



# A Ditch in Time: Denver and Western Water Issues

Patty Limerick  
Center of the American West

April 7, 2012  
CU on the Weekend





Glenn Saunders



Chips Barry

Publication Date with Excess of Good Fortune:

2012 The Year of Colorado Water

75<sup>th</sup> anniversaries:

Colorado Water Conservation Board

Northern Colorado Water Conservancy District

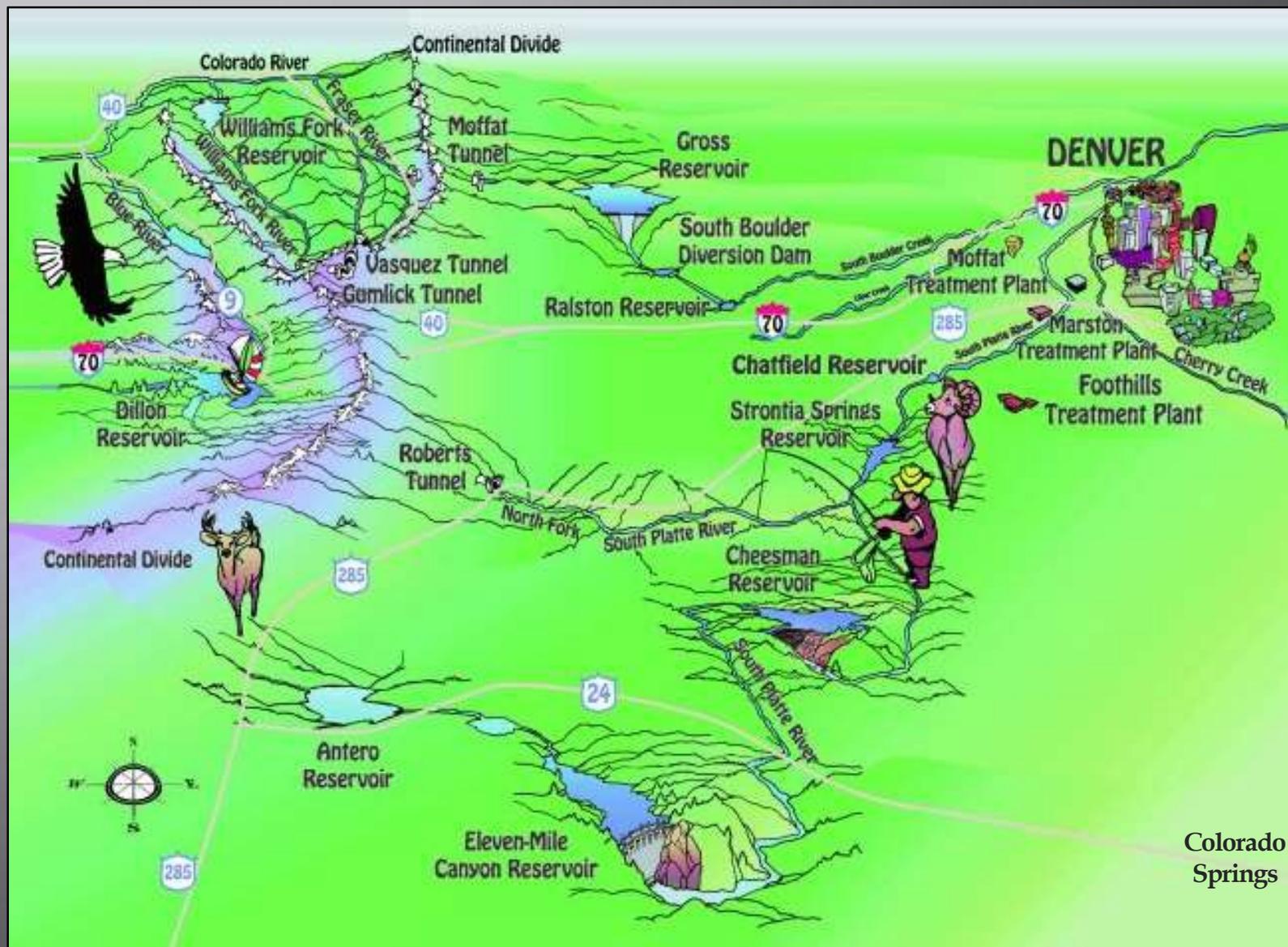
Colorado River Water Conservation District

Ditch in Time = the featured book for the Fall  
2012 activities

The Arrival of the Era of Improbable Comfort  
Made Possible by a Taken-for-Granted  
but Truly Astonishing Infrastructure

A Long-Running Concern at the Center of  
the American West:  
Consumers and the Complacent Disconnect  
from Resource Production

# Main Character: Denver Water Collection System



# The Writer's Headache

Very tough topics for general readers:

infrastructure

bureaucracy

legal technicalities

# The Big Question

In the early nineteenth century, explorers of the Front Range of Colorado declared that the scarcity of water made conventional American settlement in this locale impossible. In the twenty-first century, the Front Range is home to a population of millions.

What happened?

# A Desperate Literary Maneuver? Resorting to Limericks

## The Tangled Ties of Growth and Water

The West left settlers aghast;  
It was dry; it was rugged; it was vast.  
They thought water was the trigger  
For making towns bigger,  
An idea whose time is now past.

