Notes on Newark's Urban History

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Summary

The originality of Newark's city plan lies in the way in which the colonial settlement has been superimposed upon the Indian land pattern. What appears "irregular" in comparison with the usual orthogonal urban grid is, in this case, the use of a rational order based on a system of land measurement using the "chain" and the "rod". This system also allows for the formation of three triangular parks.

Résumé

La plan de la ville de Newark, dans le New Jersey, est généralement décrit comme "irrégulier" par rapport au modèle de la grille orthofonale. L'originalité de ce plan réside dans la superposition au tracé urbain indien préexistant de la nouvelle cité coloniale. L'ordre du dix-septième siècle, inscrit aujourd'hui dans la ville moderne, se base sur des mesures d'arpentage anciennes, la "chaîne" et la "perche". Les trois parcs triangulaires suivent ce système.

1. The Indian Connection: They Gave Way *

When, in 1666 (a year remembered for London's *Great Fire*), Newark was settled as "Town upon Passaik River in the province of New Jersey" (*Records of the Town of Newark*, New Jersey, 1864), the topography of the Place was not a wilderness [1] . It was an open garden once cultivated by the Lenni Lenape Indians. From village to village, hills to shores, brooks to ocean, the land had been marked. Trails had been trod soundly and pendulously, like the slide of Joseph "Tricky Sam" Nanton's trombone in *Black and Tan Fantasy* [2] . Then the Indians gave way. Their harbour became the

* Full credit for their support in writing this essay should be given to the poet Esther Lafair and to the architect David Elwell. I also benefited from the constant help of the Newark Public Library.

[1] The word *Place* refers to Vitruvius' and Aldo Rossi's *locus* or, more directly, to Newark's first political leader, Robert Treat, who wrote in 1689: "No sooner was the company present, got on the *Place* and landed some of their goods, than I with some others was by some of the Hackensack Indians warned off the Ground (...)". From the anonymous *Introduction to Records of Newark* (1864), p. vii (italics ours).

[2] Of the three versions released in 1927, we particularly remember the second: Duke Ellington and His Orchestra with James "Bubber" Miley (tp.), Louis Metcalf (tp.), Joseph "Tricky Sam" Nanton (tb.), Rudy Jackson

"Landing Place". The Lenni Lenape had never seen European apples but they knew the taste of pumpkins, maize, turkey and tobacco.

Newark's foundation, a gesture of appropriation, exemplifies the basic shock of two cultures, of two agricultures. English husbandry and arboriculture appropriated a site, the fertility of which could be recognized by its former use. The settlers were not poor. They had been induced to move from Connecticut by the offer of the governor of the province of New Jersey to become Lords-Proprietors under the protection and the laws of the English Crown. They were ready to negotiate with the aborigines after they helped themselves. The settlers could not understand that the Lenni Lenape would not grasp the meaning and "numinosity" inherent to private ownership of the land. This reciprocal misunderstanding formed the "cornerstone" of Newark's foundation.

> To the Indian the land with its flora and fauna were part of the common domain under the control of the supernatural. Land and resources were not considered to be the property of any individual, nor could such land come under group ownership or control; instead land was accessible to all individuals. The Indian sincerely believed that he prospered as a farmer or a hunter because he lived in accordance with the wishes of his Deity without whose benevolent assistance he felt he would starve (Kraft, 1966, 79).

The settlers worked for one year at legalizing their situation. The land was declared the property of Wapamuck, the Sakamaker, and nine other Indians who were rallied to draw their sinuous "marke" at the bottom of a "bill of sale". It was not the first time that the newcomers were buying land from the Indians (Records of the Town of Newark, 1864, 279) nor would it be the last (ibid., 281). The price arranged by the English should be regarded as more than just "a paltry sum of trinkets" [3]. It was a kind of material assistance in starting a new "life style" with breeches and pistols, beer, liquor and guns. The Indians had no alternative but to agree to a quiet, long-term ethnical suicide. The inventory of items in exchange for which Wapamuck and nine fellows alienated their open garden reads as follows:

. fifty double-hands of powder [4],
. one hundred barrs of lead [5],
. twenty axes,
. twenty coates,
. ten guns,
. twenty pistolls,
. ten kettles,
. ten swords,
. four blankets,
. four barells of beere,
. ten pairs of breeches,
. fifty knives,

(cl., ts.), Otto Hardwick (as., ss., cl.), Harry Carney (bs., cl.), Edward "Duke" Ellington (p.), Fred Guy (bjo., gt.), Welman Braud (b), William "Sonny" Greer (dr.), a studio recording in New York City on 6 October 1927, Okeh 40 155-1 (see Timner, 1979).

[3] The 13th of March, 1677-8, *Indian Deed of Sale and Confirmation to the Towne* of Newark, "marked" by Winocksop and Shenocktos, deals with "two Guns, three Coates, and thirteen kans of Rum". See *Records* (op. cit., 281).

[4] "the amount of gun powder that could be held in two cupped hands" (Kraft, 1966, 80).

[5] the raw material to fashion bullets

. twenty howes,
. eight hundred and fifty fathem of wampem,
. two ankors [6] of liquers or something equivalent,
. and three troopers coates (*Records*, 279).

This bargain [7] may suggest that the "Planters" of Newark wanted to organize this company of ten Indians into a regular and faithful body of sentinels watching over their fields from the hills on the western horizon. And so the Lenni Lenape were removed. Thereafter, their history would have to contend with hunger, epidemics, displacement, land reservation, together with the extinction of many and the survival of a few. In Newark's "collective memory", gradually built upon since the last third of the seventeenth century, the vanished Indian was to be recalled intensely. Historiographers and iconographers from the nineteenth and twentieth century could even remember that the Lenni Lenape were waiting for the Pilgrims on the bank of the Passaik, to grant them a warm welcome. The vanished Indian, a natural being of wisdom and savage nobility, became a beloved memory. He would eventually even be commemorated as a brotherly father. Hence this beautiful inscription cast in 1951 on a bronze tablet dedicated to the *Indian Trails of Newark*:

To the Lenni Lenape
Who, as hunters and fishermen,
Trod these trails;
To the Great Oraton, the regional Sakima
Whose tribesmen greeted Robert Treat
At the landing place May 1666
And dwelt with our forefathers
In the brotherhood of Man [8].

