Urbanizing the Landscape

A century from this date,
Orleans, like London, will [envelop]
every town and hamlet for miles around.
The largest city on the continent of America,
and perhaps in the world.

—Alberti James Pickett, 1847

Imposing Order

Getting the wild deltaic landscape under control

Urban order came to New Orleans after three years of haphazard development. In 1721-22, Adrien de Pauger surveyed a symmetrical sixty-six-block grid around a central plaza fronted by institutions of church and state, surrounded by fortifications. Contrary to New Orleans' *laissez-faire* reputation, this first urban environment was "actually military in the insistence of its right angles, like the gridded camps Roman soldiers laid out at the wild edges of their empire.... The French Quarter looks like what it is—the elaboration of a colonial outpost designed by military engineers."[125]

French colonists, well aware of the site's challenges, set out altering the natural environment toward their sense of order. Seasonal overbank floods of the Mississippi ranked as a priority problem. The most significant effort to constrain the river through levees began in 1722-23, when Le Blond de la Tour and Pauger sketched plans for an earthen embankment about twelve feet wide atop the crest of the natural levee. By 1724, the first levee measured six feet wide, about 3000 feet long, and three feet high, but was readily breached by the river that spring.[126] A meager workforce constantly hampered reinforcement work; nevertheless, by 1727, a solid eighteen-foot-wide, three-foot-high levee (plus a parallel ditch to collect seepage water) lined one mile of the town's riverfront. Although river floods would plague the city into the late 1900s, these initial engineering efforts launched one of mankind's most massive manipulations of nature: the control of the Mississippi River.

Regionally, sedimentation at the mouth of the Mississippi challenged the viability of the colony, particularly the important coastal post known as the Balize. Built in 1722 off the easternmost "toe" (formerly East Pass, now North Pass) of the Mississippi Delta's "birdfoot," the Balize (probably from *baliza*, Spanish for "beacon") operated as a transshipment point for incoming vessels before they ascended the Mississippi. It served, among other things, to intercept Spanish maritime traffic that could not or did not want to venture upriver. "[T]he pass of The Balize is subject to continual changes which threaten to render it impractical for our vessels," warned Bienville in 1726.

> [T]he only [remedy] is to obstruct the east pass through which the current has been rushing [so that] all the water would flow through the pass of The Balize carrying with it the mud that has collected there.... The enclosure of piles that is already well advanced will prevent ... the [Balize] island from being eaten away by the sea, but it is necessary to transport a great deal of earth ... to elevate the land of the island, make it inhabitable and to protect it against overflows. I agree it cannot be done without cost but this expenditure ... is absolutely necessary.[127]

Bienville's proposal—Louisiana's very first coastal restoration plan—foretells the many vast hydrological engineering projects that would render the lower Mississippi River/Gulf of Mexico estuary one of the most anthropogenically altered major ecosystems on earth. Themes familiar to the news headlines of southern Louisiana today—coastal erosion, river diversion, sediment transport, land-building, governmental financial commitment—began in the early 1700s.

Infrastructure was also needed: a call came "to establish bridges on three small streams that lie between New Orleans and Bayou St. John for the convenience of carts," a reference to the tributaries which coursed through present-day Mid-City and impeded access to the bayou. The bayou itself, wrote Bienville in 1726, was "blocked in many places" and lined with "trees that hang over the banks and threaten to fall into it." Land grants were often used to motivate development: "A good settler on this bayou named Rivet offers to undertake this work," wrote Bienville, if the Company might be so kind as to "grant him as a concession … along this bayou."[128]

Bridges made of brick were needed in the city proper, to replace the flimsy wooden *banquettes* built by residents to cross the "little ditches in front of their houses, one or two feet in width by a foot and a half in depth, [dug] to drain off the water that seeps through the levee [and] from the rain …" Drainage and navigation improvements were in mind with a proposal for "a canal communicating between the river and Lake Pontchartrain,"[129] an engineering project appreciated as a challenge at the time and not executed until nearly two centuries later, when the Industrial Canal was excavated. To pay for various public-works projects, citizens would be taxed "five livres per head of negroes."[130]

Amidst this landscape manipulation came an appeal for forest conservation. "We [urge that] individuals preserve woods on their lands," wrote Governor Périer in 1729. "We are suggesting to them that they must leave one-third of" the trees standing. He predicted that the backswamp might be deforested within "fifty or sixty years," forcing New Orleanians to go northward to Manchac and Natchez for timber. Others shared his concerns. Le Page du Pratz, a resident of New Orleans between the late 1710s and the 1730s, wrote in 1758,

> The cypresses were formerly very common in Louisiana; but they have wasted them so imprudently, that they are now somewhat rare. They felled them for the sake of their bark, with which they covered their houses, and they sawed the wood into planks which they exported … The price of the wood now is three times as much as it was formerly.[131]

Such reports counter modern notions that natural resources in the colonial era were as abundant as conservationist sentiments were scarce (though Le Page probably overstated the rarity of cypress). Périer further wrote of "inducing the inhabitants to plant mulberry trees on their land," along drainage canals and on plantation boundaries. Thought to be native to Louisiana but probably originally from Mexico, mulberry trees were particular valued because they supported silk worms and could thus foster the development of a local silk industry.[132] Toward this end, the Company of the Indies later adopted a resolution "forbidding the destruction of any mulberry-trees in

the clearing of lands" and obliging "all the inhabitants to whom negroes are delivered" to "plant on their land the number of mulberry-trees per head of negroes that shall be fixed by the Council."[133]

Efforts to impose urban and agricultural order on the alluvial landscape depended heavily on a source of labor. Little, if any, reflection went into resolving the dilemma of labor shortage; with centuries of precedent in the West Indies, the solution seemed obvious: capture Africans, ship them to Louisiana, and institutionalize their enslavement. "All the colony is impatient to see some negroes, whom it greatly needs," wrote the colonists to Company directors in 1724. Forcibly extracted from the coastal Senegal region by a well-established slave trade, Africans arrived first in 1719, concurrently with the first major immigration wave.

African hands, according to white colonists, were needed not only for plantation agriculture but for public-works projects such as flood control, drainage, and defense. "When some negroes have come for us and the river permits us to take land on the bank we shall think of perfecting the length and breadth of the levee. We shall see that willows are planted … on top of the levee … in order that the roots may be able to retain the land."[134] Recipients of newly imported slaves had to "pay" for their bondsmen by deploying them on grueling public-works projects for thirty days. "Several inhabitants have begun to furnish" their slaves, reported Governor Perier in 1728. "They are being employed to cut down the trees at the two ends of the town as far as Bayou St. John in order to clear this ground and to give air to the city and to the mill."[135] Colonists demanded slave labor to build land up for flood protection and to excavate moats as defense against potentially hostile Indians, particularly in the wake of the Natchez uprising of 1729. The King himself acknowledged in 1732 that "work on the moat … to enclose the city of New Orleans ceased more than two years ago because the settlers do not have a large enough number of negroes to supply the statute-labor…."[136]

Labor needed for public works and plantation agriculture motivated slavers to deliver increasing numbers of captured Africans to Louisiana's shores. In the two years prior to the census of November 24, 1721, the number of African slaves in the New Orleans area rose from zero to 533, then tripled to 1,567 over the next six years. Indians were also enslaved, though in lesser numbers: fifty-one in 1721; seventy-five in 1727. In circa-1721 New Orleans, 84 percent of the population owned the other 16 percent, a ratio that would remain roughly constant for the next 110 years.[137] Tree-cutting, canal excavation, mill work, levee construction, and other initial urbanization labor awaited the kidnapped Africans, followed by agricultural toil for the remainder of their lives and for generations of their descendents.

Much, indeed most, of the muscle that imposed urban order upon the wild New Orleans landscape came from newly enslaved African-born men.

Eyewitness: New Orleans, circa 1770

An Englishman and a Spaniard describe Spanish colonial New Orleans

England's defeat of France in the North American theater (French and Indian War) of the worldwide conflict known as the Seven Years' War radically realigned the geography of European empire. France retained only a few Canadian and Caribbean islands, while England won French Canada, French Louisiana east of the Mississippi, and Spanish West Florida. It would have gained Louisiana west of the Mississippi as well, had King Louis XV not secretly ceded those vast lands to his Spanish cousin, King Carlos III, a year earlier in the Treaty of Fontainebleau. Included in the clandestine offer was New Orleans, whose terrain was deemed an "isle" on account of the Bayou Manchac distributary, and was thus cartographically "detachable" from the east-of-the-Mississippi mainland. The clever and timely deal compensated a friend (Spain) for the loss of its territory (Florida) to the British, while keeping a strategic city (New Orleans) out of the hands of a triumphant enemy (England). One can only ponder what New Orleans might look like today had it become English. Instead, Spain accepted Louisiana in late 1762; after the secret transfer became public in 1764, the dominion of New Orleans passed from France to Spain politically in 1766 and militarily in 1769.

That year, Spanish agent Francisco Bouligny, a Spaniard of French and Italian descent, to observe and advise the Crown on Louisiana affairs. England, meanwhile, moved quickly to establish a presence in its new possessions across Lake Pontchartrain. It sent Capt. Philip Pittman to survey the lands of British West Florida and to clear out the Bayou Manchac/Iberville River shortcut to the Gulf of Mexico—a critical route for British interests because it united West Florida with its new Gulf Coast possessions while avoiding Spanish New Orleans. Pittman and Bouligny, representing two very different cultures and perspectives of New Orleans, both left behind valuable eyewitness reports on the state of the city and region around the year 1770.

Pittman had the opportunity to visit the foreign colony during the interregnum period of 1765-69; his description was published in London in 1770. "New Orleans [is] situation is extremely well chosen," he wrote,

> as it has a very easy communication with the northern parts of Louisiana (now West Florida) by means of the Bayouk of St. John, a little creek, which is navigable for small vessels drawing less than six feet of water, six miles up from the lake Pontchartrain, where there is a landing place [present-day Bell Street vicinity] about two miles from the city [connected by Bayou Road]. The entrance of the Bayouk of St. John [present-day Wisner at Robert E. Lee boulevards] is defended by a battery of six guns and a sergeant's guard.[138]

Ocean-going vessels could not negotiate the lake/bayou route and thus had to

use the river route to reach the city:

> The vessels which come up the Mississippi haul close along-side the bank next to New Orleans, [where they] discharge their cargoes.... The town is secured from the inundations of the river by a raised bank, generally called the leveé; and this extends from the *Detour des Anglois* [English Turn], to the upper settlement of the Germans [Luling area], which is a distance of more than four miles, and a good coach-road all the way. The Leveé before the town is repaired at the public expense, [but] each inhabitant keeps that part in repair which is opposite to his own plantation.[139]

The Englishman found the French-turned-Spanish city in a rather decadent condition. Positioned behind St. Louis Cathedral, looking toward the river, he explained:

> The parade [ground] is a large square, in the middle of that part of the town which fronts the river; [behind it] is the church dedicated to St. Louis, a very poor building, framed with wood; it is in so ruinous a condition that divine service has not been performed in it since the year 1766, one of the king's storehouses being at present used for that purpose. The capuchins are the curates of New Orleans; on the left hand side of the church they had a very handsome and commodious brick house, which is totally decayed and gone to ruin; they now live on their plantation, and in a hired house in town. On the right side of the church is the prison and guard-house, which are very strong and good buildings. The two sides of the square were formerly occupied by barracks for the troops, which are entirely destroyed. The square is open to the river, and on that side are twenty-one pieces of ordnance... which are fired on public rejoicings.

