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Introduction to *Mississippi River Tragedies: A Century of Unnatural Disaster*

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INTRODUCTION

DISASTERS, NATURAL AND OTHERWISE

Drive through any suburban area and you are likely to find subdivisions with names like “Oak Tree Farms,” “Meadow View,” and “Eagle’s Nest.” But try to find the features that inspired those names, and you may discover that the trees, meadows, and nests have given way to farms, neighborhoods, and lush lawns. Are those places still “natural,” even though sod has replaced meadow, and dog houses have replaced bird nests? Walk into any grocery store and there will probably be an aisle dedicated to natural foods. Does that suggest, somehow, that the stock filling the rest of the aisles is “unnatural”?

The fuzzy line between natural and unnatural reflects ambivalent attitudes toward nature. We idealize it, naming our neighborhoods and our healthiest foods in its honor. And yet we also see nature as an adversary to be conquered, blaming it for such “natural disasters” as floods, storms, hurricanes, and erosion. Sometimes, we even blame the Almighty and attribute our woes to “acts of God.”

Nowhere is this tension clearer than in the Mississippi River basin. The great river and its tributaries flow through, drain, or form the border of more than thirty states. Overall, the Mississippi drains about 40 percent of the continental United States, from Montana to New York, from New Mexico to North Carolina, and from Minnesota down to...
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Louisiana. The U.S. Army Corps of Engineers, the federal agency in charge of managing the river, describes it as one of the nation’s “outstanding assets.” But the Corps also asserts that the Mississippi, in its natural condition, represents a “liability . . . [that poses] a threat to the security of the valley through which it flows.”

When calamity strikes in the Mississippi basin, our first impulse is to shudder at the uncontrollable fury of nature. We sense, deep in our gut, that it was only a matter of time before the Mississippi unleashed a natural disaster, revealing itself as the deadly liability recognized by the Corps. And what’s worse, we fear that we have no control over the disaster and that we are powerless to stop it. Nothing could be further from the truth.

War in the Mississippi Basin

The Mississippi River flows through one of the most highly engineered river basins in the world. Today, if you were to fly over the river, you might think that the upper Mississippi was not a river at all, but rather a chain of large lakes, one thousand miles long and as much as three miles wide. Concrete chambers—locks—punctuate the upper Mississippi, serving as a watery staircase that allows boats of all shapes and sizes to navigate the river’s uneven course. Crafts headed downstream wait in one lock as the dam opens and water drains into the lock below, and then continue on their journey when the levels are equalized. To travel upstream, the process is reversed: boats wait in the lower lock, floating up as dam-released water flows in from above. There are twenty-nine pairs of such locks and dams on the upper Mississippi, extending from northern Minnesota past St. Louis to the mouth of the Ohio River at Cairo (pronounced Kay-roh), Illinois. This river segment has been transformed so dramatically that it resembles a set of steps more than a natural water body. The architect of the transformation, the Army Corps of Engineers, refers to its handiwork as a “stairway of water.”
The locks are a marvel of modern engineering. But even before they were built, engineers had attempted to tame the river by dredging mud and silt from its channels and by blanketing its shoreline with levees, floodwalls, jetties, and other structures designed to control floods. Now, a 1,607-mile levee system lines the lower Mississippi River, from Cairo all the way downstream to the Gulf of Mexico. An additional 596 miles of levees extend along southern tributaries of the river.3

A bird’s-eye view of the Mississippi delta, where the river meets the gulf, reveals multiple hues of blues and browns, where freshwater mixes
with seawater and where silt, sand, and clay are deposited, layer by layer, creating side streams called distributaries that carry water and sediment to the ocean. In addition to these natural distributaries are channels that have been dredged into the delta to promote shipping and oil and gas development. Situated between the distributaries and channels are low-lying pockets of land created from river deposits—bayous, marshes, and coastal wetlands—that look like the webbing of a duck’s foot.

The Corps of Engineers has struggled mightily to control the Mississippi—an effort it likens to war. The metaphor is not surprising, given the Corps’ military pedigree. On the eve of the American Revolution, the Continental Congress established not only the Army, but also named a chief of engineers. (Colonel Richard Gridley, appointed in 1775, was the first.) Since that time, the chief and his Corps—made up of both military and civilian personnel—have provided engineering support for military and civilian matters. In the Corps’ words, its mission is to “[p]rovide vital public engineering services in peace and war to strengthen our Nation’s security, energize the economy, and reduce risks from disasters.”

