rattle-pod*. July.
Cryptotaenia canadensis, *Hone Wort*.
Cunila mariana, *Dittany*. July, Aug.
Cuphea viscosissima. June, July.
Cuscuta Gronovii, *Dodder*, *Flaxvine*. July, Aug.
compacta, *do. do.* July, Aug.
Cynoglossum officinale, *Hounds' Tongue*. July.
Cynthia virginica. June, July.
Cyperus erythrorhizos, *Red-rooted Sedge*.
dyandrus.
ovularis.
phymatodus.
striposus.
filiculmis, *Slender Sedge*. Aug.
Cypripedium acaule, *Lady's Slipper*. July, Aug.
Daucus carota, *Wild Carrot* (nat. Europe). July.
Datura stramonium, *Thorn Apple*, *James-town-weed*. July, Aug.
tatula, *Purple-flowered*. July, Aug.
Delphinium Consolida, *Branching Larkspur* (*Blue and Purple*).
Dentaria laciniata, *Toothwort*. May.
diphylla, *Two-leaved Peppercort*.
Desmodium paniculatum. July.
nudiflorum, *Naked-flowered*.
acuminatum, *Acuminate*.
rotundifolium, *Round-leaved*.
cuspidatum, *Cuspidate-leaved*.
strictum.
sessiliflorum.
Dianthus armeria, *Wild Pink*. June.
Dicentra cucullaria, *Pale Dicentra*, *Dutchman's Breeches*. Apr., May.
Diervilla trifida, *Bush Honeysuckle*.
Dioscorea villosa, *Yam Root*. July, Aug.
Diplopappus hnaritifolius, *Double-bristled Aster*. Sept.
umbellatus, *Umbelled*.
cornifolius, *Cornus-leaved*. July to Sept.
Dipsacus sylvestris, *Wild Teazle*. June, July.
Draba verna, *Willow Grass*. Mar., Apr.
Echium vulgare, *Viper's Buglass*. July, Aug.
Elodes virginica, *Marsh St.-John's-wort*. June to Aug.
Epigæa repens, *Trailing Arbutus*, *May-flower*. Apr., May.
Epilobium coloratum, *Angle-stemmed Willow Herb*. June, July.
lineare, *Linear-leaved do.* June, July.
Epiphegus virginianus, *Beech Drops*. *Cancer Root*. Sept.
Equisetum arvense. *Field Horse Tail*.

- Erigeron bellidifolium**, *Robin's Plantain*. Aug., Sept.
philadelphicum, *Narrow-leaved Purple Fleabane*. Aug., Sept.
heterophyllum, *Common do.* Aug., Sept.
strigosum, *White Weed do.* August, Sept.
canadense, *Canadian or Common do.* July, Aug.
Erysimum cheiranthoides, *False Wall Flower*. Rare. May, June.
Erythronium americanum, *Dogtooth Violet*. June.
Eupatorium purpureum, *Purple Eupatorium*, *Trumpet Weed*. Aug., Sept.
ageratoides, *White Snakeroot*. Aug.
album *White-flowered Eupatorium*. Aug., Sept.
perfoliatum, *Thoroughwort*, *Boneset*. Aug., Sept.
Euphorbia maculata, *Spotted Spurge*. July, Aug.
hypericifolia, *Eye Bright*. July, Aug.
corollata, *Flowering Spurge*. July, Aug.
marginata. July, Sept.
lathyrus, *Mole Plant*. Aug.
Fedia fagopyrum, *Corn Salad*.
radiata, *Lamb's Lettuce*.
olitoria, *Pawnee Lettuce*.
Floerkea proserpinacoides, *False Mermaid*. Apr., June.
Fragaria virginica, *Wild Strawberry*. May, June.
indica, *Indian do.* May, June.
Fumaria officinalis, *Fumitory*. May, June, July. Scarce.
Galactia glabella. June.
mollis. June.
Galeopsis tetrahit, *Common Hemp Nettle*. Aug., Sept.
ladanum, *Red do. do.* June, July.
Galinsoga parviflora. Aug., Sept.
Galium trifidum, *Goose Grass*, *Dyer's Weed*. May, June.
asprellum, *Rough Cleavers*. May, June.
aparine, *Common do.* June.
triflorum, *Three-flowered do.* June.
pilosum, *Hairy Goose Grass*. Aug., Sept.
circassans, *Wild Liquorice*. Aug., Sept.
- Gaura biennis**, *Biennial Gaura*. July. Rare.
Gentiana. Aug., Sept.
saaponaria, *Gentiana*. Sept.
crinita, *Blue Fringed do.* Aug., Sept.
Andrewsii, *Blue do.* Sept.
Geranium maculatum, *Cranes-bill*, *Spotted Geranium*. May, June.
Robertianum, *Herb Robert*. June, July.
carolinianum, *Carolinia Geranium*. May.
Gerardia purpurea, *Large-flowered Purple Gerardia*. Aug., Sept.
pedicularia, *Bushy do.* Aug., Sept.
quercifolia, *Oak-leaved do.* Aug., Sept.
flava, *Yellow Foxglove*. Aug.
Geum virginianum, *White Avena* (*Herbe benite*). May, June.
Gillenia trifoliata. *Indian Physic*. June, July.
Gnaphalium polycephalum, *Life Everlasting*. July to Sept.
uliginosum, *Cud-weed*. July to Sept.
purpureum, *Purple do.* July to Sept.
Gonolobus macrophyllus. July, Aug.
Goodyera pubescens, *Rattlesnake Plantain*. July, Aug.
Gratiola virginiana, *Hedge Hyssop*. July, Aug.
aurea, *Golden*. Aug.
Habenaria tridentata, *Three-toothed Orchis*. Aug.
psychodes, *Fringed do.*
Hedeoma pulegioides, *Pennyroyal*. July, Aug.
Hedera helix, *English Ivy*.
Helenium autumnale, *False Sun-flower*. Sept.
Helianthemum canadense, *Frost Plant*, *Rock Rose*. May, June.
Helianthus annuus, *Sun-flower* (nat. Peru). Aug.
giganteus, *Wild do.* Aug.
strumosus, *Scrofulous do.* Aug.
devaricatus, *Devaricate do.* July.
decapetalus, *Ten Petalled*. Aug.
tuberosus, *Jerusalem Artichoke* (nat. Brazil).
Heliopsis laevis, *Ox-eye*. Aug., Sept.
Hepatica triloba, *Heart Liverwort*. Mar., Apr., May.
Heracleum lanatum, *Cow Parsnip*.

- Heuchera americana*, *Arum Root*. May, June.
Hibiscus trionum, *Bladder Ketmia*. Aug.
Hieracium venosum, *Veiny-leaved Hawkweed*. June, July.
 paniculatum, *Slender do.* June, July.
 scabrum, *Rough do.* Aug.
Gronovii, *Gronovius do.* Aug.
Houstonia cærulea, *Bluets*, *Innocence*, *Quaker Lady*. Apr.
Humnulus lupulus, *Common Hop*. Aug., Sept.
Hydrastis canadensis, *Turmeric Root*. May, June. Very rare.
Hydrocotyle americana, *Pennywort*. July, Aug.
 umbellata, *do.* July, Aug.
Hydrophyllum virginicum, *Water Leaf*. July, Aug.
Hyoscyamus niger, *Henbane*. July, Aug.
Hypericum perforatum, *Common St. John's-wort*. June, July.
 corymbosum, *Spotted do.* June, July.
 mutilum, *Small do.* May, June, July.
 canadense.
 sarothrae, *Orangegrass Pin-weed*.
Hypoxis erecta, *Stargrass*.
Ilysanthes gratioides, *False Pimpernel*. July, Aug.
Impatiens pallida, *Touch-me-not*. June, July.
 fulva, *Touch-me-not*, *Jewel-weed*, or *Lady's Eardrop*. June, July, Aug.
Inula helenium, *Elecampane*. Aug., Sept.
Iris versicolor, *Blue Flag*. July.
Krigia virginica, *Dwarf Dandelion*. June, July.
Lactuca elongata, *Wild Lettuce*. June, July.
Lamium amplexicaule, *Henbit*. Feb. to Oct.
 purpureum, *Purple Dead Nettle*. June to Sept.
Laportea canadensis, *Wood Nettle*. July to Sept.
Lappa major, *Burdock*. May to Sept.
Lathyrus palustris, *Marsh Vetch*. July.
Lechea major, *Larger Pinweed*. May, June.
 minor, *Small do.* May, June.
Lemma minor, *Lesser Duck Meat*.
Leonurus cardiaca, *Motherwort*. July, Aug.
Lepidium virginicum, *Wild Pepper Grass*. May, June.
 rudesale, *do. do.* May, June.
Lepidium campestre, *Field do. do.* May, June.
Lespedeza violacea, *Bush Clover*. July.
 repens, *Trailing do.* July.
 capitata, *Headed Bush do.* July.
Leucanthemum vulgare, *White Weed*, *Daisy* (nat. Europe). June.
Lilium philadelphicum, *Red Lily*. July.
 superbum. July.
Linaria vulgaris, *Toad Flax*, *Snapdragon* (nat. Europe). July, Aug.
 elatine, *Small Toad Flax*. July.
Linum virginium, *Wild Flax*. July.
Liparis liliifolia, *Twayblade*. July.
Lithospermum officinale, *Groundsel*. June, July.
Lobelia inflata, *Indian Tobacco*. May to Aug.
 syphilitica, *Blue Cardinal Flower*. June, July.
 spicata, *Slender Lobelia*. June, July.
 cardinalis, *Cardinal-flower*. Aug.
Lophanthus nepetoides, *Great Hyssop*. July.
Ludwigia alternifolia, *Seed-box*. July, Aug.
 palustris, *Water Purslane*. Aug.
Luzula campestris, *Wood Rush*. Aug.
Lychnis githago, *Corn Cockle*. May, June.
Lysinachia ciliata, *Fringed Loose Strife*. June.
 quadrifolia, *Four-leaved do.* June, July.
 nummularia. June, July.
 stricta.
Lythrum salicaria. July, Aug.
 hyssopifolia, *Loose Strife*. Aug.
Malva rotundifolia, *Low Mallow*. June.
 sylvestris, *High do.* Aug., Sept.
Marrubium vulgare, *Hoarhound*.
Maruta cotula, *Mayweed*. May, Oct.
Medeola virginica, *Indian Cucumber*. June, July.
Medicago lupulina, *Hop Medick*. Aug.
Melampyrum americanum, *Cow Wheat*. July.
Melilotus alba, *Sweet Scented Clover*, *White Melilot*. July, Aug.
 officinalis, *Yellow do.*
Melissa officinalis, *Balm*. July, Aug.
Menispermum canadensis, *Moon Seed*. June, July.
Mentha viridis, *Spearmint*. July, Aug.
 piperita, *Peppermint*. July, Aug.