The Good Friday Fire of 1788 claimed the primitive French-era St. Louis Church described by Pittman. The Spanish cleared away the ruins in 1789 and by 1794 completed a more substantial Spanish-style edifice with distinctive bell-shaped towers. Except for the front wall, the 1794 church was entirely reconstructed in 1849-51 in the Greek Revival style popular at the time, forming the St. Louis Cathedral that overlooks Jackson Square today. A generation after Pittman's visit, the structures on either side the church would be replaced by the Spanish Colonial-style Presbytère and Cabildo, both later adorned with mansard roofs and cupolas also still standing today.

"All the streets are perfectly straight," he continued,

> and cross each other at right angles, and these divide the town into sixty-six squares, eleven in length by the river's side, and six in depth. The sides of these squares are one hundred yards each, and are divided into twelve lots, for the establishment of the inhabitants. The intendant's house and gardens take up the right side of the parade [ground], the left side is occupied by the king's store-houses and an artillery-yard.... The convent of the Ursulines and general hospital, which is attended by the nuns, occupy the two left hand squares facing the river: these buildings are strong and plain, well answering the purposes for which they were designed.[140]

The intendant's house occupied the present-day corner of Toulouse and Decatur streets; the king's storehouse was located three blocks downriver, at Dumaine. The Ursulines' convent and hospital occupied a double-block bounded by present-day Decatur, Ursulines, Chartres, and Barracks streets. Only the Old Ursulines Convent, designed in 1745 and built in 1749-53 by Claude Joseph Villars Dubreuil according to designs by Ignace Broutin, remains today—the oldest documented structure in the Mississippi Valley and deltaic plain, and the most aged in the city by a margin of about thirty years.

Pittman commented on the French Creole- and West Indian-inspired housing style and typology in New Orleans:

> The general plan of building in the town, is with timber frames filled up with brick; and most of the houses are but of one floor, raised about eight feet from the ground, with large galleries round them, and the cellars under the floors level with the ground; it is impossible to have any subterraneous buildings as they would be constantly full of water. I imagine that there are betwixt seven and eight hundred houses in the town, most of which have gardens. The squares at the back and sides of the town are mostly laid out in gardens; the orange-trees in the spring afford an agreeable smell.[141]

Only one surviving French Quarter house—Madame John's Legacy, built two decades after Pittman's visit—conforms to his characterizations. It stands on Dumaine Street as the last, best example of what New Orleans looked like prior to the 1788 and 1794 fires (see *Transformation by Conflagration*).

Pittman's description of city defenses alludes to tensions within local society:

> There are, exclusive of the slaves, about seven thousand inhabitants in town.... The fortifications are only an *enceinte* of stockades, with a *banquette* within and a very trifling ditch without; these can answer no end but against Indians, or negroes, in case of an insurrection, and [to] keep the slaves of the town and country from having any communication in the night. There are about four hundred soldiers kept for the police of the town and country; these belong to the detached companies of the marines: there are also ten companies of militia, four chosen from the inhabitants of the town, the planters and their servants form the remainder.[142]

A few years after Pittman cast his eyes upon early Spanish colonial New Orleans, Francisco Bouligny, the Spanish officer advising the Crown on Louisiana affairs, scribed a *Memoria* on the colony's status and potential. The influential report, written in 1776 based on Bouligny's experiences of 1769-75, focused on policy recommendations regarding trade, economic development, and Indian relations. It began with a comprehensive geographical overview of the New Orleans region.

Like Pittman, Bouligny situated New Orleans among a network of key water bodies—the Mississippi, Pontchartrain, Manchac, Bayou St. John, and "an infinity of inlets"—reflecting the degree to which geographical perceptions at that time were driven by navigable waterways. The British threat also underscored Bouligny's report: "The English can and do go easily from Mobile to Manchac via the lakes," he wrote, in

reference to the efforts of Pittman and others to clear out the Bayou Manchac/Iberville River route. That task was a challenging one: "Although this route is shorter than via the Mississippi when the latter is high, it cannot be used when the Mississippi is low. And, at all times, the English can only go through the lakes with very small or very flat boats." Bouligny went on to describe, with great accuracy, the topography of New Orleans:

> All the lands on both banks of the Mississippi are higher when nearer to it, and [decline by] of four feet per twenty *arpents* of distance from the banks of the river. Thus, however, much it rains, not a drop of water that falls on the fields enters the river. This slope generally follows the same ratio with so much evenness that it is impossible for men to level it with the same exactness.[143]

With the French surveying unit *arpent* measuring about 192 feet, a declivity of four feet over a distance of twenty *arpents* equates to about one vertical foot per thousand horizontal feet, or roughly 2.5 inches per city block. Today, land in downtown New Orleans measured backward from the crest of the natural levee typically slopes downward by over triple that ratio, due to levee- and drainage-induced soil subsidence. The degree of sinkage over the past two centuries is revealed further when Bouligny pointed out how colonial New Orleans experienced storm surges from lakes Pontchartrain and Borgne:

> When the southerly winds swell the lakes, the waters usually come near the houses which are situated on the banks of the river. For this reason and because of the lack of fresh water, the banks of those lakes are not inhabitable.[144]

That wind-blown lake water regularly approached the rear of the French Quarter indicates the extent to which present-day lakeside New Orleans comprised a saline marsh that communicated liberally with gulf waters. Had the lake formed an earthen rim at its edge as was erected over a century later, those lakes would have prevented surges from reaching the city. But those very man-made barriers (plus drainage apparatus) caused the marsh to subside in places by over ten feet. The fact that roughly half of modern New Orleans falls below sea level is an anthropogenic condition created over a century after Bouligny wrote his report. The landscape he witnessed—low and flat as it was—lay entirely *above* sea level.

A good geographer, Bouligny advised on the "many advantages gained from the slope which the land has toward the interior." "[T]here are some places," he pointed out, "where the land is somewhat higher and capable of cultivation," presumably a reference to the Metairie and Gentilly ridges. "[I]t would be advantageous to establish some families there in order to be closer to and in sight of the English who cross the lake."[145] Additionally, the topographic slope allowed "constructing mills on both banks," to exploit "the immensity of the woods in all that country." Such a sawmill operated on present-day Elysian Fields Avenue throughout the Spanish colonial era, powered by diverted river water. "[O]pening canals to communicate with the lakes which are behind the city" would, he continued, "facilitate the transportation of lumber and products

from the interior lands." That advice was taken two decades later, when Spanish Governor Hector Carondelet ordered a canal excavated to connect the city with Bayou St. John and the lake. Bouligny also noticed that "when the river is high, it gives a certain dampness to the fields" and enhances their arability, particularly for rice cultivation.[146]

Like Pittman, Bouligny observed the area's housing stock, focusing on farm and plantation houses near New Orleans rather than city structures. He characterized them as

> comfortable, relative to the climate which prevails there. All have a very broadly covered gallery or balcony which surrounds them to guard against the strong heat of summer, and all the rooms have chimneys for shelter from the winter which on days can also be rough.

> The houses are made with wood, brick, and lime, in the style of this Court. The kitchens are separated from the houses about twenty paces. Behind all of the houses, particularly in the countryside, there is a garden or *huerta*, which almost all cultivate themselves, helped by their children and the domestics … This garden provides them with all the vegetables and fruit they can consume, and many of them send the surplus to sell in [New Orleans], especially those closest to it.

> All the houses are about thirty of forty paces distant from the edge of the river because the people are thus happier, and because of the ease with which they embark and disembark since everything is transported by water.[147]

It is interesting that Bouligny described certain local architecture traits, which were predominantly French Creole and West Indian at this time, as "in the style of this [Spanish] Court." In fact, Spanish urban architecture would not be introduced *en masse* into the Francophone city until after the 1794 fire and never really took hold in rural Louisiana.

Capt. Philip Pittman and Francisco Bouligny, representing two colonial regimes new to Louisiana and at odds with each other, might have crossed paths during their respective deployments. Apparently the men took well to their Louisiana assignments: the surname Pittman endures among the population of the Florida Parishes; Bouligny, for his part, "married a French girl and stayed" in New Orleans, fathering the illustrious Bouligny lineage, prominent in local society to this day.[148]

Despite differences in language, culture, and agendas, their journal descriptions together form a comprehensive eyewitness geography of circa-1770 New Orleans.

Antecedent Cadasters, Antecedent Axes

The influence of old plantations, railroads, and canals on the modern streetscape

Glancing at a map of New Orleans, streets seem to emerge from a rebellious mid-crescent origin and radiate outwardly toward the arching river, like blades in a hand fan. Viewed from the perspective of the river, the effect resembles the skeleton of a sinuous snake (see map, "The Antecedent Cadaster"). Deeply influential in the experience of the city, the radiating pattern happened neither by chance nor by plan. Its antecedent is a cadastral (land parceling) system developed in north-central Europe around the end of the first millennium.

The logic behind the system is compelling. Given (1) a valued linear resource at one end (usually a waterway or a road), (2) unproductive land at the other end (marshes or mountains), and (3) fertile land in between (natural levees or valley bottoms), one can maximize the number of farms enjoying access to the valued resource by delineating the fertile land into narrow strips. Excess width diminishes the number of farms created, while insufficient depth deprives some farms of access to the waterway or road. The surveying of narrow, long parcels of land thus allocated two scarce resources—accessibility and arability—optimally.[149]

It was primarily the French who transferred the tradition to the New World. The "long lot" system arrived officially to Louisiana when the Crown, exasperated with overly generous land concessions granted to certain colonists, stipulated in the Edict of October 12, 1716 that land delineation occur "in the proportion of two to four arpents front by forty to sixty in depth."[150] Surveyors used the *arpent* to measure the cadasters (parcels), which equates to 180 French feet (191.835 American feet) linearly and 0.845 American acres superficially. Settlers were allotted riverside or bayou-side land usually spanning two to eight *arpents de face* (frontage arpents), and extending back to the swamp by forty or eighty *arpents*, depending on the width of the natural levee.[151]

By the 1720s, most riverine land near New Orleans had been delineated into *arpent*-based long lots. Straight portions of the river yielded neat rectangular long lots; where the river meandered, lots diverged on the convex side and converged on the concave side, forming a radiating pattern of elongated triangles or trapezoids.

Jesuit Father du Poisson described the state of land distribution and development in and around New Orleans in 1727:

> [L]and *granted* by the Company of the Indies to a private individual [or] partnership, for the purpose of clearing that land and making it valuable, is called a "concession." [T]he concessionaries are the gentlemen of this country, [who, when they departed for Louisiana,] equipped vessels and filled them with superintendents, stewards, storekeepers, clerks, and work-

> men of various trades, with provisions and all kinds of goods. They had to plunge into the woods, to set up cabins, to choose their ground, and to burn the cane-brakes and trees. …
>
> A smaller portion of land granted by the Company is called a "habitation." A man with his wife or his partner clears a little ground, builds himself a house on four piles, covers it with sheets of bark, and plants corn and rice for his provisions; the next year he raises a little more for food, and has also a field of tobacco. If at last he succeed [*sic*] in having three or four Negroes, then he is out of his difficulties. … [B]ut how many of them are as nearly beggars as when they began.
>
> A district where there are several habitations not far from one another, which make a sort of Village, is called a *settlement*. Besides the concessionaries and the habitants, there are also in this country people who have no other occupation than that of roving about. …[152]

In time, concessions and habitations became plantations and farms of varying sizes, and the agrarian civilization of the Louisiana delta, long lots and all, inscribed itself into the delta alluvium.

After the 1788 fire leveled most of New Orleans, demand for new land put pressure on adjacent plantations. Starting with the Gravier family, which subdivided its plantation into Faubourg Ste. Marie soon after the blaze, planters independently considered whether they could make more money continuing in agriculture, or by developing their plantations for residential living.

One by one, over many years, owners eventually made the decision to develop and hired surveyors to design and lay out street grids. Of course, those grids had to conform to the limits of their client's property. The upper and lower limits of the plantation usually became the bordering streets of the new subdivision, the middle was often reserved for a broader avenue, and all other areas became side streets and house lots.

