Adaptive Opportunism:
Infrastructural Landscapes in the Mississippi Delta

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Project Summary

Located 13 river miles above the City of New Orleans, the Bonnet Carré Spillway, set up by the Mississippi River and Tributaries Project in 1928, is a flood control structure on the Lower Mississippi River and part of an extensive, distributed control strategy for the management of annual Spring and sudden flood events along the whole of the lower river. In addition to the dozens of upstream reservoirs on the river’s tributaries and the continuous line of constructed and reinforced natural levees, the Bonnet Carré is one of three floodways that all for an operable distributary from the river’s main channel to relieve the heightened pressure and gauge heights of the main river. However, of the three the Bonnet Carré has the most unique position in terms of its function and intimate implications for the formation of urbanization and the production of human-natural landscapes. Whereas other flood control mechanisms contribute generally to the safety of the system as a whole, this spillway is directly linked to the safety, formation, and cultural landscape of New Orleans and the surrounding delta urbanization.

The form of the river is an aggregated geography of a great many local human transformations throughout the system’s land use. Lying at the very end of a watershed that covers 41% of the continental United States’ territory makes the urban areas here particularly vulnerable to the coordinate weather patterns and land use decision up river. In the delta, the river’s channel is the highest point of topography in the area, leaving all urbanized areas literally in its shadow. The structure is operated approximately once every ten years depending on the scale of seasonal flooding. Once the river’s gauge at New Orleans reaches 17 feet, the Mississippi River Commission gives the order to open the bays of the spillway’s nearly two mile long weir to relieve flood height. This process is a highly calculated, slow, and laborious process. The spillway operation team from the New Orleans District of the US Army Corps of Engineers organizes for a certain number
of the 350 bays of the weir to be opened progressively by means of two cranes lifting the weir’s 7,000 wooden timbers. At full capacity the structure may allow up to 250,000 cubic feet per second of river water to pour into the nearly fourteen square mile floodway and eventually into the saline Lake Pontchartrain, six miles to the northeast, and from there to Mississippi Sound. Within the spillway, the water is channeled by guide levees that continue perpendicular to the river’s mainline levees and cleared sections of the otherwise wooded landscape allow for the water’s swift flow while great pits and borrow channels allow for increased capacity of floodwater retention. The floodwaters pass through forest, swamp, and marshlands, and before reaching the brackish waters of the lake, they pass under rail and road bridges, over pipelines, around utility poles and conduits, and across numerous recreation areas of the hybrid landscape. At the end of the average one to two month opening event, the river’s threat to the city has been reduced, and with great deposits of sediment left over and the complete reworking of the spillway’s previous topography, the landscapes is completely transformed anew, imitating artificially the historical meandering flooding of the pre-human river.

While the spillway’s technocratic, designed operation replaced a natural-historical deltaic land-forming process with a machine-controlled operation, the function and form of the spillway as a landscape evolved dramatically to serve as a more innovative, fluid, and synthetic model of urban landscapes and infrastructure. As originally conceived in response to the Great Flood of 1927, the spillway and the greater strategy of the MR&T project represented a massive shift in strategy of flood control and therefore in generally conceptualizing the urban-nature dualism. A ‘levees-only’ policy that maximized flow rates of the river was traded for a strategy of outlets that mimicked artificially the historical condition of the delta. This had significant impacts for urban imaginary concerning the soft landscape of the territory. Accordingly, as spillway operations continued throughout the 20th century, the landscape began to take on those re-orientations in popular and formal conceptualization.

With each opening of the spillway, thousands of tons of sediments were left by the river in the fore apron and center channel of the spillway which must be removed in order for the project to function properly in the next event. This then becomes the basis for a new economy and human-natural ecology. The Army Corps of
Engineers, after every operation, organizes a competitive bid process for contractors interested in excavating the deposited sands that are then used in construction projects and the regular raising of lawns and green spaces in the sinking soil of region. Clay sediments are also extracted for the sole use of the Army Corps for the construction and reinforcement of levee works. Meanwhile, the borrow pits created in these excavation works are then repurposed for human recreational and animal ecological functions. The pits are refashioned as hills, ramps, and mud basins for ATV users; they stocked with fish for recreational fishing; and they become breeding grounds for species once losing great amounts of territory such as alligator, egrets, and shellfish. In this way, again, pre-human ecologies are recreated to fit both the demands of natural and human existence, thereby encouraging a more fluid and interwoven urban-nature space.