- Mentha canadensis*, *Wildmint*.
Mertensia virginica, *Virginian Lungwort*.
 June, July.
Microstylis ophioglossoides, *Adder's*
Tongue. July.
Mikania scandens, *Climbing Boneset*.
 Aug., Sept.
Mimulus ringens, *Monkey Flower*. Aug.,
 Sept.
 alatus, *Winged do.* Aug., Sept.
Mitchella repens, *Partridge Berry*. May,
 June.
Mitella diphylla, *Mitre-wort*, *Bishop's Cap*.
 May, June.
Mollugo verticillata, *Carpet-weed*. Apr.,
 June.
Monarda fistulosa, *Horsemint*, *Wild Berga-*
mot. July, Aug.
 didyma, *Bergamol*. July, Aug.
Monotropa uniflora, *Indian Pipe*. June,
 July.
 hypopytis, *Pine Sap*, *False Beech Drops*
 June to Aug.
Mulgedium acuminatum, *False or Blue*
Lettuce. Aug.
 floridanum.
 leucopheum, *White-winged*. Aug.
Muscaria botryoides, *Grape Hyacinth*.
 May, June.
Myosotis palustris, *Marsh Scorpion Grass*.
 May, Sept.
Nabalus albus, *Lion's Foot*. July, Aug.
Narcissus (*Pseud-Narcissus*), *Daffodil*.
 May.
Nasturtium officinale, *English Water Cress*.
 Apr., May, June.
 palustre, *Marsh do.*
Nepeta cataria, *Catnip*, *Catmint* (nat.
 Europe). July, Aug.
 glechoma, *Ground Ivy*, *Ale Hoof* (nat.
 Europe). July, Aug.
Nuphar advena, *Yellow Pond Lily*.
Oholaria virginica, *Pennywort*. May,
 June.
Oenothera biennis, *Common Evening*
Primrose. June.
Onopordon acanthium, *Cotton Thistle*.
 Aug., Sept.
Onosmodium virginianum, *False Gromwell*.
 June.
Orchis spectabilis, *Showy Orchis*. June.
Ornithogalum umbellatum, *Star of Beth-*
lehem. May, June.
Orobanche uniflora (*Aphyllon uniflorum*),
Naked Broomrape. July.
 americana (*Conopholis americana*),
 American do. July.
Orontium aquaticum, *Gold Club*. June.
Origanum vulgare, *Wild Marjoram*. July,
 Aug.
Osmorhiza longistylis, *Sweet Cicely*.
Oxalis acetosella, *Common Wood Sorrel*.
 July.
 violacea, *Violet do.* June, July.
 stricta, *Yellow do.* May, July.
Panax trifolium, *Groundnut*, *Dwarf Gin-*
seng. May.
 quinquefolium, *do.* July.
Pedicularis canadensis, *Louiswort*. May
 to July.
Peltandra virginica, *Arrow Arum*. June,
 July.
Penthorum sedoides. *Virginia Stone Crop*.
 June to Sept.
Pentstemon pubescens, *Beard Tongue*.
 June.
Persicaria punctatum, *Hydropiper*, *Water*
Pepper. June, July.
 pennsylvanicum, *Pennsylvania Knot-*
 grass. June, July.
 persicaria, *Lady's Thumb*. June,
 July.
 orientale, *Prince's Feather*. June, July.
Phlox Drummondii, *Drummond's Phlox*.
 May to Sept.
 maculata, *Spotted do.* June to Aug.
Physalis viscosa, *Ground Cherry*, *Yellow*
Henbane. July, Aug.
Phytolacca decandra, *Pokeweed*. July to
 Sept.
Plantago cordata, *Heart-leaved Plantain*.
 June.
 major, *Common do.* June.
 lanceolata, *Lance-leaved Ribwort*.
 June.
 crassifolia, *Thick-leaved*. June.
Podophyllum peltatum, *May Apple*, *Wild*
Mandrake. May, June.
Polemonium reptans, *Greek Valerian*.
 June, July.
Polygala sanguinea, *Purple Polygala*.
 June.
 verticillata, *Whorl-leaved*, *Green-flow-*
 ered do. July to Oct.
Polygonatum multiflorum, *Many-flowered*,
Solomon's Seal, *Wild Asparagus*.

- Polygonum aviculare*, *Knot-grass*. June, July.
Pontederia cordata, *Pickeral-weed*.
Portulaca oleracea, *Purslane*. May to Oct.
Potamogeton natans, *Broad-leaved Pondweed*. July, Aug.
Potentilla norvegica, *Norwegian Cinquefoil*. June to Aug.
simplex. June to Aug.
Prunella vulgaris, *Selfheal*.
Pycnanthemum lanceolatum, *Narrow-leaved Wild Basil*. July, Aug.
littifolium. July, Aug.
clinopodiodes.
Pyrola rotundifolia, *Pound Leaf, Pyrola*. June, July.
Ranunculus flammula, *Small Spearwort*. May.
abortivus, *Round-leaved Crowfoot*. June to Aug.
sceleratus, *Celery do.* June to Aug.
recurvatus, *Wood do.* June to Aug.
acris, *Buttercups*. Apr., May, June.
bulbosus, *Bulbous do.* Apr., May, June.
aquatilis, *White Water do.* May, June.
fascicularis, *Early do.* May, June.
Rhexia virginica, *Meadow Beauty, Deer Grass*. June, July. Rare.
Rubus villosus, *High Blackberry*. June.
hispidus, *Bristly do.* June.
canadensis, *Deeberry*. June.
odoratus, *Rose-flowering Raspberry*. July.
occidentalis, *Black do.* June.
trivialis, *Low-bush Blackberry*. June.
Rudbeckia laciniata, *Cone Flower*. Aug., Sept.
Rumex acetosella, *Sheep Sorrel*. June, Aug.
crispus, *Yellow Dock*. July, Aug.
obtusifolius, *Broad-leaved do.* July, Aug.
acutus, *do.* July, Aug.
Sabbatia angularis, *Angular Stemmed Star Flower*. June, July.
Sagittaria sagittifolia, *Arrow Head*. July, Aug.
variabilis, *Various Leaved*. July, Aug.
pusilla, *Floating do.* July, Aug.
Salvia lyrata, *Lyre-leaved Sage*. June, July.
Sanguinaria canadensis, *Blood Root*. Apr., May.
- Sanicula marilandica*, *Sanicl?*. June, July.
Saponaria officinalis, *Common Soapwort*. May, June.
Saxifraga virginiana, *Early Saxifrage*. Apr., May.
pennsylvanica, *Tall do* May, June.
Scutellaria galericulata, *Common Skullcup*. June to Aug.
laterifolia, *Mad-dog do.* June to Aug.
Senecio vulgaris, *Common Groundsel*. May to Oct.
aureus, *Golden Senecio*. May, June.
Sicyos angulatus, *Single Seed Cucumber*. July, Aug.
Sida abutilon, *Indian Kallow*. July, Aug.
spinosa, *Thorny do.* July, Aug.
Silene stellata, *Starry Campion*. May to July.
Sinapis nigra, *Common Black Mustard*. June.
Sisymbrium officinale, *Hedge Mustard*. May, June.
Sisyrinchium anceps, *Iris-leaved Blue-eyed Grass*. July, Sept.
Smilacina trifolia, *Three-leaved Solomon's Seal*. June, July.
bifolia, *Two-leaved do. do.* June, July.
racemosa, *False Spikenard*. June, July.
multiflora, *Wild do.* June, July.
Smilax peduncularis. June, July.
rotundifolia, *Greenbrier*. June, July.
sarsaparilla, *Medicinal Sarsaparilla*. June, July.
Solanum dulcamara, *Bitter Sweet, Woody Night Shade*. July, Aug.
carolinense, *House Nettle*. July, Aug.
tuberosum, *Common Potato*. July, Aug.
Solidago lanceolata, *Grass-leaved Golden Rod*. Sept. to Oct.
caesia, *Blue Stemmed do. do.* Sept. to Oct.
latifolia, *Broad-leaved do. do.* Sept. to Oct.
bicolor, *Two-colored do. do.* Sept. to Oct.
speciosa, *Showy do. do.* Sept. to Oct.
canadensis, *Canadian do. do.* Sept. to Oct.
gigantea, *Gigantic do. do.* Sept. to Oct.

