

391/131923

Historical Research Report
on
Cobblestone Paving
Independence National Historical Park
July 1960

H2215

Region Five
143 South Third Street
Philadelphia 6, Pa.

September 20, 1960

Handwritten:
Killey
9/20
Covers
9/20/60

Memorandum

To: Director

From: Acting Regional Director

Subject: Historic Research Report, Cobblestone Paving,
Independence NHP

Attached for your consideration is one copy of the subject report. It was prepared by Park Historian David A. Kimball to meet the great need of having, pulled together in one report, the information on paving in historic Philadelphia which heretofore has been scattered in a number of historical reports. The report is primarily intended for the use of the landscape architects in EODC, and copies of it have been sent to that office.

We are sure you will agree that Mr. Kimball's report is well organized, documented and illustrated, as well as being concise and lucid. By copy of this memorandum to the Superintendent, Independence National Historical Park, we are requesting him to convey to Mr. Kimball our commendation for this fine report.

(Sgd.) George A. Palmer
Acting Regional Director

In duplicate

Attachment

Copy to: Supt., Independence

MHNelligan/cp

General
Daily
Area



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Independence National Historical Park
Old Custom House
420 Chestnut Street
Philadelphia 6, Pa.

August 1, 1960

IN REPLY REFER TO:

H2215

REGION FIVE		INITIAL AND DATE
AUG 2 - 1960		
REG. DIRECTOR		
ASST. REG. DIR.		
OPERATIONS		
INTERPRETATION		
ADM.		
REC. RES. PLAN		
RANGER ACT'S		

Memorandum

To: Regional Director, Region V

From: Superintendent, Independence

Subject: Historic Research Report, Cobblestone Paving

Your memorandum H2215 dated June 24 on the above subject requested that we submit a special historical report on the cobblestone and pebblestone paving on Dock Street as soon as possible.

We are submitting with this memorandum a special report prepared by Historian David A. Kimball which we believe you will find helpful in preparing for this Dock Street project.

M. O. Anderson
M. O. Anderson
Superintendent

Enclosures (4)

Historical Research Report
on
Cobblestone Paving
Independence National Historical Park
by Park Historian David A. Kimball

INTRODUCTION

Eighteenth century Philadelphians commonly referred to the material with which their streets were paved as "pebble" or "pebble-stone." These words described the kind or quality of stone, not its size. Later, the words "cobble" or "cobble-stone," which were not widely used during the eighteenth century, came into use as synonyms for the earlier "pebble" or "pebble-stone" and apparently as time passed a distinction developed between cobbles, which were larger, and pebbles, which were smaller.

This distinction as to size between "pebble" and "cobble" was not recognized in eighteenth century Philadelphia. In this, Philadelphia followed contemporary English usage. Samuel Johnson's monumental A Dictionary of the English Language... (London, 1786) did not include a definition of "cobble" or "cobble-stone"; instead, its definition of "pebble" and "pebblestone" as "A stone distinct from flints, being not in layers, but in one homogeneous mass" was so broad as to include all sizes of stone.

Nor did Thomas Dobson's pirated version of the *Encyclopedia Britannica* recognize "cobble" or "cobble-stone." The section on paving does, however, include a discussion of "pebble-stone" which corresponds to what we now call cobble-stone:

1. Pebble-paving, which is done with stones collected from the sea beach, mostly brought from the islands of Guernsey and Jersey: they are very durable, indeed, the most so of any stone used for this purpose. They are used of various sizes, but those which are from six to nine inches deep, are esteemed the most serviceable.¹

This usage is confirmed by the Oxford English Dictionary which defines "pebble" as a water-worn rounded stone "usually...of small or moderate

size," and "cobble" as "A water-worn rounded stone...of the size suitable for paving"; but includes in the latter definition the note that "In earlier times [cobble was] often identified in use with pebble."

Since "pebble" or "pebble-stone" was in use during the historic base period of Independence National Historical Park, it has been used throughout this report. It is, however, synonymous with "cobble"--a "water-worn rounded stone,...of the size suitable for paving."

