

ESSAYS

Delta Blues

CORNELIS DISCO

Flood control is a national religion in the Netherlands. In 49 U.S. states, it's Louisiana's problem.

— John McQuaid, *New Orleans Times-Picayune*, 13 November 2005

The whirlwind that swept through the American media after the devastation of New Orleans last August was hardly less ferocious than Hurricane Katrina itself. The Corps of Engineers was lambasted for failing to defend the city against the floodwaters, while politicians from Mayor Ray Nagin to President George Bush were called to account for the tragically incompetent evacuation and relief efforts. Critics frequently drove their points home with invidious comparisons to the Netherlands. Flood control in the United States was fragmented, environmentally indifferent, callous about safety standards, and undermined by pork-barreling and deceitful contractors (so went the refrain); the Dutch, in contrast, were a nation of honest, clever, hardworking, technologically advanced Hans Brinkers.

Hastily dispatched television news teams from all three U.S. national networks, poised photogenically in front of the mammoth Maeslandt floodgates in Rotterdam's Nieuwe Waterweg or the Oosterscheldt storm-surge barrier in Zeeland, reported glowingly (and in prime time) on Dutch excellence in water management. The Dutch (so the stories went), unlike the Americans, had historically faced up to their precarious situation on the low-lying North Sea coast, whatever the cost. Surely their experience held lessons for the reconstruction of New Orleans and the construction of effective and ecologically responsible flood-control systems in the Mississippi Delta. The favorite case in point was the ambitious Delta Plan, which closed off the estuaries of the Rhine and Meuse rivers in response to the

Cornelis Disco teaches at the University of Twente in the Netherlands. He has published extensively on Dutch water management and is working on a book exploring the inter-relationship of the Dutch and the international Rhine.

©2006 by the Society for the History of Technology. All rights reserved.
0040-165X/06/4702-0004\$8.00

APRIL

2006

VOL. 47

catastrophic storm-surge flood of February 1953. To the American reporters, that flood seemed quite analogous to what had just befallen New Orleans, and now it was clearly time for the United States to launch its own Delta Plan. None dwelled for long on the fact of the 1953 flood itself, or on the large number of deaths (1,870) it caused. That the Netherlands should have been so unprepared for such a devastating storm surge did not fit the image of the nation as indomitable master of the flood.

The earliest news features focused on the hardware of water management—the need for something like the Oosterscheldt barrier in Lake Pontchartrain and a Maeslandtkering for the Mississippi—but later press coverage tended to stress the ecological turn that Dutch flood control had taken. In an interview on 8 September 2005, National Public Radio's Ira Flatow declared that the Dutch had learned “that while you can't stop the waters from rising you can work with nature,” a reference to the “half-open” design of the Oosterscheldt storm-surge barrier and the current “room for water” projects on the Rhine and Meuse rivers. (The Oosterscheldt barrier, though it provides a solid bulwark against storm surges, allows a measure of tidal action in the estuary under normal conditions, thereby helping to preserve wetlands as well as the flourishing oyster and mussel industry.) The lesson for the United States was that it was high time to abandon the venerable Corps of Engineers tradition of constraining the Mississippi in a corset of levees, which had robbed the Delta of riverborne silt and nutrients, accelerated its subsidence and erosion, and deprived New Orleans of much of its natural buffer against storm surges.

How accurate was the U.S. media's portrayal of flood control in the Netherlands? At best it is an open question. Even as American reporters heaped praise on Dutch flood defenses, major newspapers in the Netherlands were running articles that framed the New Orleans disaster as a warning. Several experts gave it as their opinion that Dutch dikes were also substandard in many places and that, without new investment, the Netherlands might well take up where New Orleans left off.

Contrary to the romantic view expressed in the American media, staying one up on the floods is not a genetic proclivity. Hard political and rhetorical work has gone into maintaining the vaunted defenses that keep the Netherlands more or less dry and allow it to prosper. Still, the easy access of a vocal “hydraulic lobby” to the Dutch media betrays the vitality and persistence of what I call “water culture” in the Netherlands—and contrasts starkly with the fragmented and sporadic attention paid to water in the American national media. That is one reason why there is no storm-surge barrier (yet) in Lake Pontchartrain.

We may grant the claim that Dutch coastal defenses, with their endless kilometers of uniform “Delta-level” dikes (fig. 1), meticulously maintained dunes and beaches, and ingenious dams and storm-surge barriers, provide more adequate and equitable flood protection than exists in the Mississippi



FIG. 1 The 32-kilometer-long Afsluitdijk, which closes off the Zuiderzee from the North Sea. To the right is the ocean, to the left the freshwater IJsselmeer. Due to a negative climate scenario, the entire dike will have to be raised nearly a meter in the next few years to meet the ten-thousand-year-flood standard. (Author's photo.)