Where the river ran straight and the abutting plantations formed elongated rectangles (such as below Elysian Fields Avenue) orthogonal street networks fit neatly into the antecedent cadaster.[153] But uptown, where the river yawned broadly, surveyors were forced to "squeeze" street grids into wedge-shaped plantations. Odd angles, jogs, and multi-sized blocks often resulted when surveyors forced orthogonal street grids into angular cadasters.

Because of this piecemeal development and the lack of a central planning authority, the geometry of the colonial-era *arpent* system became "buried into" the expanding street network of the growing American city. Although full housing density would not occur until around 1900, most long lots within the New Orleans crescent had transitioned from plantation to faubourg between 1788 and the Civil War, in this manner:

Plantation Owners	Name of New Subdivision	Initial Subdivision	Location
Jesuits/Gravier	Faubourg Ste. Marie	1788	Common roughly to Howard
Jesuits/Delord-Sarpy/ Duplantier	Faubourg Duplantier	1806-10	Roughly Howard to Felicity
Jesuits/Solet	Faubourg Solet		
Jesuits/Robin	Faubourg de La Course		
Jesuits/Livaudais	Faubourg de L'Annunciation		
Ursuline Nuns	Faubourg des Religieuses	1810	Felicity to St. Andrew
Pannis/Poulydey	Faubourg (later City of) Lafayette	1813-24	Josephine to Philip
Livaudais	Faubourg Livaudais	1832	Philip and Harmony
Livaudais/Delassize	Faubourg Delassize	1834	Harmony to Toledano
Wiltz	Faubourg Plaisance	1807	Toledano to Delachaise
Wiltz/Delachaise	Faubourg Delachaise	1855	Delachaise to Amelia
Avart	Faubourg St. Joseph	18??	Amelia to General Taylor
Avart/ Hampton/Bouligny/ Millaudon/Kohn	Faubourg Bouligny	1834	General Taylor to Upperline
Avart	Faubourg Avart	1841	Upperline to Valmont
Duncos/Beale/ Walden/ Ricker	Rickerville	1849	Valmont to Joseph
LeBreton/Hurst	Hurstville	1834-77	Joseph to "Lower Bloomingdate Line"
LeBreton/Avart/ Green	Bloomingdale	1836	"Lower Bloomingdate Line" to "Upper Bloomingdale Line"
Boré/Burthe	Burthesville	1854	"Upper Bloomingdale Line" to Exposition Boulevard
Fontenot/Foucher	Never subdivided; now Audubon Park, Tulane and Loyola Universities	Acquired by city in 1871; becomes park in 1879; campuses in 1894-1910	Exposition to Walnut
LeBreton/Foucher/ Ogilvie/ Green	Greenville	1836	Walnut to Lowerline to Freret
Derbigny/LeBreton	Freret	1837	Freret to swamp, from Walnut to Lowerline
LeBreton/Macarty	Carrollton	1833	Lowerline to river

The ancient agrarian logic of the *arpent* system to this day defines the urban texture of uptown New Orleans. Clues to its influence abound; they are obscure at first, but ubiquitous once discovered. The system explains why certain uptown streets suddenly terminate in a "T," forcing motorists to seek alternative routes to proceed. It explains why narrow grassy slivers split occasional streets, and why structures built

thereupon are shaped like New York's Flatiron Building. It also explains why driving in a straight line on a river-parallel street (St. Charles Avenue, Prytania, etc.) above Lee Circle means you are driving *within* an old plantation, while turning your steering wheel ever so slightly means you're *crossing* an old plantation line: most bends in river-parallel uptown streets correspond to old long-lot plantation lines.

Angled Intersection with St. Charles Avenue	Magnitude of Angle[154]	Historical Significance of Intersection (year indicates time of subdivision)
Felicity Street	14 degrees	Boundary between L'Annunciation plantation (1807) and Ursuline Nuns property (1809); once approximate upper edge of Jesuits plantation.
St. Andrew Street	8 degrees	Boundary between Ursuline Nuns property (1809) and Panis plantation (1813).
Philip Street	5 degrees	Boundary between Panis property (1813) and Livaudais plantation (1832).
Pleasant/Toledano Street	10 degrees	Toledano separates Delassize property (circa 1833) and Wiltz plantation (1807).
Foucher/Amelia/ Peniston Street	14 degrees	Amelia separates Delachaise plantation (1832) and Faubourg St. Joseph portion of Avart plantation (1849).
Bordeaux/Upperline/ Robert Street	31 degrees	Upperline separates Bouligny plantation (1834) and Faubourg Avart portion of Avart plantation (1841).
Nashville/Eleonore/ State Street	10 degrees	"Bloomingdale Line" (between Eleonore and State) separates Hurst plantation (circa 1833) and the Bloomingdale portion of the Avart plantation (1836).
Lowerline Street	5 degrees	Boundary between Greenville portion of the Foucher plantation (1836) and Macarty plantation (1833).

It may seem paradoxical that arbitrary and cryptic cadastral patterns often have a greater and longer-lasting impact on cityscapes than massive structures of brick and mortar. Even buildings are subject to the elements and the whims of their owners, whereas cadastral systems are inscribed in legal and political realms and are rooted deeply in fundamental national philosophies. Excepting revolutionary changes of government, cadastral patterns usually endure under new administrations and continue their imprint upon the landscape. The French *arpent* system persisted even when Spanish dominion replaced the French, and American replaced the Spanish. Its geometry survived after plantation agriculture gave way to faubourgs, and faubourgs became urban neighborhoods.

The term *arpent* abounds in historical documents of former French colonial regions of North America, and occasionally appears today in real estate signs and transactions. French long-lot fields and farms persist in eastern Canada, the Great Lakes region, the central Mississippi Valley, and most famously throughout the Francophone region of Louisiana. Those long-lots are all gone from New Orleans proper, but their ancient geometrical rationale affects the daily life of citizens today, testifying to the significance of the antecedent cadaster.

While antecedent cadastres influenced the street pattern in the nineteenth-century riverside of New Orleans, antecedent transportation axes affected the urban design of the twentieth-century areas near the lake.

The relatively unfertile silty-clay swamps and marshes north of the Metairie and Gentilly ridges remained largely uncultivated and undeveloped during historical times. Yet they had to be crossed to access Lake Pontchartrain, which communicated with the coastal cities of Biloxi, Mobile, and Pensacola and the abundant natural resources across the lake. Muddy Bayou Road and twisting, log-strewn Bayou St. John provided this access from 1718 until 1794, when the Carondelet Canal (later Old Basin Canal) was excavated to connect the city more efficiently with the bayou. It too proved inadequate for the growing city; a better, faster, river-lake connection was needed.

Two competing responses were launched. In 1831 downtown investors installed an early railroad between the faubourg Marigny and the lake along what is now Elysian Fields Avenue. With no reason whatsoever to design a curve in the trackbed, the Pontchartrain Railroad penetrated the wide-open backswamp with a perfectly straight south-to-north line, a trajectory traceable to a sawmill canal first dug by plantation owner Claude Joseph Villars Dubreuil around 1750 (see *A Trip Across the Backswamp*).

Two years later, uptown bankers also seeking lucrative trade opportunities funded the excavation of what came to be called the New Basin Canal. Starting with a turning basin at the present-day Loyola/Julia intersection and an angle at the Metairie Ridge, this waterway likewise also ran straight northwardly to the lake (see *Scoring and Scouring the Land*). These two transportation corridors inscribed initial axes into the city's otherwise vacant lakeside marsh.

As various drainage systems were attempted during the 1850s-70s and finally (successfully) in the 1890s, outfall canals such as the 17th Street, the Orleans, and the London Avenue were excavated—again with perfectly straight, south-to-north geometries—to remove water pumped from low spots in the middle of the crescent. Municipal drainage allowed New Orleans to expand off the riverside natural levee and into the lakeside lowlands, but not before engineers and surveyors laid out street networks and parcels for new homes. Planners were naturally inclined to survey new neighborhoods within this existing framework of railroads, navigation canals, adjacent shell roads, and drainage canals. In this manner, antecedent axes influenced the orthogonal street grid of the lakefront, just as antecedent cadasters affected the radiating streets of the riverfront.

The tendency continued into the twentieth century, when the Inner Harbor Navigation (Industrial) Canal was excavated (1918-23) in eastern Orleans Parish. Planners laying out the modern suburbs of New Orleans East in the 1950s-70s aligned many of their street grids to the axis established by the Industrial Canal.

Like the *arpent*-based sugar plantations in uptown, the Pontchartrain Railroad and the New Basin Canal are both disappeared, rendered obsolete by progress and re-

moved in 1932 and 1950, respectively. Yet their imprint remains, influencing how New Orleanians live in, drive about, and experience their city every day. They show how seemingly arcane landscape decisions made ages ago proceed to shape cityscapes and human lives for centuries to come.

Architectural Chronology, 1700s to 2000s

A brief history of stylistic phases

> Architectural styles arrived by ship to this port city, rather like fashions in clothing, to be successively draped on the same persisting and evolving [structural] bodies.[155]

So wrote the late Malcolm Heard in his 1997 architectural guide *French Quarter Manual*. Indeed, styles phase in and out gradually, through the adoption of earlier aesthetic traits, the modification of others, and the introduction of new ones. Demarcating this continuum into discrete eras is therefore about as subjective as classifying the styles themselves.

In his 1966 publication *The Vieux Carré—A General Statement*, Bernard Lemann identified the historic architectural phases of the French Quarter as Colonial Period (1720-1803), Early Federal Period (1803-1825), Antebellum (1825-1860), Paleotechnic (early industrial age architecture, 1850-1900), and Modern.[156] The architectural historians behind the influential *Plan and Program for the Preservation of Vieux Carre* (1968) delineated the major stylistic eras as French and Spanish Colonial; Transitional Styles (1803-1835); Greek Revival (1825-1850); Ante-Bellum Period (1850-1862); Later Victorian Period (1862-1900); and Twentieth Century.[157] The late Lloyd Vogt, architect and author of the classic *New Orleans Houses: A House Watcher's Guide* (1985), categorized styles popular throughout New Orleans (not just the French Quarter) into the following periods:

- Colonial Period (1718-1803): French Colonial style
- Postcolonial Period (1803-1830): Creole style
- Antebellum Period (1830-1862): Greek Revival
- Victorian Period (1862-1900): Gothic Revival, Italianate, Second Empire, Eastlake, Bracket, Queen Anne, and Richardson Romanesque styles
- Early Twentieth (1900-1940): Georgian Colonial Revival, Neoclassical Revival, Tudor Revival, Bungalow style, and Spanish Colonial Revival
- Modern Period (1940-Present): International and Suburban Ranch styles[158]

Two additional architectural trends may warrant inclusion in the above chronology. Post-Modernism—the incorporation of eclectic historical ornamentations into the facades of Internationalist designs—arrived famously with Charles Moore's influential Piazza d'Italia monument (1978) in the CBD, followed by a number of skyscrapers and other structures built in the 1980s. Recent years have also witnessed a local embrace of revived historical house styles and typologies. Designing new structures to resemble outwardly their old neighbors has been practiced in the French Quarter at least since the 1920s, but contextualizing them in village-like New Urbanist settings, with porches, minimum setback distances, close proximity to neighbors, sidewalks, and green space, did not arrive to New Orleans until the early 2000s.

To date, the city's premier example of New Urbanism is the River Garden mixed-income housing complex built on the former St. Thomas projects site, which embodies pastel-colored New Orleans–style designs and ornamentation. Public response to the "faux faubourg" ranges from adoration among many residents, to ambivalence within the historical preservationist community, to outright loathing by many academic architects and planners.