# Chapter One

## Engineered Eden

Origins of Denver and the era of private water companies

The vitality—and the troubles—of competition

# Denver Growth – circa 1870



# Denver Growth – 1886

## 17<sup>th</sup> St.



# Denver Landscaping – circa 1890



# Denver Landscaping – circa 1890



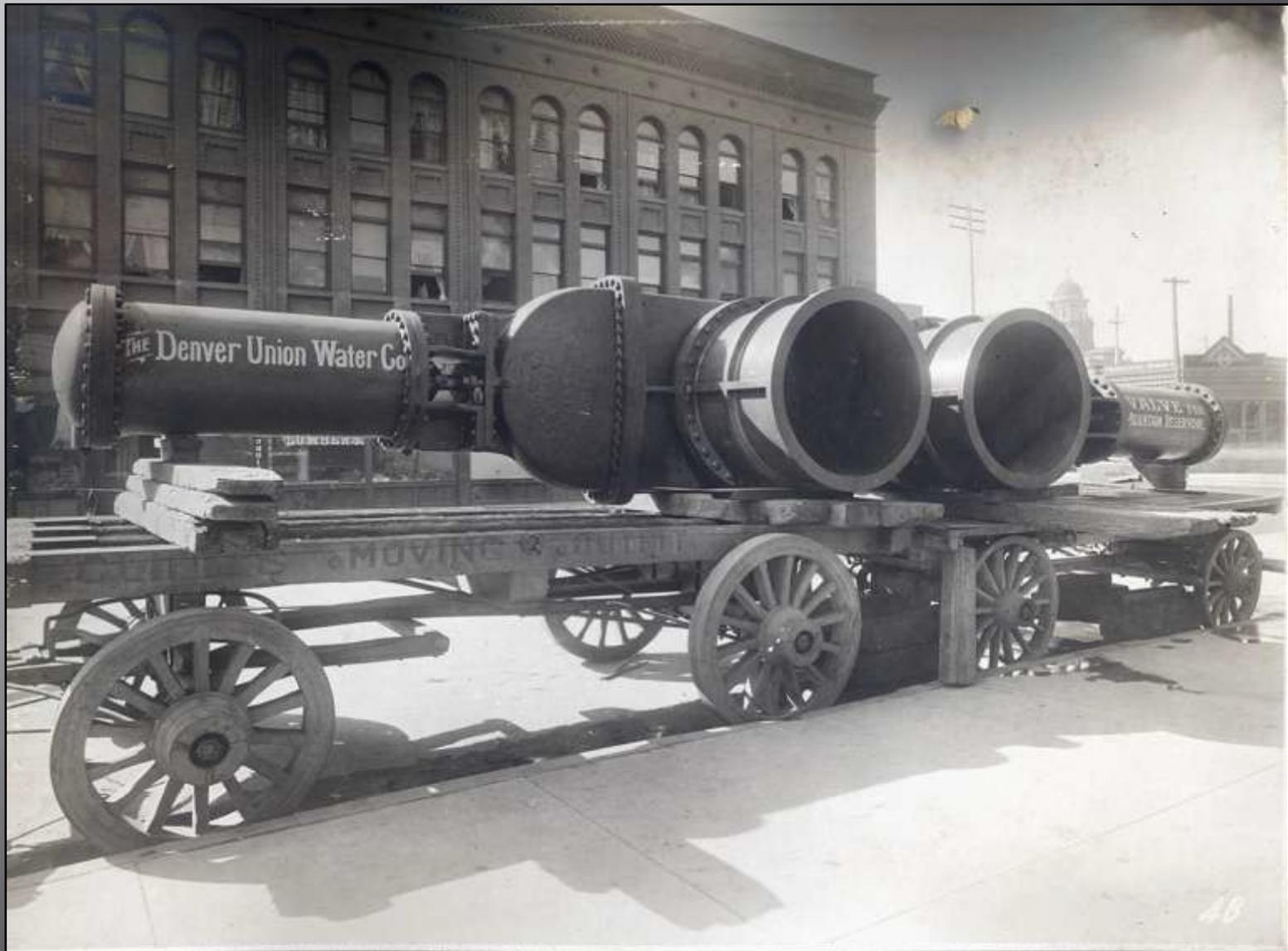
# Chapter Two

## Go Take It from the Mountain

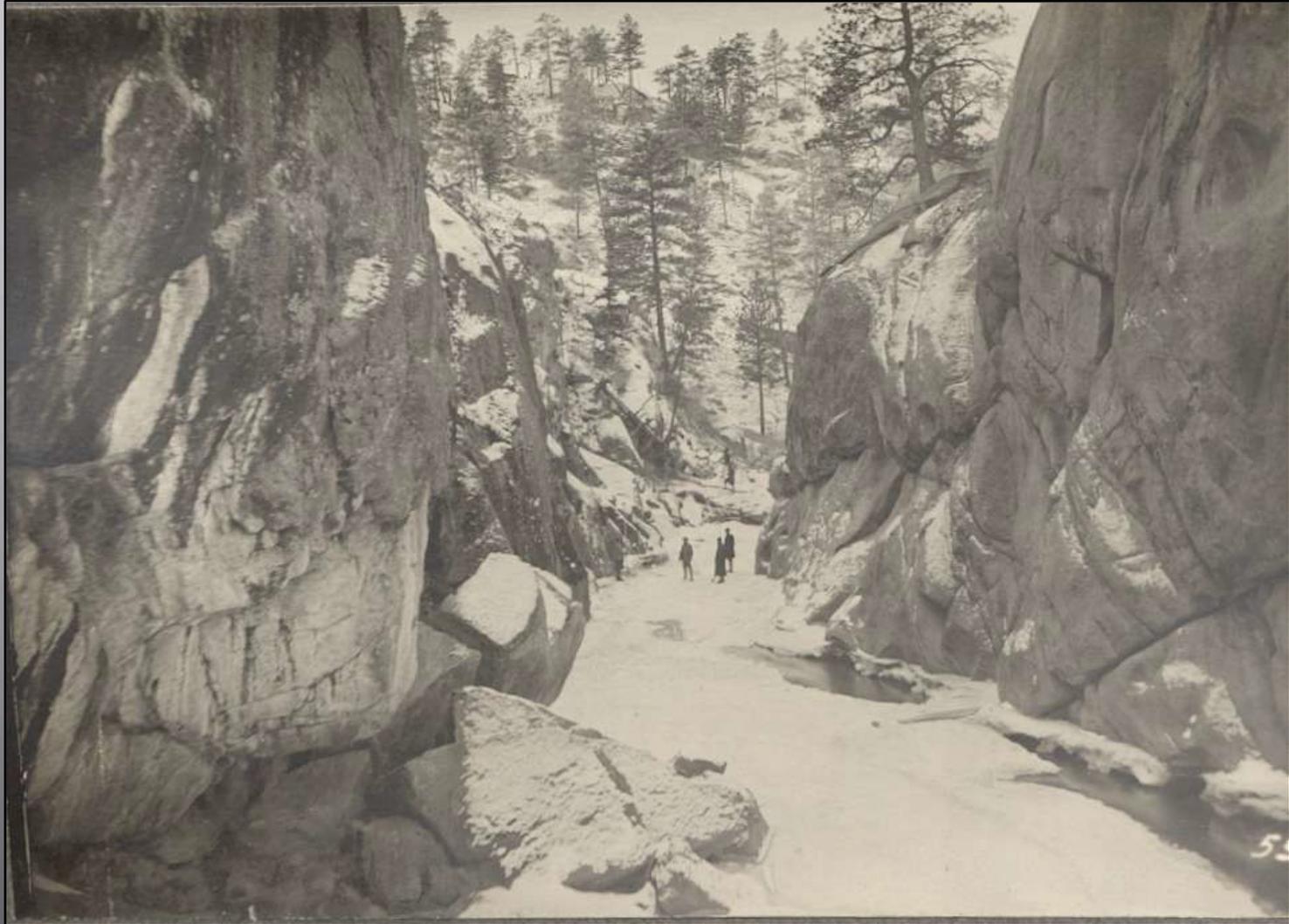
Denver Union Water Company (1894), Cheesman Dam (1905), Creation of the Denver Water Department (1918)

Creating a new civic structure as a harder task than building a big new dam!