The Corps takes the risk-reduction aspect of its mission seriously, particularly when it comes to the Mississippi basin. In vivid prose, unexpected in a bureaucratic document, the Corps’ Mississippi Valley Division describes the focus of its work as the “contumacious” Mississippi River. Explaining the difficulty of its task, the Corps refers to the river as both “beast” and “benefactor”: “This Janus-faced colossus periodically seeks to challenge the flood control system imposed upon it, while its opposite profile is a vital waterway network that extends into the heart of the nation—a true cornerstone of our economy.”

“Contumacious”? “Janus-faced colossus”? The Army does not mince words—or tread lightly—when it comes to battle with what it perceives as the stubborn and willfully disobedient river. Clearly, the Mississippi River has been modified by many human hands, including
those of the Corps, following the instructions of Congress, responding to the will of the electorate. But just as clearly, some of those efforts have backfired.

**Law and Unnatural Disasters**

To examine the relationship between human action and disaster, legal scholars have called for the development of a new area of study. In 2006, professors Daniel A. Farber and Jim Chen published *Disasters and the Law: Katrina and Beyond*, a law school textbook that considers legal rules that deal with catastrophic risks, including prevention, insurance, emergency response, compensation, and rebuilding strategies. As the authors explained, “we are all stunned by each new disaster, but rapidly come to view it as exceptional and never to be repeated. Thus, we fail to prepare for the next one.” Instead of this insufficient, piecemeal response, the authors highlight the need for a comprehensive legal approach to major disasters. The developing field has come to be known as *disaster law.*

The systematic study of disaster poses intellectual puzzles that involve law and a variety of other academic disciplines. One of the thorniest questions—and one of the main themes of this book—is where to draw the line between “natural” and “unnatural” disasters. This challenge was taken up by historian Ted Steinberg in *Acts of God: The Unnatural History of Natural Disaster in America.* Steinberg traces the practice of blaming nature for calamity to the late nineteenth century, when the widespread belief that disasters were God’s punishment for sin gradually gave way to the notion of nature as culprit in a shift that neatly excused humans from moral or other accountability for harm. As Steinberg argues, “This constrained vision of responsibility, this belief that such disasters stem solely from random natural forces, is tantamount to saying that they lie entirely outside human history, beyond our influence, beyond moral reason, beyond control.”
Blaming nature also proved to be politically expedient, as powerful figures sought to “normalize calamity.” By convincing us that we should expect random strikes of nature, Steinberg concludes, our leaders “have been able to rationalize the economic choices that help to explain why the poor and people of color—who have largely borne the brunt of these disasters—tend to wind up in harm’s way.”

The Law Falls Short: A Brief Detour outside the Mississippi Basin

Today, hydrologists and hydrogeologists can tell us much about the movement of water. Their study includes runoff processes, streamflow routing, and flood frequency analysis. The scientists examine the relationship between rivers and groundwater. Moreover, they develop complex computer models to describe the action of water under a variety of scenarios. The terminology can be daunting to a layperson: unconfined aquifer, hydraulic conductivity, transmissivity, Darcy’s law, evapotranspiration.

Overall, scientists have learned that a variety of factors—both natural and human—can influence the behavior of water. Before all this study, early judges were perplexed by the movement of water. When it came to underground water, in particular, many threw up their hands in befuddlement. As one Connecticut judge explained in 1850, “The laws of [groundwater’s] existence and progress . . . cannot be known or regulated. It rises to great heights, and moves collaterally, by influences beyond our apprehension. These influences are so secret, changeable and uncontrollable, we cannot subject them to the regulations of law, nor build upon them a system or rules, as has been done with streams upon the surface.”

Disputes over surface water were a little easier for judges, but even so, they struggled to sort out the natural and human causes of flooding. Under one popular legal theory—the common enemy doctrine—judges recognized a common need to vanquish floodwaters, and refused to
hold anyone accountable for redirecting surface flow and incidentally drowning out the neighbors. This theory took to heart the ancient Latin maxim that translates as “To whomsoever the soil belongs, he owns also to the sky and to the depths.” Under this view, landowners could manipulate the water and soil of their property with impunity, from the bowels of the earth to the heavens above. For example, in one case, a property owner changed the drainage pattern of his land to such an extent that it caused water to back up inside his neighbor’s house, to overcome its septic system, and to fill the house and yard with three feet of water and the pervasive odor of raw sewage. Still, recognizing flood water as an enemy to all, the court refused to hold the first landowner responsible, even though the sequence of cause and effect was clear. A second approach, known as the natural flow rule (or the civil law rule), went to the opposite extreme. Instead of encouraging a mad scramble of uncoordinated drainage measures, it cut off self-protection with the threat of legal liability. Under this rule, landowners could not obstruct the natural flow of surface water, including floods, by any means whatsoever if such efforts would harm their neighbors.