- Solidago odora*, *Sweet-scented do. do.* Sept. to Oct.
altissima, *Tall do. do.* Sept. to Oct.
Sonchus oleraceus, *Common Sow Thistle.* May to July.
Sparganium ramosum, *Burr Reed.* July.
Specularia perfoliata, *Clasping Bell-flower.* July, Aug.
Spergula rubra (*Arenaria rubra*), *Red Corn, Spurrey.* May.
Spiranthes gracilis, *Ladies' Tresses.* Aug., Sept.
Stachys aspera, *Hedge Nettle, Woundwort.* July, Aug.
Stellaria media, *Chickweed.* Mar. to Dec.
longifolia, *Stitchwort.* May to July.
pubera, *Great Chickweed.* May to July.
Stylosanthes elatior, *Pencil Flower.* July.
Symplocarpus foetidus, *Skunk Cabbage.* May.
Tanacetum vulgare, *Tansy.* July to Sept.
Taraxacum Dens-leonis (*Leontodon Taraxacum*), *Dandelion.* May to July.
Tephrosia virginiana, *Goat's Rue.* June. Scarce.
Thalictrum dioicum, *Early Meadow Rue.* Apr., May.
cornuti, do. do. May, June.
Thaspium cordatum.
atropurpureum, *Trifolium of Linæus.*
Tradescantia virginica, *Spiderwort.* June, Aug.
rosea, do. June, Aug.
Trichostema dichotoma, *Blue Curls, Bastard Pennyroyal.*
Trifolium arvense, *Hare's-foot, Trefoil.*
repens, *Creeping or White Clover.* May, July.
pratense, *Common Red do.* May, July.
campestre, *Slender Wood do.* May, July.
Trillium pendulum, *Drooping Trillium, Birth Root.*
Tricostem perfoliatum, *Feverwort, Dr. Tinker's Weed.*
Turritis glabra, *Smooth Tower Mustard.* Apr., May.
Typha latifolia, *Cat-tail.* July, Aug.
Urtica canadensis, *Common Nettle.* July, Aug.
pumila, *Stingless do.* July, Aug.
procera, *Tail do.* July, Aug.
Utricularia vulgaris, *Common Bladderwort.* July.
Uvularia perfoliata, *Perfoliate Bellwort.* June, July.
sessilifolia, *Sessile-leaved do.* June, July.
Vallisneria spiralis, *Tapegrass.*
Veratrum viride, *White Hellebore.* June.
Verbascum thapsus, *Common Mullein.* July, Aug.
blattaria, *Moth do.* July, Aug.
Verbena urticæfolia, *Nettle-leaved Vervain.* July, Aug.
hastata, *Vervain, Simplers Joy.* July, Aug.
Vernonia fasciculata, *Ironweed.* Aug., Sept.
noveboracensis, do. Aug., Sept.
Veronica virginica, *Leptandria Virginica, Culver's Physic.* June, July.
americana, *Veronica, Beccabunga, Brooklime.* June, July.
officinalis, *Official Speedwell.* June, July.
serpyllifolia, *Thyme-leaved do.* May, Sept.
peregrina, *Purslane do.* May, Sept.
arvensis, *Corn do.* May, Sept.
agrestis, *Field do.* May, Sept.
hederæfolia, *Ivy-leaved do.* May, Sept.
Vicia americana, *American Vetch.* May, June.
Vinca minor, *Lesser Periwinkle.* Apr., May.
Viola pedata, *Crowfoot Violet.* Apr., May.
blanda, *Sweet-scented do.* Apr., May.
lanceolata, *Lance-leaved do.* Apr., May.
hastata, *Halberd-leaved do.* Apr., May.
sagittata, *Arrow-leaved do.* Apr., May.
pubescens, *Common Yellow do.* May, June.
trifoliata lutea, *Three-leaved do.*
striata, *Striped do.* June.
primulæfolia, *Primrose-leaved do.* June.
muhlenbergia, *Muhlenberg's do.* May, June.
cucullata, *Hood-leaved do.* Apr., May, June.
palmata, do. Apr., May.
Vitis cordifolia, *Chicken Grape.* June.
Xanthium strumarium, *Clotweed.* July, Aug.
spinosa, do. July, Aug.
Zizia aurea, *Thaspium, Golden Alexanders.*



THE PARK GEOLOGY.

The Park affords a separate pleasure for the student of geology and mineralogy. The old quarries, the tunnel, the railroad cuttings, the outcropping rocks along the river, and the soil, reveal the underground basis of its bridges and buildings, the sources of its springs, and monads of its annual outgrowth of leaves and flowers; for the curious in these matters, the following chapter is written, and complete list of minerals given by Theodore D. Rand.

The western limit of the Park geology is found in a ridge of sandstone, which begins at Trenton, and extends in a southwest direction in a well defined line beyond Philadelphia. This line forms a boundary between the ancient gneiss and mica schists on the southeast, and the more recent limestones and sandstones on the northwest of this line; the former define

and have determined the course of the Delaware. In the Park these rocks are much contorted, especially the mica schists, which along the Wissahickon occasionally exhibit curious profiles and grotesque forms. Igneous rocks have been found in the Park limits; hornblendic rock was exposed where a cutting for the connecting railroad was made, and a bed of serpentine and steatite, the result of decomposition probably of chrysolite and hornblende, passes through the Park at Chestnut Hill.

Fairmount and the heights on the west side of the river are formed by a hard feldspathic gneiss rock, with veins or nests of coarse granite, and mica schists—the latter soft and decomposing. The gneiss of the west side of the river has furnished for the city a large supply of building and paving stone. In these quarries, the rare minerals autunite—a phosphate of uranium and lime, and chalcocite—a phosphate of uranium and copper, were found; the chalcocite was found almost exclusively in the quarry between the Zoölogical Garden and the Fairmount Bridge, and in this quarry was found also orthoclase or potash feldspar, albite or soda feldspar, tourmaline, garnet, kaolin, beryl, sometimes decomposed, and bismuthinite—sulphide of bismuth.

The limit of the gneiss in this locality is abrupt, forming a narrow valley on each side of the river; on the further side of the valley, mica schists, with only traces of the gneiss, occur. Old Vineyard (Lemon) Hill, the first elevation beyond Fairmount, was formed apparently by an intrusion of syenite, visible at the point beyond the boat houses near Turtle rock. The rocks here dip steeply to the north and are well exposed; good crystals of chabazite were found near the syenite, and in the same locality, bucholzite and staurolite. The promontory, two hundred yards below the Girard Avenue Bridge, was a formation of mica schist which presented, in place of the usual irregular rounded outline of that rock, a plane surface nearly at right angles to the strike; the upper part

overhanging the lower. This rock has been in part removed to widen the carriage way. North of this locality, along the Park border, there is a deposit of drift gravel of considerable thickness, the bottom layer frequently coated with a cobaltiferous wad, sometimes cementing it into a friable conglomerate.

The narrow valley beyond Girard Avenue was doubtless wrought out by the small stream which finds its way through it to the river; the bluff over the tunnel is composed of mica schist. Bucholzite, and aragonite in crystalline coatings on the mica schist were here found. Opposite this, in a cutting of the Junction railroad, were found good specimens of the curious intercrystallized black and white mica; the white, muscovite, the black, probably, biotite. These crystals are not separable, but cleave across as if a single mineral.

The mica schists continue to Rockland, the bold bluff of which is hard hornblendic gneiss. In it were found very fine crystals of laumontite, and small quantities of crystallized quartz, heulandite, natrolite(?), chlorite, and cryst. orthoclase; just above, in granite, muscovite containing very small perfect rhombic crystals of a black color, probably biotite; a little further north staurolite, bucholzite, and titanite iron, in mica schist.

At Edgley, a similar bed of hornblendic gneiss strikes the river. In it chlorite and calcite were found, while halotrichite or iron alum, formed doubtless by the action of decomposing iron pyrites on feldspar, effloresces from the rocks in many places.

The high ground of this, and the sections of the Park beyond, is doubtless due to the hardness and durability of these hornblendic rocks, and of an almost equally hard feldspathic gneiss above, which have resisted decomposition, and hence are now above the general level. The north limit of Laurel Hill is formed by a narrow bed of porphyritic gneiss; specimens of which may be seen in the railroad bridge at this point, for

which it afforded the material. This rock contains twin crystals of orthoclase; it is very hard and durable, and has resisted the wear of the river. It formed a barrier, causing the fall of water, before the building of Fairmount Dam, which gave name to the locality, and may be seen crossing the river diagonally, a considerable portion above water.

Beyond the railroad bridge, on the east bank there is an old quarry of close-grained light-colored gneiss, which has largely furnished building stone for the city. Here, orthoclase crystals and black tourmaline are found. On the west bank, above the Falls (Park) Bridge, on the river's edge, is another quarry, notable for the very great variety of its rocks—gneiss and mica schist of various colors and texture. The rocks are much contorted and bear evidence of great compression; a ribbon-like feldspathic stratum in the dark gneiss being bent and compressed until it occupies a space less than half its length. In this quarry, evidence of decomposition of the rocks is plainly visible. In the upper part, decomposing iron pyrites have, at the northwestern end, rendered the whole rock friable, coloring it red, while the seams are lined with a subsulphate of iron or iron sinter. In this quarry have also been found epidote, garnet, stilbite, heulandite, chabazite, laumontite, and krokidolite, the last a rare mineral.

The Wissahickon, for a distance of above five miles, passes through a tortuous channel wrought by the stream through a table-land of hard rocks; leaving the banks, which rise two or three hundred feet, steep and precipitous. These rocks are chiefly mica schist, often full of iron garnets, but barren of interesting minerals; titanite iron, bucholzite, staurolite, apatite, and hyalite, in poor specimens only, occurring.

On Rittenhouse Lane near the Wissahickon is a bed of very hard close-grained, evenly bedded gneiss, of which there are extensive quarries near the stream, affording excellent building stone. In this, hornblende, cal-

cite, sphene, heulandite, stilbite, laumontite, apatite, copper pyrites, erubescite or bornite, chrysocolla, and malachite have been found, with two other zeolites not determined, but probably natrolite and comptonite. Molybdenite and magnetite occur in the same rock further northeast.

At Chestnut Hill, a bed of steatitic or serpentine rocks crosses the Park. This remarkable bed makes its appearance on the west side of the hill, perhaps a mile north of the Wissahickon, and runs in a straight line about six miles to Mill Creek, appearing last just west of the latter stream. In the Park it has not been quarried to any extent; the minerals included in the following list have been found where it crosses the Schuylkill, and has been largely wrought for over a century. The main portion of the bed in a utilitarian sense, and, at the Schuylkill, actually, is steatite, or soapstone, an impure talc; which, from its softness and infusibility, makes a valuable lining for furnaces. In this, are beds or pockets of chlorite and dolomite; the former in large quantity, massive, sometimes foliated, the latter, massive and sometimes beautifully crystallized in the form of pearlspar, at other times in six-sided prisms. In less quantity have been found apatite, barite (sulphate of baryta), foliated and crystallized talc, iron pyrites, copper pyrites, sulphate of copper, erubescite or bornite, garnet, zoisite, epsom salts, actinolite, tremolite, staurolite, magnetite, magnetic pyrites, asbestos, vermiculite, and breunnerite. Along the whole course of this belt there are seen on the surface of the ground masses of rock, from those of small size to some weighing hundreds of tons, generally very irregular and rough, with, as it were, knots projecting. Crystals have been discovered in this rock which seem to prove that it was once a mica schist filled with large crystals of the mineral staurolite, which by a chemical change have been altered into steatite and serpentine.

In and around the city, one hundred and thirty-eight species of minerals, or nearly one-sixth of all that are known, have been found. Of

these, thirty-one only have been actually collected in the Park, the remainder, in the list given, fifty-four in number, are found in its immediate vicinity, in rocks which pass through it.