HISTORICAL NARRATIVE

On November 24, 1718, the Common Council of Philadelphia noted that "...Several of the Inhabitants of this City have Voluntarily Gone into the paving from ye Kennel to the Middle of the Streets before their respective Tenements, with pibble stones...."² On April 6 of the following year, the Council responded to this action by passing "An Ordinance for Better Preserving & Encouraging of the Pavem^{ts} of the Middle of the streets of this City with Pebbles,"³ but paving continued to be done on a voluntary basis. The results were described by the perceptive Swedish observer, Peter Kalm, when he visited the city in 1748:

Some [streets] are paved, others are not, and it seems less necessary since the ground is sandy and therefore soon absorbs the wet. But in most of the streets [sidewalks] is a pavement of flags, a fathom or more broad laid before the houses, and four-foot posts put on the outside three or four fathoms apart. Those who walk on foot use the flat stones, but riders and teams use the middle of the street.⁴

Governor Thomas Pownall, however, visited Philadelphia in 1755 and stated that "On each side of the streets there is a trottoir paved with brick: the streets are not yet paved, but formed with gravel,..."⁵

Paving became the responsibility of the city in 1762 when the provincial Assembly passed an act appointing six commissioners to be charged with regulating, pitching and paving the city streets and authorizing a tax for this purpose. On May 30, 1763, the city passed an ordinance to the effect that:

ALL Owners of Houses and lots fronting on those Streets where the Cartway has been paved,...are hereby ordered and enjoined to pave or repair, as the Case may require with good well burnt Bricks, or good square flat Stones, the Footway and Gutters of their respective Fronts, according to Regulation, and the Gutter to be made Twenty-two inches ^{wide} wide, and not exceeding four Inches deep; the Pavement to use Seven Inches in Ten Feet from the inner Edge of the Gutters towards the Houses; and to provide

and set up one round, dress'd red Cedar Post, of the Length of Seven Feet, and of the Thickness of Six Inches Heart at Least, for every ten or twelve Feet Front,...⁶

The City Commissioners undertook to pave the street beds. They continued to use pebble-stone paving, with stones ranging in size from that of a man's fist up to those with a long axis diameter of a foot or more (see Illustrations Nos. 4 and 8).⁷ The larger stones were generally placed toward the center of the street⁸ and the center was raised to permit water to run off into the gutters on either side (see Illustrations)⁹

This method of paving the streets combined with the regulations for providing gutters and sidewalks incorporated in the Ordinance of 1763 produced results noted by many visitors to the city. The Reverend Jacob Duche noted in 1777 that "The streets are all well paved in the middle for carriages, and there is a foot-path of hard bricks on each side next the houses."¹⁰ In 1783 the German traveler, Johann Schopf, noted that "Throughout the city the streets are well paved and well kept, highest down the middle, but next the houses there runs a footway sufficiently broad, and laid with flat stones;..."¹¹ Four years later, in 1787, Manasseh Cutler found that "They [the streets] are well paved and at a distance of ten feet from the house, is a row of posts and in this range of posts are all their pumps....The pavements between the posts and houses are laid with free-stone or large tile, and entirely smooth, which makes the walking on them delightful."¹²

The only change in or addition to these paving methods of which we have record prior to 1790 came in 1783. In that year the city regulated gratings over vaults in the public streets, requiring that they "be made

of good iron bars of one inch square, if eighteen inches long, and so in proportion to the length of the bar, the said bars to be laid cross ways of the street, and the space between the bars not to exceed seven eights of an inch, and the said grate or grates shall be fixed in a frame of stone or good durable wood, the scantling of which to be at least six inches square for a bar eighteen inches long, and so in proportion to the length of the bar, the frame to be laid solid on the wall of the opening of the vault, and the upper side of the frame nearly level with the pavement;..."¹³

In 1790, a change in the method of protecting the sidewalks from vehicular traffic and providing drainage occurred. On May 10 of that year City Councils:

Resolved also that in forming all the pavements above ordered...the Commissioners cause the foot way to be regulated and elevated above the side of the cart way to a height not exceeding nine inches and that the earth be supported by stones set on edge and firmly fixed in the ground, such stones and the brick pavement to be at the expense of the proprietors of the grounds as heretofore the posts and gutters were which by this means are unnecessary and that the stone pavement be in a regular arch...."¹⁴

On June 3, 1791, the Mayor, Alderman and citizens of Philadelphia enacted an ordinance embodying that resolution and adding to it a clause to the effect that:

...where there are private cartways, leading from public cartways, to any store-houses, stables or other buildings, and crossing any footway within the paved parts of the city, such footway where it shall be so crossed shall be paved at the expence of him or them for whose use such cartway is or shall be required or allowed in manner following, that is to say either wholly with broad flat stones, hewn and laid close together, or wholly with hard bricks laid on the narrowest side, commonly called on edge; or the tracks for wheels with such stones, and the middle path, with such bricks on edge, and not otherwise.¹⁵

By September of 1791, the American Daily Advertiser could note that "Improvements are rapidly making in our streets. Old pavements are repaired, and stone guards substituted in many places for unsightly posts."¹⁶

The effect of this work on the appearance of Philadelphia's streets is shown in the following description:

In the improved part of the city they are paved with pebble stones in the middle, which generally comprehends three-fifths of the whole breadth; and on each side with brick for the foot-ways. Between the streets and foot-ways are gutters, paved with brick, for carrying off the water, and filth of the city; to the river and common sewers. The foot-ways are defended from the approach of carriages, by rows of posts placed on the outside of the gutters, at the distance of 10 or 12 feet from each other. But in those streets which have been lately new paved, the posts have been removed, the side ways raised, and in front, towards the street, is a range of hewn stone, on a common level with the foot-ways. The streets, though raised in the middle, lie much lower than formerly. From the top of the street to each side, is a gradual descent, so that the foot-ways are 8 or 10 inches elevated above the adjoining part of the street; which renders gutters no longer necessary.¹⁷

The next change in paving methods seems to have been made between 1800 and 1815 and involved the introduction of flagstone crosswalks at street intersections.¹⁸ These crosswalks were of one, two or three flagstones in breadth and were laid at grade (see Illustrations Nos. 3-7).

But these changes did not affect the paving of the streets themselves. In 1802 Joseph Sanson wrote that "The streets of Philadelphia are paved with pebble-stones and bordered with ample footways of brick, raised one foot above the carriage way,..."¹⁹ In 1811 James Mease commented that "The improved parts of the city are paved with round stones, brought from the bed of the river at Trenton falls. The foot-ways are

paved with brick, and raised on a level with the highest part of the street, and defended from the approach of carriages by ranges of curb-stones....The middle of the street is a few inches higher than the part next the pavement [sidewalk], and as the descent is gradual, the water runs off with facility, and passes off by the culverts (the mouths of which open in various streets) to the river."²⁰ Pebble stone continued in use until the 1830's when it was superceded by blocks of wood or blocks of stone.²¹

Even after pebblestone was superceded, streets already paved with it were not repaved until necessary. As noted in the Historic Grounds Report for the Philadelphia (Merchants') Exchange, Dock Street retained its pebblestone paving until the 1890's. For this reason, the photographs taken by ^{W. H. M.} Phillip Dunton in 1859, some of which illustrate this report, are evidence of Philadelphia street paving in the eighteenth and early nineteenth centuries.

These photographs corroborate the post-1790 descriptions quoted above as to use of curbstones and the absence of gutters. They also give some indication of the size of stone used and perhaps, in conjunction with the existing pebblestone court in Area "B," can serve as a guide to paving methods.

Summary

From 1718 until into the 1830's, the streets of Philadelphia were paved with water-worn pebble stones, many of which came from the falls of the Delaware River at Trenton. These stones varied in size from stones three or four inches long and two or three inches in diameter to stones a foot or more in length and six or seven inches in diameter.

From 1761 until pebble paving was discarded, the center of the street was raised to provide drainage. Generally, but not exclusively, the larger stones were placed toward the center of the street.

From 1763 until 1790, the paved portion of the street was bounded by bollards of cedar set 10 or 12 feet apart. Between the bollards and the brick or flag paved sidewalks were brick or flag gutters 22 inches wide and not more than 4 inches deep. In 1790, curbstones were introduced and supplanted the earlier bollards and gutters.