Additionally, the spillway has a function as a spectacle of human-natural mediation that communicates the relationship being forged between humans and the environment in the process of urbanization. The structure itself, like many of the early Modernist engineering structures, is an architectural landmark of democratic, rationalizing aesthetics. Like dams and aqueducts of the era, the spillway is visited regularly by residents near and far to see the machine’s operation and production of nature. However, where once the project stood as a curious battle of human and machine over an unruly nature, the spillway’s operation is still a spectacle but one of a common, synthetic co-production process of urbanized nature, and a naturalized urbanism while still functioning as an infrastructure for both. The numerous supplementary functions accrued in the spillway over the course of its operation have increasingly been recognized by the Army Corps which has recently made efforts to formally recognize and spatialize them. With the issuance of a masterplan for the spillway in 2009, spaces were officially allocated for all various recreational and economic functions of the spillway, thereby expanding the role of the Army Corps to one of providing both technical protection from periodic dangers and daily social value while reconnecting urban areas with their surrounding environments as well as the means of their production. The spillway therefore stands as an exemplary case study for an expanded, more integrated understanding of urbanization, nature, and infrastructure for the future of city-making.
Part Two: Project Images

Bonnet Carré Spillway Viewed to the South An infrastructural landscape itself, the spillway is criss-crossed by a mesh of myriad others as well.

Comparing the Spillway The spillway is also a park space, though never intended to be, and dwarfs some of the largest popular parks of the world.
The Spillway Structure The spillway is primarily a flood control structure that allows all other ecologies of the landscape. [credit also to Kees Lokman]

Spillway Mechanics The structure is operated by two diesel-powered cranes running on tracks on top of the structure that lift each of the 7,000 wooden needles to precisely allow water to flow through.
**Spillway Ecologies** The overlaid meshwork of the many natural, artificial, and infrastructural ecologies is an emergent landscape of the interrelating systems.

**Spillway Economies** The flood control function of the spillway supplies multiple material economies and literally produces the geography of the surrounding urbanized area.
A 7,000 ft Long Weir  The weir is set back from the riverfront and determines the shape of the landscape to either side, but it is itself a historic landmark of heroic modernist engineering.

The Hybrid Landscape  The spillway landscape also reflects this palimpsest of influences and networks, with each new use adapting to the transformations of the previous.
Aesthetics of Heroic Modernism The severe geometries and intense repetition were in fact part of a larger regime of human labor over the transformation and subduing of unruly nature. [credit: US Army Corps of Engineers, New Orleans District Archives]

Rationalizing Geometry The geometry of modernism facilitated control of nature by its endless repetition over the landscape, allowing endless abstraction and alienation from that nature. [credit: US Army Corps of Engineers, New Orleans District Archives]
War on Nature  The triumph of modernist engineering over nature was evident in abundance during the spillway's first opening in 1937, where newspapers compared it to the Battle of New Orleans in 1812 against a British army. [credit: The Times-Picayune, 24 February 1937]

Casting Nature as ‘Other’  The engineering was very much a public spectacle of engineering triumph, solidifying a long-held conceptualization of nature as ‘outside’ of urbanity. [credit: The Sunday Item-Tribune, 21 February 1937; The Times-Picayune New Orleans States, 14 March 1937]
The Spillway as Carnival

The spillway’s first opening coincided with carnival weekend, further emphasizing the spectacularized display, not only of engineering, but of a ‘tamed’ nature as well. [credit: The Sunday Item-Tribune, 1 February 1937]

Technological Phantasmagoria

The spillway became thus a popular attraction, as did dams at this same time, for the public viewing of the production of nature in the name of the urban. [credit: The Tribune, 1 February 1937]
Producing Landscape Anew
But unexpectedly, the spillway also produces social value transforming the landscape continuously, sculpting places of recreation and unique ecologies.

Landscapes of Production
The overlaid systems therefore reproduce each other and their landscapes, allowing for continuous differentiation of hybrid spaces for recreation, economy, and civic works.

Sediment Economies
Not only produce ephemeral spectacle, the spillway also leaves behind thousands of tons of sediment from the muddy river that generate years of productive resource economies.
Landscapes of Separation In 1950s, infrastructures of movement and commerce became the primary vehicles for the cleaving of natural and urban landscapes.