# Denver Union Water Co. - 1894



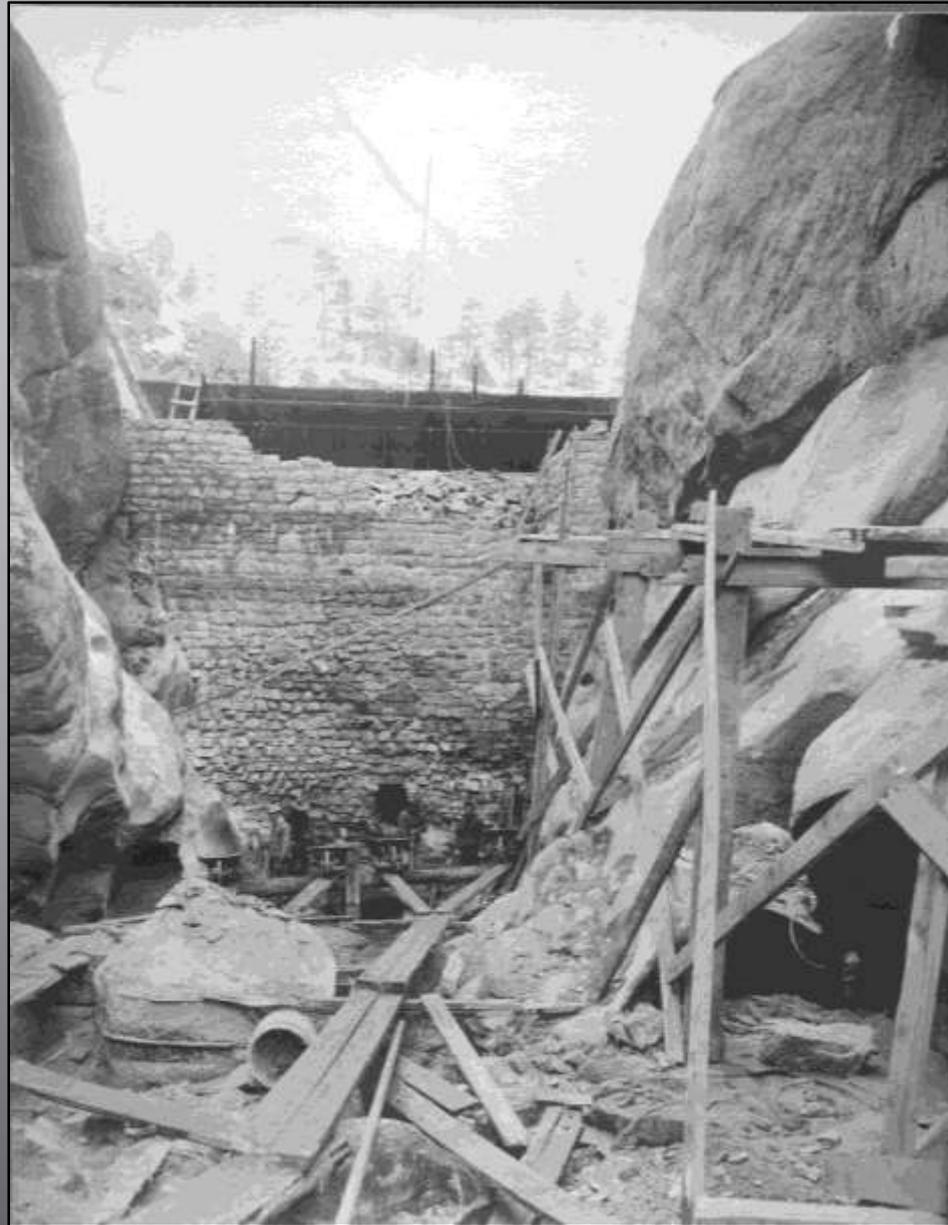
# Engineers at location of Cheesman Dam



# Cheesman Dam - 1899



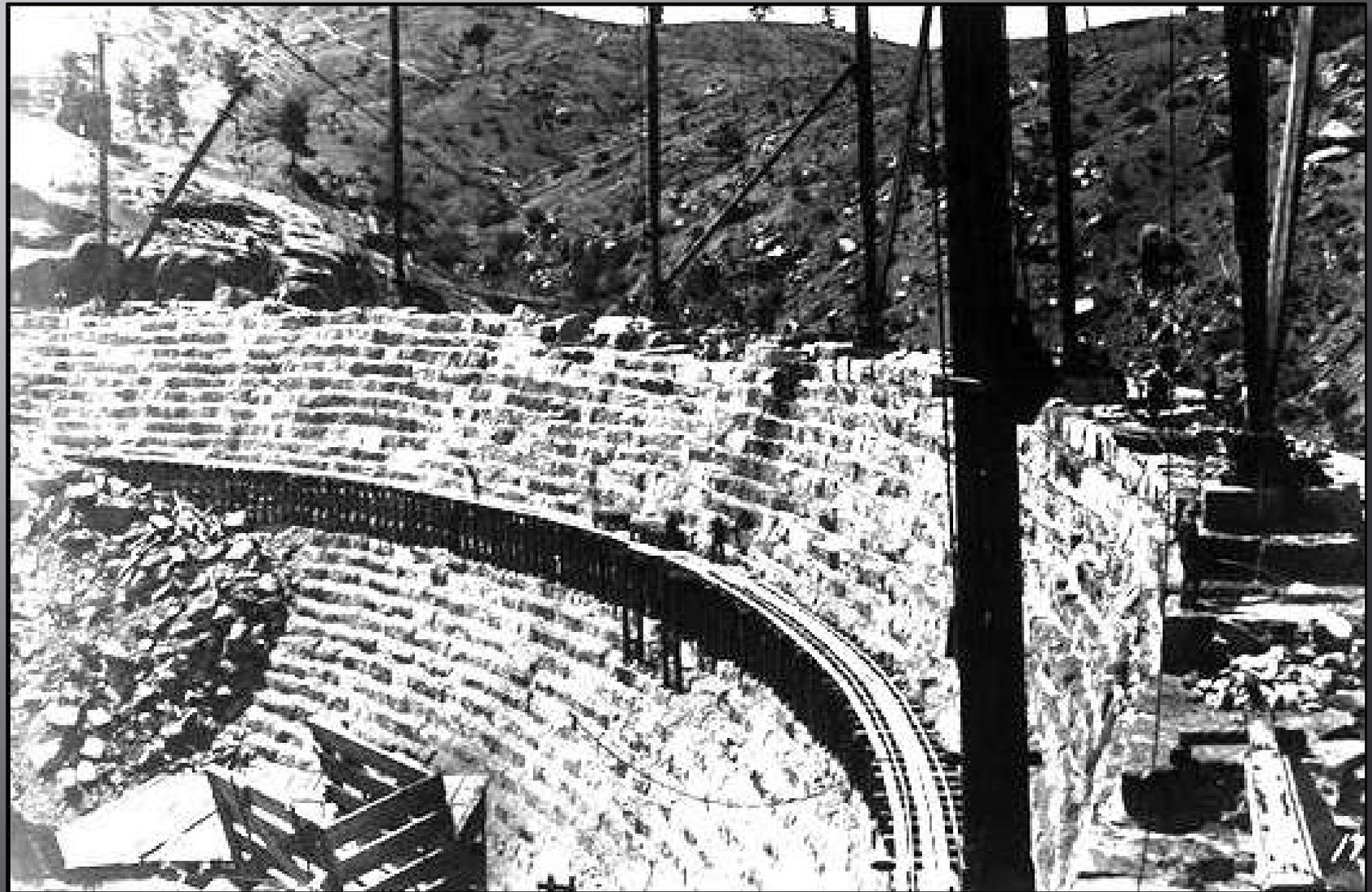
# Cheesman Dam - 1900



# Cheesman Dam - 1901



# Cheesman Dam - 1903



# Cheesman Dam Valve - 1905



# Cheesman Dam - 1904



# Cheesman Dam - 2008



# An Uncomfortable Heresy to Emerge out of Boulder

- ▣ This dam is beautiful!!!

An inaccurate, but tempting hypothesis: The engineers of a century ago were the forefathers of the movement known as “land art.”  
(Precedent-setters for Christo?)

# Christo and Jeanne-Claude *Over The River*



Christo and Jeanne-Claude

# Cheesman Dam - 2008



# One Big Goal in Chapter Two: Challenging California-centricity

Cheesman Dam as a more representative case study than the (excessively) famous California projects:

- ▣ Los Angeles and Owens Valley
- ▣ San Francisco and Hetch Hetchy

Cheesman's contrasts – private company; very little role for the feds; no Sierra Club equivalent (as in Hetch Hetchy); no alarmed and audible residents (as in Owens Valley)

# The Upshot?

## Denver's Prolonged Naivete

Los Angeles and San Francisco got early, unforgettable lessons on the power that the federal government and national public opinion can assert over local water development, lessons that didn't land on Denver Water for at least half a century.

