The Waters of Kansas,
Past and Present*

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Water is a short, simple looking word, only five letters long; and in the chemist’s language it is even shorter--H₂O, a mere three characters. It seems even simpler as it arrives, reliably and daily, into our homes and businesses out of a faucet or out of a plastic bottle reassuringly labeled “pure mountain spring water.” Most public discussion of water likewise takes a simple view of the subject: water regarded as a “resource,” a “commodity,” a means to wealth or poverty, a substance that we use and reuse without deeper thought.

But in fact water has been one of the most complicated forces in human history. Whether in the form of liquid, gas, or solid, it has been a powerful agent in making the earth, spreading over the surface in vast sheets of ice, leaving behind broad outwash plains, cutting river valleys and making levees, eroding topsoil, laying down gravelly deposits and then burying and saturating them with moisture. Yet that same powerful agent has also become more and more vulnerable to human intervention, as we know in this age of dams, pollution, and depletion.

Water has also been very complicated in a cultural sense, although historians have only begun to appreciate the changes in perception, meaning, and value that water has gone through over time. Here in Kansas water has awakened our sense of beauty and symbolized the wildness that lies beyond civilization. It has been a neighbor with whom we have had to learn to live, a part of what we call home. It has given us food and recreation. It has also been an instrument of power and economic production. And at times it has been a threat to property, even to survival.

How in the development of Kansas have we behaved toward water and the water cycle? (I say “water cycle,” because far from being a mere thing we appropriate or pump, water is a flow, a process, a cyclical phenomenon in nature, and a cycle of global proportions.)

The history of Kansas water, I am compelled to say, shows something less than a grand, triumphant march of human achievement, ad astra per aspera. On the contrary, over the past century or two our relationship with water has often been marred by miscalculations, mistakes, ignorant assumptions, and oversimplifications. Many of those mistakes have been costly, and we are still paying the price. As we review briefly some
of that history, we should ask ourselves, what have we learned about water? Are we still making the same mistakes, or are we creating new ones at this very moment?

Begin at the beginning: Inventing Kansas. Before the state existed, when this place was dominated by Indian peoples pursuing the bison and the wild onion, eastern mapmakers affixed a name, “Great American Desert,” indicating a place of little or no water. The name first appeared in the report of Army major Stephen Long’s 1819-20 expedition across the plains to the Rocky Mountains.\(^1\) Granted, “Great American Desert” referred only to the westernmost part of this state, but that made even the eastern part a near desert. The name stuck for a generation, and in droughty years it would reemerge like a curse on our reputation.

We may laugh at such labels, especially in wet years, and point to a long history of successful settlement and population growth. Long’s notion of a Great American Desert was the first serious mistake. The more complicated truth about this region would not be revealed for another 60 years and nearly 20 years after statehood. In 1878 another western explorer, John Wesley Powell, published his famous Report on the Lands of Arid Region of the United States. He drew a line between “arid” and “humid” America that went right down the 100\(^{th}\) meridian, passing through what is now Dodge City. That left the state as a whole neither wet nor dry, but plumb in the middle of the most volatile, unpredictable part of the continent, what Powell called the “sub-humid region.” “This will be a region of great agricultural wealth,” he predicted, but he did not add that it would also be a region always plagued by instability.\(^2\)

The founders of Kansas blithely ignored all those mapmakers and scientists when they drew the boundaries of this state. They got out their rulers and made straight lines east and west, north and south, creating an 80,000-square-mile box for which they adopted the name of a banished Indian nation. In crafting that box they completely ignored the flow of water across the land--mistake number two. Look at our most prominent bodies of water, the Kansas River and the Arkansas River: Their headwaters are in Nebraska and Colorado, vital facts that the politicians did not consider, thus assuring a future of protracted litigation.\(^3\)

This same pattern of ignoring the reality of water was repeated when the politicians subdivided the state into counties. They finally settled on 105 smaller boxes,
none of which were drawn up with an eye to water. John Wesley Powell warned western legislators that they would create enormous difficulties for their descendants if they failed to acknowledge the patterns of nature; political boundaries, he argued, should conform to watershed boundaries to make the management of our relations with nature more coherent, democratic, and efficient. Divided according to watershed units, rather than into arbitrarily designated counties (named after dead politicians and war heroes), Kansas might have followed a very different path. We might have become more environmentally aware, more mindful of the significance of water and the water cycle, and more conscious of nature’s limits.