This inscription leads us to the hypothesis, central to this paper, that the Indian road system provided the core for the settlers' township. In other words, the structure of the new township relied upon an older organization rooted in agriculture and pisciculture. Full credit for this discovery must be given to the engineer, Edward Stevens Rankin (1861-1945). Born in Newark, Rankin studied civil engineering at Princeton [9]. He graduated in 1882 and first worked for the Pennsylvania Railroad. Then

> Rankin entered the city's employ in 1887, as an assistant surveyor of streets. It was this beginning which led him to a systematic study and recording of Newark's sewers, in the building of which he had an important

[6] liquid measures, see Webster, 1871

[7] The first definition of the noun "bargain" given by Webster (1871) reads as follows: "An agreement between parties concerning the sale of property; or a contract by which one party binds himself to transfer the right to some property for a consideration, and the other party binds himself to receive the property and pay the consideration".

[8] Inscription by John T. McSharry; see *Historical Newark in Bronze* (Kraft, 1966, 39). In 1662 Oraton negotiated with the Dutch administration at Fort Amsterdam a treaty which allowed him to seize the brandy sold to the Indians and report the merchants to the Dutch authorities. During the Prohibition, Oraton was presented as an apostle of temperance. In 1666 Oraton had been approached by Robert Treat to ease the bargain on the land that Treat had selected on the Passaic River.

[9] Our biographical information is drawn from two clippings deposited in the collections of the New Jersey Reference Division of the Newark Public Library: "Near 50th Year of Building City Sewers: Edward Rankin Has Designed Most of Lines Since '87", *Newark Sunday Call*, February 24, 1935; "E.S. Rankin, Sewer Expert", *Newark Evening News*, March 8, 1945.

part. When the city engineering corps was organized in 1903, (he) was placed in charge of sewer work [10].

Rankin was the chief engineer of the Division of Sewers from 1929 until his death in 1945; he was also interested in local history. He edited the quarterly magazine of the New Jersey Historical Society. He published two small and elegant books on Newark urban history: *Indian Trails and City Streets* (Rankin, 1927) and *The Running Brooks and other Sketches of Early Newark* (Rankin, 1930). In his eighties, his face resembled Sigmund Freud's. He also possessed an intimate knowledge of Newark's physical underground and urban topography. Let us quote his hypothesis on "Prehistoric Highways":

> We are indebted to the Indians for the skeleton of our street system, both rectangular and diagonal, on which the Founders laid out their town (Rankin, 1927, 79).

Rankin's argument is grounded on a comparison between his technical practice in channelling waters under the streets and the historical evidence kept in the *Records of the Town* (cf. supra). His intuition about the seminal role played by the Indians derives from the work of William Nelson (1847-1914), a prominent local historian and lawyer interested in compiling the rich chronicles and archives of New Jersey. Nelson also wrote on anthropology and "Folk-Lore" (Flosom, 1914). While studying New Jersey's Indian past, he delivered a speech on "The Discovery and Early History of New Jersey". It was June 11, 1872.

> (The Indian) is gone, and save an occasional flint arrow-head, or rudely-shapen axe, or infrequent skull, or bit of coarse pottery, he has left no trace behind him. NO trace? Ah, yes! 'Words are winged', says Homer, 'and unless weighted down with meaning will soon fly away'. The Indian has left behind him that which will never be forgotten - his local nomenclature. The musical (and I insist upon it that the Indian words ARE musical) names of places that have so often rippled through the dewy lips of dusky maidens a century or two ago seem, by a potent spell of sympathizing Nature, to have been affixed forever to the places all about us, as a 'memento mori', to compensate in some measure for the destruction of the people who first applied those names [11].

The romantic view of the Indians as "mysterious children of Nature", the post-Civil War gusto for heroic and domestic anecdotes do not contradict the positivist urge to correlate "Indian language" with local prehistory and geography. Indeed, Nelson studied the language and customs of the Lenape (Nelson, 1894). To him, Indian toponymy expresses the morphology of the land as a kind of geographical etymology. Although he briefly mentions that Indian paths "in later years were widened into the public roads of the whites" (ibid, 114-15), he did not try to reconstitute their road system. And as a civil engineer, Rankin could construct this network while working on the urban infrastructure of Newark.

[10] "Head of City's Sewerage System 50 Years, Marks 75th Birthday", *Newark Evening News*, March 7, 1936.

[11] Paper read before the Passaic County Historical Society, June 11, 1872 and published in 1912 by the author, pp. 30-31.

It is a well known fact in urban history that engineers responsible for a town's sewers keep in mind a complete chart of the system which they do not fully record on paper, perhaps in order to challenge the sagacity of their colleagues or successors. In a similar manner, Rankin did not publish a map on which his interpretation of Newark's Lenape geography would be summarized [12]. Such a chart has to be re-drawn from his "Stories of Newark Streets" (Rankin, 1927).

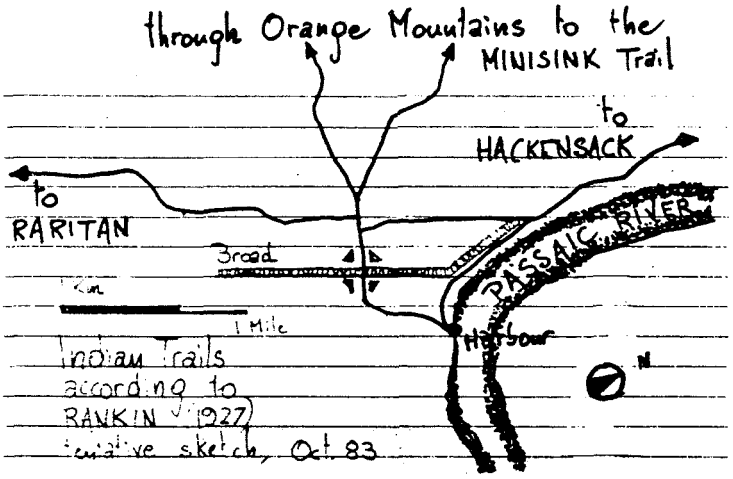

Fig. 1 Reconstruction of Edward S. Rankin's hypothesis on *Indian Trails and City Streets* (1927). Sketch by the author, October 1983.

Illustration de l'hypothèse de Rankin, ingénieur hygiéniste, sur la préexistence de l'établissement indien. Croquis de l'auteur, octobre 1983.

Rankin's demonstration is based on the potentiality of the crossroad. Given the "prehistoric highway" connecting the settlements of the Raritan and the Hackensack Indians [13], and given the link between the harbour on the Passaik and the hill crest leading to the agricultural hinterland with its rich hunting grounds, one may find an intersection coinciding with the four cardinal points. This pattern, although not traceable in stone vestiges as is the case for the Roman roads crossing the Alps or the Jura, becomes apparent through the interpretation of physical traces inscribed in the orography.