LIST OF MINERALS IN THE PARK.

BY THEODORE D. RAND.

Those marked [¹] have been actually collected in the Park, the others in the vicinity in rocks which occur in the Park.

- ¹ACTINOLITE. A variety of hornblende, or amphibole, generally in dark-green translucent prisms, often radiated.
- ¹ALBITE. See Feldspar.
- ¹ALUNOGEN. Hydrus sulphate of alumina.
- ¹APATITE. Phosphate of lime.
- ¹ARAGONITE. Carbonate of lime, in orthorhombic crystals.
- ASBESTOS. A variety of hornblende, finely fibrous, often resembling wood, and sometimes fine flax; white in color; some varieties can be made into paper, or spun and woven into fabrics, which are incombustible.
- ¹AUTUNITE OR LIME URANITE. A hydrus phosphate of uranium and lime, in yellowish-green, flat, square crystals; remarkable for its fluorescent property, that of making visible the, otherwise invisible, ultra-violet rays of the spectrum.
- BARITE. Sulphate of baryta.
- ¹BERYL. Silicate of alumina and glucina; when bright emerald-green in color, and transparent, it is the gem, emerald.
- ¹BISMUTHINITE. Sulphide of bismuth.
- BORNITE. Sulphide of copper and iron.
- BREUNNERITE. Carbonate of magnesia and iron.
- ¹BUCHOLZITE. A variety of fibrolite, a silicate of alumina; color white, finely fibrous.
- ¹CALCITE. Carbonate of lime in rhombohedral crystals, or crystals of which that is the primitive form. This includes the ordinary kinds of carbonate of lime, marble, limestone, etc.
- ¹CHABAZITE. A zeolite in rhombohedral crystals, white, red, or yellow. A silicate of alumina and lime, with a little potassa and soda.
- ¹CHALCOLITE. Copper uranite. Phosphate of uranium and copper, resembles lime uranite, except in color, which is usually bright emerald-green.
- CHALCOPYRITE. Copper pyrites; sulphide of iron and copper.
- ¹CHLORITE. A green micaceous mineral, a hydrus silicate of iron and magnesia.
- CHRYSOCOLLA. Silicate of copper, hydrus, of bright green color, vitreous lustre.
- CHRYSOTILE. A finely fibrous serpentine, probably asbestos altered into serpentine.
- COMPTONITE. A zeolite, white in color, with a vitreous or pearly lustre; a hydrus silicate of alumina, lime, and soda.
- COPPER PYRITES. Sulphide of iron and copper; the most common copper ore.
- DOLOMITE. Carbonate of lime and magnesia, generally, when crystallized, in rhombohedra with curved faces (pearl spar).
- EPIDOTE. A silicate of alumina, lime, and iron; generally of a yellowish-green color.
- EPSOMITE OR EPSOM SALTS. Sulphate of magnesia.
- ERUBESCITE OR BORNITE. Sulphide of copper and iron.

FELDSPAR. Silicate of alumina and an alkali, or an alkaline earth.

¹**Orthoclase.** A feldspar in which the alkali is chiefly potash. Orthoclase has two easy cleavages at right angles to each other, and is monoclinic in crystallization.

Oligoclase. The alkali is chiefly soda, the two cleavages are at an angle of $93^{\circ} 50'$. Generally, the surface of best cleavage is covered with striae, as if an engraver had ruled it; its crystallization is triclinic.

¹**Albite** closely resembles oligoclase, except that usually it is whiter in color. In many cases the two can be distinguished by a quantitative analysis only, albite containing more silica than oligoclase.

GARNET. Silicate of alumina and iron, crystallized almost invariably in dodecahedra, rhombic, or pentagonal.

GNEISS. A rock composed of feldspar, quartz, and mica or hornblende.

GRANITE. An unstratified, more or less crystalline, rock, composed of feldspar, quartz, and mica; when the mica is replaced by hornblende, it is properly called syenite, though the term granite is frequently applied to both.

HALOTRICHITE OR IRON ALUM. A sulphate of alumina and protoxide of iron.

HEULANDITE. A zeolite in crystals with a pearly lustre, and easy cleavage; a hydrous silicate of alumina and lime.

HORNBLENDE OR AMPHIBOLE. A silicate of alumina, iron, magnesia, and lime, of varying composition, and remarkably various appearance, in its varieties. Hornblende proper is black, hard, and very tough, and is an abundant constituent of many rocks. The variety, tremolite, is white or colorless, translucent or transparent. Actinolite is green, generally in long bladed crystals. Asbestos, fine fibrous white.

HYALITE. Hydrated silica; same composition as the precious opal.

KAOLIN. Hydrous silicate of alumina, derived from the decomposition of feldspar. Largely used in manufacture of fine china and artificial teeth.

KROKIDOLITE. Silicate of iron and soda, in fine fibrous masses of blue color.

LAUMONTITE. A zeolite in slender white crystals, generally falling to pieces in dry air, from loss of water; a hydrous silicate of alumina and lime.

MAGNETITE. Magnetic oxide of iron. The ordinary magnetic iron ore.

MAGNETIC PYRITES. Sulphide of iron, attractable by the magnet.

MALACHITE. Green carbonate of copper.

MICA. A mineral characterized by a very eminent basal cleavage, enabling it to be split into layers exceedingly thin. The laminae are elastic.

¹**Muscovite.** Common mica, generally of pale colors, or colorless and transparent; much used for doors of stoves, etc. This is a potash mica, chiefly a silicate of alumina and potassa.

¹**Biotite.** Magnesia mica, generally of dark color and transparent only when in very thin layers; a silicate of alumina, magnesia, and iron.

MICA SCHIST. A rock composed of mica and feldspar, often almost wholly of the former.

MOLYBDENITE. Sulphide of molybdenum; generally in thin plates of bright silver color and metallic lustre.

MUSCOVITE. See Mica.

NATROLITE. A zeolite generally in fibrous masses, sometimes crystallized; a hydrous silicate of alumina and soda.

OLIGOCLASE. See Feldspar.

ORTHOCLASE. See Feldspar.

PEARL SPAR. Dolomite in rhombohedra, with curved surfaces.

PORPHYRITIC GNEISS. A gneiss containing crystals of feldspar disseminated through it.

- 'PYRITES, IRON. Bisulphide of iron. It crystallizes in cubes and octahedra, and is of gold yellow color, hence often mistaken for gold, and sometimes called "fool's gold." It is readily distinguished from gold by its great hardness, its being brittle, and losing its color by heat, giving off sulphurous fumes.
- 'PYRITES, COPPER. A sulphide of copper and iron. It is the most common copper ore. It is of a deeper color than the former and much softer.
- 'QUARTZ. Silicic acid. The most abundant mineral of the globe, found in every formation. It is readily recognized by its great hardness, the absence of cleavage, its infusibility, and insolubility in acids. When pure, it is colorless, forming rock crystal, otherwise called Cape May diamond, Brazilian pebble, etc. Among the colored varieties are found prase, chrysoprase, carnelian, agate, jasper, amethyst, etc.
- 'SERPENTINE. A hydrous silicate of magnesia and iron, generally green in color, but sometimes black, yellow, or red, sometimes transparent, but generally opaque; it forms extensive rock masses, and is believed to have resulted from the pseudomorphism of other rocks of the chrysolite and hornblende groups.
- SPHENE. Silicate of titanium and lime.
- 'STAUBOLITE. A silicate of alumina, in dark-brown crystals, often twinned in cross-shaped crystals, whence the name.
- 'STEATITE. Impure talc, forming rock masses; unalterable by heat, hence largely used for lining furnaces.
- 'STILBITE. A zeolite generally in radiated masses, sometimes crystallized, generally white or yellowish. A hydrous silicate of alumina and lime.
- SULPHATE OF COPPER. Blue vitriol—formed by oxidation of copper pyrites.
- 'SYENITE. See Granite.
- 'TALC. Silicate of magnesia; usually pale apple-green, very soft, having a soapy feel.
- 'TITANIC IRON. Oxide of iron and titanic acid in varying proportions.
- 'TOURMALINE. Of various colors, but generally black and opaque, essentially a borosilicate of alumina.
- TREMOLITE. A white or colorless variety of hornblende.
- VERMICULITE. A hydrous silicate of alumina, iron, and magnesia, with the property of swelling up remarkably when heated.
- 'WAD. Hydrous sesquioxide and binoxide of manganese, in a pulverulent or earthy form.
- 'ZEOLITE. Hydrous silicates of alumina and an alkali, or alkaline earth, generally intumescing when heated, whence the name. The most common zeolites are stilbite, heulandite, chabazite, laumontite, analcime, etc.
- ZOISITE. Lime epidote. Silicate of alumina and lime.

LIST OF OFFICERS OF THE SCHUYLKILL NAVY.

Commodore: JAMES M. FERGUSON, Quaker City Barge Club.

Vice-Commodore: JOHN HOCKLEY, JR., Undine Barge Club.

Secretary: JONATHAN GILLINGHAM, Undine Barge Club.

Treasurer: CALHOUN MEGARGEE, College Boat Club.

UNIVERSITY BARGE CLUB.

Organized April 25th, 1854. Incorporated March 7th, 1870, and was one of the founders of the Schuylkill Navy.

OFFICERS.

HENRY B. COXE, *President.*

CHARLES HAZLEHURST, *Secretary.*

EDWARD S. MILES, *Cozwain.*

Executive Committee—Edward S. Miles, Inman Horner, R. Loper Baird.

Members—Active 84, Honorary 61.

JAMES D. WINSOR, *Vice-President.*

CRAIG HEBERTON, *Treasurer.*

HARRY J. WORRELL, *Ass't Cozwain.*

Uniform: red flannel shirt bound with black braid, jet buttons, and falling collar with black stars in the corner; black pants in winter, white in summer; black silk necktie; black cap in winter, and straw in summer, "University" gilt on ribbon, owner's initials on the crown.