Generalizing the Modernist Landscape The methods of modernism became generalized into the language of urbanization that separate uses, natures, and cultures religiously that still affects our world today, despite the evidence of such hybrid landscapes as the spillway itself.
The Threat of Modern Logics The most dangerous aspect of modernist nature-culture division is the blinding of human consciousness it produces and the hostage situation in which it puts urban areas, chained to the technologies of its production; however the spillway stands a powerful case for the resistance of these concerns.
Part Three:
Opening 1937: Media Photo Essay

The flooding of 1937 was never estimated to be as severe as that of 1927. Of the main tributaries to the Lower Mississippi trunk, only the Ohio was in flood, as opposed to nearly all in 1927. Spillway construction itself having only finished less than two years earlier, it is likely that the technocrats were eager to showcase their success. In many ways the project was the legacy of Herbert Hoover, an engineer himself, who directed much of the 1927 federal flood response and sat as president during the spillway’s construction. However, the vehement rejection he received from the country in the election of 1932 left the USACE also somewhat lacking in public support. Additionally, the spillway construction had been undertaken by many in the CCC and WPA work programs created by Roosevelt, the victor of the 1932 election, to combat unprecedented unemployment of the Great Depression, through which the country was still living. Therefore it was of great importance to the federal government, the president himself, and the USACE to present an image of accomplishment and progress. And an all too easy snarling, savage image of nature became an easy target for ‘progress’.

Although the Times-Picayune would claim that the “premature opening of this artificial canal was in response to pressure of opinion created from outside, and not because of any local alarm,” there were locally, in fact, similar concerns, largely based around protective economic investments in the city and the city’s port traffic (2 February 1937). All of these concerns combine in the resulting political ecology. To educate local and global populations newspapers, engineers, politicians, business interests, and scientists conspired around the thesis of public assurance. Each with their own specialized tools of their trade worked in the collective effort to educate by taming a wild nature with heroic technical, literary, and graphic languages. The stark modernist geometries of the structure stand out against a ‘raging’ river while cartoons given simplifying clarity to complex systems. And
fortuitously the flood arrived during carnival season, with the city packed with visitors and locals alike ready for a show; authorities were all the more glad to have an audiences that they overtly called upon. However publicity became a concern in addition to a tool for administrators, the *Times-Picayune* decried: “It is only the flood of unfounded rumors that the scientists and the engineers have been unable to curb” (25 February 1937). Countless personal public attestations were made include senior editors of newspapers and the mayor himself.

In the end, a twisting of architectural, ecological, and journalistic language, putting forth a separatist urban-nature thesis combined with intentional and unintentional verbal and formal misinformation, seems to have produced in the end of a newly reproduced nature and space. Despite exaltations of technology’s putting an end to dangerous previous practices of ‘wild’ nature, “when the river reached the lake Sunday morning it was the first time the Mississippi had invaded Lake Pontchartrain since the last levee crevasse at Bonnet Carre was closed about 1900,” and some things stayed quite the same (*New Orleans Tribune*: 1 February 1937).
Locally, public education regarding the river, the flood, and the spillway were a goal of government, business, and general public fascination with an untested new device that was to be the city’s savior. While public knowledge of the river was greater in the early 20th century, there was a problem of conceptualizing beyond the local scale. Graphics therefore simplified the long newspaper listings of river gauge readings and equally so the many small-scale mechanical minutia of the structure’s operation. The impetus for education was an alloy of fascination, civic duty, and the necessity of maintaining calm. The extensive detail of newspapers’ renderings and the public display of the engineers’ map in a public museum are attestations of the dual import and unified project of information. The aerial perspective is a useful representation tool for public communication as it condenses a great many kinds of data, such as topographic situation and vertical levee protection, while dispensing with unneeded degrees of exactitude. The looser representation strategies also allow for certain details to be called out when needed and to fade into the background or away all together, when unnecessary.
It all too appropriate that the first opening of the spillway coincided with local carnival celebrations. It is an appropriate parallel of events that question the role of the normative function of the urban landscape, whether in the streets or on the city’s periphery, the ‘uncanny’ becomes a tool for questioning the ‘ordinary’ of the urban. The equal fascination of the carnival go-ers in the lascivious human spectacle and that of the phantasmagoric machine is extremely telling. But there is also a third element of that spectacle which is the ‘wild’ nature itself on display, as it is ‘tamed’ by the impressive might of the engineers. The position of spectators is also significant, they are always at a point where one looks down upon the structure and the water pouring through, further enabling a masterful tone and the wearing of Sunday best to take in the spectacle. Not only from above, but the spectacle is taken in by the public and the engineers from views facilitated by yet other machines: airplanes, bridges, accessed by cars. It is truly a machinic phantasmagoria on display.

