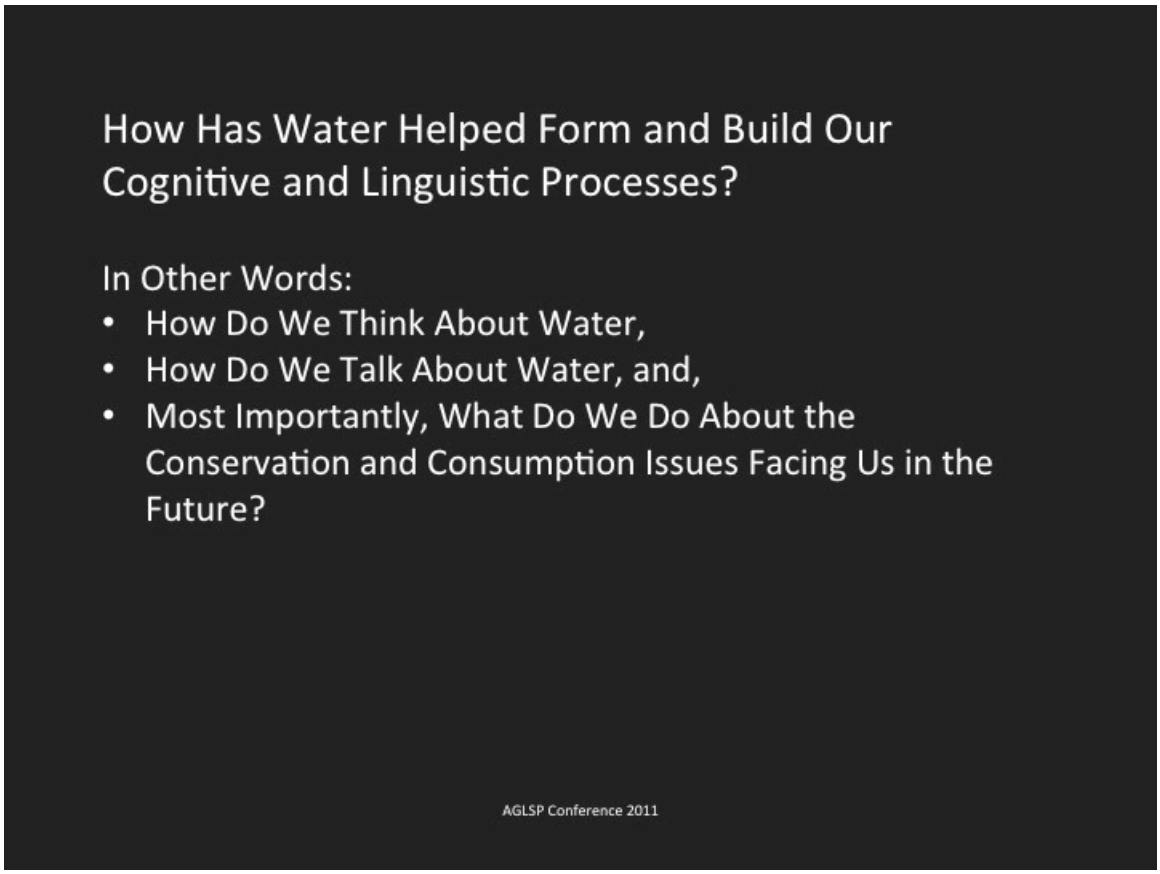
AGLSP 2011 Conference
Source of Life and Strife: Multidisciplinary Perspectives on Water
October 13-15, 2011, Saratoga Springs, NY

Water, Water Everywhere…

Hello everyone and welcome to Saratoga Springs.



My apologies for the long title:

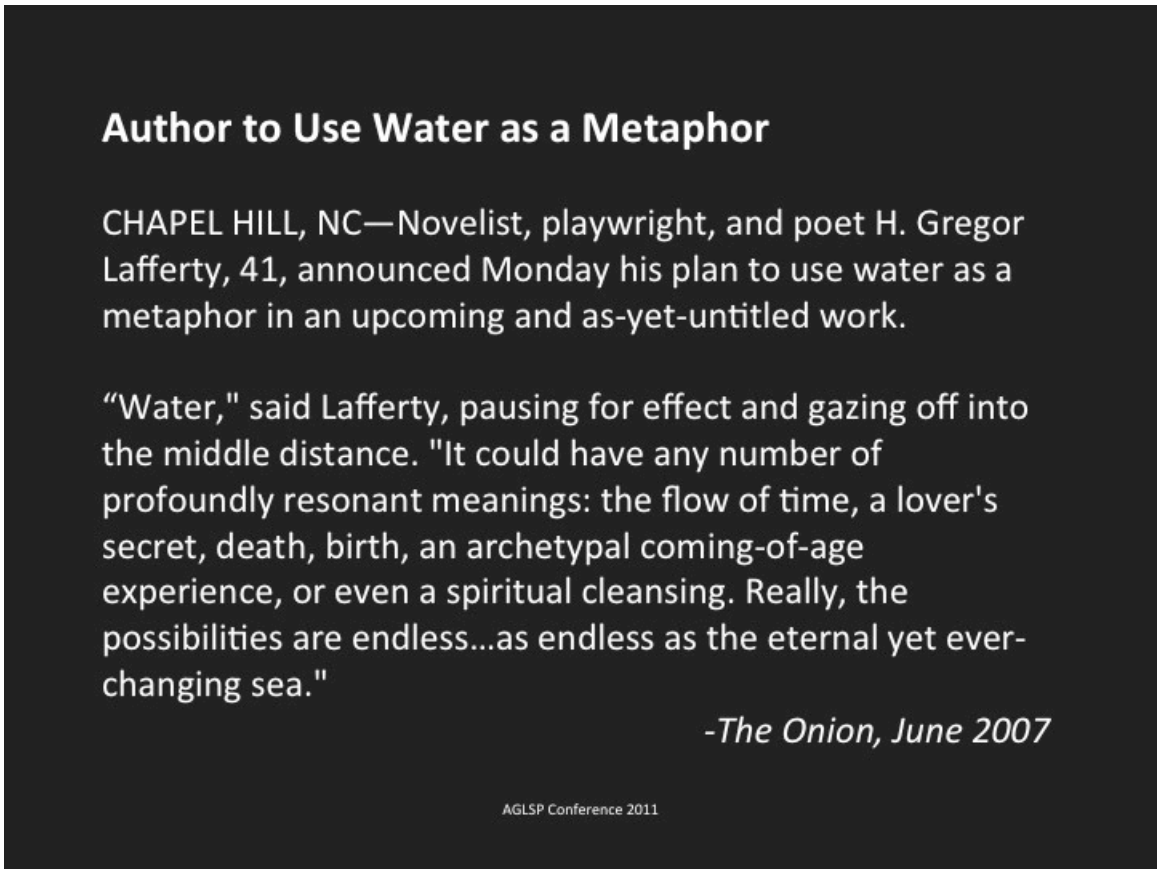
How Has Water Helped Form and Build Our Cognitive and Linguistic Processes?