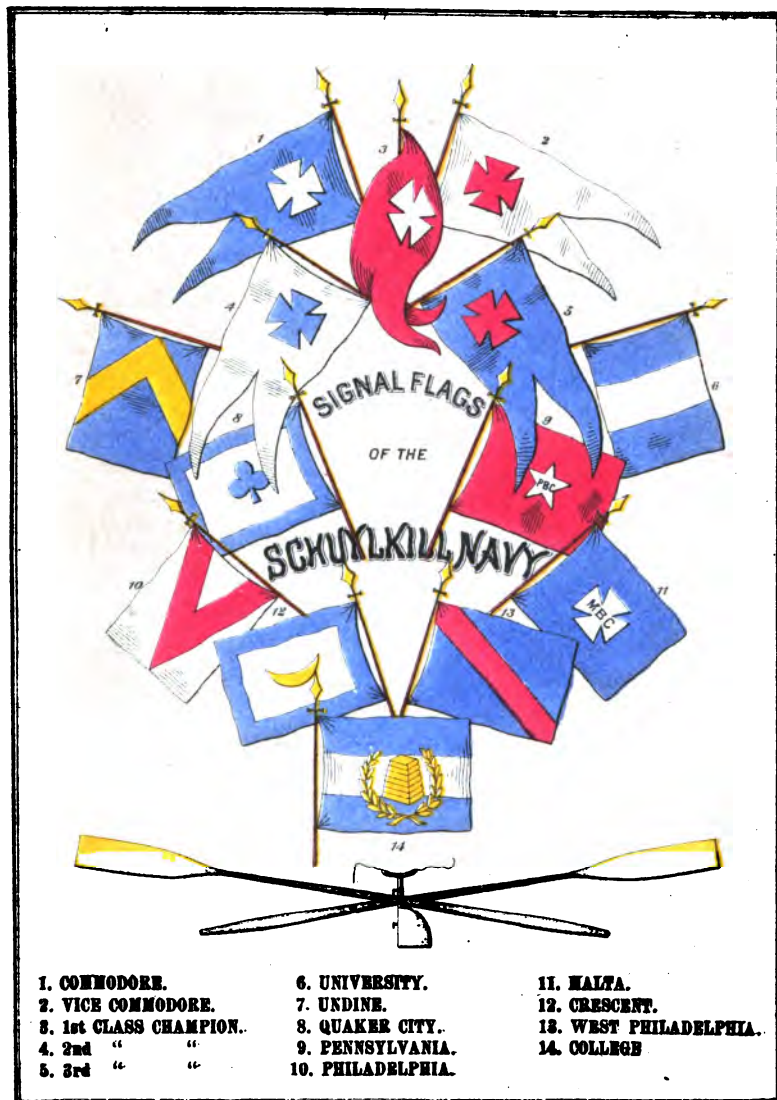
BOATS.

NAME.	Length.	Beam.	Oars.	Class.	Built by
University . . .	41½ feet.	18 inches.	4.	1st.	Chas. B. Elliott.
Hesperus . . .	35½ "	28 "	4 and Cox.	1st.	Stephen Roberts.
Æolus . . .	35 "	16 "	Pr. Oared.	1st.	Chas. B. Elliott.
Leda . . .	34 "	14 "	Double Scull.	1st.	Wm. O. Metcalf.
Hebe . . .	22 "	18 "	Single Scull.	1st.	E. K. Byron & Bro.
Hero . . .	30½ "	11 "	" "	1st.	Wm. O. Metcalf.
Ægle . . .	30½ "	11½ "	" "	1st.	Thomas Fearon.
— . . .	30 "	11½ "	" "	1st.	M. H. Byron.
Lucifer . . .	44½ "	44 "	Oars 6.	2d.	G. W. James.
Aurora . . .	27½ "	37 "	Double Scull.	2d.	Thomas Fearon.
Ariel . . .	26 "	22 "	" "	2d.	E. K. Byron & Bro.
Solitaire . . .	14 "	27 "	Canoe.	—	R. Simmons & Sons, [Putney, Eng.]

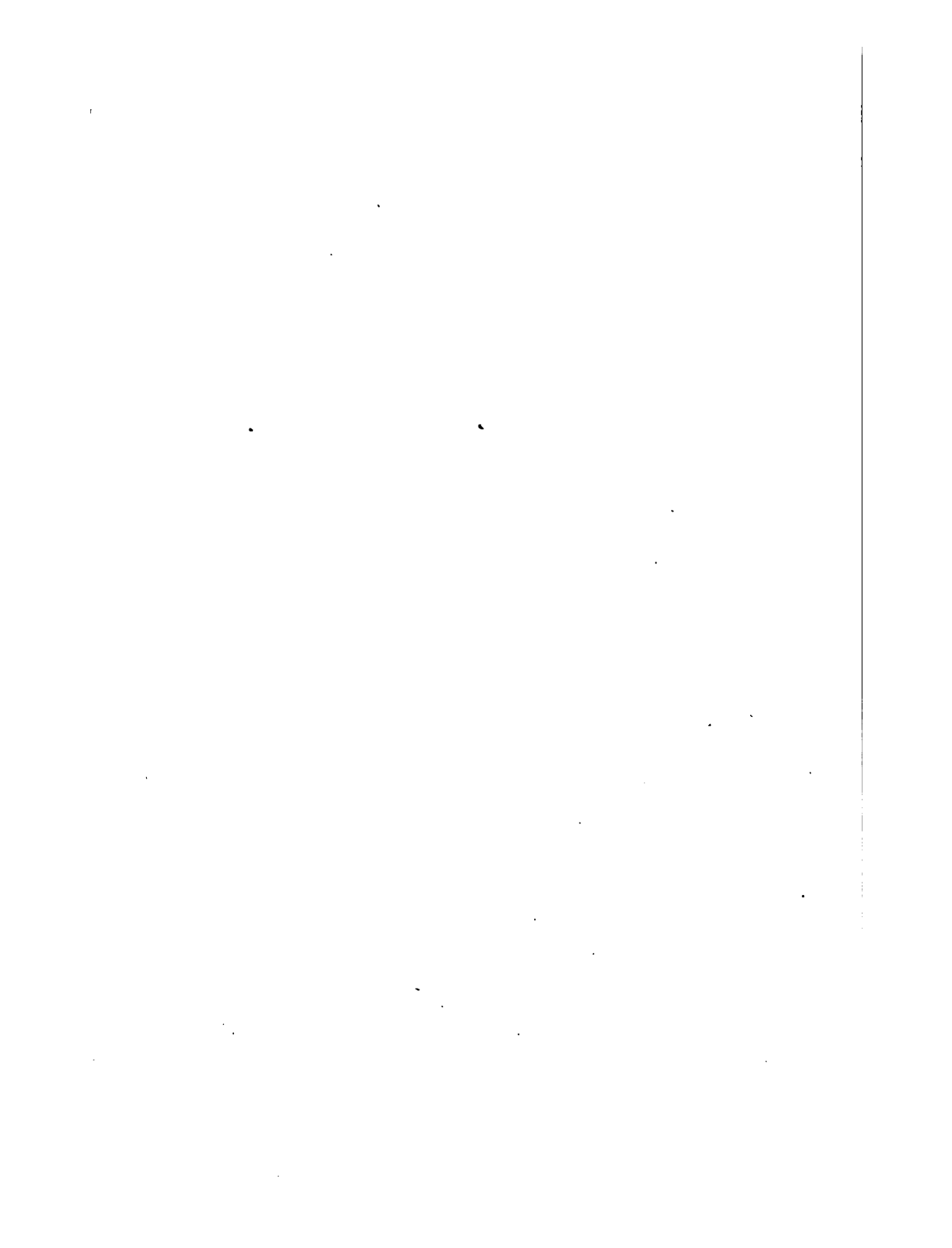
Cost of Boats and Oars, \$2520.

The Boat House is built of Serpentine pointed with Sandstone, 21 by 58 feet, with Mansard roof, bay window and balconies, finished inside with Cypress wood. Cost, \$5500. Furniture and fixtures, \$1150.

Total amount invested, \$9170.



The "Hunter, with Phil"



UNDINE BARGE CLUB.

Organized May 9th, 1856. Incorporated June 12th, 1871, and was one of the founders of the Schuylkill Navy.

OFFICERS.

THOMAS HART, JR., *President.* JOHN HOCKLEY, JR., *Vice-President.*
 HORACE S. WOODBURY, *Secretary and Treasurer.*
 WM. R. TUCKER, *Cozwain.* JONATHAN GILLINGHAM, *Vice-Cozwain.*
Boat House Committee—Wm. E. Tucker, Jonathan Gillingham, I. Norris De Haven.
Members—Active 39, Contributing 47, Honorary 16.

Uniform: blue flannel shirt with white trimmings, blue pants, straw hat, or blue flannel cap, black ribbon, with "Undine" in gilt, and blue pea jacket.

BOATS.

NAME.	Length.	Beam.	Oars.	Class.	Built by
Albion	57 feet.	24 inches.	8.	1st.	Mat. Taylor, Eng.
L'Hirondelle	42 "	19 "	4.	1st.	Thomas Fearon.
Atalanta	41 "	17 "	4.	1st.	W. O. Metcalf.
Whisper	42 "	20 "	4.	1st.	Geo. Roahr.
Scull	43 "	22 "	4 and Cox.	1st.	" "
Wink	33 "	14 1/2 "	Pair Oar.	1st.	" "
Yguerne	32 "	15 "	" "	1st.	E. K. Byron & Bro.
Spray	28 "	12 "	Single Scull.	1st.	" "
Ibis	26 "	11 "	" "	1st.	Thomas Fearon.
Pet	17 "	13 "	" "	1st.	Amateur.
Kelpie	17 "	14 "	" "	1st.	" "
Nymph	38 "	34 "	4 Oars.	2d.	E. K. Byron & Bro.
Fawn	28 "	34 "	Double Scull.	2d.	W. O. Metcalf.
Mist	18 "	... "	Single Scull.	2d.	Geo. Boahr.
Undine	43 "	42 "	6 Oars.	3d.	" "

Cost of Boats and Uniforms, \$4750.

The Club occupies under lease a portion of the Philadelphia Skating Club House, which is built of Graystone and is valued at \$12,000.

The Club owns a fine frame Club House at the Falls of Schuylkill, valued at \$2000.

Total amount invested by Club, \$6750.

FAIRMOUNT PARK.

QUAKER CITY BARGE CLUB.

Organized October 20th, 1858. Incorporated March 22d, 1867.
Admitted October 20th, 1868.

OFFICERS.

WILLIAM ARBOTT, *President.* F. J. MACBEATH, *Vice-President.*
H. D. GUMMERE, *Treasurer.* C. L. WISE, *Secretary.*
GEO. W. PARKER, *Cozwain.* JAS. WATSON, JR., *Ass't Cozwain.*
Members—Active 35, Honorary 21.

