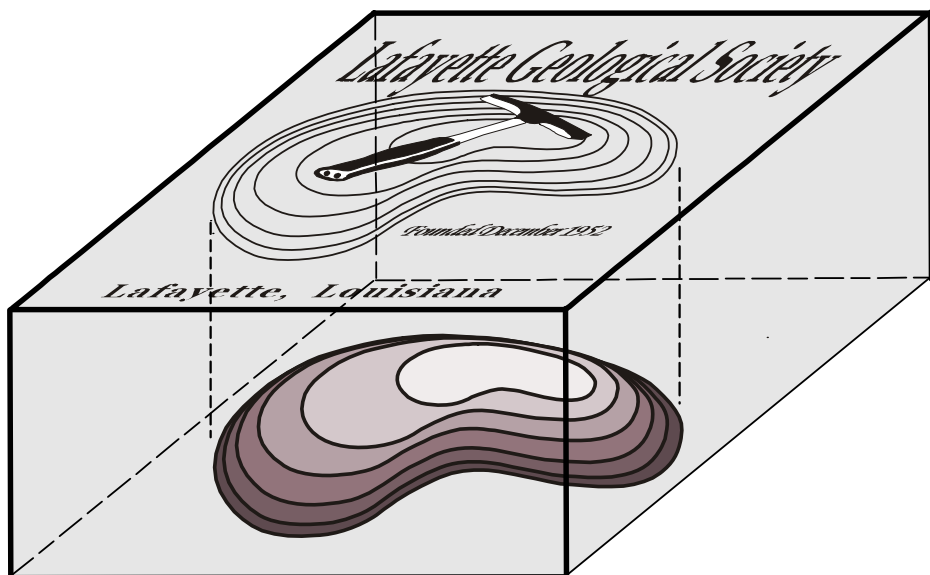


# *Lafayette Geological Society* **BULLETIN**

Volume 58, No. 8

April 2014



**LGS Luncheon Meeting**  
**Wednesday, April 16, 2014**  
**11:00 am – 1:00 pm**  
**Lafayette Petroleum Club**  
**Cost: \$20**

## **Luncheon Presentation**

**The Influence of Salt Structures and Salt  
Deformation on Petroleum Exploration in the  
Deepwater Northern Gulf of Mexico**

***J. Carl Fiduk, WesternGeco, Houston, Texas***  
***2013–2014 AAPG Distinguished Lecturer***

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*Jerry Yunker, Craig Glassinger, Bill Finley, Kelly Poret, Joey Grimball, and David Sturlese. Not Pictured: Samantha Leone, James Willis, and John Boggs.*

**LGS Luncheon Meeting  
Wednesday, April 16, 2014  
11:00 am to 1:00 pm  
Lafayette Petroleum Club  
Cost: \$20**

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**The Influence of Salt Structures  
Salt Deformation on Petroleum  
Exploration in the Deepwater  
Northern Gulf of Mexico**

***J. Carl Fiduk, WesternGeco, Houston, Texas  
2013–2014 AAPG Distinguished Lecturer***

# President's Column



Greetings,

We are into April and the warm winds of spring are upon us. Naturally, our thoughts turn outdoors as the weather warms. The LGS Golf Tournament was held last Friday (April 11) at the Wetlands golf course. Special thanks to our many sponsors, and thanks as well to Tim Ben-

nett, our Tournament Chair, for putting on another excellent event.

Our monthly Lunch meeting on April 16th at the Petroleum Club. Our speaker this month is J.C. Fiduk, an AAPG Distinguished Lecturer for 2013–2014. His talk is entitled “The Influence of Salt Structures and Salt Deformation on Petroleum Exploration in the Deep-water Northern Gulf of Mexico.” Carl is the Chief Geologist at WesternGeco and likely gets to see a plethora of seismic data worldwide. If the “best geologist is the one who has seen the most rocks,” then Carl should be one of the best interpreting geophysicists anywhere with all of that data exposure!

Special congratulations to the UL Imperial Barrel Team, which won the GCAGS regional competition last Month (4 wins out of 7 years!), and which won the international competition at last week’s AAPG convention, making UL the first repeat winners of the international competition, having previously won the 2012 competition. Look forward to more information in next month’s *Bulletin*.

On Tuesday, April 29, we have a “Dino Dig” day set at Broadmoor Elementary school coordinated by Julia Battle, giving some of those children a chance to interact with fossils in a more down to earth setting than just in books. Let Julia know if you can give her a hand of any sort that particular day [jugie@centurytel.net](mailto:jugie@centurytel.net).