Over time, judges recognized the impracticality and unfairness of both theories. Increasingly, they cast aside both the common enemy and natural flow rules, noting their “anarchic” nature and their “deplorable rigidity,” respectively. In the words of one judge, in a mature economy it makes little sense that land development costs “should be borne in every case by adjoining landowners rather than by those who engage in such projects for profit.” As a replacement for the older rules, judges turned to the compromise reasonable use standard, which holds landowners accountable for harm to others, but only if their interference with the flow of surface waters and use of their property is “unreasonable.” Under this approach, a mere cause-and-effect relationship between action and harm is not enough to trigger legal liability. Overall, jurists praise the rule of reasonableness for its fairness and flexibility. But the distinction between “reasonable” and “unreasonable” actions is notoriously squishy, and plagues numerous legal disputes well beyond
the context of flooding. Where should courts draw the line? As one judge explained as early as 1894, “In a philosophical sense, the consequences of an act go forward to eternity, and the causes of an event go back to the dawn of human events, and beyond. But any attempt to impose responsibility upon such a basis would result in infinite liability for all wrongful acts.”

The core problem is this: we want to extend responsibility far enough to deter or punish socially undesirable actions, but not so far that the result is unfair or unworkable. It’s a tough challenge. Just ask any law student who has studied the 1924 case of the unfortunate Mrs. Palsgraf.

Mrs. Helen Palsgraf was injured in 1924 at a New York railroad station through an unusual turn of events: A tardy passenger attempted to board a moving train. Two helpful railroad employees reached out to assist, accidentally causing the passenger to drop a newspaper-wrapped parcel. The package turned out to contain fireworks, which exploded on impact with the ground. The resultant vibrations knocked over several large scales used for weighing luggage, which were located at the other end of the railroad platform. They tumbled onto the unsuspecting Mrs. Palsgraf as she waited for her train more than twenty-five feet away from the late-arriving passenger. Basing her suit on the somewhat unlikely chain of events that had unfolded, Mrs. Palsgraf sued the Long Island Railroad Company for her injuries.

There was no question that Mrs. Palsgraf had in fact been hurt that day. It was also clear that she would not have been injured in the absence of the railroad employees’ actions. Despite these factors, the New York court ruled against her in *Palsgraf v. Long Island Railroad Company*. Eminent jurist Benjamin Cardozo, joined by three other judges, emphasized that not all actors who cause harm bear legal responsibility. Articulating the often-repeated zone of danger rationale, Cardozo asserted that although the railroad employees reasonably could have anticipated that shoving the passenger might hurt someone (most likely,
the passenger himself), they could not have anticipated that dislodging
the passenger’s innocuous-looking parcel posed a risk of harm to Mrs.
Palsgraf in particular, who was standing many feet away.

Judge Andrews and two other judges disagreed with Judge Car-
dozo. In their dissenting opinion, they argued that the railroad should
have been held accountable as the proximate cause (or legal cause) of
the accident because there was “a natural and continuous sequence
between cause and effect” and thus, it was “reasonably foreseeable”
that someone would have been injured by the shove, even if the pre-
cise sequence of events could not have been predicted. Today, judges
regard both tests—zone of danger and foreseeability—as useful tools
for sorting out who should be held accountable for accidents. Almost
a century after Mrs. Palsgraf’s case, these doctrines are still used to
determine legal responsibility for harm of all sorts, including flooding
in the Mississippi basin, as described in subsequent chapters.

Fire in the Gulf of Mexico

Old habits die hard. In particular, it’s tough to stop thinking of
all watery catastrophes as “natural” events, or at least as unpredict-
able accidents. In April 2010, the Deepwater Horizon oil-drilling rig
exploded in a ball of flame. Floating in almost a mile of water, the rig was
just beyond the continental shelf and about forty miles off the coast of
Louisiana where the Mississippi River dumps into the Gulf of Mexico.
Slowly, the rig sank to the bottom. Oil gushed from the Macondo well
and fouled the gulf and its wildlife while British Petroleum, the well’s
owner, tried one unsuccessful fix after another. BP fumbled for almost
three months before it was able to stem the flow of oil. All the while,
the world watched real-time undersea videos as BP tried to maneuver
well-sealing equipment precisely into position.

