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Water and Air Quality Issues in Oil and Gas  
Development: The Evolving Framework of  
Regulation and Management (Martz Summer  
Conference, June 5-6)

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2014

6-5-2014

### **SLIDES: Framing the Discussion: Issues of Uncertainty, Terminology, and Sensitivity**

Patty Limerick

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# Framing the Discussion: Issues of Uncertainty, Terminology, and Sensitivity *(An Impressively Brief Power Point)*

Patty Limerick

Martz Summer Conference

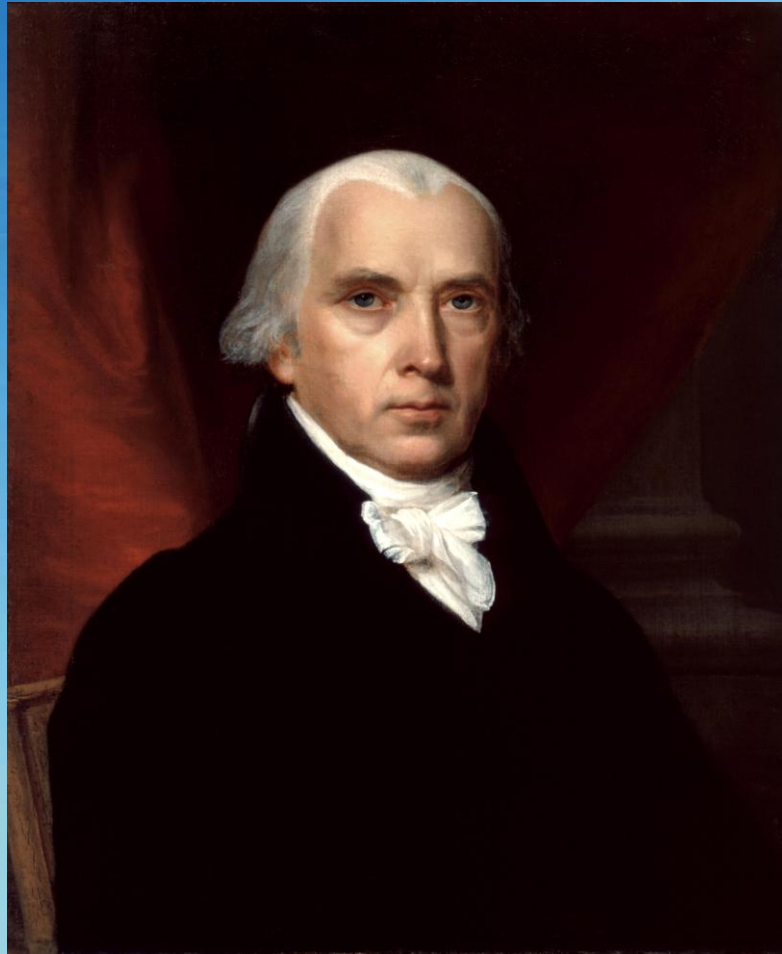
Water and Air Quality Issues in Oil and Gas Development:  
the Evolving Framework of Regulation and Management

June 5, 2014



*Turning Hindsight Into Foresight™*

# What Would Madison Say? Federalism and Faction Up for Grabs



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# FRACKNATION

A JOURNALIST'S SEARCH FOR THE FRACKING TRUTH

PRODUCED BY PHELIIM MCALFEER, ANN MCCELHINNEY, MAGDALENA SEGIEDA  
DIRECTED BY ANN MCCELHINNEY, PHELIIM MCALFEER  
EDITED BY DEN HUDDELESTON, JOHN HAWKINS, BORIS ZELKIN, DEEJ MANCEY  
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PREMIERE **axs**tv ON JAN 22, 9PM EST

NATIONAL FILM PREMIERE  
MAY 20, 7PM | NORMAL THEATER

# GASLAND

PART II



FOLLOWED BY Q&A WITH **JOSH FOX**,  
OSCAR®-NOMINATED CREATOR OF GASLAND

FREE ADMISSION | DOORS AT 6:30PM | 209 NORTH ST., NORMAL

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# Two Forms of Fracturing Coincide



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# A Tormented Term with an Unfortunate Similarity to Another Term

Fracing or Fracking or . . . .

- Peter Sokolowski, editor-at-large for the Merriam-Webster dictionary, a man of optimism: “Without the K it would very often be read, perhaps, with a soft C. . . . So I’m going to guess this is more phonetic than ideological.”