Lastly, we will have LGS elections for the 2014–2015 year between the April and May meetings. This will be by mailed ballot to voting members only. Those individuals not currently paid up for the 2014–2015 year are not eligible to vote, thus please make every effort to get your dues current.

Photo this month is from a back road in Thailand, and yes, that is the FRONT of a vehicle!

See you at this month's events!

jy

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## **APRIL LUNCHEON PRESENTATION**

### **"The Influence of Salt Structures and Salt Deformation on Petroleum Exploration in the Deepwater Northern Gulf of Mexico"**

**J. Carl Fiduk**  
**WesternGeco, Houston, Texas**



#### **Abstract**

Hydrocarbon exploration beneath the shallow allochthonous salt canopy of the ultra-deepwater central Gulf of Mexico has encountered three thick, sand-rich, submarine fan successions that punctuate an otherwise relatively condensed and fine-grained basin center stratigraphy. These sand-rich fans are Late Paleocene, Early Miocene, and Middle Miocene in age and each coincide with periods of very high sediment flux and basin margin instability. They are the primary exploration targets in most ultra-deepwater fields, recent discoveries, and failed exploration tests.

The underlying basement configuration contains the horsts and graben of a rift basin setting. The deep parts of the rift became salt basins filled with the Jurassic Louann salt. During the Cretaceous, kilometers-thick salt nappes extruded from these basins onto the basin margins. The nappes may have coalesced to form a regional allochthonous salt nappe around the margin of the salt

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luncheon meeting.**

basins, similar to the modern Sigsbee Escarpment. Later clastic sedimentation caused deflation of the nappe leaving remnant salt structures behind. The remnant salt bodies form the core structures over which younger sand-rich fans are folded and draped.

Regional 3D PSDM data show that remnant salt bodies from the now deflated Cretaceous nappe form the core structure in fields at Chinook and Cascade and in recent discoveries at Stones, Das Bump, St. Malo, and Jack. Both seismic and well data show that the sand-rich outer fan of all three fan systems overlies the zone of salt nappe remnants. It would be a remarkable coincidence for the sandy outer fans of three different age depositional systems and the termination of two more widely separated (both temporally and spatially) allochthonous salt systems to stack vertically. The fact that they do suggests that both deep-water fan deposition and allochthonous salt emplacement were responding to a deeper structural control.

### **Biography**

Carl has B.S. and M.S. degrees in Geology from the University of Florida, an M.B.A degree from the University of Texas of the Permian Basin, and a Ph.D. in Geology and Geophysics from the University of Texas at Austin. He has worked for the USGS, Gulf Oil, Discovery Logging, the Texas Bureau of Economic Geology, British Petroleum, Texas A&M University, the University of Texas, the University of Colorado, as a private consultant, and Chief Geologist for CGG and CGGVeritas. He is currently Chief Geologist for WesternGeco in Houston, TX.

Carl's research interests cover coastal and shelfal clastic deposition, salt structural deformation and evolution, basin analysis, shelf margin to deep marine depositional processes, marine sedimentology, petroleum systems analysis, and the use of 3D seismic data in petroleum exploration. He is currently involved in salt-sediment interaction research in the Flinders Ranges, South Australia, fluvial deltaic deposition in the Cretaceous Seaway of NW Colorado, and deep marine stratigraphic analysis in the Gulf of Mexico. He teaches internal training classes on seismic interpretation and salt tectonics for WesternGeco and external industry courses for Nautilus U.S.A. and local geologic societies.

Carl is a member and Certified Petroleum Geologist of AAPG, and a member of HGS, SEG, Geophysical Society of Houston, SEPM, and is the current president-elect of GCSSEPM. In his 30+ years as a working geologist, Carl has published 70+ peer-reviewed abstracts and papers.

## “Global Warming Causes People”

Randy Bissell

### The “Why” and the Disclaimer.

Please read that title again, “Global Warming Causes People.” It is a little different than the rhetoric we’ve been hearing the last decade or so. In the following sentences, I will attempt to add insight to the association between human activity and the global temperature shift by flipping the relationship over and examining the correlation anew.

It is not my intention to deny or diminish the actuality of global climate change or the contribution to accelerating global warming by man’s use of fossil fuels and industrial production of “greenhouse gases.” However, I would suggest that many doomsayers might over-represent the certainty of their most pessimistic predictions. Likewise, it is unwise for the naysayers to ignore the impact that humans have on the climate without sober reflection on the costs and benefits of our technological, environmental, and population trajectories.