# Chapter Three: Dealing in Diversions

Fraser River, Moffat Tunnel, and Trans-Basin Diversion

# Moffat Tunnel - 1936



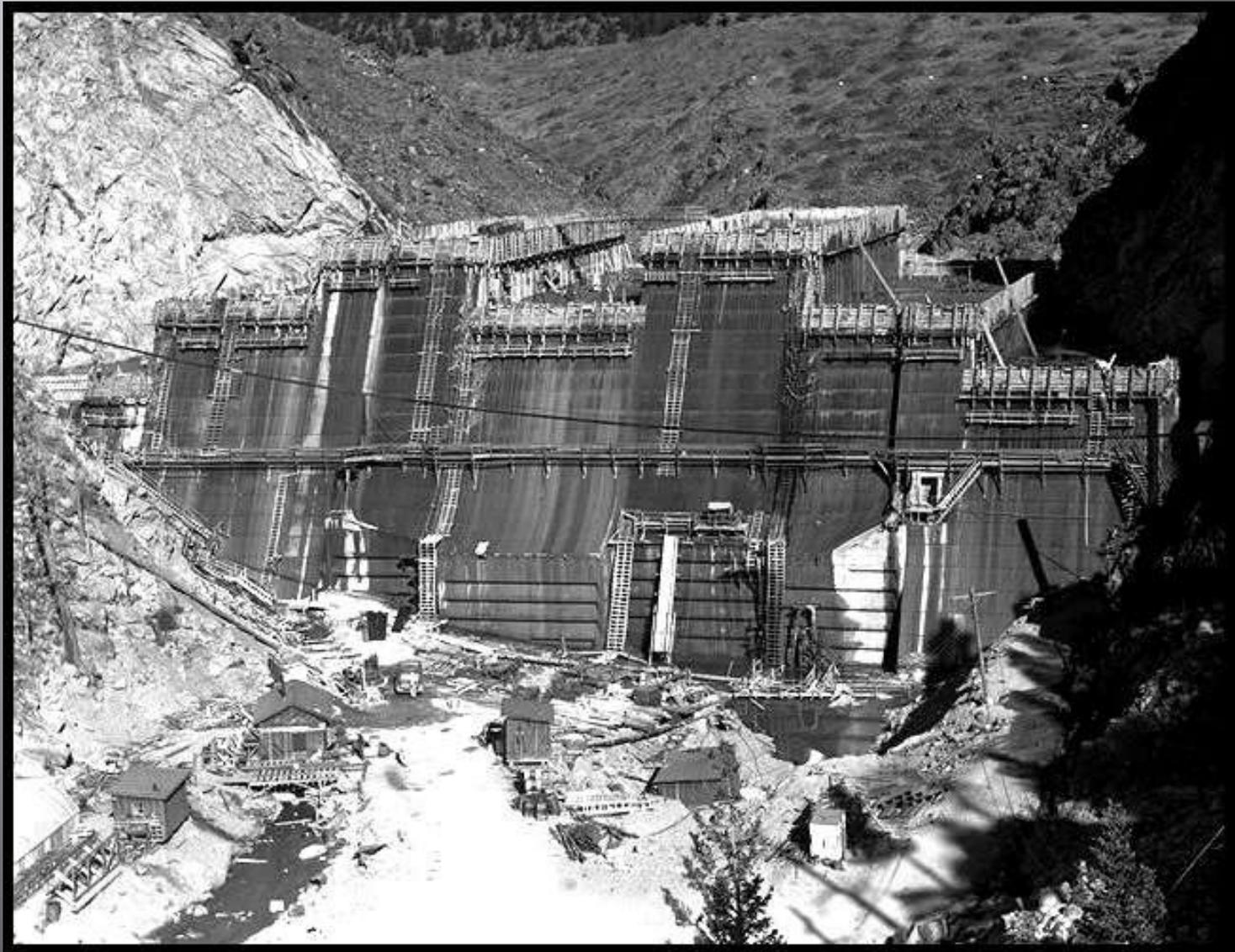
# Moffat Tunnel - 1936



# Gross Dam Construction - 1951



# Gross Dam - 1953



# Chapter Four

## A Horrifying Jigsaw Puzzle

The Blue River Decrees, the Roberts Tunnel, Dillon Reservoir

If you study Blue River Decrees,  
You will soon grow weak in the knees.  
Say you're fit as a fiddle—  
This stipulated riddle  
Will soon make you totter and wheeze.

# Denver Growth – 1958



# Roberts Tunnel - 1956



# Blue River (a.k.a. Roberts) Tunnel - 1956



# Roberts Tunnel - 1960



# Dillon Dam – circa 1960



# Chapter Five

## No Country for Old Habits

Foothills Treatment Plant, Two Forks, and the Revision  