In Other Words, How Do We Think About Water, How Do We Talk About It, and Most Importantly, What Do We Do About the Conservation and Consumption Issues Facing Us in the Future?

I'm usually more pithy and clever, but water proved to be a much tougher subject to contain than I expected. I started with a pleasant and manageable presentation about water and its many literary and cultural metaphors, but soon after doing some research, I found myself immersed in Wittgenstein, semiotics, communication theory as it pertains to teaching children about mathematical objects, and fluvial geomorphology

(which is, at least, the water-centric study of river related landforms). So, I hope I can impose upon everyone's interdisciplinary hospitality for a bit while I wade in over my head.

The answer to the question of how water affects our cognition and language is: it's complicated. In fact, the unwieldy title is illustrative of my thesis: how we think and how we talk about water equally explicates and complicates our relationship to water, especially in this era of commodification and exploitation of natural resources. Specifically, I would argue that water is not always well served by its ubiquity as a metaphor. The popular satirical news source, *The Onion*, published an article in June of 2007 poking fun at this literary ubiquity:



Author to Use Water as a Metaphor

> “CHAPEL HILL, NC—Novelist, playwright, and poet H. Gregor Lafferty, 41, announced Monday his plan to use water as a metaphor in an upcoming and as-yet-untitled work.
>
> "Water," said Lafferty, pausing for effect and gazing off into the middle distance. "It could have any number of profoundly resonant meanings: the flow of time, a lover's secret, death, birth, an archetypal coming-of-age experience, or even a spiritual cleansing. Really, the possibilities are endless…as endless as the eternal yet ever-changing sea."

There is great truth in this parody, and I think it offers one answer to that unwieldy question of how we think and talk about water. Water provides endless metaphorical possibilities, partly because it takes on many forms, from the gentle snowflake…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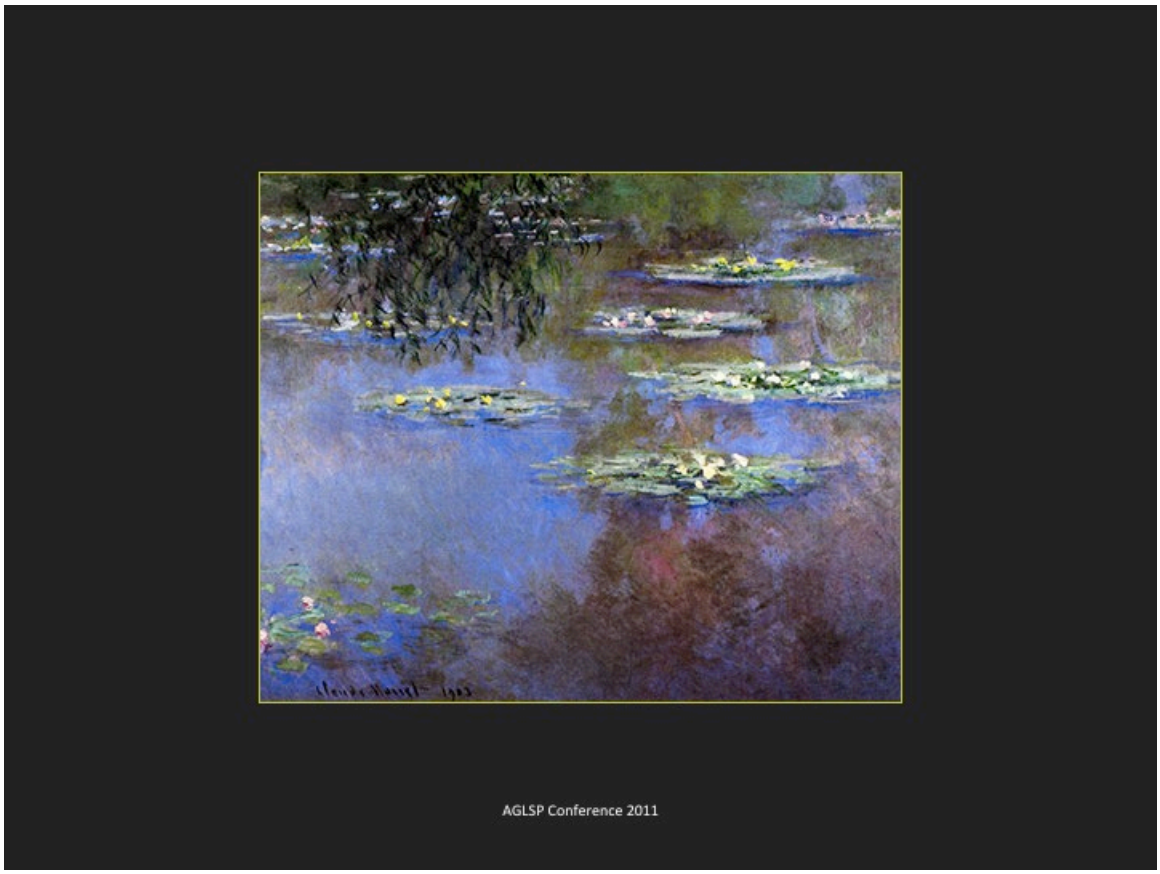
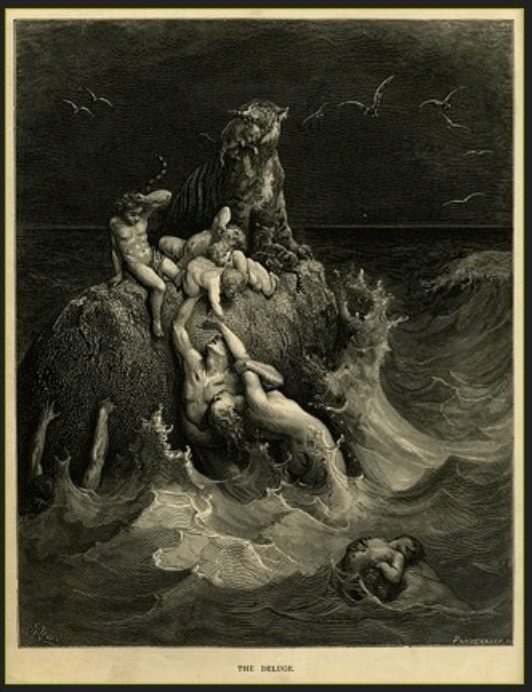
…to the roaring wave…

…from the meditative surface of a pond…



…to the civilization-ending flood…



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The macroscopic nature of water defines our landscapes and livelihoods, sometimes disastrously…