Clearly, the “experts” were unprepared for such a disaster. As part
of its application for a federal drilling permit, BP submitted an oil
spill response plan. Among other things, the plan discussed potential
impacts to walruses. Embarrassingly enough, walruses had not graced the waters of the gulf for some three million years. The response plan, it appears, was a cut-and-paste effort that incorporated risk analyses from applications to drill in Arctic waters, where walrus populations can indeed be found. The plan also listed the telephone number of Peter Lutz, a wildlife specialist in Florida who could provide advice in the event of an emergency. As it turned out, Mr. Lutz would be unable to offer assistance during the 2010 blowout because, unfortunately, he had passed away in 2005. But BP alone cannot be blamed for the bumbling disaster plan. Later, a congressional panel determined that Exxon Mobil, Chevron, and Conoco Phillips all relied on similarly flawed contingency plans for drilling in the gulf. With each one citing the need to protect walruses, and several of them providing the phone number of the late Mr. Lutz, these plans were derided as “cookie cutter” by the panel.

Nothing about the circumstances of the BP fire was natural. The rig was a behemoth of four decks stacked one above the other, topped off by a twenty-five-story oil derrick. The national commission that investigated the disaster, moved beyond dry, bureaucratic reporting, described how “the derrick fire roared upward into the night sky, an inferno throwing off searing heat and clouds of black smoke. The blinding yellow of the flames was the only illumination except for the occasional flashlight.” In all, eleven people died. Others escaped in the rig’s lifeboats, lowering themselves down 125 feet from the rig to the gulf.

Afterward, there was plenty of blame (and legal liability) to go around. The national commission found fault with BP (as owner of the Macondo well), with the Halliburton Company (as the contractor that provided the well casing), and with Transocean, Ltd. (as owner of the drilling rig). In addition, the commission faulted the federal oversight agency formerly known as the Minerals Management Service for inadequate regulation of deepwater drilling projects.

National investigations revealed that the Macondo well blowout was anything but natural. Still, it involved natural elements—fire, water, the
sea floor, and the air that fanned the flames. Soon after the catastrophe, BP’s CEO, Tony Hayward, appeared on the Today Show to reassure the public in the wake of what he described as a “natural disaster.” Perhaps this was a mere slip of the tongue from a man who quickly demonstrated a knack for sabotaging his own public relations efforts by saying the wrong thing at the wrong time. But one month later, a group of congressional leaders repeated Hayward’s error when they asserted, “The oil spill in the Gulf is this nation’s largest natural disaster and stopping the leak and cleaning up the region is our top priority.” If the Deepwater Horizon incident does not qualify as an “unnatural disaster,” it’s hard to imagine what would.

* * *

This distinction is particularly vexing—and important—in the Mississippi basin. In truth, it’s a stretch today to describe the river as anything close to “natural.” As the next chapter explains, over the past century, we have straightened, channelized, dammed, and rip-rapped the Mississippi, all in an effort to keep it in its channel and away from its natural floodplain. Ever higher levees and stronger floodwalls—supplemented by federal insurance and disaster relief—lure more and more people into the floodplain, which in turn requires more extreme measures to protect those people. Meanwhile, we have cut off the river’s natural pressure-relief valve—its floodplain—leaving it no good place to go when the rains come.

Through these efforts, humans have demonstrated an uncanny ability to exacerbate the damage caused by natural hazards. Through our laws and public policies, through shortsighted and misguided engineering projects, and through poor individual decisions, we have increased, rather than decreased, the destructive power unleashed by natural forces. This book pays particular attention to the legal dimension of unnatural disaster. It tells the story of landmark laws and judicial decisions affecting flooding in the Mississippi basin, and focuses on three main topics. First, it traces how perceptions of the boundary between
“natural” and “unnatural” disaster have shifted over time, affecting how the courts have assigned legal accountability for storm and hurricane damage. Second, it recounts Congress’ response to roughly a century of flooding, telling the tales of seven of the most devastating floods in the basin’s history, and Congress’ modification of one policy after another, as seemingly good ideas revealed themselves to be recipes for disaster. Finally, the book concludes with specific suggestions for rethinking disaster responsibility and prevention, with an eye toward the fair and sustainable allocation of risk and the avoidance of so-called moral hazards—poorly conceived laws and policies that provide a soft landing for those who make unnecessarily risky decisions.

The stories of this book offer lessons to guide us in the future. They show humans at their worst and their best—proudful and humbled; arrogant and accomplished; foolish and industrious. The following pages contain tales of engineers, bootleggers, church camps, restaurants, and dynamite-wielding convicts, among others. Often, with the best of intentions, human actions have set the stage for unnatural disaster.