NOTES

1. Thomas Dobson, ed., Encyclopedia... (Philadelphia, 1798), XIV (PAS-PLA), 49.
2. Minutes of the Common Councils, 1704-1776, 155.
3. Ibid., 163.
4. Adolph W. Benson, ed., The America of 1750; Peter Kalm's Travels in North America (New York, 1937), I, 19.
5. "Governor Thomas Pownall's Descriptive of the Streets and the Main Roads About Philadelphia, 1754," in Pennsylvania Magazine, 18 (1894), 212. Perhaps both flags and bricks were used to pave sidewalks at this time.
6. Pennsylvania Gazette, June 2, 1763.
7. "The Commissioners for pitching, paving and regulating the Streets, &c. of this city, are about to pave certain parts of the streets, for which purpose a quantity of pebble stones will be wanting; therefore, this is to acquaint all persons, who are willing to supply them, that they will give 4s.6d. per cart load, for those of a good and suitable kind, delivered at such landing place in this city, as the said Commissioners may direct." - Pennsylvania Gazette, May 25, 1774.
8. "The biggest pebbles were always placed in the middle of the street, when the gutters were not there, and so the toughest riding was where it should have been the easiest." - Horace M. Lippincott, Early Philadelphia...(Philadelphia, 1917), 33. However, this was true only in the most general sense, as can be seen from Illustrations Nos. 4-7, and from the surviving cobblestone court in Area "B" of Independence National Historical Park.
9. Hugh Morrison in his Early American Architecture states that a few years after 1720 "an effort was made to pitch them [Philadelphia streets] to the center, so that waste water from streetside pumps might drain into water courses in the middle of the streets." This is true of the court in Area B. However, this system must have been reversed by 1763 for otherwise the ordinance of that year requiring property owners to install gutters between street and sidewalk would have been pointless. See also the description of Philadelphia's streets in 1795 and 1811 elsewhere in this report.
10. Jacob Duche, Casipipina's Letters Containing Observations on a Variety of Subjects (London, 1777), 9-10.
11. Johann David Schopf, Travels in the Confederation 1783-1784 (Philadelphia, 1911), 59.