Hurricane Katrina

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Hurricane Irene

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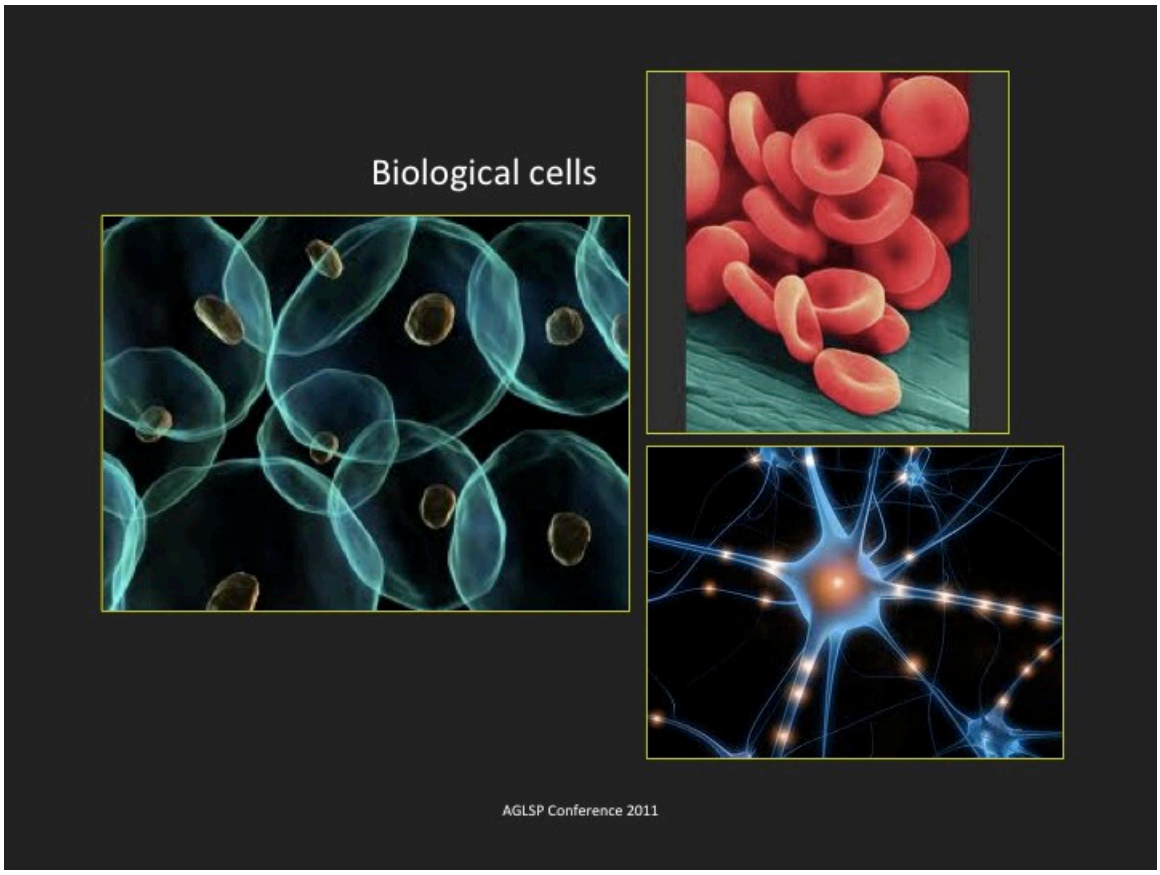
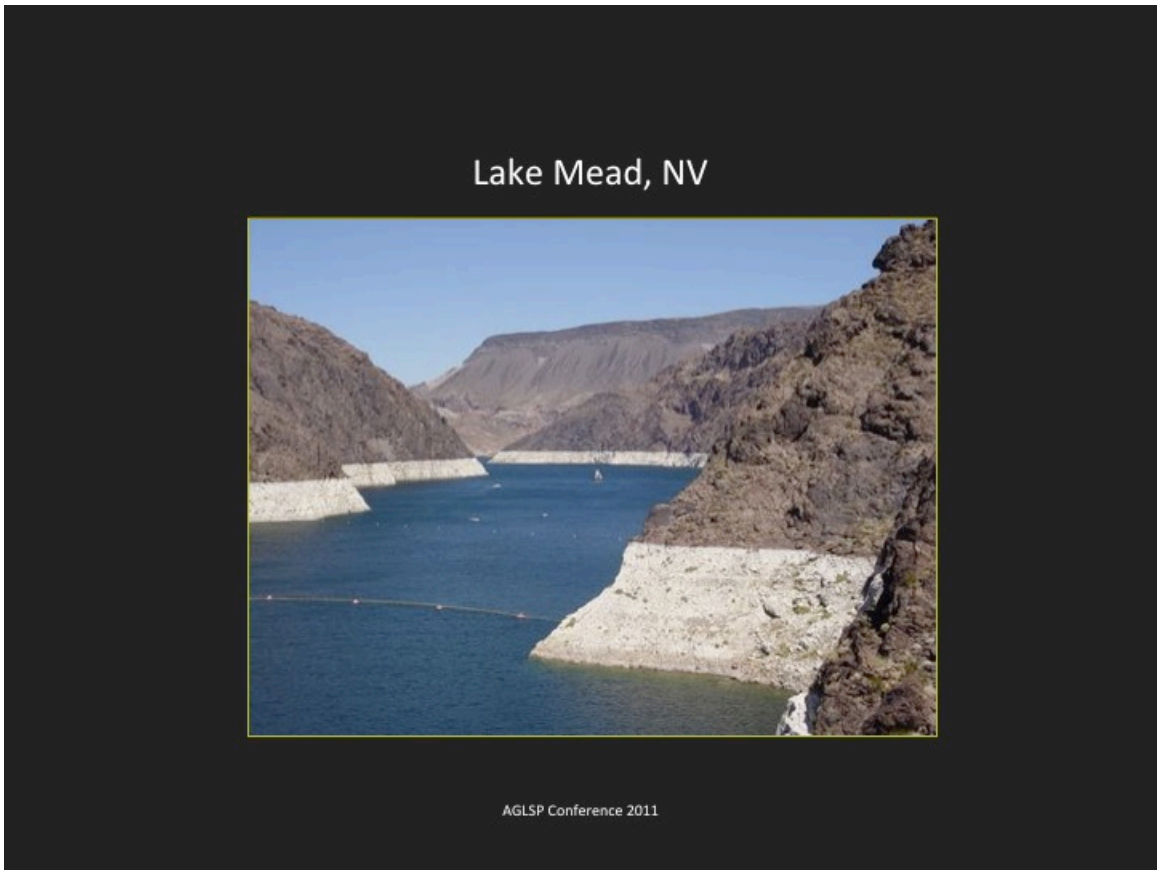
Water's microscopic molecular nature underpins every biological process necessary to life.



Water is indeed purifying and cleansing, it is life-giving and death-delivering; it does record the flow of time by marking the landscape with increments of change:



Water is endless because it is a relatively simple molecule capable of transformation and recombination; it is eternal because of the universal law of conservation of energy and matter. Because of its physical ubiquity and the power of its presence, it makes perfect sense that we have built a relationship with water of such mythic proportions.

Water is not just an external element that we contemplate in our environment. We are made of water. We come from water. We thirst for water, both biologically and culturally. To think about water is a strangely recursive experience: the human brain requires water to think – dehydration disrupts the normal action potential in a neuron.[1] This Mobius-like nature of our relationship to water makes it a continuing challenge to communicate about it, which complicates how we think about it and ultimately how we

use it. Our understanding is further complicated by the ubiquity of simplistic metaphors that we use to claim water as our own. In our desire to give water unique human meaning, we have emphasized certain characteristics to the detriment of others. For example, the metaphor that water is endless and eternal may be molecularly accurate, but not all forms of water are potable or healthy for consumption, for either plant, animal, or human. The metaphor that water is purifying figures into every spiritual belief system across the planet, from Christian baptism to Hindu burial; but in reality, nothing can purify without also polluting.