Instead, in a spirit of unwarranted confidence, Kansans set out to turn their big box and all their little boxes into one giant farm. The historian Henry Nash Smith called their dream “the Garden of the World”: “the image of a vast and constantly growing agricultural society in the interior of the continent,” he wrote, “became one of the dominant symbols of nineteenth-century American society.” It was a dream of endless increase, of infinite productivity; unfortunately, it had to face the real world of finite resources, especially water resources, take large risks, and go through big failures. Despite its continuing hold on our imagination, that dream of an ever-bountiful garden of the world can be called mistake number three.

Partly the mistake lay in assuming that droughts could be banished, or nearly so, allowing the garden to flourish year in and year out. In the 1890s, however, and again in 1929-41, 1952-57, 1962-72, 1974-82, 1988, and 2002-3 the water cycle failed the farmer, blighting crops and livelihood. Kansas may not be Stephen Long’s desert, but then it is not the garden state either. Modern scientific research has revealed past droughts lasting as long as two hundred years. And the most recent climate studies add that we have entered an era of global warming, which may bring droughts longer and harder than any that humans have ever experienced in this region.

But the misguided thinking behind the garden of the world image goes deeper, right down into the ground where the roots of plants can be found. Agriculture was assumed to require plowing and planting annual crops, which entailed ruthlessly destroying the perennial native vegetation—vegetation that had evolved over eons to meet the variable conditions that water set. Prairie grasses like big bluestem or even the
short curly buffalo grass of the High Plains had evolved massive roots that went deep and
wide, holding soil against the pounding rains and blasting winds, withstanding droughts.
None of the annuals that farmers planted in the newly exposed soil—wheat, milo,
soybeans, corn—could compare in efficiency when it came to capturing water and
keeping soil in place. The result was a long history of soil blowing and soil washing,
sending much of Kansas down river to the Gulf of Mexico, along with repeated seasons
of dead or stunted crops in a baked earth.

After World War Two, it is true, the garden of the world gained a new lease on
life. It did so in part because enterprising farmers discovered an extraordinary abundance
of water in groundwater sources. They became irrigators. In the 1960s a Garden City
farmer Clarence J. Gigot introduced the newly invented center-pivot sprinkler to his farm,
which pumped water from the Ogallala Aquifer and spread it over large circles of thirsty
land. By the eighties there were more than 700 such circles in Kansas, and they were
producing as much as 120 bushels of corn per acre.7 Some experts hailed a new age of
“climate-free agriculture.” We now realize that was another overblown promise. Much
of the state’s agriculture was now precariously based on mining an exhaustible water
supply. Now, according to state geological experts, a day of reckoning will inevitably
come in 25 or 50 or, in a few fortunate places, 100 or 200 years. The days of the center-
pivot garden of the world are numbered.

Less well known than the depletion predicament is the effect that intensive
withdrawal from underground aquifers has had on surface water. The western half of the
state has lost nearly all its perennial streams, as the water table has fallen and the
groundwater has been depleted.8 Ironically, the last forty years of pumping have brought
us back to the Great American Desert, for less surface water is now flowing over the land
than even Stephen Long saw. This is a man-made desiccation that has spelled doom for
plant and animal species that once found habitat along streams and rivers.

Where water still runs in its ancient channels, chemicals leaching from farmland
have contaminated it. Again after World War Two, the garden of the world seized on an
arsenal of pesticides, herbicides, and inorganic fertilizers, all of which found their way
into the water cycle—and into our drinking water. Farmers suffered more than anyone
did from this contamination. In some rural areas public officials posted warnings about
nitrate poisoning of wells and were forced to import bottled water for vulnerable children and pregnant women. Atrazine, a herbicide used to get rid of wheat stubble on fallow land or to control weeds on corn fields, turned out to be both an endocrine-disrupter and a carcinogen; it was widely applied in Kansas by the 1990s and widely present in surface waters.  

The mistake lay not in the idea that the Great Plains should be used to produce more food for humans, which was clearly needed to meet a growing national population. Rather, it lay in the scale and practices of row-crop farming, which were often not well-adapted to the water cycle, or became less well-adapted over time, or were extravagant and arrogant.

Urban people also have transformed the waterscape of Kansas, and in doing so they too have made what now look like mistakes that we might not want to repeat. We can call their mistake the illusion that nature can be controlled. It was a mistake written in concrete and funded largely by the federal government.

Like droughts, floods have occurred regularly in the long history and prehistory of this place. The entire Missouri-Mississippi river complex, which drains 40% of the United States, is flood-prone and has been so since the retreat of the last continental glaciers. On the whole farmers have managed to live better with floods than with droughts, and indeed have benefited from the rich alluvial deposits that floods make possible. But for cities and towns located in floodplains, floods are nothing but a disruption, and now and then a disaster. Kansas began to write a story of such disasters back in the 19th century, and it continued down through the 20th century--the infamous floods of 1903, 1927, and 1951 to name some of the worst.