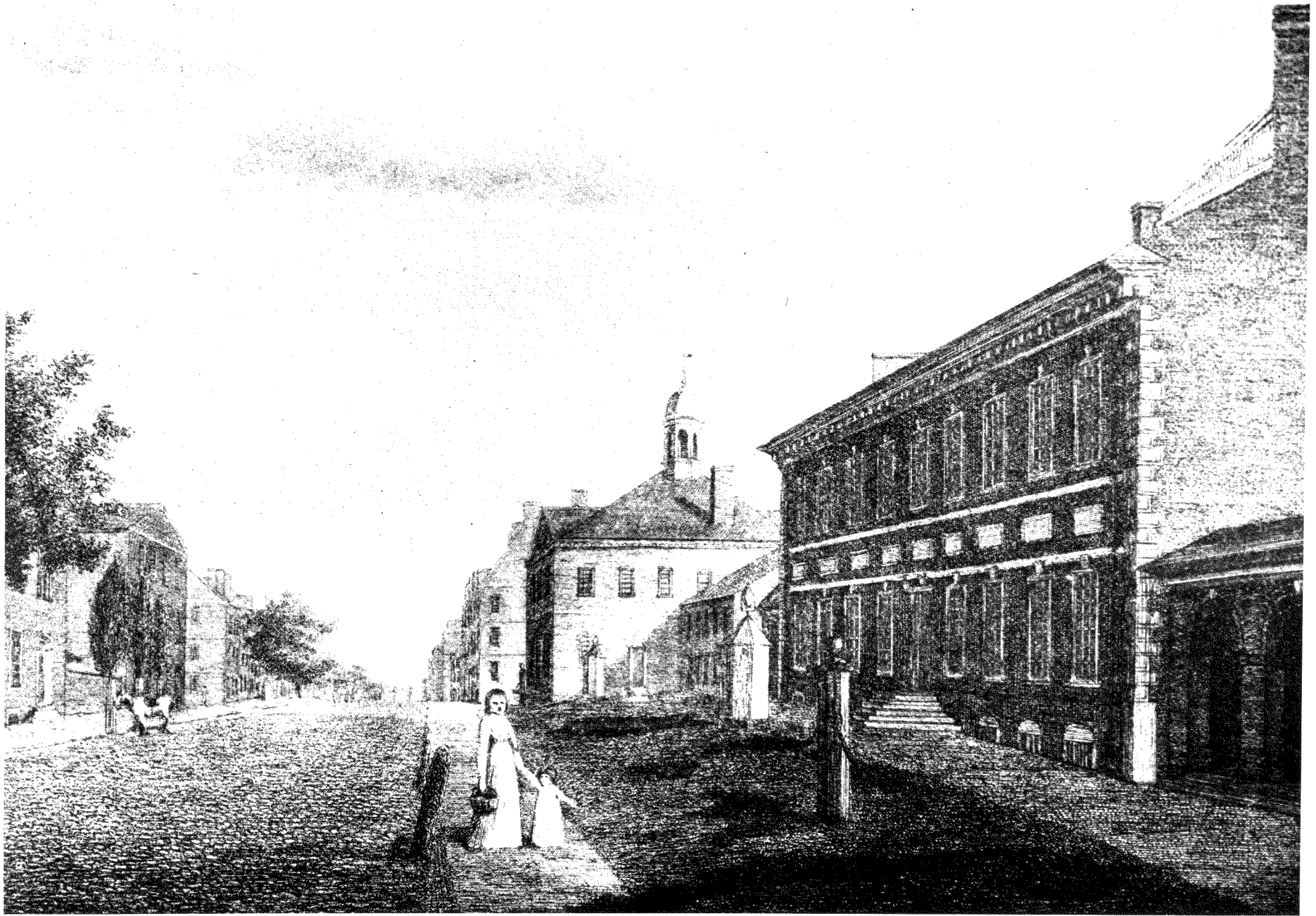
12. "New York and Philadelphia in 1787: Extracts from the Journals of Manasseh Cutler" in the Pennsylvania Magazine, XII (1888), 115.
13. Pennsylvania Gazette, June 18, 1783. On June 25, "A. Z." wrote in the Gazette that he proposed "that the grates shall be fixed on a level with the top of the frame, which may be done by a small shoulder in each end of the iron bars, to raise them. Many of the grates in this city are fixed so much below the top^s of the frames, as to form stumbling places that are very disagreeable in the night, and even dangerous, especially to the ladies." The fate of this suggestion is not recorded.
14. Minutes of City Council, 1789-1798, 247.
15. Dunlap's American Daily Advertiser, June 6, 1791.
16. Much of the stone for these curbs came from the quarry of Thomas Leiper, on Crum Creek in Delaware County (see Dictionary of American Biography, XI, 154). In December of 1791 a statement signed by a number of stonecutters and masons endorsing Leiper's stone appeared in the American Daily Advertiser; and in January of 1792 the same paper carried a testimonial by the City Commissioners to the high quality of Leiper's stone for use as "kirb or gutter stone."
17. Joseph Scott, ed., The United States Gazette (Philadelphia, 1795), a photostat of which is in the Horace Wells Sellers Papers, American Philosophical Society. We are indebted to Miss Penelope Hartshorne, Branch of Historic Structures, EODC, for calling this photostat to our attention.
18. None of the Birch views of Philadelphia in 1800-1804 show such crosswalks (see, for example, Illustrations Nos. 1 and 2). However, such walks are shown in Krimmel's 1815 engraving of the State House (see Illustration No. 3). We have no documentation on the introduction of these crosswalks. They may have come into use somewhat before 1800, but it is difficult to believe that the usually careful Birch would not have included crosswalks, if they existed, in at least one of his views.
19. Joseph Sanson, Account of Philadelphia; copy in John F. Watson papers, Library Company of Philadelphia.
20. James Mease, Picture of Philadelphia (Philadelphia, 1811), 25. On June 13, 1811, City Councils received a letter from the City Commissioners "stating that the owners of property on both sides of the river Delaware, near the falls at Trenton resist the persons employed by the Commissioners to gather paving stones, and threaten persecution [sic] if continuation is persisted in, and praying Councils to authorize the Commissioners to maintain and defend those employed by them, otherwise it will be impossible to procure paving stone for the use of the City." - Minutes of City Council.

21. "The paving of the streets with blocks of wood and blocks of stone ...for carriage ways is new." - John Fanning Watson, Annals of Philadelphia (Philadelphia, 1909), II, 614. Watson, who wrote during the 1830's, is not always reliable but, in this case, he was in a position to know the facts from personal observation.

Illustration No. 1

"State House With a view of Chesnut Street
Philadelphia" by William Birch, 1798.

Note bollards protecting the brick sidewalk.



View of Third Street, from Spruce Street
Philadelphia, by William Birch, 1800.

Note that no crosswalks are shown. Also,
note bollards guarding sidewalk on right
and decorative bollards set within the
line of the sidewalk on the left.