Spectacle

All images and headlines from respective newspapers noted, (collected in Anon. 1937).
Despite the supposed revolutionary shift in the USACE philosophy and policies toward flood control on the Mississippi from ‘levees-only’ to a more ‘natural’ or ‘cooperative’ strategy of floodways, the thesis of domination persists. From before the opening to well afterward, the public is to be consistently made aware of the assurances of the men of reason who oversee the spillway’s operation, dressed in tie and hat to ensure not only control, but professionalism that speaks to regularity and calm with which they conduct themselves in the process. Indeed the domination thesis has not disappeared at all. Where once the river was expelled but still in obvious contact with urbanization, it now has been allotted a pen on the periphery to be contained within. It is then that nature is further submitted to ‘control’ and abstracted from urbanization.
Heroics

It is important for the domination thesis to stress the power of human labor in the process of control. Despite the glorification of the machine in the domination thesis, the engineers still demand a laborious method of domination. It is this very direct hands-on practice that produces an urban identity vis-a-vis nature. As de Tocqueville first said of the North American settlers, they in fact produce their own poetry and identity in the transforming of nature on ever larger scales.

Thus, despite the abstract, externalizing of nature, it is still held in tension with the form of urbanization and urban identity produced. The likening of the spillway’s operation with the Battle of New Orleans, under Andrew Jackson, in 1814 is particularly telling of this condition. That battle is one of the key events for regional identity, in the expelling of British soldiers as an act of owning their own territory. Not only was it an expelling of an outside force in favor of the supposedly rightful owners but it was done so through local knowledge of the difficult swamp territory that was particularly stifling for the British army. Once again, intimate knowledge of the landscape is leveraged to expel a supposed invader in order to maintain the status quo of a ‘rightful’ ownership of the urban condition.

All images and headlines from respective newspapers noted, (collected in Anon. 1937).
The excessive discussion of the city’s safety in local and national press along with the spectacularized imagery of the spillway’s operation make clear that the mechanical functioning of the flood control structure was only part of its intended function. There was a clear need to propagandize the floodway in order to popularize the USACE’s engineering success, but more importantly to guard against the greater potential disaster caused by the flood: a panic of investment and capital circulation. According to Barry (1997), this was indeed the primary concern of urban New Orleans, in contrast with those surrounding the city who have no part in the urban economy. The city’s economic territory has been described by Pierce Lewis as taking the form of a lollipop, with the bulk of commodities traded in the city’s port coming from the Midwest agricultural lands. Coupled with the relationship also to northeastern capital investors, the city is extremely isolated from its immediate hinterland which allows from the externalization of any flood events to that hinterland. And conversely, any perceived imminent threat to the investments of the port city are immediately connected with the concerns of far off places in the country, who must be continually reassured of the safety of their investment and continued liquidity of trade.

All headlines and texts from respective newspapers noted, (collected in Anon. 1937).
"It was the second greatest traffic jam in the history of the Airline highway," Captain Fakler said. "The only time I saw more cars was when the Huey P. Long bridge was dedicated."

Sunday, 31 January 1937
The Item-Tribune

"New Orleans is the safest place on the lower river and if I had my choice of locations in a flood I would pick your city. That's how much I think of those levees and that spillway. Your problem is not controlling the river, but rumors."

Sunday, 21 February 1937
The Item-Tribune

Two years ago we had a Carrollton stage of 12.4, and on that occasion, too, there was no undue excitement. This year we have had a stage of 19 feet and have suffered a severe psychological jolt which had an economic kickback and which, through false or garbled reports, some of them deliberately fomented for ulterior reasons, kept away some tourists and injured the reputation of New Orleans.

Thursday, 25 February 1937
The Times-Picayune
Part Four:  

Opening 2011: Media Photo Essay

Many of the cultural practices around the spillway’s operation have not much changed since the first opening, but there are nuances to them that indicate a shift in certain ways. For one, there are still notions of the militarization and heroic nature of the structure, but the images seem to speak less of expert, scientifically managed control than politicking. There is no vague uncertainty from politicians or military nor any overt excess of calm and assurance. Second, if anything the fascination of spectacle has grown in popularity, but again it is a different, more quotidian spectacle, as if it were the latest rendition of a well known play, which, in a way, it is. However, whereas the spectacle of 1937 marveled at the machine’s triumph over nature’s will, today there is a gawking at the caricatured, non-threatening nature that is produced as it pours through the weir. This is further expressed in the banalization of that nature in the casual images of residents fishing or relaxing in the flood waters. It could even be said that nature is in fact being re-naturalized, but as an evidently synthetic thing as the means of its production are so clearly juxtaposed in the context of the spillway as its operating. Though it seems there is yet still a degree of mystification in the collective conceptualization of the natural landscape.