Uniform: blue shirt, with white trimmings, and trefoil corners; cap blue, with name in front; jacket blue, with navy buttons; pants blue.

BOATS

NAME.	Length.	Beam.	Oars.	Class.	Built by
Cygnat	42 feet.	48 inches.	6.	3d.	A. J. Luffbarry.
Bertha	39 "	45 "	Double Scull.	2d.	A. J. Luffbarry.
Nautilus	40 "	24 "	4 Oars.	2d.	Thos. Fearon.
Camilla	41 "	17½ "	4 Oars.	1st.	Elliott.
Quaker City	41 "	17 "	4 Oars.	1st.	Thos. Fearon.
Sunshine	35 "	18 "	Double Scull.	1st.	E. K. Byron & Bro.
Fly	26 "	15 "	Single Scull.	1st.	Elliott.
Spider	17 "	45 "	" "	2d.	A. J. Luffbarry.

Stored in house belonging to individuals, four (4) single scull shells.

Cost of Boats and Oars, \$2575.

The Boat House is a two story stone structure, having on the first floor two rooms used exclusively for the storage of boats and oars, and on the second floor, also, two rooms, one used as a dressing apartment, and the other as a reception room. Cost of house and furniture, \$7500.

Total amount invested, \$10,075.

 PENNSYLVANIA BOAT CLUB.

Organized May, 1861. Not incorporated. Entered
the Navy August 17th, 1866.

OFFICERS.

FRANK W. MURPHY, *President.* GEO. K. RICHARDS, *Vice-President.*
MAX SCHMITT, *Secretary.*
JOHN CULIN, *Treasurer.* W. J. BARR, *Ass't Treasurer.*
JAMES M. BENNETT, *Captain.* GEO. HALDORN, *Vice-Captain.*
HENRY HUTCHINSON, *Director.*
Members—Active 38, Honorary 5, Contributing 10.

Uniform: dark blue shirt, dark blue pants, and leather cap.

BOATS.

NAME.	Length.	Beam.	Oars.	Class.	Built by
Pennsylvania	40½ feet.	17 inches.	4.	1st.	C. B. Elliott.
Max Schmitt . . . . .	...	...	Single Scull.	1st.	" "
Otto Weiss	33 "	13 "	" "	1st.	" "
F. Hartley . . . . .	...	...	" "	1st.	E. & M. Byron.
W. G. Thomas	29 "	10½ "	" "	1st.	Roahr.
G. C. Child . . . . .	...	...	" "	1st.	Metcalf.
H. Conrad . . . . .	...	...	" "	1st.	" "
John Lavens . . . . .	...	...	" "	1st.	Waters, Balch, & Co.
Wm. Burnham . . . . .	...	...	" "	1st.	" "
Austin Street . . . . .	...	...	" "	1st.	Luffbarry.
Falcon	47 "	42 "	4 Oars.	3d.	" "
Celia	27 "	41 "	Double Scull.	2d.	" "
Owl	19 "	34 "	Single Scull.	2d.	" "
Phantom	38 "	25 "	6 Oars.	2d.	C. B. Elliott.
Stranger	26 "	27 "	Pr. Oars.	2d.	Christ. Thoms.

Cost of Boats and Oars, \$2500.

The Boat House is built of Micaceous Granite, 25 by 60 feet, with Mansard roof, and balcony on river front, and is finished inside with stained yellow pine. Cost of house and furniture, \$5500.

Total amount invested, \$8100.

PHILADELPHIA BARGE CLUB.

Organized December 8th, 1862. Incorporated July 13th, 1870.
Entered the Navy August 17th, 1865.

OFFICERS.

HENRY C. SPACKMAN, <i>President.</i>	ALEX. KRUMBHAAR <i>Vice-President.</i>
CHAS. B. HART, <i>Treasurer.</i>	CHAS. H. KRUHMBAAER, <i>Secretary.</i>
CHAS. V. GRANT, <i>Coxswain.</i>	STEV. CONSTABLE, JR., <i>Vice Coxswain.</i>
<i>Members—Active 32, Honorary 21.</i>	

Uniform: double-breasted shirt of dark blue flannel, covered buttons, white Knickerbockers, dark blue woollen stockings, skullcap, same material as shirt, straw hat, Philadelphia in gilt on black band.

BOATS.

NAME.	Length.	Oars.	Class.	Built by
Mist	41 feet.	4.	1st.	Waters & Sons.
Hawk	31 "	Single Scull.	1st.	" "
—	31 "	" "	1st.	" "
Baby	34 "	Pr. Oared.	1st.	Fearon.
Faugh-a-ballah	47 " 4 in.	Oars 6.	2d.	Luffbarry.
Fly	17 " 8 "	Single Scull.	2d.	" "
Naiad	25 " "	Double Scull.	2d.	" "
No Name	22 " 6 "	" "	2d.	Roahr.
Nameless	30 " "	" "	2d.	Blake.
Marguerite	26 " "	" "	2d.	Metcalf.
Lorelei	37 " "	Oars 4.	3d.	Luffbarry.

Cost of Boats and Oars, \$2500.

The Boat House is built of Serpentine with Sandstone trimmings, 21 by 58 feet, with Mansard roof, bay window and balconies. Cost, \$5000.

Total amount invested, \$7500.

FAIRMOUNT PARK.

MALTA BOAT CLUB.

Organized February, 1860. Not incorporated. Entered the Navy August 22d, 1865.

OFFICERS.

CHAS. T. ILLMAN, *President.*

CHAS. E. H. BRELSFORD, *Vice-President.*

WM. H. LEES, *Secretary.*

SAML. H. ILLMAN, *Treasurer.*

Captains—John F. Huneker, C. E. H. Brelsford, Joseph Dunton.

Rep's of Naval Board—I. Bedchimer, Wm. A. Haines.

Members—Life 10, Active 40, Contributing 5, Honorary 7.

Uniform: blue shirt, blue pants, blue sack coat, navy buttons, and blue cap.

BOATS.

NAME.	Length.	Beam.	Oars.	Class.	Built by
Malta	44 feet.	17 inches.	4.	1st.	Metcalf.
Mischief	40½ "	42 "	6.	3d.	Luffbarry.
Minx	36 "	42 "	4.	3d.	" "
Metis	26 "	30 "	Double Scull.	2d.	" "
Minnehaha	26 "	30 "	"	2d.	M. Byron.
T	35 "	13 "	Single Scull.	1st.	—
B	30 "	10½ "	"	1st.	Elliott.
W	27 "	9½ "	"	1st.	Clark.
Y	26 "	12 "	"	1st.	—
L	26 "	11 "	"	1st.	—
Dawn	18 "	13 "	"	...	—

Cost of Boats and Oars, \$1900.

The Boat House is two stories high, and is built of Graystone. The boat floor is 17 feet 6 inches by 50 feet. The dressing and reception room on the second floor is 17 by 32 feet, handsomely furnished. Cost of house and furniture, \$4100.

Total amount invested, \$6000.

CRESCENT BOAT CLUB.

Organized December 1st, 1867. Incorporated January 26th, 1874.
Entered the Navy February 8d, 1868.

OFFICERS.

H. R. BARNHURST, *President.*

WM. ALLEN, *Vice-President.*

DR. A. BOICE, *Treasurer.*

B. COTTON, *Secretary.*

H. K. HINCHMAN, *Captain.*

GEO. W. YOUNG, *Coxswain.*

C. D. TATMAN, *Vice-Coxswain.*

Members—Active 50, Contributing 20, Life 10.

Uniform: dark navy blue coat, shirt, and blue knee breeches, and red stockings, sailor cap with the club name.

BOATS.

NAME.	Length.	Beam.	Oars.	Class.	Built by
Longfellow	56 feet.	22 inches.	8.	1st.	Salter of Oxford, Eng.
Crescent	42 "	18 "	4.	1st.	Elliott.
Chamounix	42 "	16 "	4.	1st.	E. K. Byron & Bro.
Owlet	34 "	15 "	Double Scull.	1st.	Elliott.
Ella	33 "	12 "	" "	1st.	Metcalf.
W. A. Steel	34 "	14 "	" "	1st.	Waters & Sons.
Ah Sin	30 "	12 "	Single Scull.	1st.	" "
Clara	28 "	10½ "	" "	1st.	Selah Clark
Gabe	28 "	9½ "	" "	1st.	" "
Ione	45 "	42 "	Oars 6.	3d.	Metcalf.
Hornet	42 "	24 "	4.	2d.	" "
Mrytle	25 "	34 "	Double Scull.	2d.	Luffbarry.
W. B.	17 "	24 "	Single Scull.	2d.	John Kyle.

Cost of Boats and Oars, \$3000.

The Boat House is built of Granite dressed with Brownstone, Gothic style, two stories high, 25 by 60 feet. The second story is divided into a dressing-room finished in oak, trimmed with walnut, and a reception room, handsomely furnished. Cost of house and furniture, \$4500.

Total amount invested, \$7500.

WEST PHILADELPHIA BOAT CLUB.

Organized April 7th, 1871. Incorporated March 4th, 1873.
Entered the Navy April 3d, 1873.

OFFICERS.

HENRY V. STILWELL, *President.* CHAS. H. YARNALL, *Vice-President.*
FRANCIS M. ROBERTS, *Secretary.* HARRY J. C. PHILIPS, *Ass't Secretary.*
WM. D. STOVELL, *Treasurer.* CHAS. GIBBONS, JR., *Solicitor.*
Directors—Clarence North (Chairman), Fergus M. Mackie, Saml. B. Knight,
Wm. D. Stovell, Francis M. Roberts.

Delegate to the Naval Board—Henry V. Stilwell.

Members—Active 25, Honorary 21, Contributing 12, Life 7.

Winter: round navy hat with gold letters, "West Phila." in front, heavy dark blue shirt, "Navy" pattern, and long dark blue pants, and pea jacket. Summer: blue scull cap, blue light rowing shirt, dark blue knee breeches, and light blue stockings, and pea jacket. Officers: double-breasted frock as U. S. Navy.

BOATS.