In order to test his hypothesis, Rankin scrutinized the *Records of the Town of Newark* and the *Essex County Road Book*. For instance, the phrase, "as the path now runs" [14], describing the tracing and construction of a road in 1705, corroborates his in-

[12] Rankin's hypothesis of the seminal value implied by the Indian road system was to be developed on a broader base by several scholars, such as Lane (1939) and Wacker (1975). This last book is a masterwork in "cultural geography".

[13] A map, *Conjectured Routes of Major Indian Trails along with Selected Modern Place Names* (for New Jersey) is given by Wacker (1975, 59).

[14] *Essex County Road Book*, October 8, 1705, quoted by Shaw (1884, Vol. 1, 185).

tuition regarding the central east-west axis of the town [15] . The engineer wanted to exemplify a situation which had been depicted in one sentence by the historian William Shaw (1884, 185): "On most of the routes, there already existed pathways or rude roadways, that had not previously been placed on record".

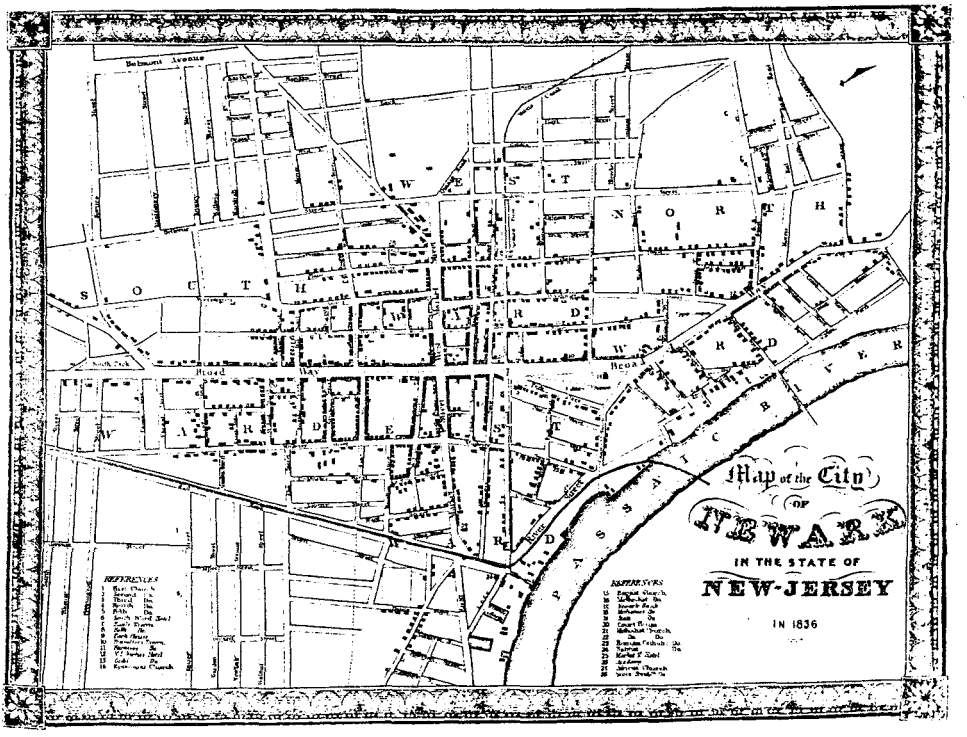

Fig. 2 *Map of the City of Newark in the State of New Jersey in 1836* from William H. Shaw, *History of Essex and Hudson Counties*, Philadelphia, 1884.

Carte (1884) de l'historien William Shaw: reconstitution de la ville en 1836.

[15] Rankin, 1927, 78. The *Records of the Town* provide the major source of information on the settlers' policy regarding measurement and control of land and roads. For the year 1668-1669, two "Surveyors of the Highways" were appointed. Their charge was independent of that assigned to the "Viewers of the Fences". Cf. *Records*, *cf.* supra).

How does Rankin's Newarkian "Indian skeleton" correlate with contemporary toponymy? Lovers of rambling tours who intend to trace the "highway" which, from south to north, linked the Raritan and Hackensack settlements, should walk the following itinerary: first cross the Weequahic Park, then joining Elizabeth Avenue, inflecting into Clinton Avenue, and enter Washington Street, leading to Broad Street and continuing as Broadway. The east-west cross-axis connecting the harbour to the hinterland and ultimately joining the Minisink Trail has been obliterated by the "Chinese Wall" of the Pennsylvania Railroad station. Market Street corresponds to a path which formed a fork pointing west to Orange Avenue and aiming at the northwest to West Market Street, branching off into Orange Main Street. Rankin also "builds" an Indian path between the harbour and Washington Park, thus triangulating his network skeleton [16].

An essential fact about the "foundation" of Newark in the last third of the seventeenth century is that the settlers established a new main street (present-day Broad Street) to take advantage of the previous intersecting network: a gesture in centrality measured to the order of the rod - "four corners" to stabilize the core of the township. The colony created its own spine to support the "legs" and "arms" left on the ground by the repelled Lenape.

Why should we evoke Newark's Indian history? Is it because we believe in the critical value of nostalgia? Is it perhaps that a comprehensive reading of the orthogonal, triangular and sinuous components in the present city grid is bound to lead to the questions articulated by Rankin? Is it that we need to relate history to geography, while agriculture and architecture are techniques to mark the grown, both productively and symbolically? Is it that urban history discusses phenomena related to permanence and transition? We would like to offer this bouquet of questions to the Lenni Lenape.

2. "The City is a book"

Records of the Town have been kept in Newark since May 1666. Between March 1775 and March 1776, the "Old Town Book" was transcribed by a "legible fair hand" into a new bound folio. "Minutes of Town Meeting" were compiled year after year until 1836, when Newark was incorporated as a city. These *Records* were printed in 1864 by the New Jersey Historical Society who wanted "to place (them) in the hands of the people of the State in their original form". A reprint including a supplementary index [17] was issued for Newark's tricentennial in 1966.