While there is clearly a great degree of popular synthetic understanding of the river system, this has not brought the urban areas into greater rapport with the landscapes and population elsewhere in the system. The greater systemic understanding is mobilized to make spread panic, make threats, or demand remittances over the spillway’s operation particularly with the urban core areas to gain. This is remarkably similar to those same urban-periphery disputes of the 1927 flood (see NYTimes headline). Despite this extant externalization of nature as ‘threat’ or ‘cost’, there is a positivist flavor to the headlines as well (see Bob Marshall of the Times-Picayune) that positions the flood event as an urban savior.
Use of information graphics and maps are used to explain the materiality of the spillway beyond the abundant local knowledge to the greater scale of the system. In the lower right graphic, the reminder that “It’s not just for recreation” is a telling phrase regarding local consciousness. But the large graphic on the right has far more pointed propaganda intention. Almost identical to the graphic “Why New Orleans is Safe” of 1937, the “Worst Case Prediction” graphic makes clear threats to government and the public that the city is held hostage by the Army Corps, encouraging them to put pressure on the Corps to open the spillways, never mind the costs to the rural residents.
The spillway's location and operation are generally assumed as public knowledge, and headlines instead treat the event as an event of passing interest, aligning it with other marginal entertainment happenings of only local importance. However the expected tacit knowledge of the spillway is capitalized on, allowing local journalism to advocate positions around the event of greater ecological, economic, or governmental concerns. In short, an intimate knowledge of landscape is generalized in the urban collective consciousness.
Though the relatively high public knowledge does seem to be leveraged at times in local press to pit certain regions against others, there is a collective cooperation or goal in mind that is apparent the demands for disaster-related aid to certain regions and the call for wetland remediation using the flood. However, in the national press the story is flattened to an urban-rural battle. The lack of generalized public knowledge amongst these readerships leaves reporting starkly similar to the propagandizing of the 1927 flood that concerned itself more with popularizing the image of safety in the city to protect investments in the area from northeastern creditors (Barry 1997). The 2011 press, however, is more concerned with the productive of Gulf Coast petroleum supply stream. Excessive drama is utilized in images and phrasing that allude to war operations as opposed to decades old designed and proven flood control practices. The fetishization of the ‘battle’ with nature and war-like imagery of engineering is plainly, in some cases, still extant.
Images published by both the USACE themselves, and the local press continue to press a re-assuring theme that all is under control. However, compared with images of the 1937 opening, they seem more concerned by capturing the requisite appearances of authorities. A military helicopter is juxtaposed with a motley crew of military and government officials in range of dress that speak less of any desperation or seriousness. In a manner reminiscent of Baudrillard, the events being covered or always justifying their newsworthiness. Similarly, as heroic imagery it is quite close to that of 1937 but it seems more of the beauty in the process than the phatasmagoric wonderment of technology itself.
Banalization + Naturalization

Complementing many of the headlines, the more casual images of the spillway’s operation show quite tangibly the public consciousness and comfortability with the now routine or banal synthetic nature under operation. It is not only that the ecologies of the spillway’s operation mimic the freshwater marshes of the delta, but that they are somehow better than the original ecosystem as they become cartoonish images of verdant wetlands and the opportunities for recreation and sport are something of excitement to be taken advantage of during the short operation. The banal in this way then becomes a tool for the enhanced engagement of urban residents and the synthetic landscape.
A crowd gathers on land and water to watch the spillway opening, The Times-Picayune

The heroic, laborious imagery of the opening still serves as popular, The Times-Picayune

The crowds of spectators today are a far more casual affair, The Times-Picayune
Spectacle

Like some of the imagery of 1937, there is a great deal of similarity to carnival crowds in the groups of spectators that gather for the spillway’s opening. But while visitors of 1937 came in their cars and well dressed, not knowing exactly what was to be witnessed, but ready to be seen as part of the spectacle, visitors here have come prepared with lawn chairs and ice chests as though for the familiar carnival parades or a fireworks display. Not only are they gathered along the high ground behind the largely ceremonial fence, but as in the top image on the opposite page, there are some scattered in the water as well. This is plainly evidence to a changed consciousness of comfort with the machinic ecology in operation, as opposed to those of 1937 who huddled close to the cranes, and the faith in technology, from the wilds being unleashed beyond. Complementing the naturalization of the artificial ecology, in some images there is perhaps a note of ‘zoo-ification’. As in the middle image opposite or the lower left image on this page, the diesel-powered cranes are cast as wild animals, behind bars, going about the best approximation of their ‘natural’ instincts in the artificial approximation of their ‘natural’ habitat. The spillway becomes a zoo for the spectacle of an artificial ecology, a simulacrum even of a wetland. However, there is also a synthesis of the human in this ecology as well, which allows heightened relationships between the urban and the landscape.

All images, The Times-Picayune.