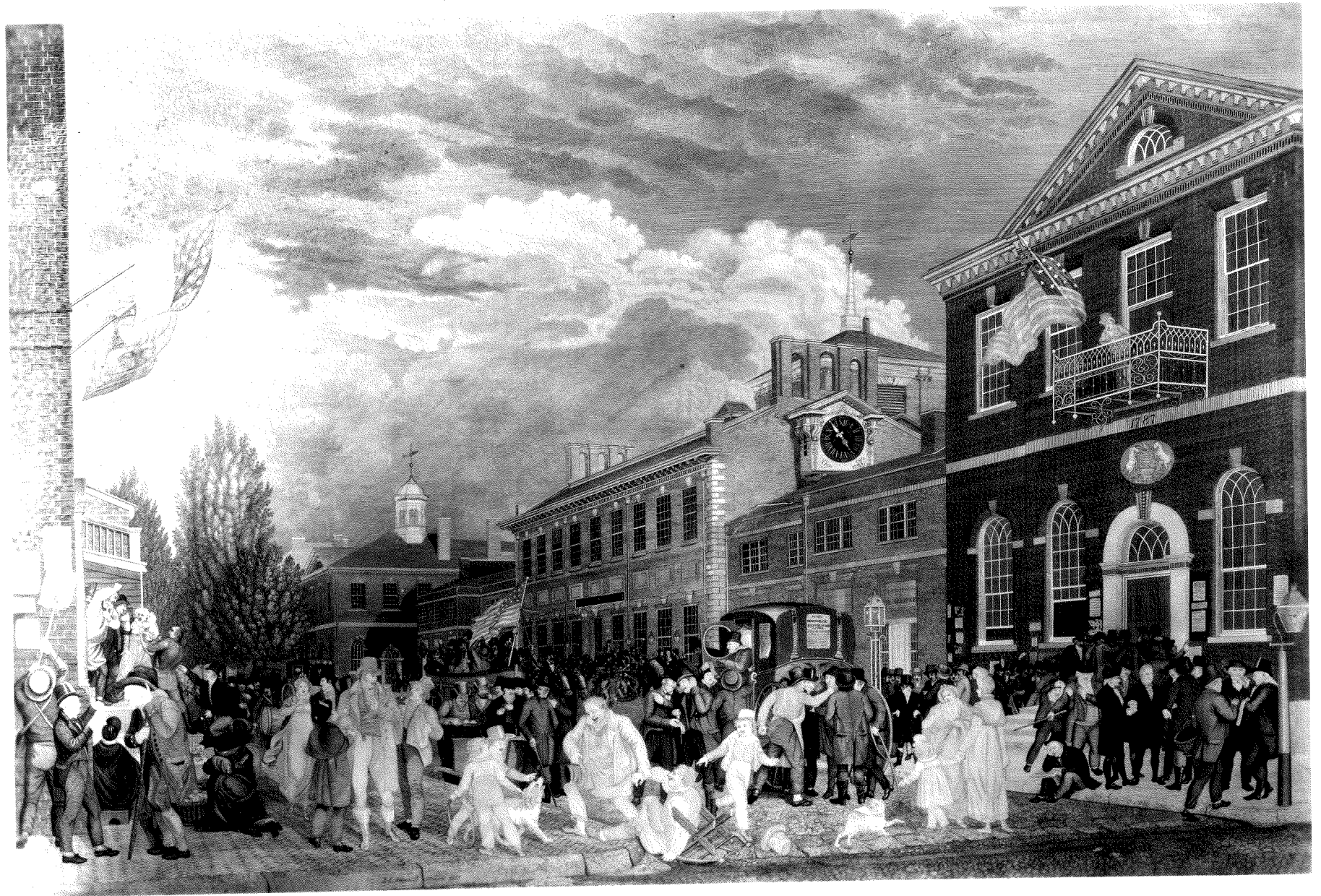
Drawn, Engraved & Published by W. Birch & Son, N. 7th Street, Philadelphia.

View in THIRD STREET, from Spruce Street PHILADELPHIA.

Illustration No. 3

State House--Election Day, by Krimmel, 1815.

Note flagstone crosswalk, curbstones and gutter treatment.



Corner of Front and Dock Streets. Photo by
W. R. Dunton, Sr., 1859.

Note curbstones, gutter treatment and character of pebble paving.