Left to their own financial resources, Kansans might have found a modest, inexpensive way to protect themselves against such calamities. But during the 1930s, the federal government began to make available huge amounts of money, through the Bureau of Reclamation and the Army Corps of Engineers, to build large dams on western rivers. In 1944 Congress authorized one of the most elaborate river-control schemes in the world: the Pick-Sloan plan that would turn the entire Missouri River complex, including its Kansas tributaries, into a set of artificial lakes stair-stepping down from the Rockies.
Many farmers protested such dam building, fearing that the dams would back up water over good farmland and force it permanently out of production. A few economists agreed that dams were an expensive solution to a problem that had cheaper alternatives. Restricting urban development in the floodplains was one such alternative, and the most effective over the long term; it would have cost the taxpayer nothing, unless it involved removing floodplain development that went back to the first white settlement of Kansas. But the cheap way was not the way Kansas chose. Maps of the state tell what happened: every large river in the state was dammed, and dammed repeatedly, to stop floods. Even the little Wakarusa was plugged with earth and concrete in 1979, saving, it was promised, south Lawrence from ever being swept away. Farmers who called for smaller upstream impoundments on that stream, which would leave them more soil to cultivate, were overruled. The cities won, the engineers went to work, and taxpayers across the nation footed the bill.\textsuperscript{10}

Now, twenty or thirty years later, historians, biologists, and economists have begun to revisit such decisions, made not only in Kansas but all over the United States and throughout the world in the big-dam building era. The control of nature, they argue, was an illusion. Some have concluded that the engineering of levees and dams may make future floods more disastrous than ever. Whether that will prove to be true or not, we now see that every dam with its reservoir has a lifespan. None will last forever. Concrete disintegrates over time, and reservoirs fill with silt. At best we have implemented, at great cost to our pocketbooks and to the natural environment, a temporary solution that cannot be made permanent. Nor can it be repeated somewhere else. Someday, one way or another, rivers will likely find their way unimpeded again to the sea.

We cannot undo the history of water that we have made. No amount of hindsight, regrets, or wishful thinking can alter the path that has brought us to this point in time. We may admit that we have made mistakes, but what can do we do about them? Some decisions about political boundaries, native vegetation, chemical intensive agriculture, or flood-control works might be unmade or reversed, but doing so can be immensely difficult. Consequently, we generally end up living more or less with the history that we have made—and wondering what that history will allow us to do next.
Even the process of deciding what to do next has changed over time. One of the key stories of 20th-century Kansas is how water has increasingly become the responsibility of government --to manage, protect, and allocate. And not one government, but governments at all levels, governments clashing, fragmenting, competing with one another. Counties, despite their ill-conceived boundary lines, have had to take on difficult matters of water supply, urban growth, flood-plain construction, and public health. The state government seated in Topeka, which in strict legal terms owns the waters of Kansas, has likewise taken on new responsibilities and over the past few decades has set up a state water office, a state water authority, and a state water plan. Like other states, Kansas has established new political entities to manage water, including ground-water management districts and, perhaps most promising of all, watershed associations that resemble John Wesley Powell’s model for the West. And then there is the growing role of the federal government, which has acquired considerable power over water through the Geological Survey, the Corps of Engineers, the Fish and Wildlife Service, the Department of Agriculture, and the Environmental Protection Agency.

Water is now intensely bureaucratized. Has that growth in government intervention and government authority brought better decision making? Has it left ordinary citizens more involved or less involved in water planning? Do those diverse public agencies reflect changes going on in our attitudes toward water—a shift, for example, away from water as a mere economic resource and toward water as an ecological or aesthetic value? Whose interests does the water bureaucracy serve? What values does it express?

In looking back over the history of Kansas confronting water and the water cycle, of devising economies and institutions, tools and attitudes, we find successes mixed with failures, wisdom mixed with miscalculation, a gain in adaptability mixed with a persistence of blindness. What is hardest to say is whether we also find an overall growth toward resilience. Resilience is the ability of an organism or a society to recover from mistakes, change, or misfortune—the ability to survive and endure. It is not clear whether, after nearly a century and a half of institutional change, Kansas is more resilient in its relations with water or more liable to catastrophe.
Perhaps we could use a different teacher. My choice would be the native grasses that we have so thoroughly despised and displaced. Before there was us—Indian or white, Anglo or Hispanic, Christian or Muslim—there was the grass. Grass perfected the art of resilience. Water pounded the grass, ran through the grass, seeped down to the roots of the grass; and then water disappeared, leaving the grass parched and dormant but still alive. Grass endured it all, not over mere decades, but over thousands and even millions of years. In contemplating our future relations with water, Kansas might well learn from the grass as a model of resilience.