of the Future

# Denver Water as Befuddled Oracle

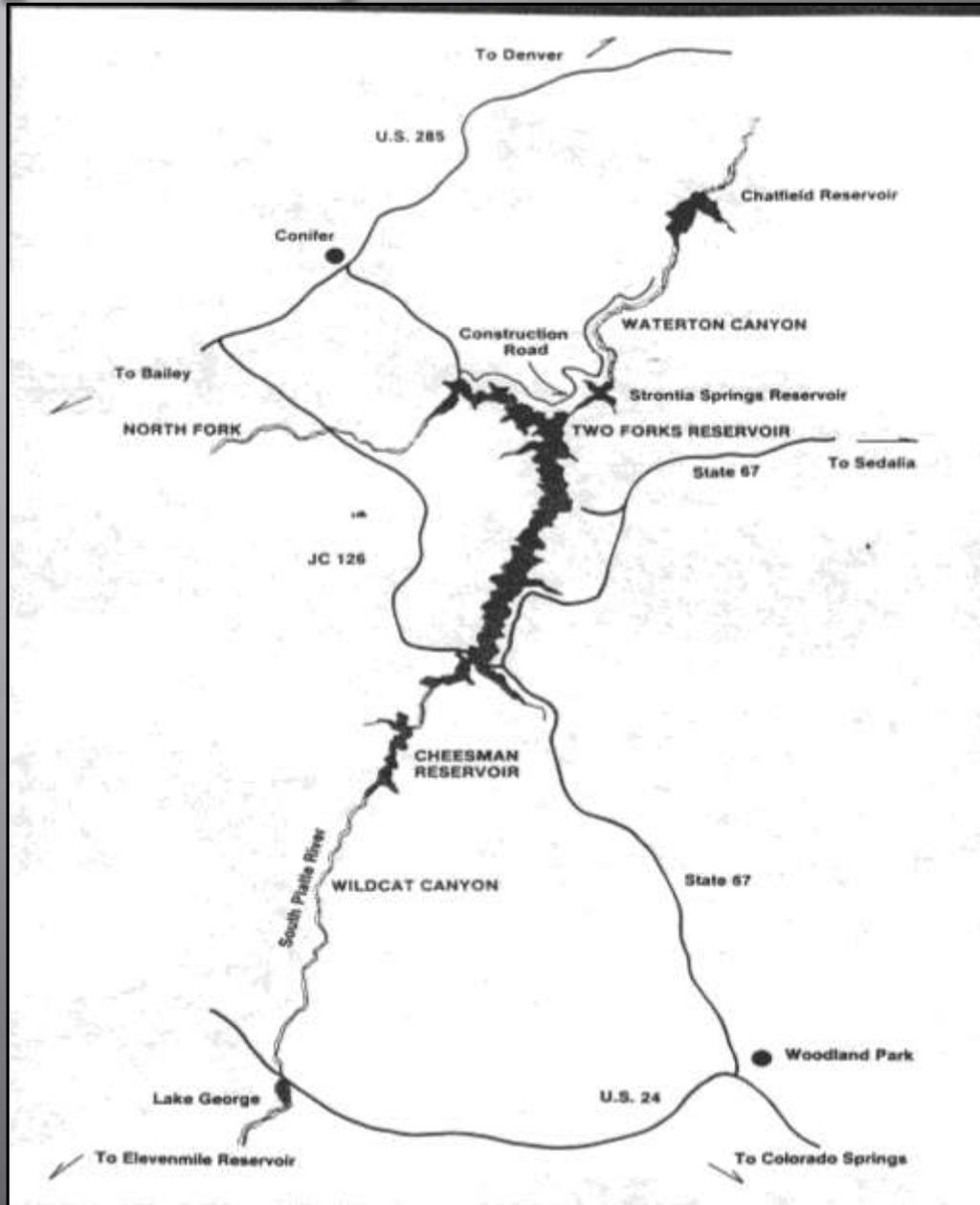
What *was* Denver Water supposed to learn from the Blue River negotiations and the fight over the Foothills Treatment Plant?

Old Habits Won't Work Anymore OR  
Perseverance Pays Off?

# Denver Growth – 1982



# (Proposed) Two Forks Dam



# Two Forks suffers blow

## EPA report citing environmental peril could kill dam/6

# EPA report could sink Two Forks dam

By JANET DAY

Forks. That mitigation plan is insufficient to offset the vast environmental damage Two

**BUILDING THE TWO FORKS DAM:**

The nation's top environmental agency yesterday opposed immediate construction of Two Forks dam southwest of Denver and raised "serious concerns" about future construction.