"The city is a book": this metaphor was explored by Victor Hugo in his novel *The Hunchback of Notre-Dame* (1831). Watching from the tower of the cathedral, the poet constructs a "bird's eye view of Paris" which takes the reader back to the origins of the town. This architectural walk through time echoes Hugo's quest and his concern

[16] Today, Newark's north-south axis lubricates the engine of the "northeast corridor", while the east-west connections between "downtown" (where the Indian harbour was located) and the Orange hinterland tend to feed the daily pendulation between the administrative-commercial center and some of the wealthy Jersey suburbs.

[17] The new index was elaborated by Charles F. Cummings under the supervision of Miriam V. Studley, librarians at the New Jersey Division of the Newark Public Library.

about words - fictional and critical words: "Dig the etymologies, arrive at the root of vocables, image and idea are the same word" [18].

Shall we step further and join the pre-Socratic camp with Aldo Rossi?

> In my interest for objects, I must admit that I have always managed to confuse the thought with the word through a kind of ignorance, or prejudice, or even through the suspension that this could give to the meaning of a statement or a drawing (Rossi, 1981, 5).

Or shall we stay with Hugo on the grounds of etymology, chewing the words for our own delight? A flash of truth crosses the mind when one remembers that "sausage" and "salt" derive from the same root, very much like "theatre" and "theory".

What is the etymology of *Newark* ? Historians disagree as to the interpretation of this name. It could be either a neologism coined to illustrate the foundation of the town (in this case, *Newark* is synonymous with "new town"), or the commemoration of Newark-on-Trent in Nottinghamshire, the "City Fathers" thus revering the English origins of their first pastor, Abraham Pierson, a graduate of Cambridge. It was this second interpretation which the "collective memory" of the settlers upheld [19].

The *ark* in Newark has probably fairly little to do with Noah, since the name of the town was made of the two words "new" and "wark": "wark" is an obsolete and dialectal form of work as both a noun and a verb [20]. Browsing through various encyclopedia, one discovers that Newark-on-Trent "was rebuilt in the 11th century after being sacked by the Danes; hence its name (new work)" [21]. The *work* in Newark identifies the city with its own construction. Three centuries after its foundation the town has become a palimpsest, the opposite of a neologism. Its story has been written at each street corner, verbally and physically through its architecture. It is not only the story of "men and women whose names now serve as streets and buildings" [22], but also the history and "herstory" lived by anonymous passers-by on "Giant Steps" [23].

[18] "Fouillez les étymologies, arrivez à la racine des vocables, *image* et *idée* sont le même mot". Victor Hugo, *William Shakespeare*, quoted after Grant (1968), xii).

[19] Thus Cunningham (1966, 23):

> Old settlers later recalled that they (the city fathers) changed the name of "our Town on the Passaic" from New Milford to Newark in honor of (Reverend Abraham) Pierson's former home in England. Other sources indicate the name came from "New Ark" or "New York", signifying new spiritual ventures, but the derivation from England is so simple and obvious that it seems correct (...)

The belief that Abraham Pierson had been "episcopally ordained at the parish church in Newark-on-the-Trent" was expressed in the 20th century by David Lawrence Pierson, Historian General, Sons of the American Revolution, in his *Narratives of Newark in New Jersey. From the Days of its Founding, 1666-1916* (1917), a volume published by the author as a celebration of the 250th anniversary of the town. Relying on Edward E. Atwater's *History of the Colony of New Haven* (1902), Mrs William A. Sayre, in her *Biographical Sketches of the Founders of Newark* (1935), does not establish a biographical connection between Newark-on-Trent and Abraham Pierson.

[20] The Compact Edition of the *Oxford English Dictionary* (1933), Complete Text Reproduced Micrographically, Oxford University Press, 1971, 3687.

[21] *The Columbia Encyclopedia*, edited by William Bridgwater and Seymour Kurtz, Third Edition, Columbia University Press, New York, N.Y., London, 1968, entry Newark-on-Trent, 1484.

[22] Robert Foldman, "Legendary Past of Mt. Pleasant Cemetery", *The Star Ledger*, June 30, 1980, no.4. Clipping at the Newark Public Library, Newark, N.J.

[23] "Giant Steps" was first recorded by its composer, John Coltrane, April 1, 1959 in New York City. *John Coltrane Quartet*, John Coltrane (ts.), Cedar Walton (piano); Paul Chambers (bass); Lex Humphries (drums). Atlantic Records, no 1668. See Wild (1977). A better known second version was issued a month later on an

3. "The Line was run"

Continuity and change, permanence and revolt, time as a fossilized footprint or as an intense reunion make up our relationship to history and to the city. In this unstable equilibrium, the moments of foundation remain essential: they settle the tempo and the momentum, their swinging rhythms delineate the ground of permanence and punctuate the happening.

What are the fundamental moments in Newark's history? A complex answer may be abbreviated into the following formula: "One Broad Street, triangular commons (which intended to become parks) and Four Corners". This sequence of events has been inscribed into a lilting movement at the very time of the township's foundation, establishing "New-Wark" as a Plantation.

A discussion of the above formula may begin with a look at the political system brought over from New England. Suffice it to remember that the self-government of the Planters was organized through the "Town Meeting" of the landowners, who elected representatives, magistrates, officers and technicians under the co-opted power of "selectmen" and the ministerial authority of a "Congregational Church".

Since the property of a "home lot" gave access to the privilege of "freedom"[24], the control of land, the measurement, limitation and record of ownership called for a strict geometry of the soil. Within three years, the Plantation was to be perambulated by hogs, calves, sheep, horses, cows, oxen and occasionally wolves. "God", "Good Carriage and Behaviour" had presided over the attribution of some sixty lots drawn in February 1667. "Viewers of the Fences" and "Surveyors of the (Town's) Highways" were appointed as control instances (*Records*, 12-31).

The *Records of the Town* do not name the author of the urban plan. Newark was not to be a "model city" like New Haven, Philadelphia, Savannah or Bergen (New Jersey) where, in 1660-1662, "the town was directed to be laid out by Jacques Cortelyou, the first surveyor of New Amsterdam" (Winkle, 1902, 55) [25]. Rather, Newark was to become a model for a city whose empirical plan rested upon the "common knowledge" that the Planters had gained in New England.

In his recent *Common Landscape of America*, Stilgoe (1982, 43-58) has reconstituted the original scenario and pictures used for the "planting" of a township in New England. He shows that the political organization, the division of the land and the agricultural methods were rooted in a longing to emulate medieval "husbandry", a form of agriculture which, at that time in Europe, was gradually eradicated by new developments. Husbandry relied on the "early ideal of nucleated houses surrounded by outlying fields" (ibid., 48). Private ownership of the house was backed by propriety and common regulation of such "public utilities" as the "green", the "meeting-house", the "pond", the "mill".