After Hurricane Katrina, many neighborhood associations and housing developers in the flooded region embraced the philosophy of New Urbanism—to the chagrin of Modernists, who resist the notion of "prescription" and intellectually "going back" in history rather than engaging new concepts and challenges. Tension between the two schools underscored much of the neighborhood planning activity and demolition/reconstruction controversies of the postdiluvian years. It remains to be seen whether a "New Urbanist Period"—or for that matter, a "Post-Post-Modern Modernist Period"—will warrant inclusion in New Orleans' chronologies of architectural styles. It does seem likely that future architectural historians will recognize a "Post-Katrina Period" for the thousands of manufactured homes, "green buildings," revived historical forms, and functional structures that have arisen since the storm. Regardless of stylistic variations, most postdiluvian houses share a certain architectural trait that dates back to the Colonial Period, only to have been foolishly abandoned during the Modern Period: raised construction on piers.

In a coarse sense, the geography associated with historical architectural eras is quite simple. Earlier styles predominated in the original city (and still do), and as the city spread, it did so with styles popular during that developmental period. A faubourg created in the early 1800s probably boasts Creole and Greek Revival styles; a 1920s neighborhood usually hosts a fair share of bungalows and Spanish Revival villas; and a post-World War II subdivision literally abounds in slab-at-grade ranch houses. Having a good architectural eye in New Orleans means also having a fair sense of the developmental history of the city, its topographic elevation, its soils and hydrology, and its cultural and ethnic fabric: the layers are correlated. Complicating these relationships, of course, is the fact that old buildings in old neighborhoods oftentimes get replaced with new ones with new styles. Such complexification, one can argue, is healthy; it enriches the cityscape.

Also complicating these historical trends and patterns is the damage and destruction wrought by Katrina's floodwaters (see map, "Threatened Historical Architec-

ture"). Where will new neighborhoods arise? Will they look like the past, or something wholly new? Will *they* enrich the cityscape?

The two essays that follow focus on the 1710s through 1860s, when the city made its most significant contributions to the architecture heritage of this nation.

Architectural Geography, 1710s to 1810s

Spatial diffusions and dispersions of early New Orleans architecture

Architecture speaks to cultural geography in three ways. The appearance of certain styles or typologies in a new place sheds light on that locale's cultural source regions and external diffusion patterns. Secondly, a style's spatial distribution within that place informs on internal historical, geographical, demographic, economic, and social forces. Finally, building materials and architectural traits oftentimes reflect adaptations to a region's natural resources and environmental conditions.[15]

Nearly all mid-eighteenth-century New Orleans structures exhibited a Franco-West Indian style described variously as "French Colonial" or "French Creole." Traits included a single principal story raised upon piers, large double-pitched pavilion-like roof, broad wooden galleries supported with decorative colonnades and balustrades, exterior staircases, and walls made of brick or mud mixed with moss (*bousillage*) set within a load-bearing skeleton of timbers. Center chimneys, French doors and shutters, and a lack of hallways and closets characterized interiors. An Englishman who visited New Orleans in 1765-69 explained that "the general plan of building in the town, is with timber frames filled up with brick…." This distinctive brick-between-post construction, often covered with clapboards, prevails throughout eighteenth- and early-nineteenth-century structures still standing today. He continued,

> most of the houses are but of one floor, raised about eight feet from the ground, with large galleries round them, and the cellars under the doors level with the ground; it is impossible to have any subterraneous buildings, as they would be constantly full of water.[160]

These galleried residences reflected a housing arrangement more suited to rural or semi-rural conditions; that it also prevailed in early New Orleans attests to the nascent city's village-like state.

Four interrelated hypotheses have been offered on the genesis of Louisiana's Creole architectural heritage. One popular proposition holds that it was "invented" locally as a rational adaptation to the environment. Many people embrace this deterministic hypothesis for its clear and causative explanations: heavy rains explain steep roofs. Waterlogged soils cause raised construction. Hot weather leads to breezy galleries.[161]

Undoubtedly there is some truth to these relationships, but evidence indicates that, in general, cultural antecedents have weighed more heavily than independent invention in the appearance of architectural traits. Only later are they modified locally according to environmental and practical limitations. Note, for instance, the counterintuitive presence of galleried houses in frigid French Canada, or the Spanish use of flat roofs in rainy New Orleans. "That full-blown Creole galleried house . . . were being built only a dozen or so years after colonization began,"[162] pointed out Jonathan Fricker, also casts serious doubt on the invention hypothesis. Unless they glean intriguing new construction techniques from natives, pioneering settlers in rocky, unforgiving frontier environments generally embrace "knowns" and eschew experimentation, particularly in a high-stakes endeavor like home construction. They are more likely to carry on what their forebears taught them, modifying those traditions to new conditions and tastes only as time progresses, as new knowledge is gained, and as risk declines.

A second hypothesis views Louisiana Creole architecture as a descendent of Canadian houses derived from the Normandy region of France, modified in the West Indies and Louisiana to reflect local needs. This proposition suggests that Creole architecture diffused *down* the Mississippi Valley. A related hypothesis emphasizes the derivation of Louisiana Creole houses directly from France, particularly Normandy, ascribing less importance to the modifications made by Canadians and West Indians, and even less to local environmental conditions.

A fourth and favored hypothesis sees Creole architecture (particularly its signature gallery) as an extraction from a West Indian cultural milieu, influenced by a wide range of European, African, and indigenous traditions (particularly the Arawak Indian *Bohio* hut). The appearance of galleried houses throughout the Caribbean—not solely in French colonies but in Spanish and British ones as well, as early as 1685—leads advocates of this hypothesis to de-emphasize the French role in the origin of Creole architecture. While underlying French and French Canadian house types were brought to the New Orleans region by former Canadians, the founders and early settlers also brought with them significant West Indian contributions and modifications which were locally altered to taste and used by later generations. This hypothesis suggests that Creole architecture diffused *up* the Mississippi Valley from the Caribbean, rather than down from Canada or directly from France. Anthropologist Jay Dearborn Edwards viewed this West Indian/Creole influence consequential enough to warrant the inclusion of the Caribbean region as "another major cultural hearth for the domestic architecture of eastern North America" along with England, France, Spain, Germany, Holland, and Scandinavia.[163]

Frenchman Pierre Clément de Laussat, the prefect who reluctantly handed over Louisiana to the Americans in 1803, might have agreed with Edwards' statement. Wrote Laussat in his memoirs:

> I imagine that Saint-Domingue was, of all our colonies in the Antilles, the one whose mentality and customs influenced Louisiana the most. Frequent intercourse existed between the two, [and many] exiles from the island prefer Louisiana as refuge.[164]

Irish traveler Thomas Ashe, writing in 1809, also viewed New Orleans as a component of the West Indian/Caribbean region. "The merchandize for the Mississippi is exactly similar to that of the West India trade—the race of people being nearly the same, and the climate not essentially differing."[165] It follows reasonably that architectural traits and traditions diffused throughout that cultural region.

Whatever its origin, this "first-generation" Creole tradition prevailed in New Orleans even after Spain assumed dominion in the late 1760s, because the inhabitants remained French Caribbean in their culture and the new Spanish rulers did not aggressively seek to change this. But population growth and urban development increasingly rendered these structures inadequate, wasteful of space—and dangerous. Over a thousand were destroyed by the great conflagrations of 1788 and 1794, and almost all others succumbed over the years to decay, demolition, storm, and fire. Only one institutional example survives today from the French colonial era (the Old Ursuline Convent, designed 1745, completed 1753), while perhaps the best example of an early Creole residential structure (Madame John's Legacy, 1788), remains at 632 Dumaine Street. The remarkable circa-1780s Ossorno House (913 Gov. Nicholls) would have been an equally fine example were it not for the later modification of its hip roof to a gable.

After the 1794 fire, the Spanish colonial administration decreed new building codes looking to their own traditions to foster a sturdier urban environment (see *Transformation by Conflagration*). Wood was discouraged in favor of brick; steep roofs went out in favor of flat or gently sloping ones; brick-between-post walls were covered with stucco; wooden shingles were replaced with clay tiles. Other Spanish features unrelated to fire safety accompanied the new traits, such as arched openings on the ground floor, pilasters, balconies, and courtyards. The fenced gardens and wooden galleries of a French village gave way to the massive stall walls and wrought-iron balconies of a Spanish city. "As such structures proliferated," wrote architect Malcolm Heard, "the physical character of the Quarter evolved accordingly—the influence of northern French building traditions, transmitted to some degree through the cold Canadian provinces, waned in favor of the more Mediterranean forms of the Spanish."[166] Derivations of those forms abound throughout the Quarter today, but surviving examples of pure Spanish Colonial Style are uncommon. Twenty-five edifices—about one of every hundred buildings in the Quarter—exhibit this style, of which twenty-two were built in the Spanish colonial era (all after 1789). Most are loosely clustered within two blocks of the Toulouse/Royal intersection, plus on Chartres from St. Louis to St. Ann. Of the three that postdate the Spanish years, two are quite famous: the Old Absinthe House at 240 Bourbon, built in 1806, and the Girod (Napoleon) House at 500 Chartres, built in 1814, with a wing dating to 1797.

Spain would control New Orleans for only a few years after its architectural style finally gained a foothold. After the Spanish dons departed in 1803, but before Anglo-American culture came to predominate, New Orleanians found themselves with an amalgam of architectural traditions and building skills, some by way of France, some by way of Spain, others by Canada, the West Indies, Africa, Latin America, and elsewhere. From this admixture emerged what may be called "second-generation" Creole style. Traits include Spanish-style arched openings, stucco-covered walls and stucco

entablatures with moldings, a steep hip roof, narrow wrought-iron balcony, unadorned windows, multiple stories, and narrow passageways between buildings. While only two or three specimens of the previously discussed eighteenth-century "first-generation Creole" structures survive in the French Quarter, about 740—roughly one of every three extant structures in the district—exhibit this subsequent architectural style that is also called Creole. (The 600 block of Royal Street is replete with fine examples.) Dating mainly from the 1820s and 1830s, this tradition exhibits an indigenous New Orleans look and design that harks back to colonial antecedents, but with local modifications and variations. A visitor from Edinburgh in 1828 recorded his impressions of this cityscape in terms that would resonate with a first-time visitor today:

> [W]hat strucks us most [about New Orleans] were the old and narrow streets, the high houses, ornamented with tasteful cornices, iron balconies, and many other circumstances peculiar to towns in France and Spain, and pointing out the past history of the city fated to change its masters so often.[167]

Graceful, smooth simplicity, uninterrupted by cluttering detail, typified these second-generation, Spanish-influenced Creole styles.

Beautiful as they were, their days were numbered as new political, demographic, and cultural waves swept into New Orleans at the dawn of the nineteenth century.

Architectural Geography, 1810s to 1860s

Spatial patterns of New Orleans' antebellum architecture

The Anglo-Americans trickling into New Orleans after the Louisiana Purchase at first conformed to the local architectural traditions, having little choice but to move into existing structures or hire local builders to build what they knew. Some adjusted and modified their structures, but existing styles and typologies generally persisted.[168]

When the emigrant trickle grew to a torrent in the 1810s and 1820s, the newcomers increasingly brushed aside local architectural traits in favor of their own imported concepts—and their own architects. Had they arrived a generation or so earlier, they might have brought with them the classical styles that were all the rage in the North and upper South at that time, such as Georgian, Federal, and what is now called Jeffersonian Classicism.[169] But arriving as they did in the early 1800s, the Americans preferred the latest architectural fad sweeping the Northeast: the aesthetics of ancient Greece.