Developing smaller, less costly and less environmentally damaging water projects before building Two Forks.

in the metro area will increase in the next decade. "That's very difficult to believe," Scherer said. "If anything, we should have a decrease with increased conservation measures."

### EPA against immediate construction of Two Forks

By JANET DAY

Rocky Mountain News Staff Writer

The nation's top environmental agency yesterday opposed immediate construction of Two Forks dam southwest of Denver and raised "serious concerns" about future construction.

Scherer said he would have "serious problems" with any permit that allowed immediate construction and would support a 2½-year permit only if it included:

- Developing smaller, less costly and less environmentally damaging water projects before building Two Forks.
- Strengthening water conservation programs throughout the Denver metro area.

enough. Scherer was not clear on whether his office is addressing environmental issues in the metro area. "That's not my thing," he said.

**to enviro**

By Mark Chomack

The giant Two Forks Dam was given the green light by the U.S. Environmental Protection Agency, a U.S. Environmental Protection Agency official said. The dam would cause excessive environmental damage.

The decision means that the EPA will go ahead at least for now, with its plans to block the dam. Some Denver River and Colorado River residents are angry that the EPA official Lee DeHines said that the dam would cause environmental damage.

DeHines said for five months at the request of the dam's backers, he has been reviewing the project. He said the dam would cause environmental damage.

**EPA OFFICIAL: Lake Denver demands agency kill Two Forks**

The Denver River and Colorado River residents are angry that the EPA official Lee DeHines said that the dam would cause environmental damage.

**ded, blow**

**files**

## EPA reaffirms 'no' on controversial dam

DAM from Page 1-A

ennial population growth rate, Denver would have 8 percent fewer residents in the year 2010 than Two Forks backers expected, DeHines said.

That lagging growth would delay the need for a major additional water supply until the year 2020, he said.

DeHines also said that Denver had promised to develop an extra 107,000 acres of water — enough to supply 420,000 new metro-area residents — within six years even without Two Forks.

Without additional storage space east of the divide, water officials say, water in spring runoff and floods will flow to Asia and California instead of Denver.

Dam backers have two weeks to negotiate any changes to the project in an effort

## Two Forks rejection stuns Denver water officials

By JANET DAY

Rocky Mountain News Staff Writer

Denver water officials have dreamed of building a dam on the South Platte River for nearly a century.

Last week's decision by the Bush administration

But the project would have flooded Clearman Canyon, one of the premier trout fishing streams in the state.

The lost recreation and potential environmental damage was more than the U.S. Environmental Protection Agency was willing to swallow, in spite of Denver promises to offset the lost recreational areas elsewhere

of the big-dam era," said Dan Loeck, senior scientist for the Environmental Defense Fund in Boulder.

The Two Forks concrete dam would have been 615 feet tall, slightly higher than Denver's Republic Plaza, and the reservoir would have held 1.1 million acre-feet of

filled the reservoir.

Without additional storage space east of the divide, water officials say, water in spring runoff and floods will flow to Asia and California instead of Denver.

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# Two Forks and Metro Relations

## The Post-World-War Two Metropolitan Landscape

Throughout the American West,  
The suburbs have made us all stressed.  
They have eaten up farms,  
Set off fiscal alarms,  
And given the cities no rest.

Chapter Six  
Chipping Away at Tradition  
The Riddle of Change and Continuity at Denver Water,  
1991-2011

Chips Barry as Denver Water Manager, the shift from litigation to collaboration, “demand management,” the Moffat Collection System expansion, and the Colorado River Cooperative Agreement



**Glenn Saunders**



**Hamlet J.  
"Chips" Barry III**

# Denver Water in the Wild Days of Yore

To ensure that your proud city grows,  
You must burden its rivals with woes.  
Sue till they're silly;  
Attack willy nilly;  
And yield not a drop to your foes.

# A Useful Article

Denise Lach, Helen Ingram, and Steve Rayner,  
“Maintaining the Status Quo: How  
Institutional Norms and Practices Create  
Conservative Water Organizations” (2005)

The continuing power of “longstanding norms  
and practices” produce only “timid  
experiments with incremental and marginal  
innovation.”

Innovation “cannot be tolerated.”

# Lach, Rayner, and Ingram Lose the Argument?

- ▣ New, unorthodox appointments to staff and board
- ▣ Chips Barry's distinctiveness
- ▣ Demand management
- ▣ Water conservation campaigns
- ▣ Tiered rates
- ▣ Collaboration rather than litigation
- ▣ Colorado River Cooperative Agreement

Chips Barry and Jim Lochhead and a forthright stance toward climate change science—a rare and wonderful situation in 2012!

As the world proceeds to get hotter,  
The power to predict will soon totter.  
The baseline's been battered;  
The norm has been shattered.  
But everyone *still* wants their water.

# A Ditch In Time: Conclusions

The Author Comes to Recognize Her Earlier Misapprehensions, and Is Surprised to See that a Surprising Number of People Still Believe in these Misapprehensions

# Mistaken Assumption #1

## The Causal – or Is That *Casual*? – Connection Between Water and Growth

*The supply of water and the rate of population growth and residential development are inherently and inevitably intertwined. To increase population growth and residential land development, add water. To limit population growth and residential land development, stop adding water. Thus, agencies like Denver Water could control growth if their leaders would face up to their responsibilities.*

# Better Assumption #1

*Water is only one factor in population growth, and not always the most important one. Controlling water does not necessarily translate into authority over growth.*

# Mistaken Assumption #2

## The Wicked Ways and Centralized Power of the Hydraulic Empire

*Mistaken Assumption Number 2: Power over water in the American West has been concentrated in the hands of a small, centralized, somewhat toxic elite.*

## Better Assumption #2

*The acquisition, development, allocation, and management of Western water have been processes characterized by fragmentation and competition as much as (if not more than) the exertion of centralized power.*

# Mistaken Assumption #3

**Rural Virtue and Urban Wickedness: The Long-Awaited Retirement of Thomas Jefferson, Agrarian Dreamer and Urban Condemner**

*Mistaken Assumption Number 3: In opinions on and judgments of competing demands for water, use for farms and ranches carries a greater ethical integrity and is more justifiable than the use of water for environmentally parasitic cities and suburbs.*

## Better Assumption #3

*There are many good reasons to reject old appraisals of the distribution of virtue and the corresponding allocation of water between rural and urban areas, and to search instead for the ties that link the well-being of both domains.*

# Lessons of Interconnection

Rural and urban places

Are tangled together like laces.