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album entitled "Giant Steps": *John Coltrane Quartet*, John Coltrane (ts.); Tommy Flanagan (piano); Paul Chambers (bass.); Arthur Taylor (drums). Atlantic Recording Studios, May 4, 1959. Atlantic Records no. 1311.

[24] "That none shall be admitted *freemen* or free Burgesses within our Town upon Passaik River in the Province of New Jersey, but such Planters as are members of some or other of the Concregational Churches (...), *Records* (op. cit., 2, italics ours).

[25] Bergen was laid out as a central square commanding four orthogonal and equal quarters.

From 1620 to 1845 New England townspeople laid out, built, and maintained all the public "ways", or roads, and collectively erected the structures necessary for the common good. Bridges, stocks, whipping posts, and especially livestock pounds showed their builders' desire to establish in New England the revered *Landschaft* [26] order of the past.

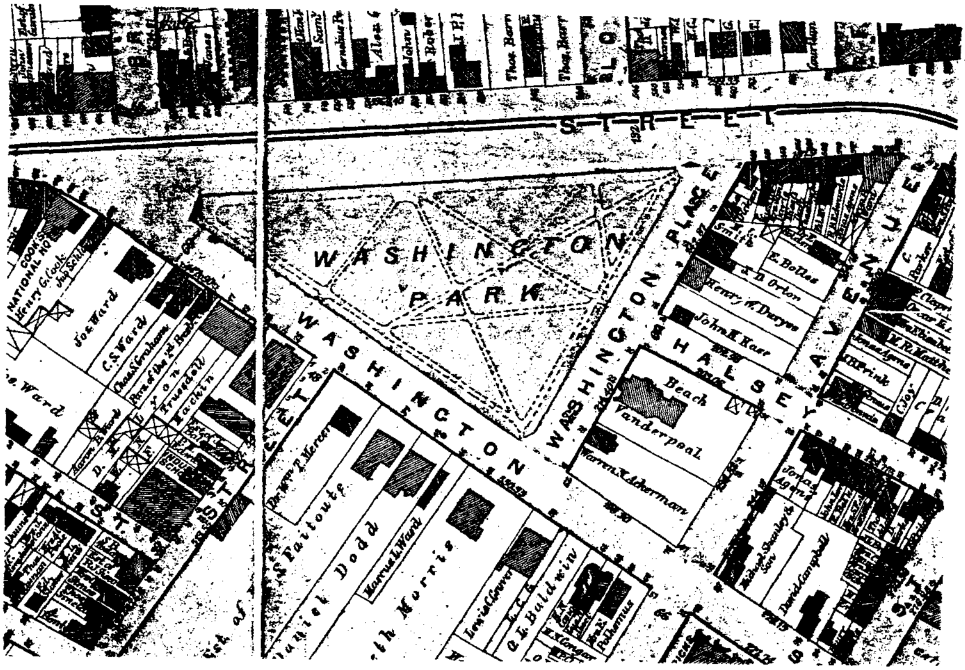

Fig. 3 *Combined Atlas of the State of New Jersey and the City of Newark* by G.M. Hopkins, Civil Engineer, Philadelphia, 1873. Washington Park.

Atlas de l'Etat et de la Ville (1873) du géographe G.M. Hopkins. Détail du parc de Washington.

[26] Italics ours. Directly related to the English "landscape", the German feminine substantive "Landschaft" originally means the land shaped by work. For Stilgoe (1982, 12)

> the antithesis of wilderness is landscape ... A *Landschaft* was not a town exactly, or a manor or a village, but a collection of dwellings and other structures crowded together within a circle of pasture, meadow, and planting fields and surrounded by unimproved forest or marsh.

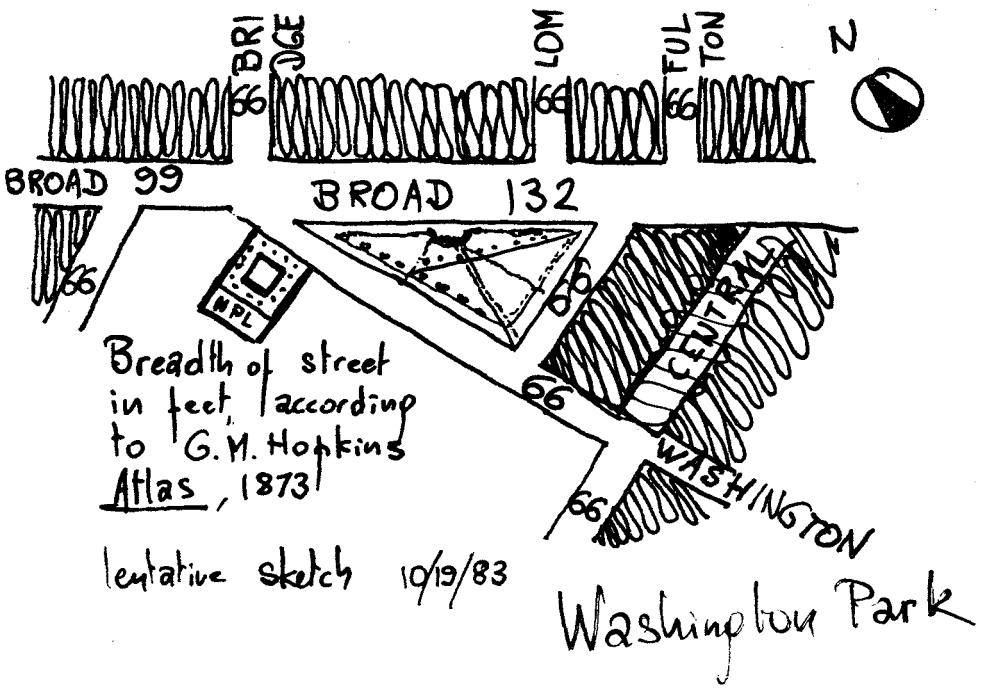

Fig. 4 Breadth of Streets in feet, according to Hopkins' Atlas. Tentative sketch by the author, showing the basic ratio of the chain (66 feet) applied to urban geometrical order.

Largeur des rues en pieds, selon le système féodal fondé sur la chaîne de 66 pieds, générateur de la géométrie urbaine.