Delta, particularly in and around New Orleans. Of course, the Rhine is no Mississippi, and North Sea storms are no match for the likes of Katrina. That partly explains why Dutch safety norms, although they too are calculated on the basis of presumptive losses in case of flooding and therefore privilege the wealthy, densely populated ring of cities near the western coast, are orders of magnitude higher than those in place for New Orleans. The Dutch “design flood” is expected only once in ten thousand years for the urbanized west, once in four thousand years for rural Zeeland. Compare this to thirty or forty years for a Category Four hurricane on the Louisiana coast.

That said, there remains the idea that the Dutch have learned to work with nature and that that knowledge has helped produce a more sustain-

able system of flood defenses. While the Mississippi Delta is eroding at an alarming rate, in their better world (so the story goes) the Dutch are re-establishing and preserving wetlands.

There is a germ of truth in this, but also considerable mystification. It is certainly the case that since the 1970s Dutch hydraulic engineers have discovered (or, rather, been painfully taught to respect) the value of accommodating nature. This might be elevating were it not for the fact that in the previous thousand years the inhabitants of the Lowlands single-mindedly bent themselves to exactly the opposite task: transforming their realm into a huge garden in which nature—save wind and rain—is thoroughly domesticated. This provided them with a country, but at a price. A third of this garden presently lies below mean sea level, and nearly 60 percent is vulnerable to flooding. Producing and maintaining such precarious real estate was only possible by incorporating nature into human order—that is, by creating a hybrid of nature and culture. This hybrid order was based on constraining the Rhine, Meuse, and Scheldt rivers, along with a host of minor watercourses, between levees and more or less hermetically closing off the Delta from the sea, a project that started in about the year 1000 with damming up smaller rivers and culminated in the Delta Works. Against this violent background, working with nature appears a marginal and recent accomplishment. Indeed, it was only possible to envision such a “soft” approach on the basis of the “hard” insurance that had already been taken out. To reconstruct the Mississippi Delta along the lines of the Dutch Delta would require raising existing levees to the level of a four- or ten-thousand-year design flood and building a ring of dikes around the outer islands, connected by hurricane-proof dams across all the river outlets. As a sop to nature, one or two of the dams could be built as open storm-surge barriers in order to conserve some small portion of the doomed wetlands.

Still, for the moment the Dutch appear to have achieved both a degree of safety and some measure of accommodation to nature—an achievement that seems unthinkable in the Mississippi Delta, at least in the short term. What differences in geography and history account for this discrepancy? The answer, in a nutshell, is threefold: scale, time, and water culture.

The Netherlands is a small country—just about as big as the Mississippi Delta, in fact. Hydrologically speaking, these two regions are quite comparable. However, in the Netherlands the Delta, one way or another, comprises almost all of the country. The concerns and problems of its several parts have in the course of time become the concerns and problems of the nation as a whole. New Orleans’s tragedy is that the Mississippi Delta is a small tail attached to a great big dog, and the tail’s problems are not necessarily the dog’s most pressing ones.

The inhabitants of the Dutch Delta have also been in the business of organizing their hydraulic environment for much longer—more than a millennium. New Orleans has only been in existence since 1718, and the earli-

APRIL

2006

VOL. 47

est drainage and levee improvements date only from the 1790s, a scant two centuries. The Netherlands' head start meant that water management could become a formative component of social and political organization in a way that was patently impossible in the Mississippi Delta, subject as it initially was to the vagaries of imperial competition among the Spanish, French, and Americans and then to the military and commercial interests of an expanding United States. Doubtless hydrological concerns occupied as high a spot on the political agenda in towns like New Orleans and Morgan City as they did in Rotterdam, but on the national level they were victims of cost-benefit calculations that can seem cold-blooded if not cynical. What were New Orleans or Morgan City worth to Montana or California? What are the poor black neighborhoods of New Orleans or the Cajun towns of the Atchafalaya Basin worth to Cincinnati or Vicksburg?

Dutch water culture developed over centuries within a framework of local and regional water boards dominated by landowners. Land-based tithes and contributions of labor in the form of building and patrolling dikes and sluices kept the boards solvent. The Dutch honed negotiating skills over the course of centuries of conflict within and among the water boards, throughout which they remained united by a shared awareness of the treacherousness of the common enemy. The keystone of Dutch water culture was the conviction that conflict, left unresolved, would ultimately undermine everyone's defensive posture. Sea-level rise and anthropogenic soil subsidence required continual improvements in drainage and flood defense systems. It was not so much "sink or swim" as "sink or organize."

The founding of the Rijkswaterstaat at the end of the eighteenth century elevated responsibility for water management to the national level, though the new system necessarily built on and incorporated the existing local and regional infrastructure. The Rijkswaterstaat's mandate was to execute hydraulic works on a super-regional and national scale. In practice this came down to managing the major rivers and reengineering much of the coastal defenses. Over the course of the last two centuries, the fine-grained local systems of drainage and flood defense—including the autonomous water boards that managed them—have been transformed into something like clients of encompassing and standardized national systems.