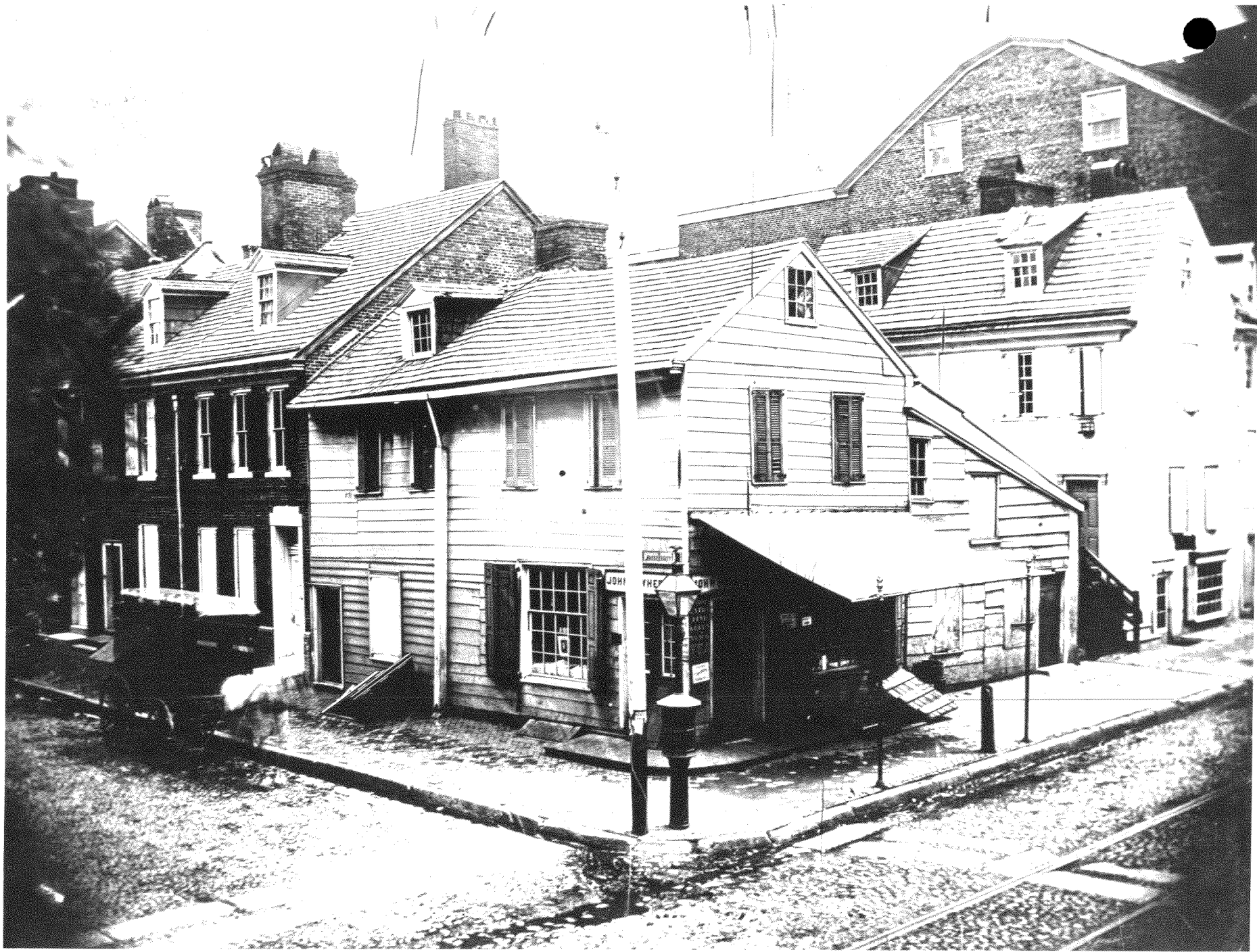
House on South Front Street. Photo by
W. R. Dunton, Sr., 1859.

Note crosswalks, curbstone and absence
of a special paving for gutter.



Illustration No. 6

Unidentified house on Lombard Street. Photo
by W. R. Dunton, Sr., 1859.



Isaac Nathan's Loan Office, Northeast corner of
Third and Spruce Streets. Photo by W. R. Dunton,
Sr., 1859.

Note spacing of stones in crosswalks and character
of street paving, especially the variation in size
of pebble stones.



Illustration No. 8

Pebble stones from court, Area "B." Note
variation in size of stones.