NAME.	Length.	Oars.	Class.	Built by
Infant	58 feet.	8.	1st.	Messenger of London.
West Philadelphia	45 "	6.	3d.	Roberts, N. Y.
Wavelet	44½ "	6.	2d.	E. K. Byron & Bros.
Traveller	37 "	4.	2d.	" " "
Stella	29 "	Double Scull.	2d.	" " "
Sylph	25½ "	" "	2d.	" " "
Cigarette	19 "	" "	2d.	Roberts, N. Y.
Fay	28½ "	Single Scull.	1st.	E. K. Byron & Bros.
Snail	29 "	" "	1st.	Elliott.
Pigeon	29 "	" "	1st.	G. Miles.
No Name	29 "	" "	1st.	" "

The Boat House is situated on the west bank of the Schuylkill River, near Gray's Ferry Bridge.

Total amount invested, \$4200.

FAIRMOUNT PARK.

COLLEGE BOAT CLUB OF THE UNIVERSITY OF PENNSYLVANIA.

Organized September 30th, 1872. Incorporated October, 1875.
Entered the Navy April 4th, 1875.

OFFICERS.

CALHOUN MEGARGEE, *President.*

JOHN R. FELL, *1st Vice-President.* EFFINGHAM B. MORRIS, *2d Vice-President.*

W. HARRY PATTERSON, *Treasurer.* SAML. T. KERR, *Secretary.*

EUGENE TOWNSEND, *Captain.*

WM. I. F. CURTIS, *1st Lieutenant.* ALFRED PEARCE, *2d Lieutenant.*

Members—Active 40.

Uniform: blue flannel shirt, navy pattern, with shield on breast, with monogram U. P. bound with white braid, white buttons, and falling collar, white stars in corner, white flannel Knickerbockers, with dark blue stockings, black silk necktie, dark blue cloth tarpaulans in winter, in summer white straw hat, bound with blue-white, blue horizontal stripes, "College," in gilt on the band.

BOATS.

NAME.	Length.	Beam.	Oars.	Class.	Built by
Sappho	40 feet.	40 inches.	6.	3d.	James.
Iola	42 "	30 "	4.	2d.	Luffbarry.
Triton	43 "	18 "	4.	1st.	Fearon.
—	30 "	13 "	Single Scull.	1st.	Luffbarry.
Sophomore, '75 .	30 "	32 "	Double Scull.	2d.	" "
John R. Fell . .	35 "	11½ "	" "	1st.	Ward & Ed. Smith.
Baby	30 "	13½ "	Pr. Oared.	1st.	Fearon.
—	25 "	...	Single Scull.	1st.	Simmons.
—	30 "	...	Double Scull.	2d.	—

Cost of Boats and Fittings, \$1539.

The Boat House is built in the Gothic style, of Brownstone, two stories high, 26 by 66 feet, height 43 feet. The second story is a clear loft, 21 feet high, with carved rafters, and is divided into parlor and members' room, both of which are furnished in costly manner. Cost of house, \$8000.

Total amount invested, \$9539.

RULES OF SCHUYLKILL NAVY REGATTA,

OPEN TO ALL AMATEURS.

1. This Regatta shall be open to all Amateur Clubs which have been duly organized two months prior to the holding of the Regatta. Entries from individuals will not be received.
2. No club shall be allowed to enter any person who has not been a member of that club for at least two months preceding the Regatta.
3. I. Any club intending to compete for any of the prizes, must give due notice to the Secretary of the Navy on or before the appointed day for closing the entries, which shall be two weeks before the 1st day of the Regatta.
II. In all cases of entries for four-oared races, a list of not more than eight names, and in all cases of entries for pair-oared or double scull races a list of not more than four names shall be sent to the Secretary, and from these names the actual crew shall be selected.
- III. The name and address of the Captain and Secretary of each crew or club entering for any race shall be sent at the time of entrance to the Secretary.
- IV. The President or presiding officer, or Secretary of each club entering, is required to certify on honor, in writing, that each member of the crew entered is strictly an amateur, and is not paid directly or indirectly for his services as a member or by reason of his being a member of the club.
4. No assumed names shall be given.
5. No one shall be allowed to be entered twice for the same race.
6. The Secretary shall not declare any entry nor report the state of the entrance list until such list shall be closed.
7. Objections to any entry shall be made in writing to the Secretary of the Regatta Committee within seven days from the declaration of the entries, when the Committee shall investigate the grounds of objection, and decide thereon forthwith.
8. No entrance money shall be required in any race.
9. All races shall be one and a half miles straightaway.
10. A meeting of the Regatta Committee shall be held immediately preceding the Regatta, at which the Captain or Secretary of each crew or club entered shall deliver to the Secretary of the Regatta, a list of the names of the actual crew appointed to contend in the ensuing races, to which list the name of one other member may be added in the event of illness or accident, subject to Rule 11.
11. No member of a club shall be allowed to be substituted for another who has already rowed in a heat; nor shall any member of a club be allowed to row with more than one crew in any of the heats for the same prize.
12. In the event of a dead heat taking place, the same crews shall contend again after such interval as the Regatta Committee may appoint, or the crew refusing shall be adjudged to have lost the race.
13. In the event of there being but one boat entered for any prize, or if more than one enter and all withdraw but one, the crew of that boat must row over the course to be entitled to such prize.
14. Heats and Stations shall be drawn for by the Regatta Committee in the presence of such competitors or their representatives as may attend after due notice has been given of a meeting of the Committee for that purpose.
15. An umpire shall be chosen by the Regatta Committee, and his decision shall be final.
16. The judge at the winning post shall be appointed by the umpire, and his decision shall be final.

17. The laws of boat racing as herein following shall be observed at this Regatta, and the definition of an amateur oarsman as adopted by the Schuylkill Navy shall govern the qualifications of each competitor.

18. The prizes shall be delivered at the conclusion of the Regatta to their respective winners, who in case of a challenge prize shall receipt for the same as may be required by the Naval Board.

All questions of eligibility, qualification, or interpretation of these rules shall be referred to the Regatta Committee, and their decision shall be final.

LAWS OF BOAT RACING.

1. All boat races shall be started in the following manner:—
The starter, on being satisfied that the competitors are ready, shall give the signal to start.
2. If the starter considers the start false, he shall at once recall the boats to their stations, and any boat refusing to start again shall be disqualified.
3. Any boat not at its post at the time specified shall be liable to be disqualified by the umpire.
4. The starter shall be under the control of the umpire.
5. Each boat shall keep its own water throughout the race, and any boat departing from its own water, will do so at its peril.
6. A boat's own water is its straight course parallel with those of the other competing boats from the station assigned to it at the starting to the finish.
7. The umpire shall be sole judge of a boat's own water and proper course during the race.
8. No fouling whatever shall be allowed; the boat committing a foul shall be disqualified.
9. It shall be considered a foul when after the race has commenced, any competitor, by his oar, boat, or person, comes into contact with the oar, boat, or person of another competitor, unless in the opinion of the umpire such contact is so slight as not to influence the race.
10. The umpire may, during a race, caution any competitor when in danger of committing a foul.
11. The umpire, when appealed to, shall decide all questions as to a foul.
12. A claim of foul must be made to the judge or the umpire by the competitor himself before getting out of his boat.
13. In case of a foul, the umpire shall have the power—
 - A. To place the boats, except the boat committing a foul, which is disqualified, in the order in which they come in.
 - B. To order the boats engaged in the race, other than the boat committing the foul, to row over again on the same or another day.
 - C. To restart the qualified boats from the place where the foul was committed.
14. Every boat shall abide by its accidents.
15. No boat shall be allowed to accompany a competitor for the purpose of directing his course or affording him other assistance. The boat receiving such direction or assistance shall be disqualified at the discretion of the umpire.
16. The jurisdiction of the umpire extends over the race and all matters connected with it from the time the race is specified to start until its final termination, and his decision in all cases shall be final and without appeal.
17. Any competitor refusing to abide by the decision or to follow the directions of the umpire shall be disqualified.

18. Boats shall be started by their sterns and shall have completed their course when the bows reach the finish.

19. In turning races each competitor shall have a separate turning stake, and shall turn from port to starboard. Any competitor may turn any stake other than his own, but does so at his peril.

20. The umpire, if he thinks proper, may reserve his decision, provided, that in every case such decision be given on the day of the race.



BOAT RECORD.

The Undine's record shows it to be one of the most active boats on the river, being out from four hundred to eight hundred times yearly. For the year 1863, four hundred and nine times; 1864, three hundred and fifty-three times; 1865, three hundred and forty-two times; 1866, four hundred and twenty-two times; 1867, four hundred and seventy-eight times; 1868, five hundred and fifty-one times; 1869, seven hundred and forty-five times; 1870, six hundred and fifty times; 1871, eight hundred and thirty-one times; 1872, seven hundred and sixty-eight times; 1873, six hundred and ninety-five times; 1874, eight hundred and thirty-six times, and four thousand two hundred and twenty-eight miles, this latter being the largest number of times on record, but the miles were exceeded in 1871, when the record showed for that year four thousand eight hundred and ten miles. A record of one of its members from August, 1862, to January, 1871, shows an actual distance pulled of 11,481 miles; rowing in the year 1869, 2643 miles.