Or just go for six syllables each time—Hydraulic Fracturing—in hopes of escaping this whole tangle?



# Neutrality as a Balancing Act



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## FrackingSense Speakers



## FrackingSense 2.0 Speakers



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# Welcome to My World . . .

“Greeley Mayor Tom Norton said he hopes the forum will provide a broad look at oil and gas that might help to explain to the public why the city has the rules and regulations it does.

“Boulder isn’t the first place that Greeley residents might guess the city would look for a fair and uncontentious forum on the highly debated oil and gas industry.

“But Norton said he feels Limerick has proven herself as a fair academic, and he trusts the forum will result in more understanding on all sides. Still, he said he will be the first to criticize the forums if he feels they lean in a biased way.”

Analisa Romano, “Greeley to partner with Boulder academics for oil and gas forums,” The Greeley Tribune, March 18, 2014

*Why tolerate Boulderites? The frequent remark to us: “We need a conversation in this town and no one else can convene this.”*



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# FrackingSENSE Greeley Cosponsors



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# 2014: Even Livelier Times Ahead



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# The Experts' Dilemma



**KEEP  
CALM  
AND TRUST ME  
I'M A RESEARCH  
SCIENTIST**



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# “Don’t Leave Home without Us”:

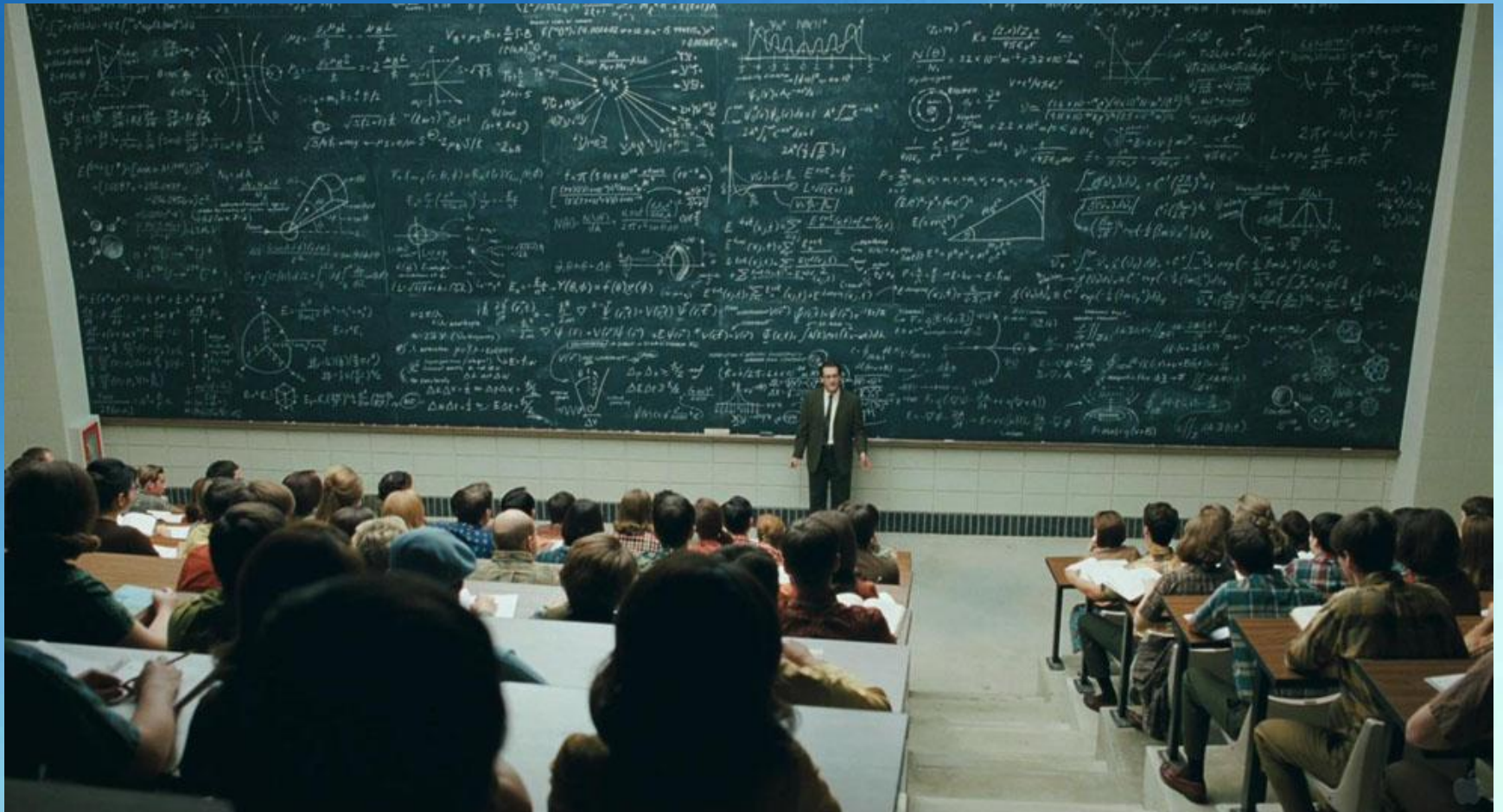
Scientists Moving into the Public Sphere = Daniel Radcliffe