So who gets the fantasy of a water source that is endless and purifying and who gets the reality of polluted scarcity?

We are staring down an environmental, political, and humanitarian crisis that requires us to think differently, to talk differently, and to act differently. To do that, we must own

the real consequences of our myths and metaphors. To start, we must acknowledge that the process of communicating – which entails the creation of myths and metaphors – affects the process of thinking; the two are not separate, but intimately intertwined.

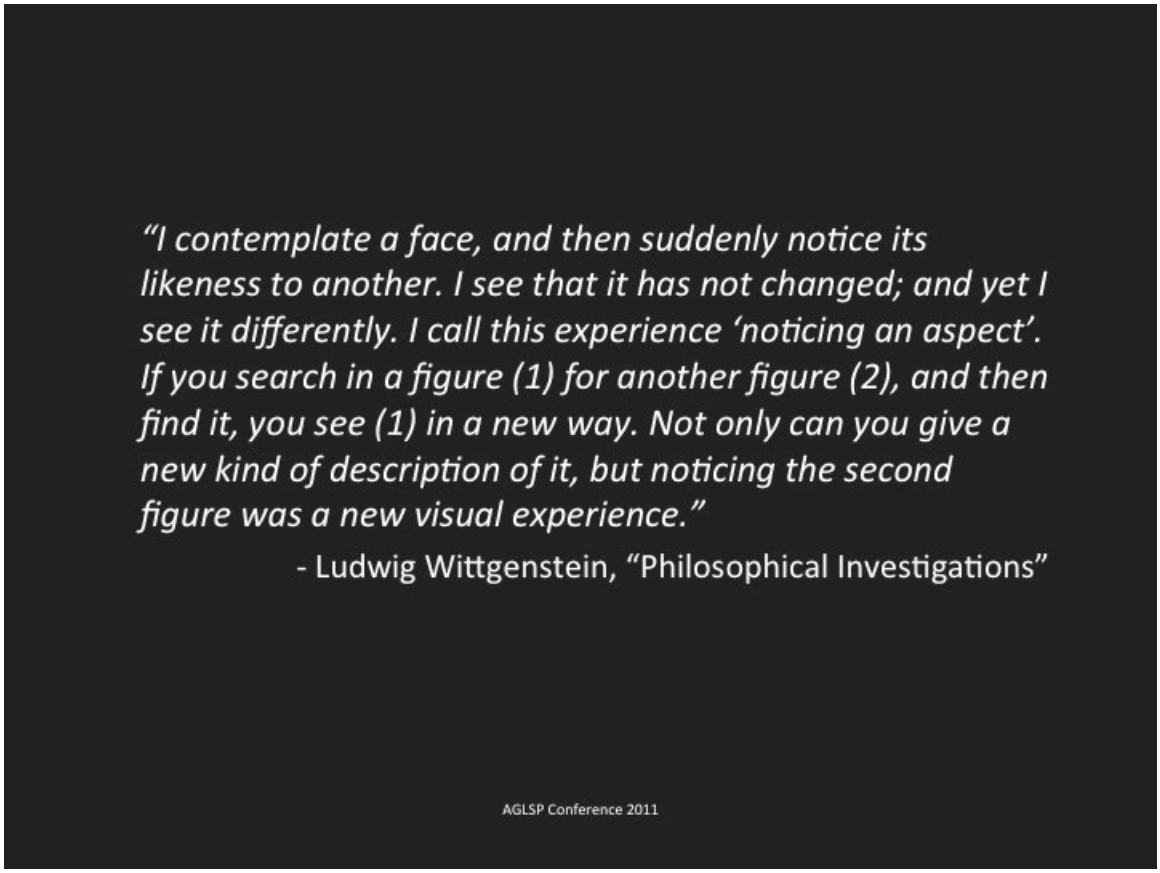
To help illustrate, let me introduce you to a couple of scientists. First is Anna Sfard, a professor of mathematics based at the University of Haifa in Israel, who studies how people think and talk about mathematics, specifically how "recursive discourse" results in the emergence of new mathematical objects. Her research is interesting because she analyzes how public discourse affects personal discourse; in other words, how codified language, including cultural metaphors and memes, affect individual thought; and in turn, how personal metaphors can enter and affect public discourse. Humans have a need and desire to communicate, which Sfard stresses is the very source of new ideas.

Communication not only enables people to "share in the knowledge of preexisting mathematical objects, it actually brings these objects into being." What is also interesting about Professor Sfard's research is that she studies how abstract ideas, like number or function, can be understood both as an object and as a process; these two ways of understanding the idea are not incompatible, but complementary and even helpful in fully understanding the potential problem-solving capacity of a mathematical concept. To use mathematical objects like number, set, and function, we need to know what that object is and what it can do, even if it doesn't have visceral, physical form. I argue that we should think about our water metaphors this way: as abstractions that, because of their cultural ubiquity and psychological power and environmental impact, now require us to analyze them as both physical object and potential process, the goal of which is to bring new ideas about water into being.

My second scientist is Pauline Couper, professor of fluvial geomorphology at University College Plymouth Marjon (UCP Marjon). She also argues for a more integrated approach to thinking and communicating, specifically about objects that scientists use to define hierarchical systems. Fluvial geomorphology is the study of river-related landforms. Professor Couper's research focuses on the connection between physical geography and human geography, specifically how to define and manage erosion and river restoration. In a paper to the Royal Geographical Society, Professor Couper laments the difficulty in bridging the gap between her own discipline and that of her fellow human geographers. The problem is one of language:

"…our language-game (Wittgenstein's term) has a significant role in defining 'our reality' – the bounds of our discipline, research methods, and discourse."[2] She proposes using elements of communication theory, specifically Charles S. Peirce's three-part semiotic

system and Wittgenstein's concepts of "language-games and family resemblance" to break through the limitations of familiarity and assumption propagated by narrowly-codified scientific language. In fact, she borrows directly from Wittgenstein's philosophy about how we must continually challenge ourselves to "notice an aspect" about familiar ideas, to see things anew:



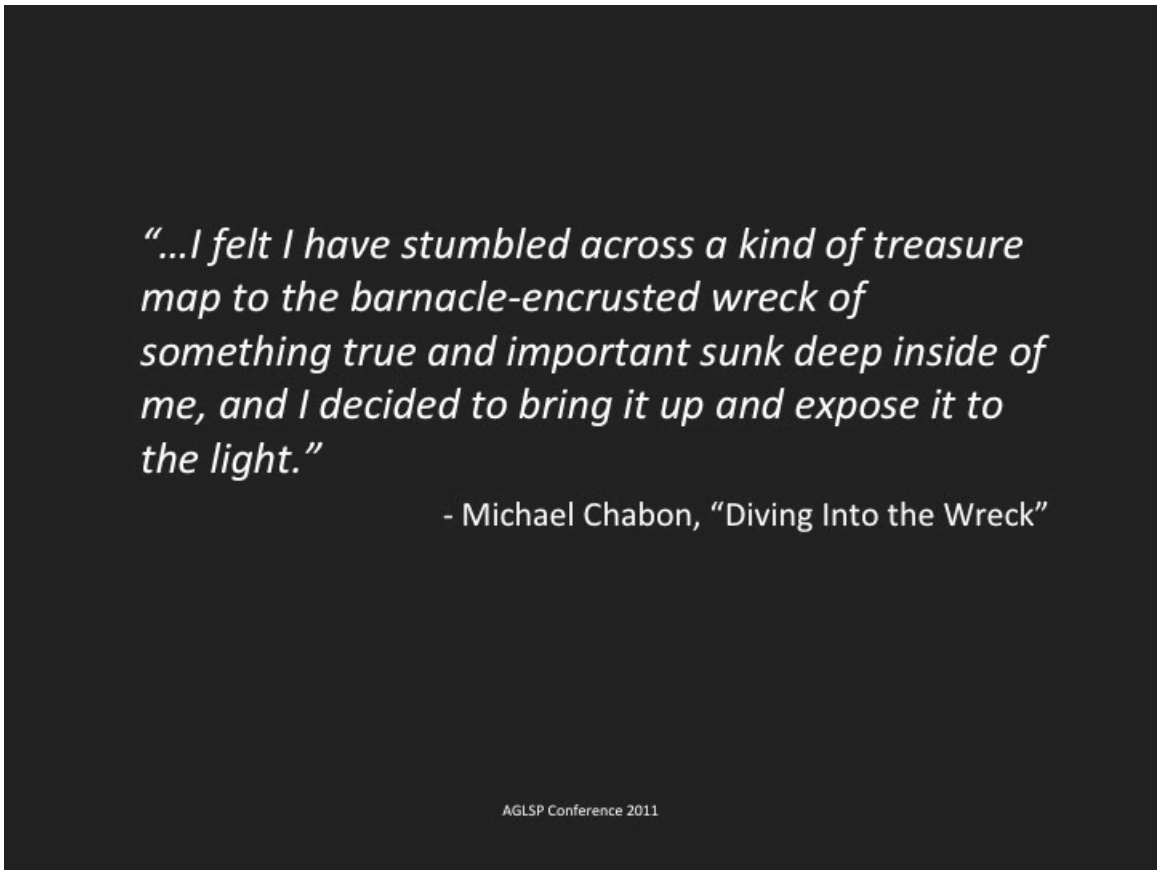
" 'I contemplate a face, and then suddenly notice its likeness to another. I see that it has not changed; and yet I see it differently. I call this experience 'noticing an aspect'. (Wittgenstein 1953, 193) If you search in a figure (1) for another figure (2), and then find it, you see (1) in a new way. Not only can you give a new kind of description of it, but noticing the second figure was a new visual experience.' (Wittgenstein 1953, 199)." [3]

Couper proposes that geomorphologists can expand their understanding of riverbed systems by seeking a kind of communicative likeness in the system's hierarchical features. For example, treating a defined length of riverbank as a semiotic sign or symbol enables it to interact with every other component in the system; it is not constrained to interacting with only the hierarchical level above it or below it. The result is a system that consists of complex interactions that were previously unnoticed or unmeasured, revealing multiple levels of cause and effect within the system. Couper believes this approach can also help reveal how human participants interact with the physical river system. Our established water metaphors are also codified, familiar, and pervasive, and, like hierarchical scientific systems, they need continual reevaluation and reinterpretation.

If we treat cognition and communication as coincident manifestations of the same human process, as Sfard and Couper do, then analyzing how we communicate about water should help reify our existing water metaphors into new ideas that will change our thinking. We can bring new objects into being; we can reveal levels of interaction previously unseen or unmeasured.

To explore this idea further, I looked for literary examples of water that are not only metaphorically ineffable and poetic, but that also possess a motive energy; contemporary metaphors that may share kinship with mythical, ancient ideas but that inspire us to "notice an aspect;" to interact with them in a way that forces us to take further cognitive or communicative action rather than passively bask in an intangible, linguistic glow.

I have four pieces as examples, all chosen because they have personal meaning for me. I'm injecting my private metaphor into the public discourse. This first lengthy example is from an essay by Michael Chabon (SHAY bon) called "Diving Into the Wreck."



"In 1987, in the final stages of work on my first novel, The Mysteries of Pittsburgh, I came upon a little picture that nearly ruined my life. It was a reproduction of an aerial painting of Washington, D.C., by the architectural visionary Leon Krier – a tiny prospect of blue water, white avenues, green promenades, glimpsed from a tantalizing distance, unattainable, ever receding. My reaction to this picture was strange: my heart began to pound, the hair on the back of my neck stood up, and I felt a sadness come over me, a powerful sense of loss, which I began at once to probe and develop, thinking that in an attempt to explain the inexplicable ache this little picture caused in my chest there might lie the matter of a second novel.

I didn't know that what I was feeling was a prefigurative pang of mourning for the next five years of my creative life.

> I felt I have stumbled across a kind of treasure map to the barnacle-encrusted wreck of something true and important sunk deep inside of me, and I decided to bring it up and expose it to the light. Five years and some fifteen hundred pages later I was still trolling the murky water of the Innermost Sea in search of that fabled wreck, which by then I was calling Fountain City. In that time I had found fantastic, shattered hulks and ruins down there, helmets and rimy flatware, chests of moldering silk, astrolabes, the skeletons of men and horses, but nothing that I felt could honestly be considered treasure. And when, at the end of 1992, with the help of my editor Doug Stumpf, I tried one last time to hoist the whole rotten caravel to the surface, it all just fell apart.
>
> In the aftermath of this debacle, though I kept it to myself, I felt bewildered, depressed, and, to be honest, terrified. I was not accustomed to failure, nor to the bathyspheric pressures that weigh on a second novel, particularly where the first has met with any kind of success." [4]

When I first read this piece, it made me think of the myth of Narcissus.