### Here Goes.

Instead of assuming that climate change is fundamentally caused by humans, I would assert that human technological advancements, cultural progress, and population increases have been caused by, or perhaps better said “facilitated by,” increases in global temperature over the last 12,000 years. Furthermore, I might assert that any recent human contribution to that temperature rise has a possibility of improving worldwide climatic conditions necessary for sustainable population growth and spurring technological progress.

Likewise, if one accepts that a recently warming globe in geologic terms has contributed to the habitability of the planet by *Homo sapiens* (us), then we might also consider that any significant decrease in average global temperature or a reversal of sea level due to polar ice cap expansion would result in a human catastrophe of much greater proportion than the projected increases in temperature and rising sea level.

(continued on page 20)

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\*Randy Bissell is an amateur philosopher and professional geologist experiencing the rising sea level and warming climate in Corpus Christi, Texas. Feedback, comments, and criticisms regarding this essay can be directed to [bissellr@swbell.net](mailto:bissellr@swbell.net)—please subject emails with Global Warming Causes People. Essay originally published in *CCGS Bulletin*.



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## Calendar of Upcoming Events

**Apr. 16, 2014 — LGS:** Lafayette Geological Society luncheon meeting, 11:00 am at the Petroleum Club in Lafayette — J. Carl Fiduk, WesternGeco, Houston, Texas, will present “The Influence of Salt Structures and Salt Deformation on Petroleum Exploration in the Deepwater Northern Gulf of Mexico.” For abstract and biography, please see page 6.

**Apr. 16, 2014 — BRGS and LGS:** Baton Rouge Geological Society and Louisiana Geological Survey 4th Annual Louisiana Subsidence and Land Loss Symposium, with focus on Coastal Protection at the Dalton Woods Auditorium, Energy, Coast & Environment Bldg., LSU Campus, Baton Rouge — For more information: [dcarlson@lsu.edu](mailto:dcarlson@lsu.edu) or [www.brgs-la.org](http://www.brgs-la.org).

**Apr. 17, 2014 — BRGS and LGS:** Baton Rouge Geological Society and Louisiana Geological Survey 8th Annual Louisiana Groundwater & Water Resources Symposia, with focus on Salt Water Intrusion at the Dalton Woods Auditorium, Energy, Coast & Environment Bldg., LSU Campus, Baton Rouge — For more information: [dcarlson@lsu.edu](mailto:dcarlson@lsu.edu) or [www.brgs-la.org](http://www.brgs-la.org).

**May., 2014 — API:** Teche Chapter of the American Petroleum Institute, 11:30 am at the Petroleum Club in Lafayette — As of press time, no scheduled events are listed on their website [www.api-teche.org](http://www.api-teche.org).

**May, 2014 — SPE:** Society of Petroleum Engineers Evangeline Section, 11:30 am at the Petroleum Club in Lafayette — No scheduled events as of press time. Please visit <http://www.spe-laf.org/site.php> for more information, as the meeting date approaches.

**May, 2014 — SGS:** Southeastern Geological Society — As of press time, SGS has not listed any May events. Their luncheon meeting is held on variable dates but typically at 11:30 at the One Shell Square Auditorium, 701 Poydras St., New Orleans. For more information, please visit <http://sgs-neworleans.org/calendar.html>.

**May 5, 2014 — NOGS:** New Orleans Geological Society luncheon meeting, 11:30 at the Holiday Inn, 330 Loyola Ave., New Orleans — As of press time, speaker and topic are not available. For more information, please visit [www.nogs.org](http://www.nogs.org) as the meeting date approaches.

**Mar. 5-8, 2014 — OTC:** 45th Annual Offshore Technology Conference, Reliant Park, Houston, Texas — For more information, please visit [www.otcnet.org](http://www.otcnet.org).

**May 8, 2014 — SPWLA:** Society of Petrophysicists and Well Log Analysts luncheon meeting, 11:30 am at the Petroleum Club in Lafayette — Speaker and topic not available as of press time. Please visit <http://www.spwla.org/chapter/lafayette> as the meeting date approaches for more information.

**May 9, 2014 — BRGS:** Baton Rouge Geological Society luncheon meeting, 11:30 am at Mike Anderson Seafood Restaurant, 1031 W. Lee Drive, Baton Rouge, Louisiana — Speaker and topic not available as of press time. For more

information, please visit [www.brgs-la.org](http://www.brgs-la.org) for more information as the meeting date approaches.