Indeed, the "planting" of Newark would have developed along identical lines, had it not been for the surrounding presence of a thick and threatening forest with devilishly roaming monsters barking on the outskirts of the town. Looking at it from a bird's eye perspective, some have said that the Newark's "Indian road system was a set table to which the settlers brought their township". Located along the sinuous Passaik river, the existing harbour provided a gateway to the meadows where the migrants marked their *plat* [27]. The first stage in settlement included the laying out of a central line of division which ran from south to north. It crossed the Indian east-west road which rose from the harbour to the Orange Mountains. Thus "Four Corners" were established, the very centre of the town.

We could go back to Rankin's book, *Indian Trails and City Streets*, and its imaginative vision of Newark's urban "skeleton" as being Indian. Instead, we would like to comment on the persistence of the three components in a system of urban centrality: the linear centre of Broad Street, the parks grafted upon it and the "Four Corners" at the crossroad of Broad and Market Streets. The *Records of the Town* indicate that the Planters acted immediately: they appropriated and consolidated the local

[27] "A plan or diagram of anything; especially a ground-plan of a building or any part of the earth's surface; a draught, design, map, chart" *Oxford English Dictionary* (op. cit., 2200).

geography in the summer of 1666. Minutes of the Town Meeting on the 30th of October record that

> after the Line was run in the Centre or Middle Street of the Town by the Surveyor General, and the several Ranges of Lots agreed upon, and the Middle Highways both in the Length and Breadth of the Town to be Eight Rods wide and the Rest four, with a full Power and Liberty to appoint and agree upon and set out Highways in the most convenient Places necessary for the publick uses and Benefits of the Town, with the like Liberty for Passages for Drains, Gripes, or Water Courses where they were needful (...) (*Records*, 4-5).

The initial intention was thus to trace a central crossroad between two streets equal in width and length; a similar pattern was to be adopted in Philadelphia when Broad and High (later Market) Streets were brought to an equal cardinal width of 100 feet. But Philadelphia was planned to develop into a commercial city. Newark, on the other hand, was a "Plantation" and gave priority to the construction of its south-north axis, a wide spinal line indeed since it measured 132 feet across, the equivalent of two "chains" or eight "rods". Rankin comments twice on the Newarkian "Broadstreet". He first stresses its structural importance by asking the question: "What's in a name?". His answer is formulated in the listing of the different appellations given to the same street in the minutes of the Town Meeting:

> Broad Street has been designated in the following seven ways: "The Centre Street", "The Middle Street", "The High Street", "The Main Street", "The Broad Street", "Broad Way" and "Broad Street" (Rankin, 1927, 85-86).

In a further reflection, Rankin (1927, 77) comments on the location of Broad in relation to the pre-existing Indian route from Raritan to Hackensack:

> (The Founders) laid out their main street about 700 feet to the east (of the former highway, now Washington Street) leaving room for a tier of six-acre plots fronting each street, and also leaving room for another tier on the east at which point they placed their other north and south street, Mulberry.

He also makes it clear that the platform devised by the Puritans corresponded to a rational evaluation of the limits imposed on settlement patterns by the hopes set into the rural community. This intuition may be confirmed. It is probable that the location of Broad Street was chosen not only for its "regular" solar orientation, but also because it allowed optimal public land to be reserved for the two northern grass commons and the third "common place", the "watering place" west of the "Four Corners". The "Town upon Passaik River" turns its back to the meander of the flux. The banks of the "channel" are indeed capricious in their seasonal height; but, above all, "New-Wark" wanted to settle on continental land. The township basically needs a platform. In 1666-67, its plat could not anticipate the presence of manufactures or the dominance of the harbour. The fact that Broad Street would be turned into a six-lane motorway marvellously lit by flashing ambulances, police cars, and by the delicate Newarkian pistachio-green of the fire engines with their crystal buzzers cannot be credited to the far-sight of the "City Fathers". Newark will certainly keep its original centre, but this permanence is not due to a precognitive gesture. In the seventeenth century, history and predestination did not coincide for the sake of building large roads; they may however have been the expression of a bargain for a less painful afterlife in which mosquitoes would be transubstantiated into angels.

Finally, we may add that Newark's founders did not aim at developing but, rather, at limiting the *area* of the town. Our interest in their planning lies in the possibility of permanence, of centrality and broadness which they introduced into the appropriation and transformation of the place.

4. Chains and Rods

Whatever their philosophical content, "order" and "measure" interlock in the project of architecture. The "invention" of the squared paper by the architect Inigo Jones and the "invention" of the chain by the mathematician Edmund Gunter somehow coincide in their intention to correlate the ownership of rural and urban land with the construction of its limits.

Newark offers an interesting case in the recording of the following combination of measures: the rod, the chain, the acre. The rod is the basis of the chain which is the basis of the acre. From the straight line we reach the square. In the seventeenth century, the rod was used in England both for land survey and for brickwork. According to Nathaniel Lloyd (1925), a rod of brickwork represented the laying of 4500 bricks and contracts between masons and patrons were written on this basis:

> In 1667, the year after the Great Fire, wages had gone up, and a contemporary writer gives the following information with respect to bricklayers:
>
> "The rate demanded by many of them is seven pound a Rod and they to find all materials; or forty shillings a Rod and the Builder to find them" (Lloyd, 1925, 26).

According to the early *Records of the Town of Newark*, wooden constructions were prevalent and not brickwork. Thus the rod refers to the delimitation of the land, whether streets or private lots. For instance, in 1667, one year after the foundation of the settlement, a rule was edicted which would oblige each proprietor to build within twelve months a solid fence around his lot, and this fence

> is to be set up by the Time (until March 1668), under the Penalty of Two Shillings and Six Pence, for every *Rod* that is Defective by the Day, and Twelve Pence by the *Rod* Every Day after till it be sufficiently made (...) (*Records*, 7).

The rod, an instrument of punishment, is also the attribute of law and geometry.

The hierarchy established in tracing the streets rests on the rod (16 feet, 6 inches), or more exactly on its relation to the chain. A chain (66 feet) comprises of four rods. The main street (now Broad) is two chains wide. The parallel streets (now Mulberry and Washington) are one chain. The perpendicular street (now Market) is an intermediate 6 rods wide. The *Records of the Town* do not mention this set of formal measures. They do record, however, successive decisions concerning the building of parallel ways and lots. As we remember, the initial plan had been to use a binary combination of main (two chains or eight rods wide) and secondary (one chain or four rods wide) ways[28] . Empirically, the intermediate value of six rods would be used for the width of the "little" main way (now Market Street). The width of the central axis indicates the

[28] "and the Middle Highways both in the Length and Breadth of the Town to be Eight Rods wide and the Rest four (...)". (*Records*).

importance of the public "common" land. Here the measure is not given by a donkey's pace, as in Le Corbusier's interpretation of the European street, but by that of a traveling herd. The argument is recorded in February 1673, as the question arose concerning the extension of Broad Street further south, beyond the urban lots of the "Upland" grouped along the Four Corners and in the direction of the "Meadow Side":

> There shall be a Highway from the Town's Land for the Town's Use, by the Meadow Side of Eight Rods wide, on firm Land unto the Head of the Creek, with Room convenient for the Town's Cattle (...) (*Records*, 58).