The earliest known surviving structure in Louisiana with a prominent Greek trait (Doric columns) is the circa-1814 Thierry House at 721 Gov. Nicholls Street, designed by twenty-one-year-old Henry Latrobe and Arsène Lacarrière Latour. Latrobe's

father, the famed English-born architect Benjamin Latrobe, first introduced Greek styles (not to mention Philadelphia bricks and other Northeastern stonework and millwork) to New Orleans in 1807-09, when he designed and built the Custom House for the recently arrived U.S. government.[170]

Within a few years, Greek Revival spread throughout the city and region—on plantation houses, townhouses, storehouses, churches, and (later) even shotgun houses. Creole-influenced arched doorways were replaced with squared-off openings and Greek "keyhole" entrances; side and center hallways appeared to provide more domestic privacy; brick "jack arches" went out in favor of heavy granite lintels; stucco entablatures with moldings gave way to attic windows and dentils. On plantation houses, delicate colonnades disappeared for massive classical columns. Creole architecture gave way to Greek Revival as Creole culture relinquished to American.

Greek Revival formed the first major American architectural contribution to New Orleans, visible today on hundreds of French Quarter structures and thousands throughout the city. Georgian, Federal, and Jeffersonian Classicism, on the other hand, are rare in the Quarter and citywide. Gothic and other Northeastern styles that "missed" the major wave of Anglo settlement in Louisiana. Only eighteen extant structures in the Quarter exhibit Federal, Georgian, or Gothic styles; Greek Revival, on the other hand, adorns 614 structures, more than one in every four extant Quarter buildings. American history, and Louisiana's place in it, is written into these patterns.

History is also inscribed in the historical trends of Creole versus American styles. Creole styles (second-generation, that is) peaked in the 1830s then fell off precipitously, while Greek Revival hit its zenith a decade later and fell off more gradually. This architectural transition from Creole to Greek Revival corresponds to the 1830s-40s shift of cultural and political power in the city, from Creole to American elements.[171] It transpired gradually and sometimes piecemeal, with some townhouses exhibiting both second-generation Creole as well as Greek Revival traits. Revealingly, these "transitional" structures mostly arose precisely when the Creole/American cultural rivalry peaked, in the late 1830s. Afterwards, momentum swung permanently toward the Americans, and as it did the old colonial-inspired Creole styles declined and Greek Revival and other new American styles caught on. As architect Malcolm Heard observed, "[t]he conflicted process by which Creoles assimilated American influence became architecturally manifest in the large number of Creole townhouses built in the French Quarter during the 1830s."[172]

The *geography* of Creoles and Americans is also written in brick. Creole culture in antebellum times was by no means strictly limited to the confines of the French Quarter, nor did Anglo-Americans reside exclusively above Canal Street, as legend has it. In fact, both ethnic groups (plus many others) could be found throughout the Quarter, with Creoles predominating in the lower area and Anglos in the upper blocks by Canal Street. This ethnic-geographical pattern, observed by a number of nineteenth-century travelers to the city (see *Streetscapes of Amalgamation*), drove a correlated geography of architecture which can be witnessed to this day. Greek Revival specimens outnumber Creole examples in the upper "American" blocks, particularly above St. Louis Street, while the reverse is true in the Creole-dominant blocks below that street. St.

Louis Street is significant because, in 1822, the famous Creole aristocrat Bernard Marigny identified it as a *de facto* dividing line between American and Creole interests.[173]

At the block level, the trend is even more dramatic. In the heavily Americanized blocks between Iberville and Bienville streets, which visually resemble Manhattan or Boston more so than the Lower Quarter, Greek Revival buildings outnumber Creoles by an eleven-to-one ratio. But from St. Ann to Gov. Nicholls Street, an area that can pass for a southern European or Caribbean village, Creole structures outnumber Greek Revivals by more than a 2.5-to-1 ratio. This architectural geography is a direct descendent of the ethnic geographies of nineteenth-century New Orleans, when the city underwent its historic and sometimes painful transition from a Creole past to an American future.

By the 1850s and certainly by the Civil War, new architectural fashions hatched in Europe and arrived lately to America, such as Victorian Italianate, finally overwhelmed the local Creole architectural tradition. "[T]he truly significant period of New Orleans architecture was brought into jeopardy by the [Louisiana] Purchase and brought to an end by the Civil War," wrote James Marston Fitch. "The Americanization of the Crescent City has long been completed, at least architecturally; and the whole nation is the poorer for it."[174] Other new styles arrived, and subsequent generations of New Orleans architects continued the city's fine reputation for the building arts.

The Creole tradition, however, never truly revived. We are fortunate indeed, and deeply indebted to pioneer preservationists, to keep within our stewardship (mostly in the French Quarter, Faubourg Marigny, Faubourg Treme, and Bayou St. John) the nations largest concentration of this unique and beautiful tradition.

Shotgun Geography

The where and wherefore of the South's most famous house type

While architectural styles represent ever-changing tastes and fashions "draped" upon structures rather interchangeably, typology, or type, refers to the underlying form, shape, orientation, and layout of a building. Typology represents "a philosophy of space, a culturally-determined sense of dimension,"[175] reflecting the needs, wants, and means of a structure's builders and owners. Cultures that value privacy often sacrifice living space to make room for hallways, while gregarious societies are comfortable with rooms adjoining directly. Individuals with abundant means, and a desire to display it, may opt for a spacious house type with multiple floors and amenities, while those of humble means have to settle for less.

Four structural types account for 81 percent of the 2,244 street-fronting buildings in the French Quarter. The *townhouse* (comprising 35 percent) is a multi-

story, three-bay brick structure often with shared walls, designed for the residential occupancy of its affluent owners. The *storehouse* (22 percent) is outwardly similar but serves a commercial purpose on the ground floor, and may afford either residential or commercial (including storage) use on the upper floors. The *cottage* (15 percent) is a rectangular or square residential structure (lest it be on a corner, where it often serves a retail functions as well), usually one to one-and-a-half stories plus an attic, whose roofline is parallel with the abutting street. The *shotgun* house (9 percent) is a simple, narrow, linear residential structure oriented perpendicularly to the street, usually built with working-class or poor occupants in mind. Variations of these four structural types abound: townhouses and storehouses might have steep or flat roofs, balconies or galleries, or arched or square openings; cottages and shotguns might have hip or gable roofs, brick or wooden walls, or single or double bays. But the underlying form usually remains unmistakable.[176]

Of these typologies, the famous shotgun house stands alone as the most ubiquitous traditional vernacular house type in New Orleans and throughout the South. From whence and how did this curious structure trace this expansive geography?

Folklore holds that the term "shotgun house" derives from the ability to fire birdshot through the front door and out the rear without touching a wall. Another story claims that the house's shape recalls a single-barrel shotgun, a duplex thus resembling a double barrel. The term itself postdates the house type by many years, rarely appearing in print prior to the 1900s (though it probably circulated in vernacular speech earlier).[177] Folklorist John Michael Vlach defined the typology of the shotgun as "a one-room wide, one-story high building with two or more rooms, oriented perpendicularly to the road with its front door in the gable end," but added that "other aspects such as size, proportion, roofing, porches, appendages, foundations, trim, and decoration have been so variable that the shotgun is sometimes difficult to identify."[178] The outstanding exterior characteristic is its elongated shape, sometimes in length-to-width ratios approaching ten-to-one. Inside, what is salient is the lack of hallways, which implies a lack of privacy: occupants and visitors need to pass through rooms—including private bedrooms—to get to other rooms.

Scholarly interest in the shotgun house dates from geographer Fred B. Kniffen's research in the 1930s on Louisiana folk housing, which explored structural typology as a means to delineate cultural regions. Debate has ensued among cultural geographers, architectural historians, and anthropologists as to the shotgun's origins, form, function, and diffusion. New Orleans shotguns present a special problem, for nowhere else are they so common and so varied. A number of hypotheses have been offered.

Geographer William B. Knipmeyer saw parallels between the shotgun house and the Native Louisianian "palmetto house," pointing out its rectangular shape and "high pitched gable roof…oriented with its greatest length perpendicular to the bayou, path, or road."[179] Knipmeyer traced a lineage from the structural form of pre-European Choctaw huts to indigenous palmetto houses to wooden frame camps and eventually to the shotgun, which he viewed as a fairly late development enabled by the late-1800s lumbering trade.[180] But another scholar argued that indigenous building types and techniques in North America, unlike those of other continents, proved "totally inad-

equate for even the lowest levels of European requirements," and were largely ignored by colonizers beyond the most rudimentary settlements.[181]

John Michael Vlach also disagreed with the Native American hypothesis in his 1975 dissertation, noting the abundance of shotgun-like houses throughout present-day Haiti. Vlach traced the essential shotgun typology to the eighteenth-century enslaved populations of Haiti, formerly Saint-Domingue, who had been removed by slavers from the forested peri-coastal areas of the western and central African regions known at the time as Guinea and Angola. Vlach described a gable-roofed housing stock indigenous to the western coastal regions of modern sub-Saharan Africa, specifically those of the Yoruba peoples, and linked them to similar structures in modern Haiti with comparable rectangular shapes, room juxtapositions, and ceiling heights. Vlach suggests that the exodus of Haitians to New Orleans after the insurrection of 1791-1803 brought this vernacular house type to the banks of the Mississippi. "Haitian émigrés had only to continue in Louisiana the same life they had known in St. Domingue. The shotgun house of Port-au-Prince became quite directly the shotgun house of New Orleans."[182]

The Haitian/African origin hypothesis for New Orleans shotguns is favored by many scholars. One strand of indirect support comes from the distribution of shotgun houses throughout Louisiana. Geographer Fred Kniffen showed in the 1930s that this house type generally occurred along the waterways and bayous of southeastern Louisiana as well as the Red, Ouachita, and Mississippi river valley areas in the northern part of the state.[183] These areas tended to be, and remain more Francophone in their culture, higher in their proportions of people of African and Creole ancestry, and older in their historical development. Beyond state boundaries, shotguns occur throughout the riverine areas of the lower Mississippi Valley, spatially correlated with antebellum plantation regions and with areas that, historically and currently, host large black populations.[184] If in fact the shotgun diffused from Africa to Haiti, through New Orleans and up the Mississippi Valley, this is the North American distribution we would expect to see. But there are economic variables at play here as well—these areas tend to be poor, and poor people are more likely to live in simple houses—and they may trump cultural factors in explaining the spatial distribution of the shotgun.

Others speculate that while the shotgun resembles house types of other cultures, its manifestation in New Orleans and the South is related to them only because its ease of construction and conservation of resources (building materials, labor, space) made it equally attractive in many areas. One may reason that, given a mild climate, a builder need not rely on the wisdom of ancestors to design a rudimentary edifice that accommodates a narrow street-side or bayou-side lot while minimizing materials and labor. The lack of hallways simply reflects a desire to maximize living space in a cramped environment, even if it sacrifices privacy. A shotgun, according to this theory, is simply a least-cost solution that any rational individual would invent independently, given certain constraints. Advocates of this theory point to the traditionally narrow parcels of New Orleans blocks, and the slender *arpents* along waterways in Louisiana, as causative agents for the occurrence of narrow, elongated structures. "[T]he reason there are shotguns," stated a *Times-Picayune* article, is because "they were an

efficient way to house a lot of people on limited land in skinny 30-by-120-foot lots," like New York City's "railroad flats" or Philadelphia's "trinity" houses.[185] Lending some apparent support for the "invention hypothesis" is the activity of Roberts & Company, a New Orleans sash and door fabricator formed in 1856 which developed prefabricated shotgun-like houses in the 1860s and '70s and even won awards for them at international expositions. Whether Robert & Company truly invented the design or simply "capitalize[d] on a local traditional form"[186] is the key question. Others have suggested that shotguns were invented in response to a city real estate tax code which pegged taxation to street frontage rather than total area—even though no one seems to be able to identify that exact law.