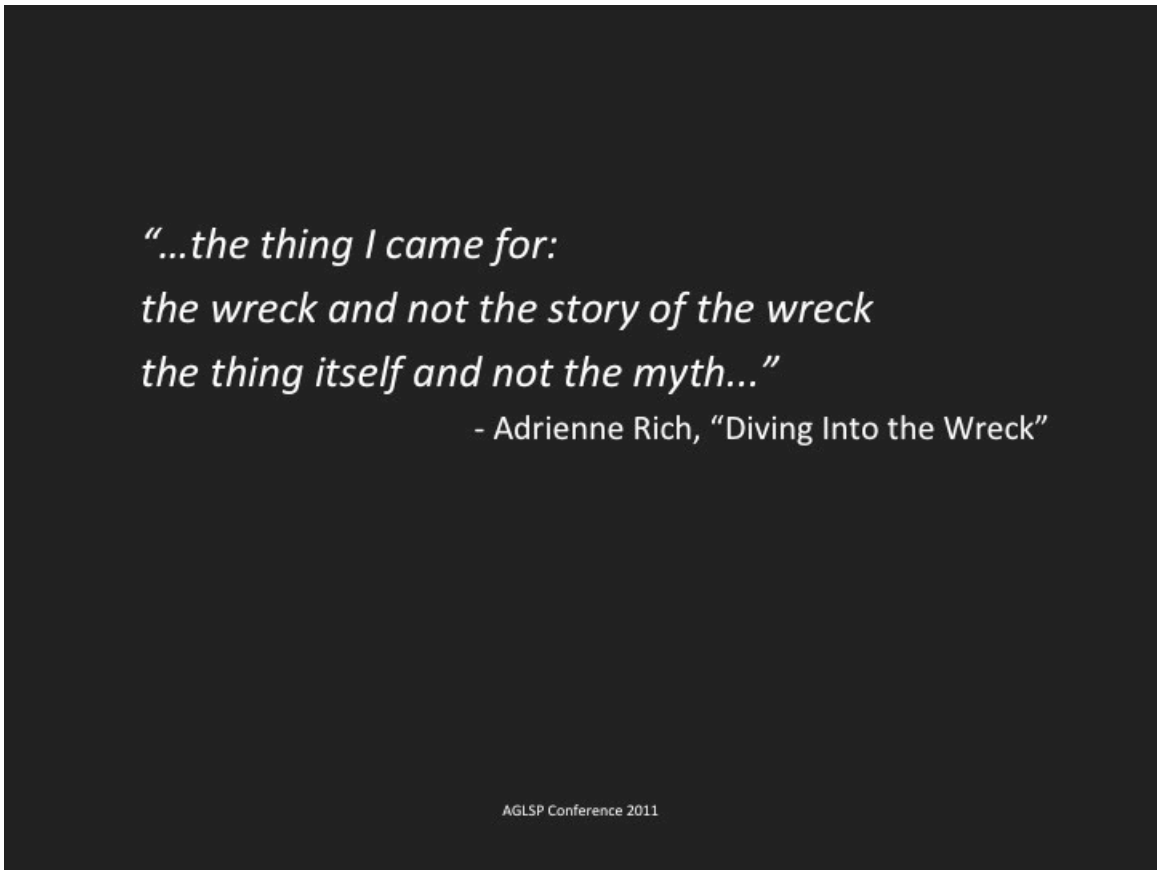
Chabon is compelled by what he sees in the surface of a thing (in this case a painting rather than a pond), however, unlike Narcissus, who starved to death obsessing over his reflection, Chabon sees past the surface and delves into the murky metaphor to make some undefined, yet important discovery. He expects treasure to be hidden in the impenetrable, in amongst the rot and ruin, in places where we are subjected to pressures unknown to us on the surface of our lives. In this passage, water is the creative process that can simultaneously buoy and drown. Despite the author's anxiety, either outcome may be a valuable one: to retrieve the treasure or to become part of the landscape that continues to obscure it. What I found even more compelling is that Chabon eventually used this creative failure to his advantage. This quote is from an article by Byron Cahill in Writing magazine, and is featured on Chabon's Wikipedia entry:

> "When he finally decided to abandon *Fountain City*, Chabon recalls staring at his blank computer for hours, before suddenly picturing "a

'straitlaced, troubled young man with a tendency toward melodrama' trying to end it all." He began writing, and within a couple of days, had written 50 pages of what would become his second novel, *Wonder Boys*. Chabon drew on his experiences with *Fountain City* for the character of Grady Tripp, a frustrated novelist who has spent years working on an immense fourth novel. The author wrote *Wonder Boys* in a dizzy seven-month streak, without telling his agent or publisher he'd abandoned *Fountain City*. The book, published in 1995, was a commercial and critical success." [5]

This time, the reflective, spell-binding surface was Chabon's computer screen, and the wreck that compels the author's creative exploration is the story of a wreck, a wreck of his own making.

Coincidentally, the next excerpt is from Adrienne Rich's "Diving Into the Wreck," my all-time favorite poem that inspired me to learn how to scuba dive:



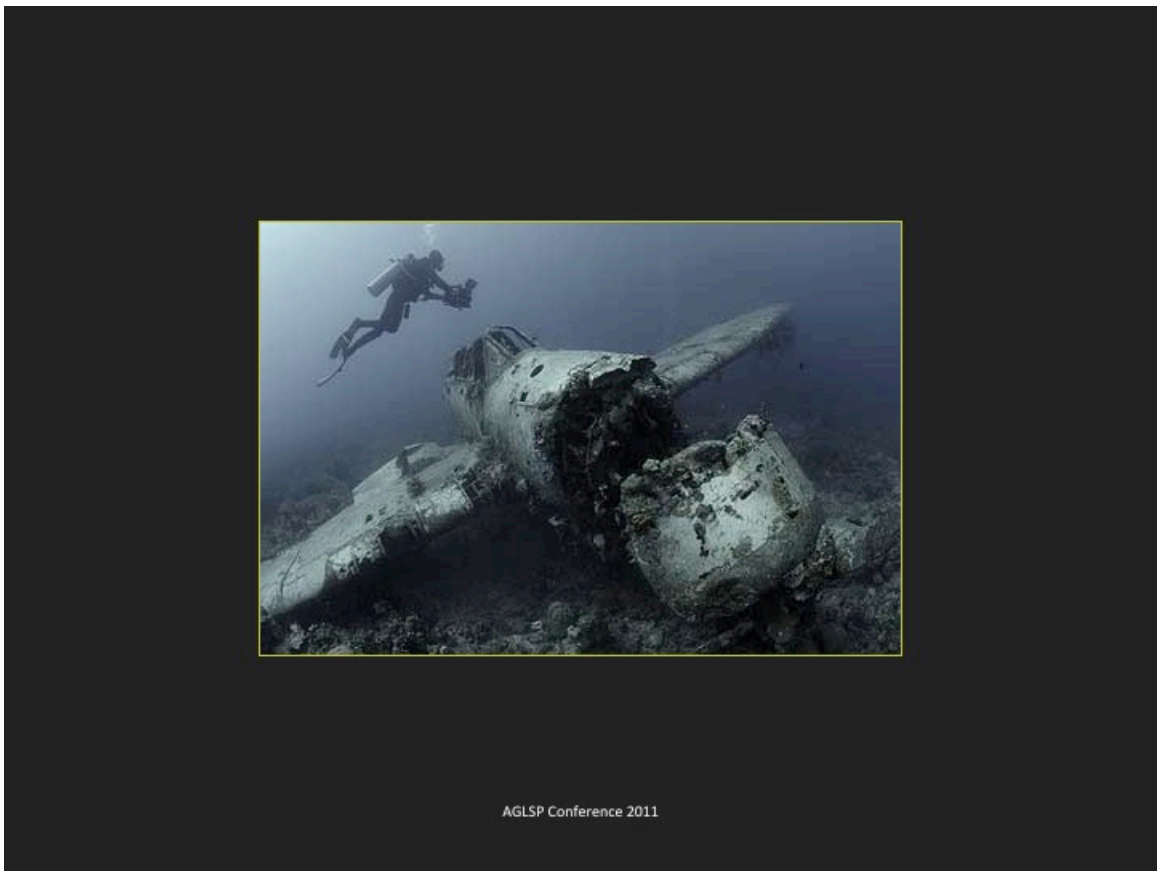
"I stroke the beam of my lamp
slowly along the flank
of something more permanent
than fish or weed

the thing I came for:
the wreck and not the story of the wreck
the thing itself and not the myth
the drowned face always staring
toward the sun
the evidence of damage
worn by salt and away into this threadbare beauty
the ribs of the disaster

curving their assertion

among the tentative haunters." [6]