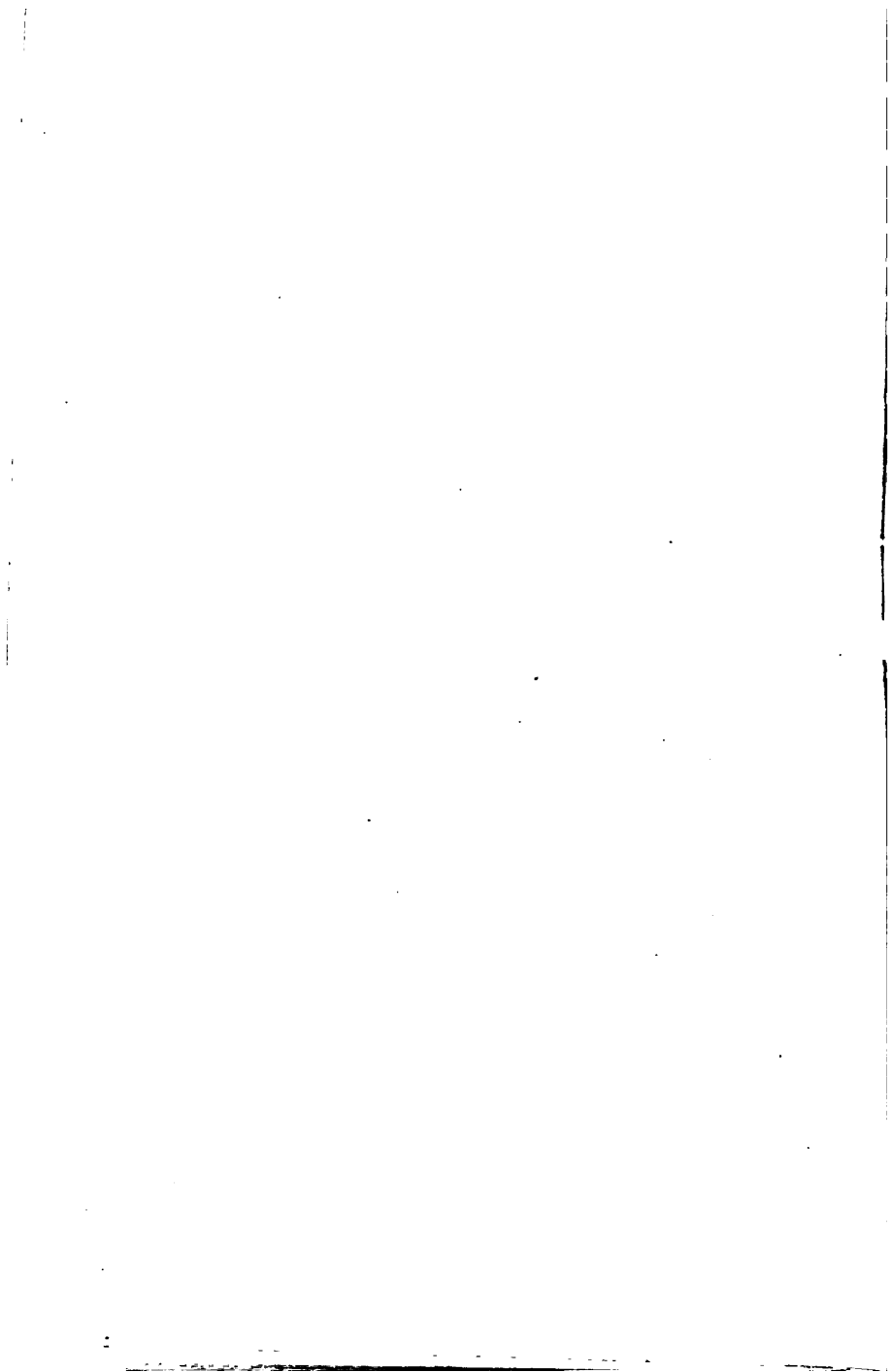
Regatta National Amateur Oarsmen takes place on August 21, 22, and 23, 1876.

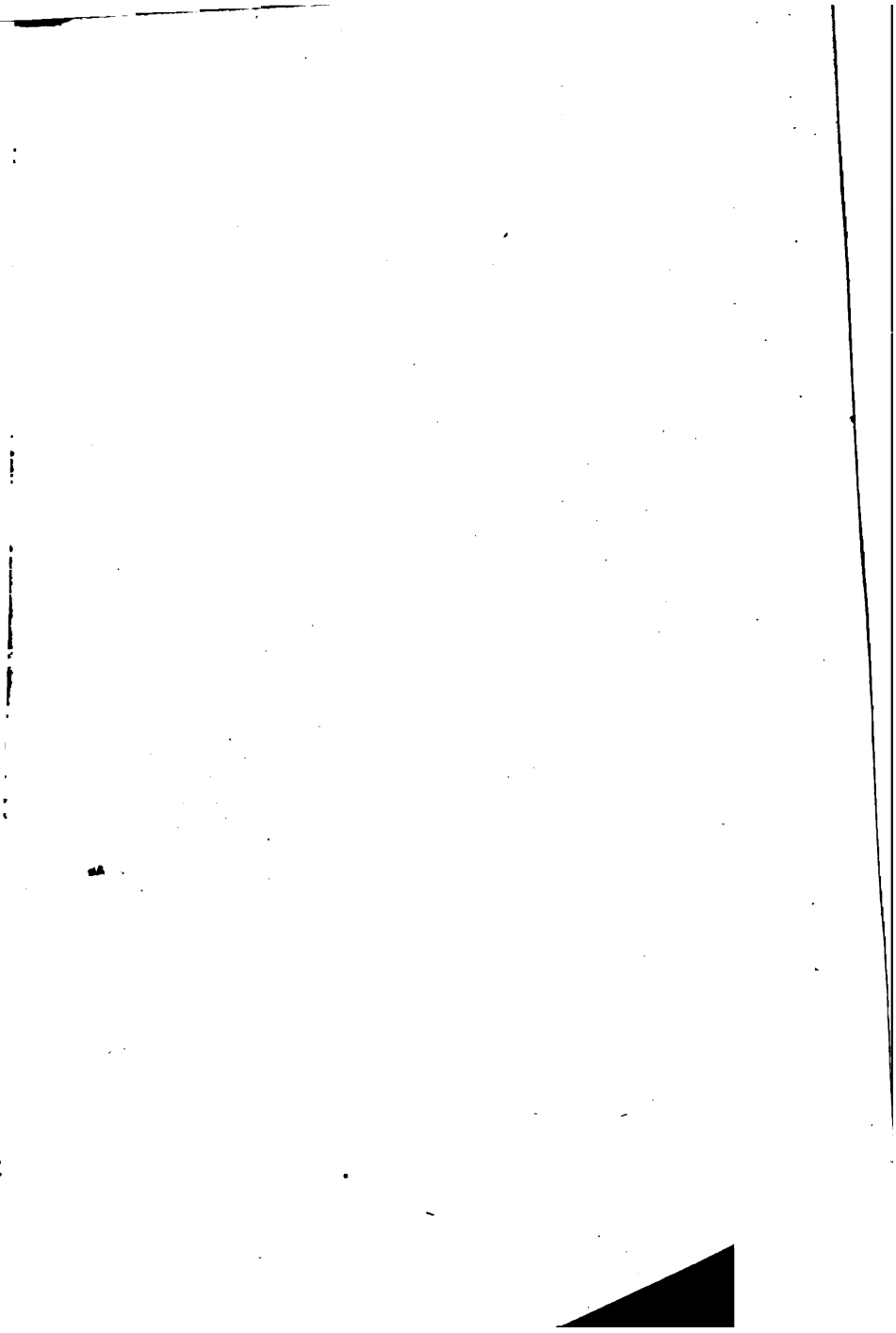
The International Regatta will begin on August 28, 1876.

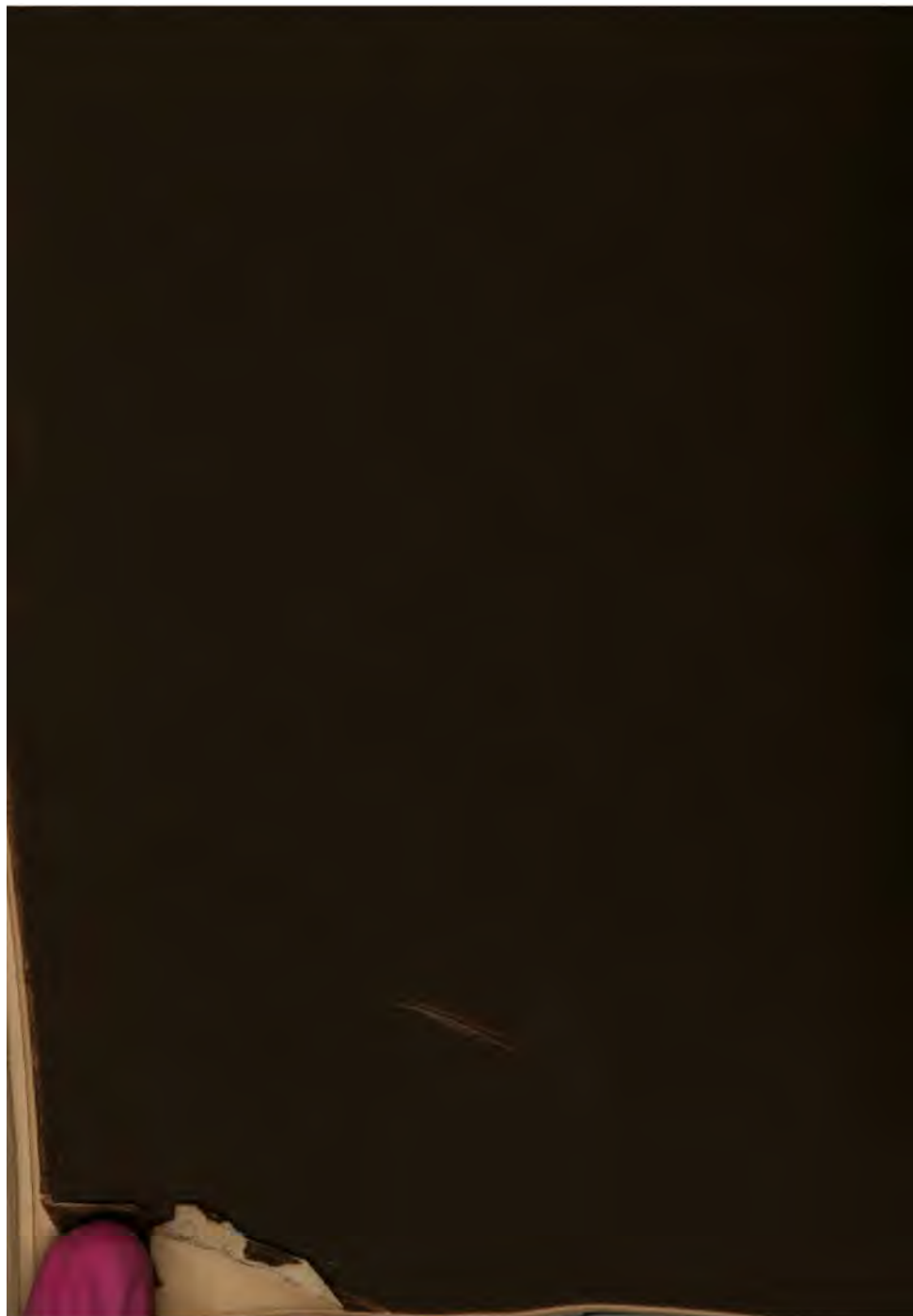


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