The "invention hypothesis," despite its popular appeal, suffers weaknesses. It fails to explain why the shotgun is not always found wherever narrow lots or frontage-based taxes exist, yet is found when these conditions do not exist, such as throughout rural plantation regions. Nor does it explain why the shotgun failed to catch on until many years *after* the delineation of narrow lots. Could cultural factors outweigh local invention in the development of the shotgun? Jay Dearborn Edwards points out, "anthropologists have long realized that independent invention is rare in human cultural development. People are far better at borrowing the ideas of their neighbors than they are at inventing their own out of whole cloth."[187]

Shotgun singles and doubles came to dominate the turn-of-the-century housing stocks of New Orleans' working-class and poor neighborhoods. Yet they were also erected as owned-occupied homes in middle- and upper-middle-class areas, including the Garden District. New Orleans shotguns exhibited numerous locally inspired variations: with hip, gable or "apron" roofs; with "camelbacks" to increase living space; with hallways for privacy; with grand Greek Revival and Neo-Classical porticos; and with elaborate Victorian gingerbread. "Bungalows," which arose between the world wars, arguably represent the final modification of the shotgun house typology. Local society by this time desired more privacy and living space than earlier generations; increasing affluence and new technologies such as mechanized kitchens, indoor plumbing, air conditioning, automobiles, and municipal drainage helped form new philosophies about residential space. Professional home builders responded accordingly: the slab-at-grade ranch house became the "default" house type for new construction in the city after World War II. Shotguns, by mid-century, went extinct.

For years, architectural historians rolled their eyes at the run-of-the-mill 1890s Victorian Italianate shotgun house, and did not protest their demolition, even in the French Quarter, as late as the 1960s. In recent decades, however, many New Orleanians have come to appreciate the sturdy construction and exuberant embellishments of the classic shotgun. Today they are a cherished part of New Orleans culture and a favorite target for historical restoration—although, revealingly, incoming occupants often "de-shotgun" their new abodes by incorporating hallways, adding wings, or converting two narrow doubles into one ample single.[188]

Beyond selected gentrified neighborhoods and towns of the South, shotguns remain a symbol of poverty and are hardly cherished by those who call them home. When lined up along barely paved streets on the "wrong sides" of towns like Donald-

sonville, St. Francisville, Natchez, and Vicksburg, they form both picturesque vistas of Southern life, and poignant reminders of a troubled past.

How the Poor Third Became the Lower Ninth

Three centuries of urban transformation in the Lower Ninth Ward

Note: Two years after Hurricane Katrina, actor and sustainable-architecture advocate Brad Pitt launched the Make It Right Foundation, aiming to develop affordable and environmentally sound housing for residents to return to the Lower Ninth Ward. The organization asked me to write a brief history of that neighborhood's urban development. The following essay is scheduled to appear in a book the foundation is planning to release.

The Lower Ninth Ward the world came to know after Hurricane Katrina in 2005 bore neither that name nor that form for the first two centuries of its historical development. A sequence of human interventions—some gradual, some swift—since the early 1700s transformed that natural deltaic landscape into the cityscape we know today.

During the era of indigenous occupation, that landscape comprised part of a gradually sloping hydrological basin bordered on the south by the ten-foot-high natural levee of the Mississippi River, and on the west and north by the slight Esplanade and Gentilly topographic ridges, rising two to four feet above sea level. Any rainfall or high river water spilling into that basin flowed eastward down Bayou Bienvenue toward Lake Borgne and the Gulf of Mexico.

Springtime high water on the Mississippi overtopped the river's natural levees every few years. Those periodic floods did not constitute disasters; in fact, they created the entire Louisiana deltaic plain over a period of 5,000 to 7,000 years, by depositing layers of sand, silt, and clay at a pace faster than natural subsidence or wave action could reduce them. In this manner, the present-day Lower Ninth Ward and its deltaic environs arose from the Gulf of Mexico through periodic nourishment by sediment-laden river water. The highest lands, which lay closest to the Mississippi, declined by roughly one vertical inch for every hundred feet of distance away from the river. The lowest lands stood at or near the level of the sea, *not below it*. A semi-tropical climate, abundant rainfall, and rich alluvial soils allowed verdant vegetation to grow, but not all plant communities grew everywhere. Along the river arose dense bamboo-like reeds; immediately behind them grew jungle-like hardwood forests laced with vines. Farther back, at lower elevations, were palmetto-strewn cypress swamps, which petered out to grassy saline marshes where Bayou Bienvenue flowed into the sea.

"All this land is a country of reeds and brambles and very tall grass," wrote Pierre Le Moyne, sieur d'Iberville in March 1699 as the French explorer sailed up the

Mississippi for the first time.[189] About eighty miles upriver, a sharp meander (present-day English Turn) challenged Iberville's expedition by positioning its ships against prevailing winds. Once past this obstacle, the Mississippi straightened out for about eight miles, then curved sharply again. Between those two meanders, on the eastern bank, lay the present-day Lower Ninth Ward, undistinguished and unnoticed by its early European visitors.

Over the next two decades, Iberville, and later his younger brother Bienville, would establish French colonial society throughout the region, culminating with the foundation of New Orleans in 1718 (see *Settling the Landscape*). Bienville located his settlement—the present-day French Quarter—on the natural levee at the cusp of that second meander, exploiting a portage route which allowed for faster and safer access to the Gulf Coast.

As New Orleans grew in the 1720s to a population of 500 to 1,000 people, fertile lands above and below the city were surveyed into French "long lot" plantations. Their elongated shape ensured that every plantation would garner a share of the most arable land, while gaining access to the Mississippi for transportation purposes. On a typical Louisiana plantation, the manor house occupied the crest of the natural levee near the river; behind it were dependencies, workshops, sheds, and slave cabins, followed by croplands and backswamp. Planters raised tobacco, indigo, rice, maize, grains and vegetables, using the labor of enslaved Africans first brought to Louisiana in 1719. Maps from around 1730 indicate that such plantations had already been established around the present-day Lower Ninth Ward, their forests probably cleared by recently arrived slaves. Reported Gov. Etienne de Périer in 1728, "[slaves] are being employed to cut down the trees at the two ends of the town as far as Bayou St. John in order to clear this ground and to give air to the city and to the mill."[190]

Colonial-era New Orleans struggled throughout the eighteenth century with a sparse population, disease, disaster, and low prioritization under French and Spanish dominion. Then, a sequence of events around the turn of the nineteenth century reversed the city's fortunes. First, a slave insurgency in Saint-Domingue (present-day Haiti), which began in 1791 and eventually expelled the French regime, diminished Napoleon's interest in the seemingly unpromising Louisiana colony, and eventually motivated him to sell it to the United States in 1803. Concurrently, the cotton gin (1793) and the successful granulation of Louisiana sugar cane (1795) facilitated the rapid expansion of lucrative cotton and sugar production in the hinterland, both of which would profit New Orleans enormously. Finally, the introduction of the steamboat to Mississippi River commerce starting in 1812 allowed the new American city to exploit fully its strategic position in world shipping. Within two decades (1790s-1800s), New Orleans blossomed from an orphaned outpost of two descendent Old World powers, into a strategically sited port city of an ascendant, business-oriented, expanding New World nation. Prominent observers regularly predicted New Orleans would become the most affluent and important city in the hemisphere.

In 1805, the new American administrators incorporated New Orleans as a municipal entity, legally establishing its government, duties, privileges, and boundaries. Shortly thereafter, the city's lower limit became fixed roughly three miles downriver

from the present-day French Quarter, an area within which lies the present-day Lower Ninth Ward. Designating those rural outskirts as being within New Orleans (Orleans Parish) limits would, in time, affect their use, population, and destiny. Features and phenomena that (1) people did not want to be located in the heart of the city, (2) *could* not be located above the city because it would pollute the water source, but (3) nevertheless *had* to be located within the city's limits, often ended up in the city's lowermost corner. This would become a familiar theme for the future Lower Ninth Ward: first on the list for urban nuisances just in line for amenities.

Being the farthest-downriver corner of New Orleans also meant being the first that ships would encounter while heading upriver. For this and other reasons, the U.S. Government established New Orleans Barracks near the parish line in 1835. Now known as Jackson Barracks, home of the Louisiana National Guard, the installation served as the premier embarkation point for military operations throughout the region. It was also the first designed development within the future Lower Ninth Ward.

As New Orleans Barracks was under construction, its upriver neighbors included fifteen plantations or other land holdings principally dedicated to the cultivation and processing of sugar cane. Modern-day street names recall this now-extinct agrarian landscape: "Sister Street" once lined the convent and land holdings of the Ursuline Nuns (where the Industrial Canal now lies), while nearby Deslonde, Reynes, Forstall, Caffin, and Delery streets all commemorate plantation owners from the 1850s.[191] "Flood Street" was named not for the natural disaster but for another plantation owner, Dr. William Flood, who played an important role in the Battle of New Orleans in 1815.

With the rapid agricultural development of the Mississippi Valley and only one way to deliver those commodities to market effectively—by shipping down the Mississippi—New Orleans' economy boomed. So too did its population, which more than doubled between the Louisiana Purchase (1803) and 1810, and nearly doubled decennially until 1840, when New Orleans counted 102,193 residents and ranked as the third-largest city in the nation. It was also the South's largest city and its premier immigration destination, home to arguably the most ethnically, racially, linguistically, and culturally diverse population in the nation. Thousands of English-speaking, mostly Protestant Anglo-Americans had emigrated to the opportunity-rich port city after the Louisiana Purchase, where they encountered thousands of French-speaking Catholic Creoles who seemed to view nearly everything—government, law, religion, race, architecture—differently. People of African descent, both free and enslaved, as well as tens of thousands of immigrants from Ireland, Germany, France, Haiti, Cuba, Mexico, Italy, Greece, and nearly every other nation, made antebellum New Orleans like no other American city.

New Orleans' urban footprint expanded accordingly, as former "long lot" sugar plantations were subdivided as faubourgs (suburbs) and built up with new homes. Because the wealthier Anglo population tended to settle above the original city (present-day uptown), where the natural levee was wider and the river flowed free of inner-city refuse, New Orleans spread predominantly in an upriver direction, by a two-to-one ratio over downriver development. It expanded only slightly away from the river, where low-lying swamplands prevented most urban development.

The downriver expansion that did occur began in 1805 with the surveying of Faubourg Marigny, and continued into the 1810s-40s with the subdivision of plantations comprising the present-day neighborhood of Bywater. The population that settled here tended to be markedly poorer than that of the upper city, mostly comprising Creoles, Irish and German immigrants, and representatives of smaller groups from southern Europe and Latin America. Officially, the area was designated as the Third Municipality, which spanned from Esplanade Avenue downriver to the parish line, including the present-day Lower Ninth Ward. To some, the Third Municipality comprised "the Creole faubourgs;" to others, it was the "old Third," the "dirty Third," the "poor Third," and only occasionally, and ironically, the "glorious Third."[192] After 1852, the lower regions of New Orleans gained a new nomenclature: wards.

Wards as a political-geographical unit date to the 1805 chartering of the city. Serving a number of municipal purposes, wards were redrawn four times over the next forty-seven years. After the city's unsuccessful sixteen-year experiment with semi-autonomous municipalities, the reunified city government (1852) redrew ward lines for a fifth time. Because Felicity Street had long marked New Orleans' upper boundary, the new ward enumeration began at Felicity (First Ward) and continued consecutively downriver. To equalize populations within wards, the high-density French Quarter was sliced into the narrowest wards (Fourth, Fifth, and Sixth), while the lower-density "Creole faubourgs" allowed for broader units. The lowermost outskirts remained so rural that a single mega-ward—the Ninth—enveloped the entire area. Hence the birth of the Ninth Ward. City planners then returned above Felicity Street and demarcated upriver lands, and later Algiers on the West Bank as wards ten through seventeen. The modern-day map of New Orleans wards, unchanged since the 1880s, thus reflects the city's piecemeal growth since 1852.