They're like sister and brother;

They depend on each other.

They have *never* been opposite cases.

# Mistaken Assumption #4

## An Awkward Debt, with Interest Accumulating: Society, Engineers, and Infrastructure

*Although members of the engineering profession should be reprimanded when they make messes, they should generally be left to their own devices. Infrastructure works best when the great majority of citizens never have to pay any attention to it.*

## Better Assumption #4

*To help in the crucial cause of building a direct and honest relationship with technology and its creators, citizens benefitting from the water infrastructure should cultivate both the company of engineers and a livelier sense of personal responsibility. Engineers will be essential participants in finding solutions for the dilemmas generated by history, making hindsight condemnation of the profession into an unrewarding and even counter-productive sport.*

# A Failure to Communicate

Though we would never want to be catty,  
Engineers have made nature ratty.  
As they fill all our needs,  
We bombard them with screeds,  
Which for some reason drives them all batty.

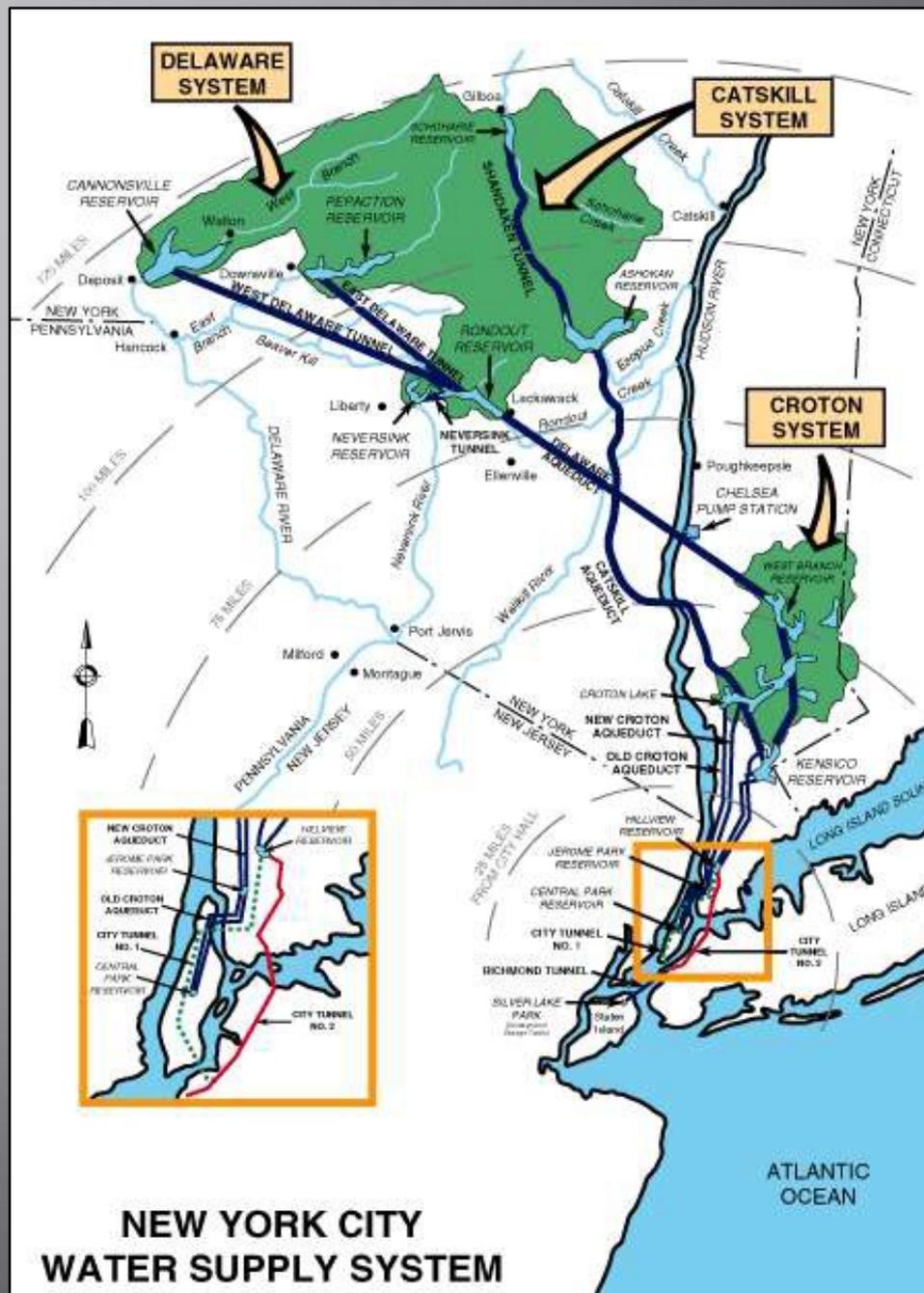
# Mistaken Assumption #5

*The variation in water supply has made the Western United States and the Eastern United States fundamentally different in the management of water.*