**May 13, 2014 — SWLGS:** Southwest Louisiana Geophysical Society, 11:30 am at the Petroleum Club in Lafayette — Speaker and topic not available as of press time. Please visit <http://www.swlgs.org/wpress/> for updated information as the meeting date approaches.

**May 14, 2014 — SIPES:** Society of Independent Professional Earth Scientists, 11:30 am at the Petroleum Club in Lafayette — Speaker and topic not available as of press time.

**May 21, 2014 — LGS:** Lafayette Geological Society luncheon meeting, 11:00 am at the Petroleum Club in Lafayette — As of press time, speaker and topic are unavailable. Please visit [www.lafayettegeologicalsociety.org](http://www.lafayettegeologicalsociety.org) as the meeting date approaches.



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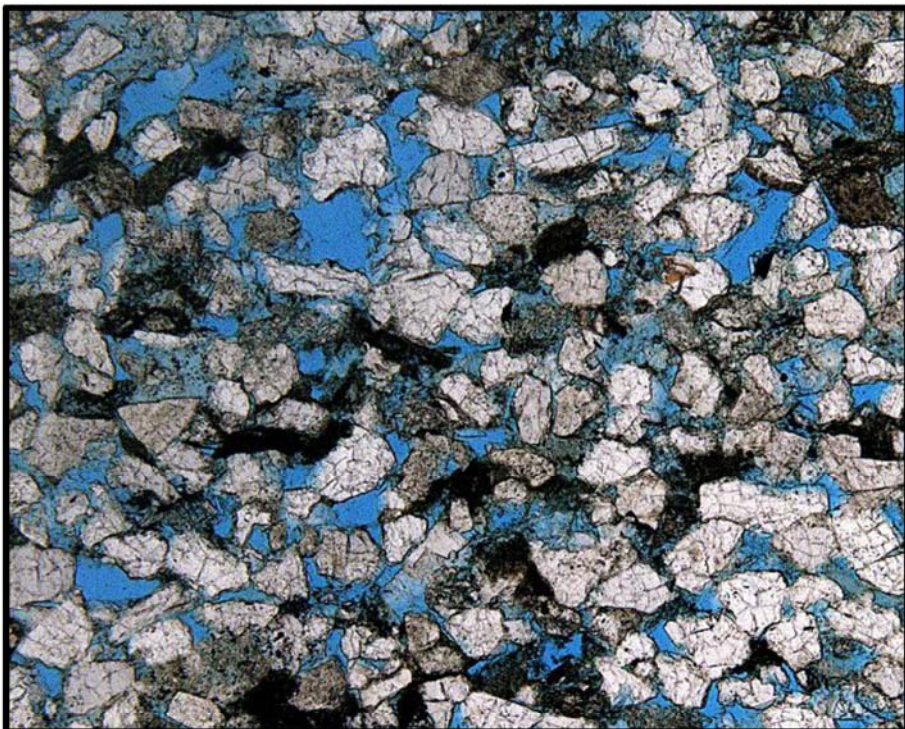
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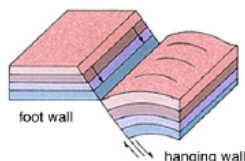
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**Joe R. Klutts**

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***Focus on Coastal Protection***

**April 16th 2014**

## ***Eighth Annual Louisiana Groundwater & Water Resources Symposia***



***Focus on Salt Water Intrusion***

**April 17th 2014**

**Dalton Woods Auditorium, Energy Coast & Envir. Building  
Louisiana State University, Baton Rouge, Louisiana**

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**Presentation:  
Titles due March 10, 2014  
Abstracts due April 1, 2014**



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## **Finding a Level Sea?**

The geologic strata on our planet record innumerable oscillations in sea level through time. The magnitude and scale of these events are reflected in continental geomorphology. This is not simply a scientist's perspective. Biblical creationists must also account for the "gatherings of water and ground" and Noah's flood from Genesis. Evolutionists and creationists may disagree on everything else scientific, and likewise, everything sacred. But everyone can agree there is little precedent in science or Holy Scripture for a belief wherein sea level remains constant beyond the span of a few hundreds or thousands of years.

So, our circumstance is sea level rising or sea level falling. It is a ridiculous position that we expect sea level to remain constant. No matter the cause, sea level never stays at any level very long. "Sea level" as a permanent datum is actually a silly notion.