Urbanization first arrived to the present-day Lower Ninth Ward around 1840. While the Charles Zimpel map of 1834 indicates a solid line of plantations from the Ursulines' parcel to the U.S. Barracks, the Maurice Harrison map of 1845 shows roughly one-third of the area subdivided into vacant streets and blocks. As each planter decided he could make more money subdividing his plantation than cultivating it, more and more cropfields became platted into urban grids. Names for old streets running parallel to the river (Chartres, Royal, Dauphine, etc.) were extended from the original city downriver to the U.S. Barracks, while new riverperpendicular streets often adopted the names of their anteceding plantations. Thus, the geometry of the old French long-lot surveying system drove the urban form of the emerging neighborhood.

Historical population figures for what is now the Lower Ninth Ward are difficult to ascertain because nineteenth-century censuses aggregated populations by wards, not at sub-ward levels. The vast majority of Ninth Ward residents clustered not in the present-day Lower Ninth but at the upriver end of the ward, in what is now called Bywater by the river. We do know that enough residents lived in the present-day Lower Ninth to warrant the establishment of St. Maurice Catholic Church in 1857. Fourteen years later, the Brothers of the Holy Cross established an orphanage which would later become the Holy Cross Catholic High School campus. Horse-drawn streetcar service arrived to the area in 1872, which brought more residents to the once-rural district.[193]

By the time the 1883 Robinson map was published, the area had been subdivided at least as far north as Urquhart Street, just one block beyond the aptly named Marais ("marsh") Street. Roughly two-thirds of those blocks (present-day Holy Cross section of the Lower Ninth Ward) were further subdivided into parcels, and of those, approximately half had homes.[4] The neighborhood in the late nineteenth century formed a low-density dispersion of cottages and frame houses, usually with fenced gardens, arranged in a village-like setting amid open fields and an occasional West Indian-style plantation home left over from the antebellum era. Also there were railroads, a cotton press, a military hospital, warehouses, and a livestock landing and slaughterhouse—an enormous malodorous operation enabled by a controversial 1873 U.S. Supreme Court decision approving the consolidation of the city's stockyards and slaughtering facilities. It comes as no surprise that this urban nuisance got located downriver from the city proper but within city limits—that is, in the lowermost corner of the Ninth Ward. With it came railroads, soap makers, rendering plants, and related operations. They provided working-class jobs, but also drove down property values. So too did the American Sugar Refining Company, which built a fourteen-story industrial sugar-refining plant (complete with its own docking and railroad facilities) across the parish line in 1909-12. The year 1912 also saw the realignment and augmentation of the Mississippi River levee in the area, improving flood protection for the increasing number of working-class families moving into the neighborhood.

The single most influential transformation of the Ninth Ward's environment occurred in the late 1910s. Competition among ports motivated city leaders in that era to advocate streamlining navigation routes and creating new dock space off the crowded riverfront. The vision soon evolved into the "Inner Harbor Navigation Canal." Officials in 1918 identified the corridor for the so-called "Industrial Canal:" a five-mile-long, 600-foot-wide, mostly undeveloped right-of-way splitting the Ninth Ward in two. From the city's perspective, the proposed route made the most sense: it lay within city limits, crossed a relatively narrow land strip between river and lake, exploited a convenient position for shipping and docking activity, and was either city-owned or readily acquirable. From the Ninth Ward's perspective, the canal represented job opportunities—but also a major disruption, a barrier, and a potential threat that would have been resisted fiercely by citizens had it been proposed for the heart of the city.

Excavation took a little over a year; construction of the intricate lock system, to handle the differing water levels of the river and lake, took another three years. When the Industrial Canal opened in 1923, it succeeded in enhancing port activity in the area. It also severed the lowermost portion of the city from the urban core, inspiring the term *Lower* Ninth Ward. From now on, residents of this isolated neighborhood (who mostly relied on a single streetcar line for transportation into the city center) would have to dodge drawbridges and railroad crossings to interact with the rest of their city. More ominously, the Industrial Canal introduced gulf water into city limits, held back only by flimsy floodwalls and inadequate levees. Worse yet, the installation of the municipal drainage system around the turn of the twentieth century—and a few decades later to the Lower Ninth Ward—drained the backswamp and allowed its finely textured sediment particles to settle and subside. Soon, former swamp and marshlands throughout

the city began to subside below sea level, even as their populations increased. Artificial levees were built along the periphery to keep water out. The topography of New Orleans began to assume the shape of a bowl—or rather, a series of bowls, one of which comprised the Lower Ninth Ward.

The human geography of the Lower Ninth Ward in the early twentieth century iterated the area's topography. The 5,500 New Orleanians who resided there in 1910 (1.6 percent of the city's total population) shared certain traits: most ranked no higher economically than the working- or lower-middle class, and nearly all were born and raised locally. Those settling on higher ground closer to the river, in the so-called front-of-town, were predominantly white, usually of Irish, German, Sicilian, French, Creole, or Latino stock, who in previous generations lived in the "Poor Third" or in the French Quarter. Those who settled in the back-of-town (north of St. Claude Avenue and later Claiborne Avenue, an area that remained largely undeveloped into the 1920s-30s) were mostly African-American and other poor or working-class. Some were black Creoles (Franco-African-Americans) with generations of heritage in the city; others had emigrated from rural areas after emancipation, or later, following the mechanization of Southern agriculture. Immediately behind the back-of-town blocks lay the city's sewage treatment plant—yet another municipal disamenity which had to be located downriver from the city proper (and its water source), but had to remain within city limits. Behind the treatment plant, another navigation canal—the Intracoastal Waterway—was excavated in the 1920s to facilitate east-to-west barge traffic. By World War II, the 11,556 residents of the Lower Ninth Ward, long severed from the other 97.7 percent of the city's population by the Industrial Canal, were now surrounded on three sides by water bodies, even as their underlying soils subsided.[195]

The 1960s brought more tumultuous transformations. Resistance to school integration—which was fierce within the working-class white Ninth Ward population—and other factors led to the wholesale departure of whites downriver into the neighboring suburban parish of St. Bernard. Once racially mixed with a predominantly white front-of-town and black back-of-town, the Lower Ninth Ward became increasingly African-American. At the same time, excavation commenced on a third major navigation canal: the Mississippi River-Gulf Outlet (MR-GO) Canal, designed to connect the earlier man-made waterways directly with open gulf water. Its excavation entailed the widening of the Intracoastal Waterway and the turning basin at the Industrial Canal junction. Like the earlier waterways, the MR-GO promised jobs and economic dividends; in actuality, it delivered little more than environmental degradation and urban hazard. This was demonstrated when Hurricane Betsy struck in September 1965, its surge inundating the four major hydrological sub-basins straddling each side of the man-made navigation canals. Hardest hit of all was the Lower Ninth Ward. Numerous Industrial Canal levee breaches along the Southern Railroad tracks, plus overtopping, deluged the poor, mostly black rear section of the neighborhood by three to five feet along St. Claude Avenue, and to nine feet along the back levee. Only the streets closest to the Mississippi River—present-day Holy Cross—evaded Betsy's deluge. Severe flooding damaged or destroyed thousands of homes and hundreds of businesses throughout the Lower Ninth Ward.[196]

The next thirty-five years saw the Lower Ninth Ward's population decline from its 1960 peak of over 35,000 (5 percent of the city's population) to under 19,500 (4 percent) by century's end. Once racially mixed, the neighborhood in 2000 was over 95 percent black. By no means was the Lower Ninth Ward the poorest or lowest-lying neighborhood of the city. It actually boasted a higher home-ownership rate than the city as a whole, and its lowest-lying areas (four feet below sea level) lay three to four feet *above* the lowest zones of Lakeview and Gentilly, and eight feet higher than the lowest spots in New Orleans East. Its riverside section (Holy Cross National Historic Register District) stood six to eight feet above sea level, and boasted sturdy, raised, historically significant homes mostly dating to the 1870s-1920s. Its rear section, particularly the blocks lakeside of Claiborne Avenue, possessed a humbler housing stock dating mostly from the 1920s-70s, many of which were built on concrete slabs at grade level. Isolated from public view, dismissed by the historical and architectural community, and plagued by the same social ills found throughout inner-city America, the rear sections of the Lower Ninth Ward seemed like a world unto itself—cherished by its residents, avoided by everyone else.[197]

At 5:00 a.m. August 29, 2005, Hurricane Katrina's low pressure and residual Category Five storm surge penetrated the MR-GO (Mississippi River–Gulf Outlet Waterway) "funnel," overtopped meager levees, and introduced gulf water immediately behind the Lower Ninth Ward and St. Bernard Parish. Water stage rose dangerously in the Industrial Canal to fourteen feet above normal levels. Around 7:45 a.m., a massive section of floodwall collapsed and sent a violent torrent of brackish water eastward into Lower Ninth Ward homes. Shortly thereafter, the surge overtopped the rear levee and inundated the neighborhood from the north. More water surged westward from St. Bernard Parish. Flood levels rose by ten feet in twenty minutes. Scores of people who either could not or would not evacuate, perished in their own homes under harrowing circumstances. Others climbed to attics or rooftops, even as their houses bobbed and drifted. Bloated gulf waters would continue to pour into the Lower Ninth Ward and every other hydrological sub-basin on the East Bank of Orleans Parish for days after the passage of Hurricane Katrina. By week's end, water levels stabilized at three to four feet deep in the highest areas of the Lower Ninth Ward, and ten to twelve feet or deeper in the lowest sections. For all the social tension that existed between the Lower Ninth Ward and St. Bernard Parish, the two areas suffered sadly similar fates.

The federal levee failures induced by Hurricane Katrina and the preceding century of environmental deterioration altered utterly the destiny of the Lower Ninth Ward. The neighborhood ranked unquestionably as the hardest-hit of the entire metropolis, and, not surprisingly, was the last to see utilities, municipal services, and residents return. Two years after the storm, roughly one-quarter of the Holy Cross-area population and under 10 percent of the north-of-Claiborne section had returned, the two lowest return rates in the city.

The Katrina flood also brought great notoriety to the Lower Ninth Ward, rocketing it from local obscurity to worldwide infamy as the most beleaguered urban neighborhood in world's wealthiest nation. With the infamy came sympathy and concern, which in turn brought legions of advocates, researchers, church groups, student

volunteers, documentary filmmakers, politicians, and the just-plain-curious to the once-ignored neighborhood. With its odd and ominous name, the Lower Ninth Ward seemed to bear witness and impart wisdom on a wide range of complicated and polemical topics. Poverty. Race. Social justice. Environmental deterioration. Geographical risk. Global warming. Urban and cultural sustainability. Green architecture. Decent citizens nationwide fell into two schools of thought regarding the Lower Ninth Ward's future. Some viewed the entire region as equally at risk and dependent on levees for flood protection and interpreted the closing-down of heavily damaged, low-lying neighborhoods as an outrageous cultural affront that should be resisted on humanistic and economic grounds. They pointed to the Netherlands as a model for how to solve this problem. Others, who could not deny the scientific realities of soil subsidence, coastal erosion, and sea-level rise, encouraged the densification of higher-elevation historical districts and the relinquishing of hazardous areas to nature. This school viewed massive Netherlands-style floodwalls as dangerously deleterious to coastal wetlands, which would further increase urban risk. To the outside world taking sides in the debate, the Lower Ninth Ward became a flashpoint, a symbol, a metaphor.

To the inside world of its residents, however, the Lower Ninth Ward represented very different things. Family. Friends. Schools and churches. Heritage and legacy. Home.

The Make It Right Foundation's effort to develop affordable and environmentally sustainable housing in the Lower Ninth Ward—indeed, at the very site of the levee breach—stands at the nexus of these conflicting visions. No one vision is categorically false or improper; each one represents parallel truths and values projected upon an unknowable future.

This much is certain: whatever progress the Foundation makes will influence the future transformation of the Lower Ninth Ward.