“Hydrological Regional Exceptionalism” Lands  
in a Heap

# New York City



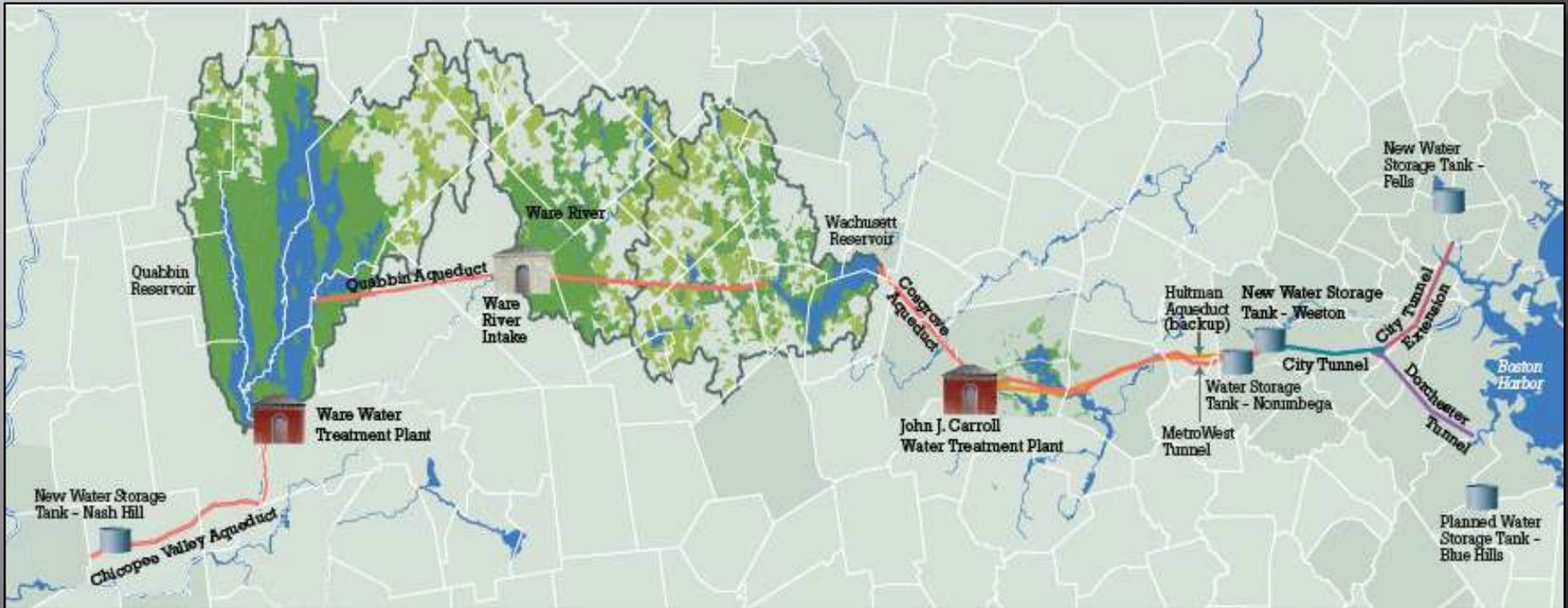


# Croton Dam - Hudson River



# Boston





# Massachusetts Water Resources Authority

# Better Assumption #5

When it comes to water management, the Western U.S. and the Eastern U.S. have a lot to say to each other.

# Mistaken Assumption #6

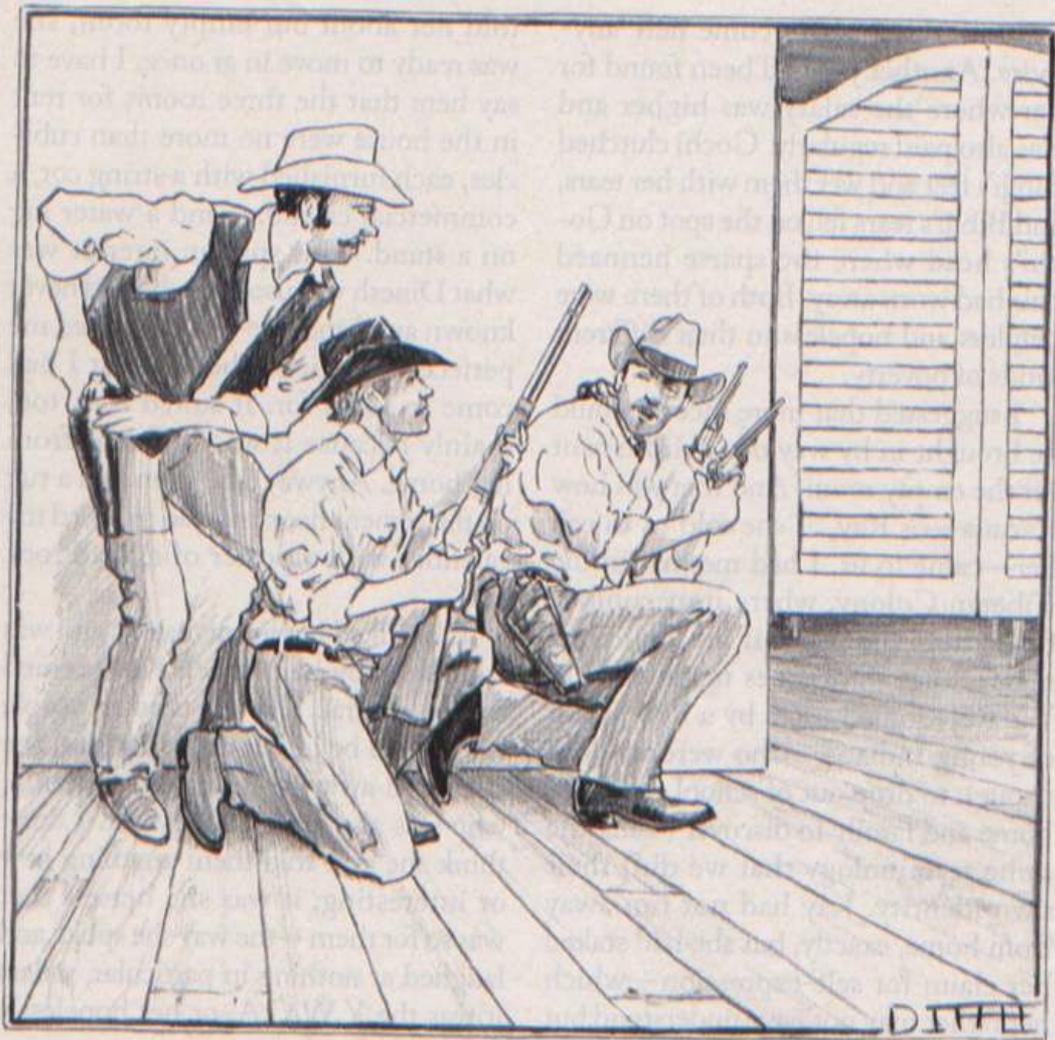
**“Whiskey Is for Drinking and Water Is For Fighting Over”: Mark Twain’s Doubtful Career Achievement as a Water Policy Analyst**

*Water is fated to produce conflicts, contests, and even wars because it is so important to every enterprise and undertaking and to human life.*

# Better Assumption #6

*“It would be great if we could unclog our stream of thought about the misleading notion of „water wars.””*

*Wendy Barnaby (and her failed book project)*



*"O.K., fellers, we shoot first, then Q. and A."*