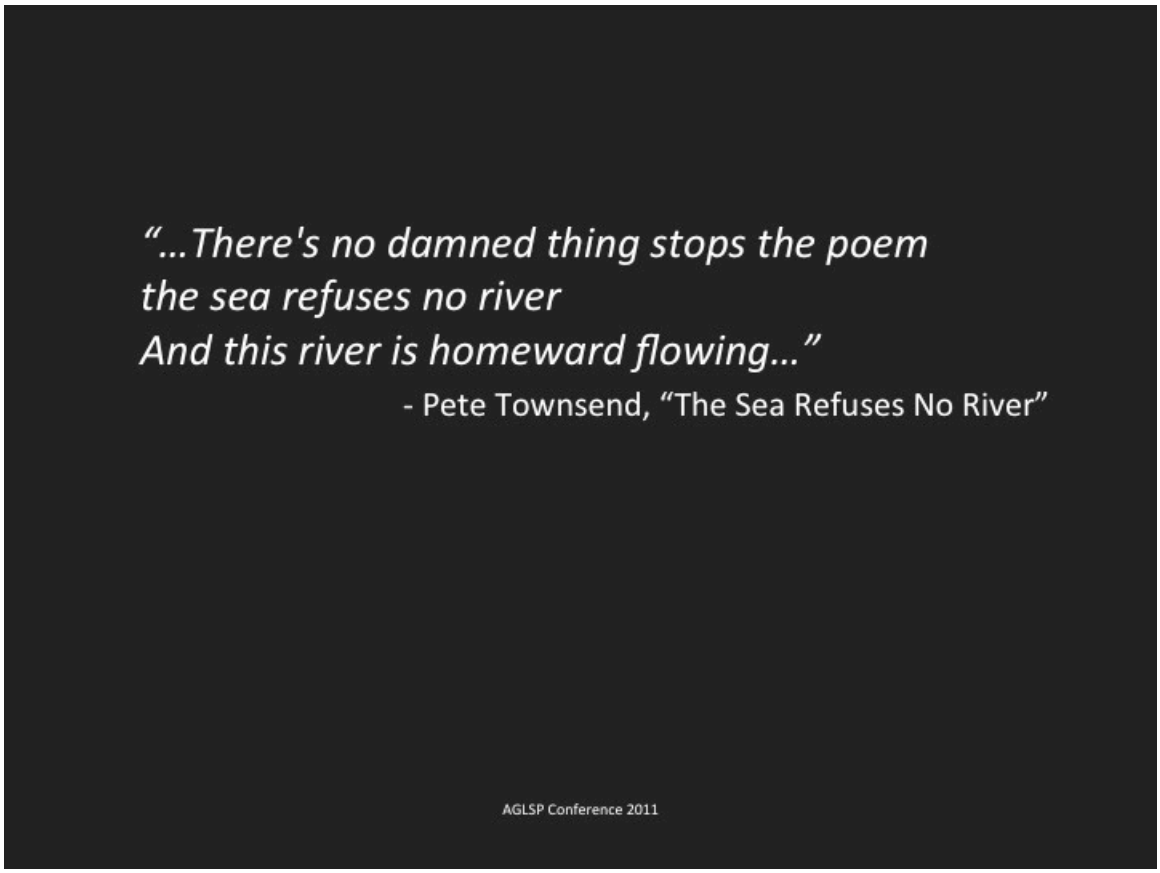
Here again is the metaphor of water as the keeper of beauty, mystery, discovery. The wreck is a story of damage and drowning before the diver encounters it; it reveals itself as a real thing only once the diver has committed to exploring the wreck's environment. The wreck is both a reality and a fantasy that compels the ghost of a human being – removed from her natural air-filled environment – to haunt it in an effort to understand it.



Being underwater, for anyone who has been scuba diving, is otherworldly – your eyes and ears don't work like they are intended to; you never forget that you are in a world you don't belong to. What you see underwater is like what you see in a dream – you

experience it, but once above the surface with your eyes and ears working as they should, you can't quite describe what you saw and heard. Rich's water metaphor is a boundary condition between wreck and myth, codifying the existence of both. It is simultaneously revealing and concealing.

If Rich's metaphor celebrates the complicated nature of water as both obfuscation and revelation, this third excerpt, from Who guitarist Pete Townsend represents plain-faced, unbridled, untamed expression:



"The sea refuses no river
And right now this river's banks are blown
The sea refuses no river
Whether stinking and rank