Geography of Urban Growth, 1788-2008

Explaining the patterns of New Orleans' expansion

Cities emerge either as planned endeavors or unplanned occurrences. The former are executed top-down by centralized authority with the aid of engineers and surveyors, who lay out networks of streets and blocks. The latter derive from the bottom up, forming spontaneously as people aggregate at river confluences, heads of navigation, break-of-bulk points, road intersections, portages, valued resources, forts, and other convenient locales. Unplanned cities expand in irregular star-like patterns; only when permanency seems assured do they come under governmental authority—and planning.

New Orleans is the epitome of a planned town, conceived in 1717 by the Company of the West, initiated in 1718 by Bienville, and designed and surveyed in 1721-22 by Le Blond de la Tour and Adrien de Pauger. The community remained within that platted grid until 1788, when a catastrophic fire forced inhabitants to look beyond city limits for their growing numbers (see *Transformation by Conflagration*). From 1788 to the early 1900s, New Orleans expanded in a manner planned at the intra-subdivision scale, but unplanned for the citywide scale, guided invisibly by a series of conditions and unwritten "rules."

The first condition was *immediate adjacency to an already urbanized area*. The nature and scale of pedestrian traffic (read: minimized walking distances) encouraged new developments to occur quite literally across the street from existing ones. Faubourg Ste. Marie, New Orleans' first suburb, was laid out in 1788 immediately upriver from the original city, while the Faubourg Marigny was founded in 1805-06 directly below it. Faubourgs Duplantier, Solet, La Course, and Annunciation (1806-10) abutted Faubourg Ste. Marie once its blocks urbanized with parcels and structures. Faubourg Tremé (1810) also closely adjoined an established urbanized area, across the old fortline from the original city. Existing development, then, was a strong predictor of the location of future development—until new transportation systems altered spatial relationships.

Roads, canals, and railroads diminished the need for immediate adjacency, broadening the expansion "rule" to *accessibility*. Bayou Road allowed a tiny agricultural community to thrive at Bayou St. John about two miles away from the city since early colonial times, but it was not subdivided into Faubourg Pontchartrain (St. John, 1810) until the Carondelet Canal made it accessible to the old city. Navigation canals also made distant Spanish Fort and West End into lakefront mini-ports and resorts in the early- to mid-1800s. Ridge-following roads enabled development along present-day Metairie Road and Gentilly Boulevard years before the metropolis enveloped these areas. The Pontchartrain Railroad (1831) turned Milneburg into a busy lakefront port, while the New Orleans & Carrollton Railroad (1835) fueled the establishment of Lafayette, Jefferson, Carrollton, and other communities now comprising Uptown, which were at the time otherwise unattached to the city proper. With these new conveyances, New Orleanians could now live farther from the city center yet still partake of its attributes; real estate developers were more than eager to accommodate them.

In addition to adjacency and accessibility, land in New Orleans needed to be "high and dry" before urban development could occur. This important topographic rule restricted the city to the crescent-shaped natural levee of the Mississippi River, and to a lesser extent the smaller Esplanade and Metairie/Gentilly ridges, for most of its first two centuries. The natural levee crested at ten to fifteen feet above sea level near the riverfront (the "front-of-town") and sloped downward to uninhabited swamp and marshland which lay inches above sea level. The backswamp edge roughly aligned with present-day Claiborne Avenue during the era in question—a few blocks closer to the river in the earlier decades, a few blocks closer to the lake by 1900, as early drainage efforts took effect. Neighborhoods near the backswamp edge were generally known as the "back-of-town," a term still heard today.

Land also had to be legally acquirable for subdivision. Sugar plantations surrounded New Orleans; as the city spread, planters had to decide whether they could make more money by continuing to cultivate their holdings or by surveying them into blocks and selling the real estate. Nearly all eventually chose the latter—though at different times and with the service of various surveyors, who independently designed street grids into the long-lot plantations (see *Antecedent Cadasters, Antecedent Axes*).

A few government-owned commons also succumbed to private-sector development. The Canal Street corridor is one such example: for twenty-two years, it comprised a dusty commons between the old city (at present-day Iberville) and Faubourg Ste. Marie (at present-day Common Street—hence the name). It was finally subdivided in 1810, at an angle that unified the extant street grids of its neighbors.

A terrain's expansiveness and adjacency to the more prosperous, amenity-rich, desirable section of town also drove development patterns. Because of the broad point-bar meander of the Mississippi in uptown, natural levees were sprawled wider than those abutting the straight section of river flowing below the French Quarter. Developers thus had more fine land to subdivide uptown than in the lower city. Fortuitously, those same uptown areas were also physically adjacent to the economically vibrant and socially fashionable part of New Orleans. This was the American section, where English predominated, business and industry reigned, and American culture prevailed. Horsedrawn streetcars and hackney cabs transported uptown residents to their downtown offices and stores in St. Mary (anglicized from Faubourg Ste. Marie), now the city's economic and professional heart.

Uptown also benefited from a basic hydrological advantage over lower areas: river flows downriver. Areas upriver from the urban core thus evacuated most of the local sewage, debris, carcasses, and other pollutants that ended up in the Mississippi. For this and aforementioned reasons, New Orleans grew faster, bigger, and grander in an upriver direction, compared to downriver or away from the river.

Downtown communities, by contrast, looked more toward a European past than an American future. This predominantly Creole and immigrant section mostly spoke French, practiced a religion that differed from the American norm, and culturally referenced the fading colonial worlds of France and Spain and their Caribbean sphere of influence. Granted, the lower city boasted its share of professional districts, fancy hotels, theaters, and other amenities, but they could not match those of St. Mary. The faubourgs carved from lower-city plantations were thus usually poorer and humbler—"the Poor Third," meaning the Third Municipality below Esplanade Avenue—than those uptown. Money and urban amenities tended to gravitate upriver; indigence and urban nuisances often ended up downriver (or away from the river). Planters who subdivided their lower-city parcels for urbanization saw little of the quick economic success enjoyed by their uptown counterparts; neighborhoods a mile below the French Quarter took sixty to eighty additional years to reach the urban-density levels realized by areas a mile above the Quarter as early as the 1810s. It is no coincidence that present-day Bywater is home to the last riverfront plantation home on the city's east bank—the Lombard House, which presided over one of the area's last agrarian riverfront parcels. It is also no coincidence that the Lower Ninth Ward ended up as one of the city's poorest

and most isolated neighborhoods, and among to slowest to urbanize.

Thus nineteenth century New Orleans steadily expanded upriver more so than downriver, as sugar plantations were subdivided into grids, transformed into low-density villages, merged municipally with New Orleans, and finally developed into modern urban garden suburb environments. Albert James Pickett described this transformation in 1847, and, with varying degrees of prescognition, projected the trend into the future. "The city, proper," he wrote, measures

> five miles long [and] three-fourths of a mile wide. Then commences Lafayette (present-day Garden District and Irish Channel, which together with New Orleans proper] may be considered as one vast place.... After a succession of splendid mansions, farms, and other houses, the whole resembling a continued village, Bouligny [Napoleon Avenue area] and Carrollton unite with the chain of commerce. A century from this date, Orleans, like London, will [envelop] every town and hamlet for miles around, [becoming] the largest city on the continent of America, and perhaps in the world.[198]

Uptown's developmental success is reflected in the various adjustments of Orleans Parish's official borders. The upper limits of New Orleans expanded upriver six times between 1797 and 1874, from its original location along present-day Iberville Street to its final position on Monticello Street, over eight river miles upriver. The lower parish line, on the other hand, has *contracted* over the past 200 years, from the eastern marshes of what is now St. Bernard Parish to within a few hundred feet of present-day Jackson Barracks, three miles below the French Quarter.

The city's geography of growth is also inscribed in its present-day municipal districts (not to mention its wards—see *Wards, Faubourgs, and the Perception of Place*). In 1836, ethnic tension between Anglo-Americans and Creoles resulted in the division of the city into three semi-autonomous municipalities. When that cumbersome system was abandoned in 1852, the three municipalities were renumbered and renamed "Municipal Districts," but they kept their geographic limits—and, to an extent, their political sub-cultures. That year also saw the annexation of Lafayette (formerly of Jefferson Parish) which became the Fourth Municipal District. Algiers (1870), Jefferson (1870) and Carrollton (1874) followed in annexation, becoming respectively the Fifth, Sixth, and Seventh districts of New Orleans but still maintaining some political self-identity. From this intra-urban parochialism emerged, among other things, the ability of each district to assess its own real estate taxes through seven separately elected tax assessors. This grossly inefficient multiple-assessor system, entrenched through generations of political patronage and unique among American cities—lasted into the twenty-first century. It took a citizens' revolt against government incompetence, mobilized in the wake of Hurricane Katrina by the grassroots organization "Citizens for 1 Greater New Orleans," to reform the system through a statewide constitutional amendment vote in 2006. The seven-assessor system, scheduled to end in 2010, is traceable to the seven separate political entities of the mid-nineteenth century, whose limits and enumerations cartographically summarize New Orleans' geography of urban growth.

One final criterion sorted the destiny of Orleans Parish lands for urban devel-

opment. Areas closer to risky, noisy, smelly, unsightly or otherwise offensive nuisances and hazards—flood zones, railroads, canals, dumps, wharves, industry—tended to develop for lower-class residences and commercial or industrial land uses, while areas further from such sites attracted higher-end development for a more moneyed crowd. Housing for the city's poorest residents, usually African-American, was such a low priority for developers that other urbanization "rules," particularly for drainage and accessibility, carried little weight. This left the poor and the disenfranchised to settle in social and geographical isolation in the low-amenity, high-nuisance, high-risk back-of-town (see "*Two Centuries of Paradox*" and *The White Scarpot*).

In the early twentieth century, progressive municipal activism and new technology radically rewrote the "rules" that drove the geography of New Orleans' urban growth. Engineers installed a world-class municipal drainage system to remove standing water from the lakeside lowlands, while concurrently augmenting artificial levee systems to prevent river and lake water from entering the city (see *Constraining and Controlling the River* and *"Drained Dry and Covered With Gardened Homes"*). The advances seemingly neutralized topography and hydrology as constraints on urban growth, allowing the city to spread northward to the lake then laterally to adjacent saline marshes. It was a pattern witnessed many times before and since: real estate interests and their government allies install flood control devices in an uninhabited area; once the water is drained, street networks, transportation arteries, utilities, and residential and commercial development follow. People move in, buy into the value structure, and seek to repeat the process into adjoining flood-prone areas. Before long, more and more people move closer and closer to danger. So secure were New Orleanians in their technological salvation from floods that the centuries-old tradition of building houses raised on piers was abandoned, after World War II, for faster, cheaper slab-at-grade foundations.

By no means were drainage and flood control the only new "rules" guiding twentieth-century New Orleans; complex social phenomena involving race, class, crime, transportation, education, economics, lifestyle, cost of living, and gentrification also weighed heavily in driving metropolitan morphology from World War II to the early 2000s.

Hurricane Katrina and the ensuing deluge of 2005 reminded New Orleanians that the historical rules still warrant our attention—indeed demand it. Satellite images of Katrina's floodwaters bore a haunting resemblance to historical city maps. Neighborhoods spared the deluge occupied the same higher ground developed in the eighteenth and nineteenth centuries (dubbed "the sliver by the river"); areas inundated mostly comprised former backswamp developed in the twentieth century. Topography and hydrology had *not* been neutralized; building at grade level was *terrible* idea. Levees and drainage had lured people onto lower grounds and into danger zones—the so-called "levee effect," in which flood-control structures paradoxically increase flood damage by encouraging floodplain development. "Floods are 'acts of God,'" wrote geographer Gilbert F. White famously in 1942, "but flood losses are largely acts of man."[200]

If New Orleans is to attain environmental sustainability, its future urban geography must pay more attention to that of its past.