Dutch water culture is not only a concatenation of multilevel technological systems and modes of organization. It is also a mentality. The original medieval settlers, in colonizing the low-lying peat bogs, made a Faustian bargain with nature. The price of remaining was constant vigilance and arduous toil to maintain the unnatural order and keep the water and the land in their humanly ordained places. A shared determination to pay that price, despite the enormous sacrifices exacted, marked the emergent nation, no less than the shared determination to drive the Spanish out during the Eighty Years War did, and eventually it became the cornerstone of a national religion for a country whose borders more or less also describe the

APRIL
2006
VOL. 47



FIG. 2 Memorial bronze at the point of final closure of the Zuiderzee Afsluitdijk. "A vital people works on its future." (Author's photo.)

Dutch Delta. Major projects like the Zuiderzee closure and the Delta Works are merely the latest expressions of this national sentiment.

In 1932, on the occasion of the dedication of the Zuiderzee Dike, a plaque was unveiled at the monument marking the point of closure (fig. 2). The inscription reads: "A vital people works on its future." Twelve years later, in 1944, Allied bombers ripped three gaping holes in the dikes of Walcheren Island to flush out the German garrison that held closed the shipping lanes to the strategic harbor of Antwerp. The operation was a brilliant success, but large parts of Walcheren disappeared beneath the waves. With the northern half of the Netherlands still Nazi-occupied and the country stripped of resources, a debate ensued over whether the island was worth reclaiming. The task was daunting. For months, savage tidal currents had scoured the ever-widening dike breaches, creating troughs more than 20 meters deep. The queen, exiled in London along with the Dutch government, proclaimed that there could be no question of sacrificing Dutch territory to the sea, whatever the cost. After a heroic effort lasting more than a year that succeeded only thanks to a nationwide mobilization of resources and a gift of caissons left over from the Normandy invasion, all three breaches were closed and Walcheren was restored. Meanwhile, children on the island had had to time their going to school by the tides, and some had even learned to swim in the periodically submerged hallways of their homes.

So what might the United States learn from all this? Interesting engi-

neering details, to be sure, but that is hardly where the problems lie. Respect for nature? Given the Dutch record over the past millennium, a phrase that comes to mind is “physician, heal thyself.” A new attitude toward risk and water? Perhaps, but it is hard to see how such a new attitude could result in concrete flood-control policies given the ingrained, constitutionally buttressed, and currently hyped-up American distrust of big government. And it stands to reason that big government, of which the Corps of Engineers is a paragon, is bound to—has, in fact, repeatedly—run into trouble in a nation as extensive and geographically diverse as the United States. In the Netherlands, what’s good for southerly Walcheren is, *mutatis mutandis*, also good for northerly Schiermonnikoog. What’s good for Louisiana is often a far cry from what’s good for North Dakota.

Like the postage-stamp-size Netherlands, many states in the United States are reasonably homogenous geographical and climatological entities, and their inhabitants share similar histories and cultural adaptations vis-à-vis a specific and limited set of natural threats—floods, forest fires, earthquakes, hurricanes, tornadoes, droughts, blizzards. States seem the most sensible political units for dealing with threats stemming from natural disaster: to each his own. And with disaster-management protocols sensibly embedded at the state and city level, the distributive logic of the pork barrel can cut in where local resources fall short.

One problem with this scheme is that from the perspective of natural disasters not all states are created equal. Some are even victimized by the efforts of others to manage their own natural threats. Louisiana, threatened not only by hurricanes from the south but also by the Mississippi from the north, is a case in point. As the upstream riparian states improve their own drainage and flood defenses, aided and abetted by the Corps of Engineers, the floodwaters keep rising and the walls around New Orleans and Morgan City have to be built higher and higher. The Constitution of the United States was not designed to handle these sorts of inequities. River-basin management would of course be a good strategy, but the tough residue of states’ rights at the heart of the Constitution makes it difficult in practice. That’s why New Orleans ended up with a cut-rate and racist evacuation scheme instead of adequate flood and hurricane defenses.

In the end, the lesson offered by the history of Dutch water management touches such a fundamental constitutional nerve as to make it an unlikely occasion for learning. The lesson is that major natural threats like hurricanes and coastal flooding are too big for individual citizens to cope with, too big for local authorities, and too big even for states. But while the U.S. federal government has historically been empowered and in general eager to deal with clear and present dangers, it has been less willing and less able to face vague and distant ones, like the chance of flooding sometime in the next century.

TECHNOLOGY AND CULTURE

Meanwhile, nature works its own course. The Dutch say, “A vital people works on its future.” But only time will tell whether even such determination can prevail over the ever-rising waters and the ever-subsiding land. A New Orleans–like apocalypse may yet prove to be the very future the Dutch are so diligently working on.

APRIL

2006

VOL. 47