Humanities = Daniel Radcliffe’s bodyguard Sam



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# The Hard Work of Translating Quantitative Findings into Words



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# A Disconnect in Expectation

The public wants scientists to provide studies that deliver certain and unambiguous results and set a clear path for decisions.

Scientists and engineers recognize uncertainty by nearly always noting “the margin of error” in their findings; quantitative results usually come with “error bars.”

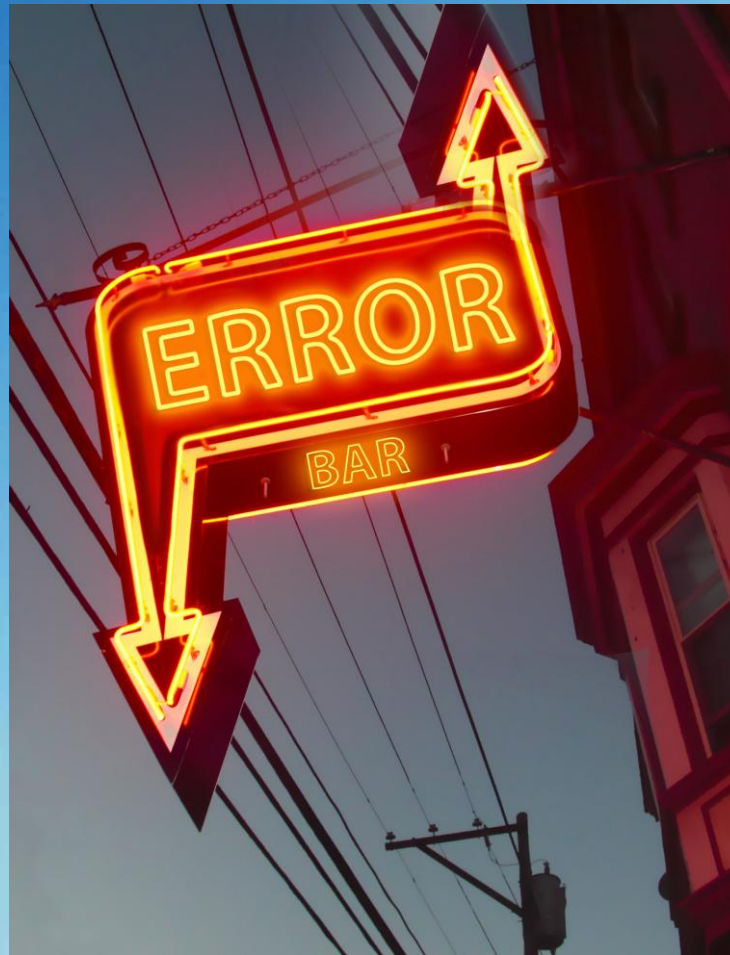
*How to bridge this cognitive divide???*



# Scientists, Numbers, and Uncertainty

Can a humorous invitation to readers to make a festive stop at the **ERROR BAR** enhance the cause of public education?

No way to know until we have tried!



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# Honesty's Power to Disarm and Build Trust

Writer Pico Iyer, “The Folly of Thinking We Know,” March 21, 2014

“I also recall how the words that most convey authority and credibility whenever I listen to a pundit speak are ‘I don’t know.’ . . .”



# Public Health as a Particular Challenge for Expertise

A Paradoxical Surgeon General's Warning:

If you are susceptible to hypertension, or if you have an intense response to stress, talking about studies of the public health impacts of oil and gas development could be hazardous to your health.