John Stilgoe explained the importance of the chain, but we may add that the *Records of the Town* do not expressly mention Gunter's chain. We are thus extrapolating; yet there is no doubt that the rod is the basic unit of measure in seventeenth century Newark. On the other hand, the chain acts as the "missing link" between the rod and the acre. The preference given to the ratio four and eight when the rod is applied to drawing the limits of the "public realm" supports our interpretation.

Stilgoe (1982, 100-101) writes:

> A simple but brilliant surveying innovation popularized squares in every colony, although only late in the 18th century Edmund Gunter, an English surveyor who died in 1626, invented and promoted "Gunter's chain", a surveying chain of 100 links of 0.66 feet each. The chain is therefore 22 yards long, and if an acre is described as 10 square chains, 640 acres fit precisely in a square mile of ground. No mathematical ratio is more important in the American Enlightenment landscape.

We do not need to try and prove that Newark stood as an avant-garde to the Enlightenment. But we can record the fact that the Planters, in their attempt to develop husbandry, relied on the empirical use of the chain. Their primary concern was to allot acres.

Let me open a brief autobiographical parenthesis and confess that my urge to compile publications on Newark's urban history was met with attentive hospitality at the New Jersey Reference Division of the Newark Public Library. My temporary presence and my full-time teaching job at the School of Architecture of the New Jersey Institute of Technology made it difficult for me to start a personal research in the archives of the City, of the County, the State or the Congress. The materials already published in and on Newark were so abundant - quantitatively and qualitatively - that a lifetime would not suffice to peruse them all. While standing on the "staircase" of active compilation, I often felt insecure about important questions and I had to limit my curiosity. I was hampered more particularly by the impossibility of performing an autopsy of Newark's cartography.

It seems that no cartographic materials anterior to the nineteenth century have been preserved, which could document the original city plat. Newark's "collective memory" dates the earliest map at 1806. It was drawn by Charles Basham: "This was called the 'Shoemaker Map' because of the shoemaker cartouche in the lower hand corner" (Cunningham, 1966, 88). Basham transcribed and etched his plan on a plate, copies of which could be examined and probably bought by lot owners shortly after the "Committee appointed by the Town Meeting to Make Enquiry relative to the Encroachments made on the public Lands and Highways" had released a report expressing the following concern (Minutes of a special Town Meeting held in 1802):

It is with pain the Committee observe that the manly and Enlightened policy of our Ancestors in providing Land for Public uses and Capacious Streets, at once calculated to preserve the Health of the People, and to adorn, sanctify, and render commodious the Town, has been greatly circumscribed by the narrow and selfish dispositions of some of their Descendants and the shameless avarice of more modern Settlers (*Records*, 186).

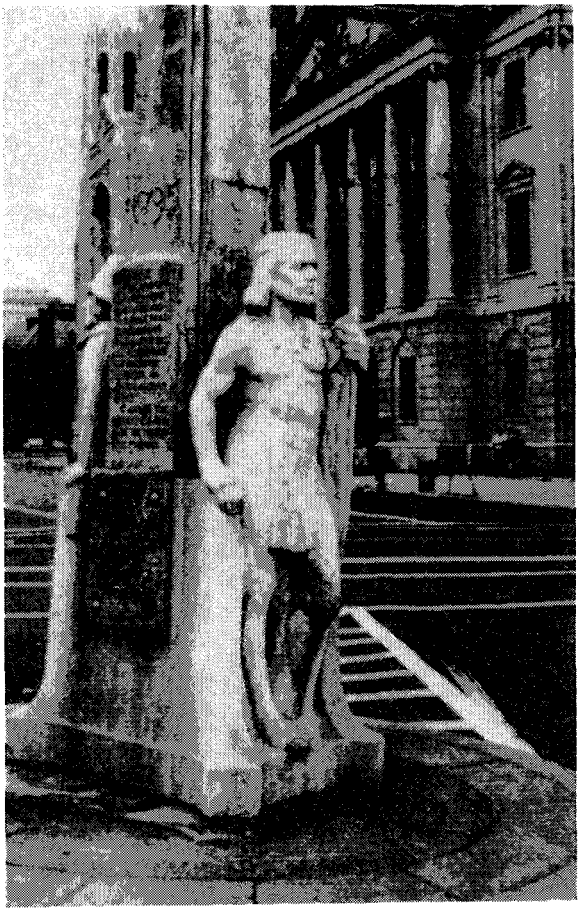

Fig. 5

The Indian and the Puritan, base and figures carved in stone and giving birth to a bronze lamppost by the sculptor Gutzon Borglum, 1916. A true landmark commemorating the bridging of the river at the crossing of Broad and Washington Streets.

Groupe monumental de *l'Indien et le Puritain*, 1916, oeuvre du sculpteur Gutzon Borglum.

In 1802, Newark's selectmen attributed to their City Fathers ideas in urban planning which could have been signed by Vitruvius and Marc Antoine Laugier. Enlightenment had reached Newark and the original settlement was now interpreted as the foundation of an ideal city. Disputes over land ownership and protection of the public realm stimulated this retrospective - and almost archeological - look at the geography of the place. Three commissioners were appointed in 1809 "to execute the law respecting the streets" (*Records*, 198). Their survey was carried out immediately. The Reference Division at the Newark Public Library keeps the photographic record of a map dated 1809 which probably corresponds to the aforesaid "law respecting the streets" [29].

[29] New Jersey Picture Collection, Roll 17, no 11038; present whereabouts of the original unknown. Although the sharpness of the picture makes the deciphering of the handwritten comments tentative, there is no doubt that this map is "the copy of the original map" (which original map, we do not know yet); nor is there a doubt about the scale of "4 chains to one inch".

This measured drawing adopts the scale of "4 chains to one inch" and shows that the surface of the town with its home lots remained unchanged during some 150 years. The same grid accommodates an estimated population of 200 in 1666 and the 6000 people reported by the U.S. Census for 1810 [30].