Or red from the tank

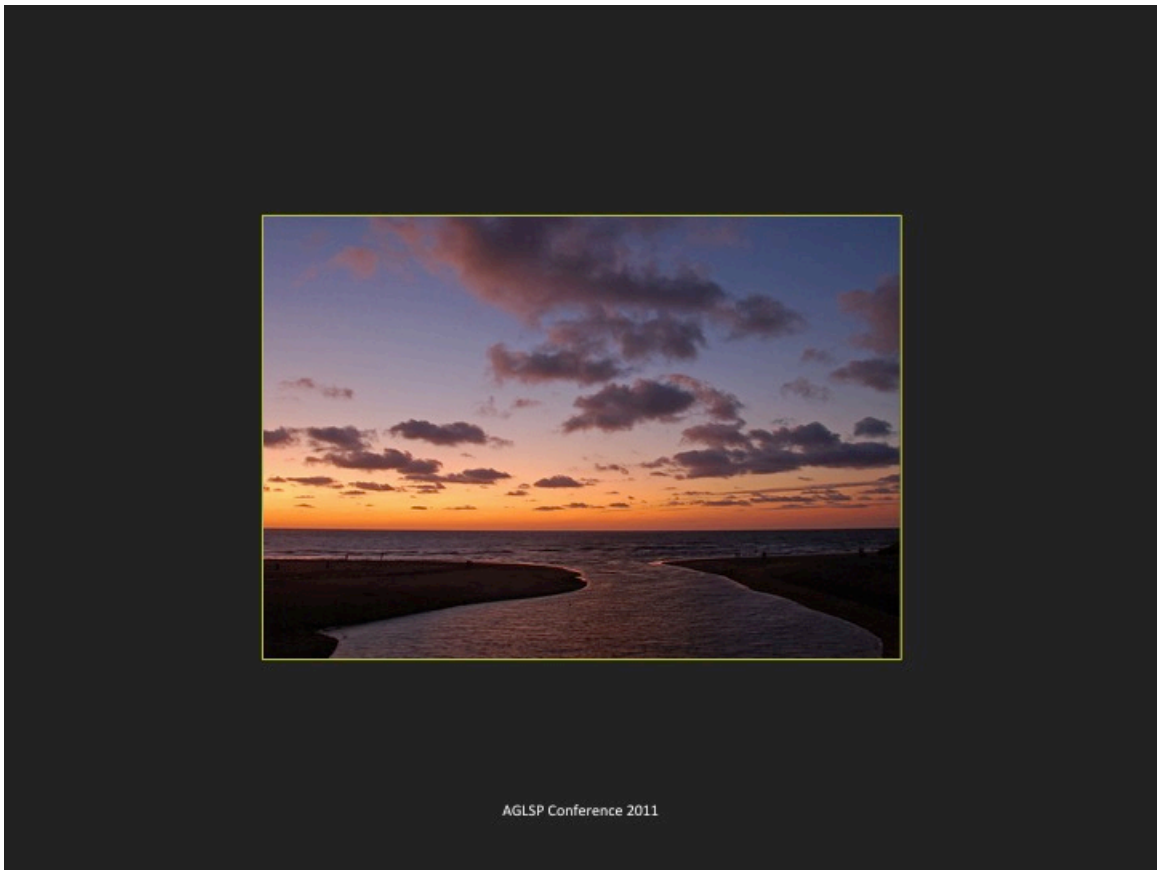
Whether pure as a spring

There's no damned thing stops the poem

The sea refuses no river

And this river is homeward flowing…" [7]

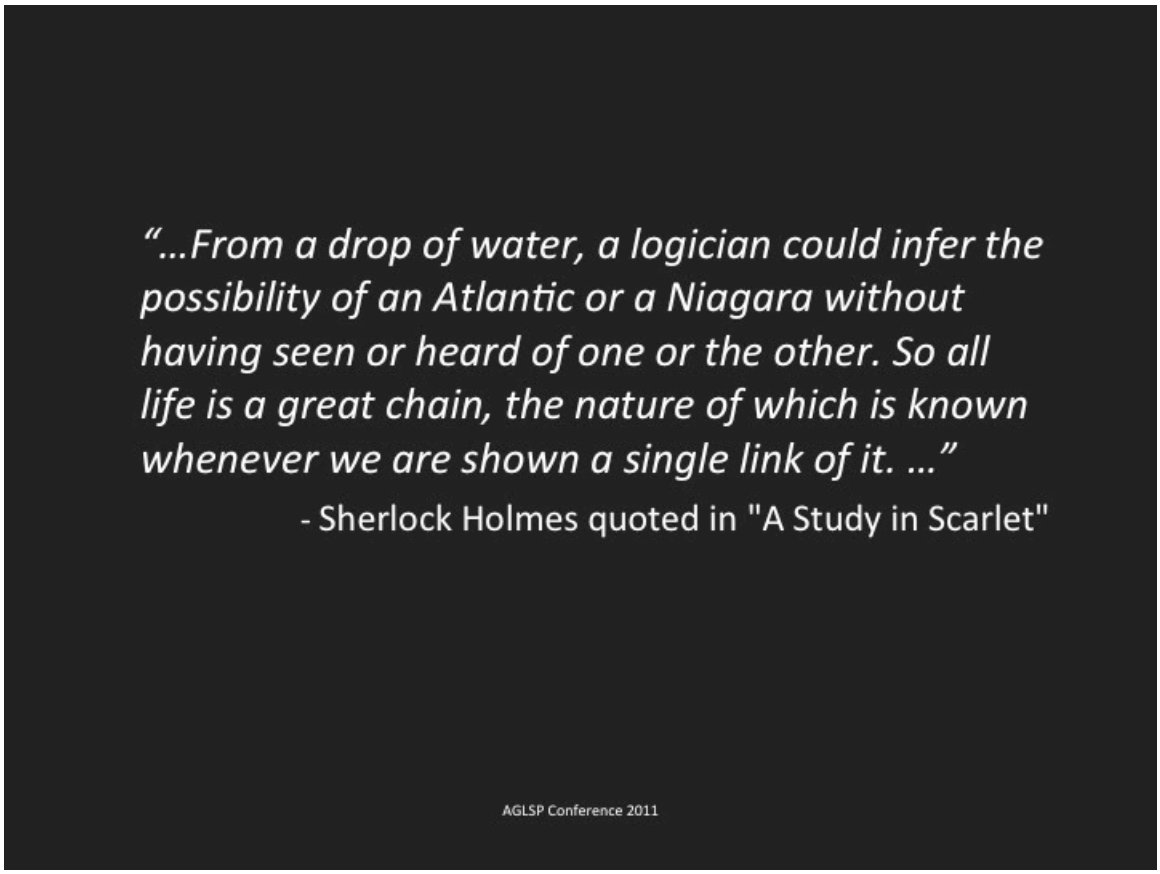
"There's no damned thing stops the poem."



Whether pure or polluted, The Poem: human expression – cognition, communication, metaphor – like water, is unstoppable – it will always flow inexorably to its own natural conclusion.

These three pieces empower water as creativity, threshold, movement – metaphors that I think are much richer and more complex than the banal and static, and therefore, incomplete, “water as life,” or “water is purity,” or “water as lover’s secret.” These metaphors contain both signified objects and abstract ideas that I think Anna Sfard and Pauline Couper would agree come about due to equal and alternating parts cognition and communication. These metaphors contain the unfathomable as well as the physicality and action necessary for us to “notice an aspect” we didn’t see before. Can these metaphors; what I like to call metaphor engines – water as the seat of creativity; water as the boundary between actual and imagined; water as the mirror of our own desire to express and commune with each other – inspire us to be better stewards of water as a resource?

I think part of the answer to that depends on how we interpret the ideas in this fourth, and last, metaphor, a quote from Arthur Conan Doyle’s Sherlock Holmes:



"From a drop of water, a logician could infer the possibility of an Atlantic or a Niagara without having seen or heard of one or the other. So all life is a great chain, the nature of which is known whenever we are shown a single link of it." [8]

[1] (http://cwx.prenhall.com/bookbind/pubbooks/martinidemo/chapter12/medialib/CH12/html/ch12_8.html).

[2] Pauline Couper, Fluvial Geomorphology, page 280

[3] Pauline Couper, Fluvial Geomorphology, page 289

[4] Michael Chabon's Maps and Legends: Diving Into the Wreck, pages 157-158

[5] http://en.wikipedia.org/wiki/Michael_Chabon#Fountain_City_and_Wonder_Boys

[6] Diving Into the Wreck, Adrienne Rich, http://www.poets.org/viewmedia.php/prmMID/15228

[7] http://www.sing365.com/music/lyric.nsf/The-Sea-Refuses-No-River-lyrics-Pete-Townshend/35D4FFCFE5519E8148256E7E0010D4F8

[8] Arthur Conan Doyle's "A Study in Scarlet:"