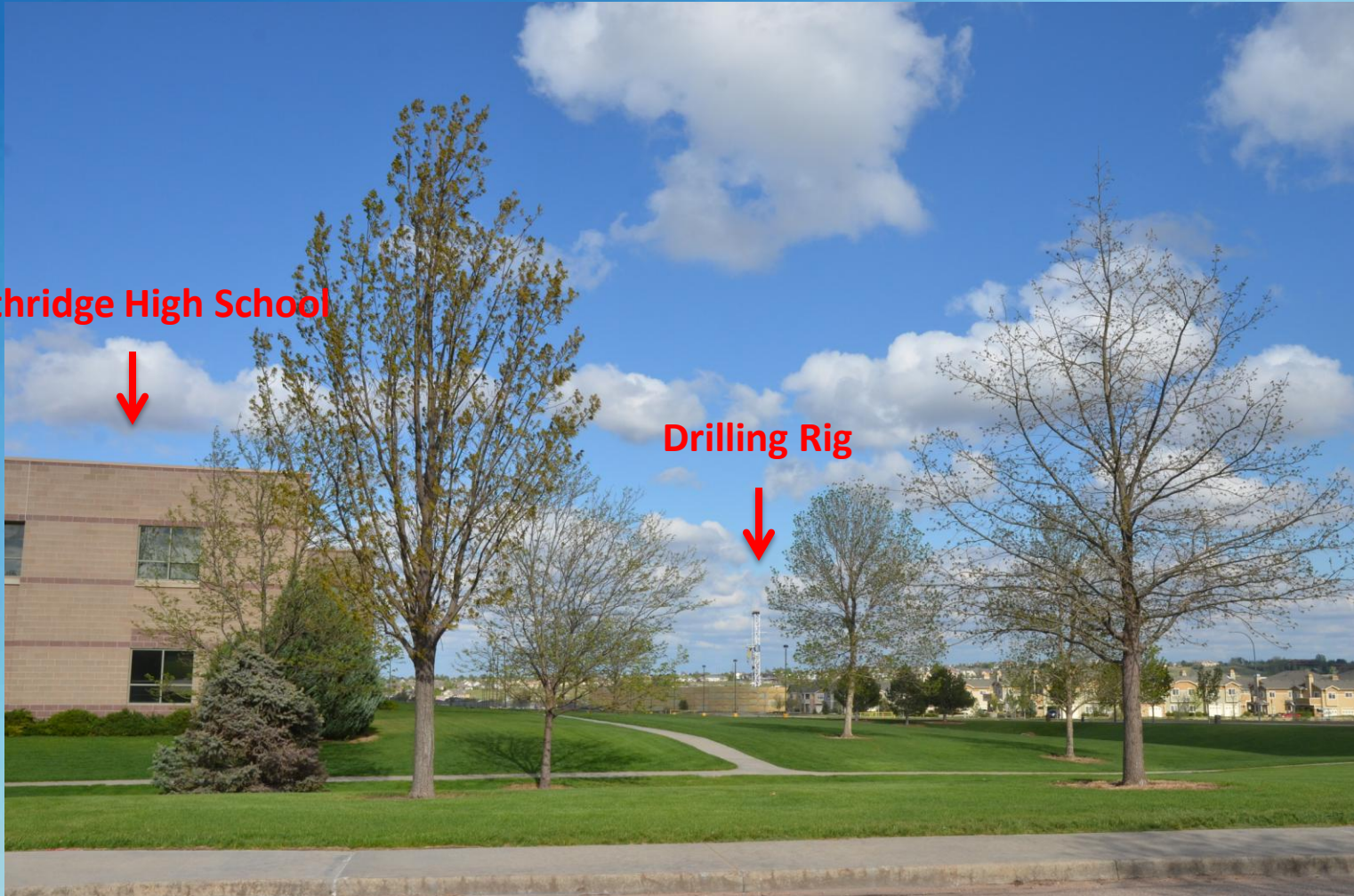
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# A School Next to a Rig as a Source of Thought

Northridge High School



Drilling Rig



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# A Few Cheerful Attempts to Note Troubles and Suggest Remedies



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# Inspiration from an Unlikely Source: What Opportunities Would Monty Python Find in Our Topic?



“Humor is our natural response to living in a world filled with conflict.” Scott Weems, [Ha!](#)



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# The Advantage of the Surname “Limerick” *(and the Uses of Humor)*

Knowledge is tragically lacking  
On the complicated practice of fracking.  
Convinced they are right,  
People rush into fight,  
And no agency regulates yakking.