In 1853, with a population of 48'000 inhabitants, the city had trebled its volume and had organized its extension by applying to the periphery - north, west, south and east - separate orthogonal portions of a "Manhattan grid" of 200 feet. Shifts in the urban grid were responsible for one of Newark's "irregularities". In the second half of the 19th century, the survey and the cartography of the city provided beautiful documents. Historians were producing drawings to explain the birth of the now bicentennial city. For instance, Samuel Congar, librarian of the New Jersey Historical Society, teamed with a member of the Committee on Publications, William Whitehead, to publish their interpretation of the original town plat. This engraving was easily given as a "true" document when it was re-published for the city's 250th birthday under the folkloristic title of "Map of the Town by Ye Pesayak River" (Pierson, 1917, 17).

One morning, I was shown a heavy folio, an atlas published in Philadelphia before the Centennial Exhibition of 1876 by the civil engineer G.M. Hopkins [31]. Besides being struck by the beauty of the coloured lithographs, I was captivated by the image of a dense, "fully built" city. Contemporary Newark had appeared to me with its edentate mouth, its empty and semi-empty lots. Surface parking utilized as a kind of guarded no man's land had systematically invaded the down-town area where a second city, grafted onto the station, was growing like an exotic species on the trunk of the urban centre. In contrast, the 1873 atlas showed the density of the architectural fabric and, although low-raised, it gave meaning to the street, to the grid, to the rationalization of the technical infrastructure, to the functional location and correlation of the various political and economic components of "city life" in the industrial society.

Hopkin's atlas has one more advantage over its predecessors [32]: it records the width of the streets and the dimensions of the blocks. Focusing on the *First Ward* (cf. note 32, 34-35), measured by the scale of 150 feet per inch, one immediately reaches Washington Park, where the 17th century north common, later used as a regional marketplace, "wanted to become" Newark's Pantheon. The geography of the place may be described as an irregular triangle with an almost right angle at the south corner. One may be surprised when, looking at the adjacent streets, one discovers a constant ratio in the width of the streets. We need to remember that these streets were measured after the Civil War and that they still run according to the rod and to the chain. We already know that Broad, the park's eastern limit, is 132 feet wide, i.e., two chains or eight rods. But we now see that ALL the other streets bordering or converging upon Wash-

[30] Quoted after Joseph Atkinson, *The History of Newark, New Jersey*, Being a Narrative of its Rise and progress from the Settlement in May 1666 by Emigrants from Commecticut to the Present Time, Including a Sketch of the Press of Newark, from 1791 to 1878. William Guild, Publisher, Newark, N.J., 1878, 328.

[31] *Combined Atlas of the State of NewJersey and the City of Newark*, from actual survey official records and private plans, by and under the direction of G.M. Hopkins, Civil Engineer. Published by G.M. Hopkins and Co., 320 Walnut Street, Philadelphia, 1873. I am grateful to Mr Charles Cummings for directing my attention to this superb folio.

[32] Harrison Van Duyne, Surveyor and Real Estate Agent, D.H. Sherman, Civil Engineer, *Insurance Map of Newark, N.J.*, published by Van Duyne and Sherman, Newark, 1868. Colour-lithographed atlas in 34 sections listing owners' construction materials, height of buildings and location of steam engines within factories.

ington Park measure 66 feet, or in other words one chain. These streets are named, clockwise, Washington, Bridge, Lombardy, Fulton, Washington Place, not to mention the parallel Central Avenue. "Am I crazy to be going in there?" is one of the questions about Newark's monumentality in *Portnoy's Complaintt* (Roth, 1970, 144).

5. Conclusion

Many questions remain open. What shall we do with the recurrent figure of 66 feet? Should we search for the existence of some mysterious order? The initial "agricultural logic" of marking the place has become a permanent order. Respect for the limits separating private and public property generated and maintained this order. A more complete explanation should be sought as to why and how, in the 19th century, when Newark was to be built as a system in conveying raw materials, manufactured goods, a labour force and managerial software, and when engineers, commissioners and mechanics reformed the town plat, the rural morphology was converted into the technical infrastructure of the industrial city. We are unable to go beyond the mere identification of this issue. The question certainly did not exist for Rankin, for whom "modern Newark" grew functionally, following the tracks of its Indian ancestors.

In their book, *The Intellectual Versus the City*, Morton and Lucia White propose the following inventory:

> The American city has been thought by American intellectuals to be: too big, too noisy, too dusty, too dirty, too smelly, too commercial, too crowded, too full of immigrants, too full of Jews, too full of Irishmen, Italians, Poles, too industrial, too pushing, too mobile, too fast, too artificial, destructive of conversation, destructive of communication, too greedy, too capitalistic, too full of automobiles, too full of smog, too full of dust, too heartless, too intellectual, too scientific, insufficiently poetic, too lacking in manners, too mechanical, destructive of family, tribal and patriotic feeling (White, 1962, 222).

Since Newark's mayoral administration has fought for over a decade against deindustrialization, unemployment, lack of public funds and two or three dictatorial magnate corporations, it would be derisory to add that the Jerseyan "big city" exemplifies the usual nationalistic rejection of urban life. "Woody Allen, in *Sleeper* said that he believed that a divine intelligence governed the universe *except for certain parts of New Jersey*" (Meyers, 1979, 136). Woody Allen uses clichés to ask questions; in this case, the opposition of reason versus ignorance. Ignorance has two meanings: not to know and not to recognize. In the second case, it verges on intellectual contempt. The "irregularities" in Newark's map become organized patterns when related to the "sinuous marke" of the Indian trails, while the hockey stick of Broad Street commands the public geography of the triangular parks and the cross at the "Four Corners" with its four newspaper stands erected in 1927 [33] . Similarly, the political and architectural discussion calls for the need to visit and revisit the place, to learn the names of the streets, to build in a fully occupied grid, to meet the people.

The people of Newark are walking through and standing at the junction of Broad and Market; they also use the Public Library. Newark has little to do with a messianic

[33] See the polemical brouchure written and published by Murphy (1927) and inspired by the misuse of public streets with unsightly and dangerous news stands.

search for some business future, already transplanted to the golf clubs of the Garden State or to the palm trees of the Sunbelt, and already "transPATHed" from downtown Manhattan. Newark stands and waits in the middle of its own identity: focal, continental, geometrical, etymological, controversial and beautiful.

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