When you try to be neutral on fracking,  
You're a quarterback set up for sacking.  
You can assert and declare  
That you're going to be fair,  
But you still won't escape frequent whacking.

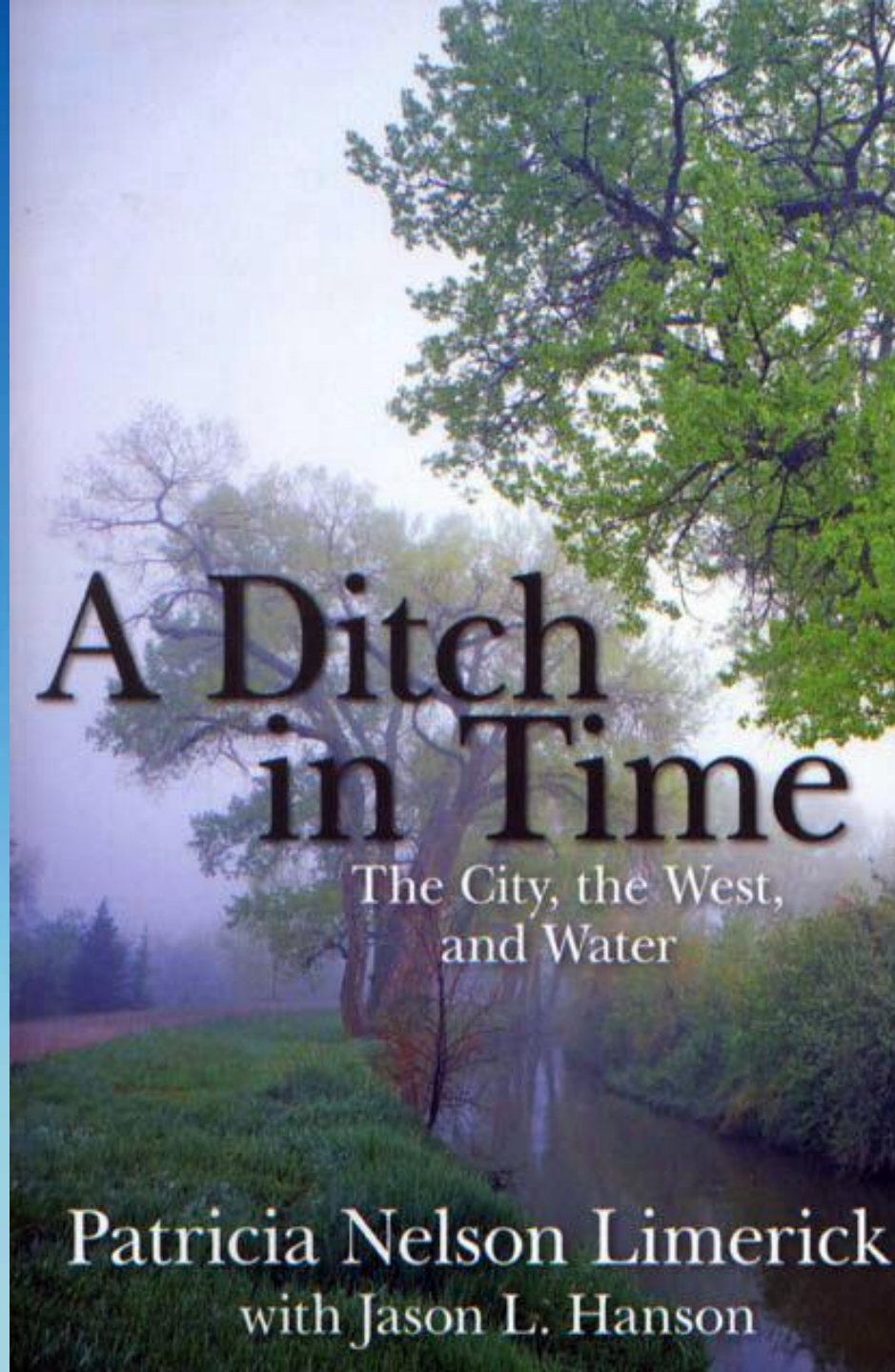


And there are  
PRIZES!

\*Best limerick

\*Best  
conversational  
performance in  
avoiding pit-  
Falls and snarls

\*Best tranquil  
statement of  
disagreement



Most illuminating  
Experiment with  
The phrase "I don't  
Know."