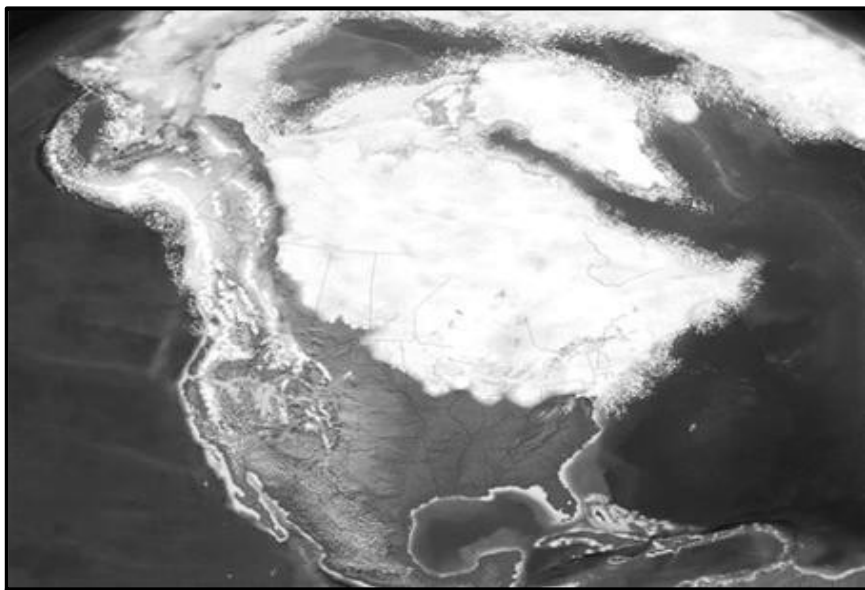
## **Getting a Bigger Tank.**

Now, let's consider the guppies multiplying in my fish tank for a moment. I have always heard that a fish tank can support 1 inch of fish- es for every gallon of tank. Using that reasoning, my 20 gallon tank should support 20 inches of guppies, nose-to-tail. That'd be about 40 adult fish. To sustain a population above that, I-d need a bigger tank.

When I was recently in New York City, I showed my family the glacially striated outcrops in Central Park. I pointed out to my elderly aunt that there was, but just a few thousand years ago, hundreds of feet of glacial ice covering New York – a polar ice cap extensive across the North American continent and terminating in the northern tier of the United States. Today 1.6 million people live on Manhattan Island. Could that number of people have been living there 12,000 years ago on top of that ice? Could there be a New York City? Toronto? Chicago? That would seem impossible with all that ice at those locations!

## **Global Warming Causes People.**

Yes, the idea is that simple. Global warming has given us a bigger tank or, in our case, more land mass to work with. With the reduction of the area of the northern polar ice cap we end up with more land mass in climatic bands that are advantageous to the proliferation of *Homo sapiens*. Growing wheat in the northern plain states and Canada would have been impossible when the ground was frozen-solid year around or under a mile of ice. The migration of the temperate climate bands northward over centuries have opened up arable lands for important food crops and livestock. In step, man has perfected agriculture and livestock production. The inverted wedge-shape and the distribution of the largest landmasses in the Northern Hemisphere have increased the



*A Summer Day in North America 12,000 Years Ago. Where is New York? Chicago? Washington? Nebraska? (Source: <http://www.nature.com/news/evidence-found-for-planet-cooling-asteroid-1.13661>)*

potential areas for cultivation and habitation. Bottom line: more land, better climate to sustain more people.

### **Let's Cool Things Down.**

I am old enough to remember how everyone reacted when we experienced the North American cold snap in the 1970's. To save us from cooling climate change, scientists have proposed spreading coal dust on the polar ice caps to help melt the ice and warm the Earth. Are we smart enough to meddle with the key factors that hold Earth within the narrow envelope of habitability? Tampering with the earth's climatic controls is like my guppies trying to manipulate the temperature of their tank. They have contributed to conditions, yes, but they have little control and even less understanding of their "climate."

But what if we woke up tomorrow and the sea reversed its rise? I think we've already established that there is no precedent for a stable sea level. It's either going up or going down. So, what are the implications of a *falling* sea level, a cooling climate, and growing ice caps? What happens when fresh water gets pulled from the atmosphere to build glaciers and polar ice caps – remembering too that cool air carries less rain-making moisture? What happens to ocean ports and coastlines and reefs? How could a cooling trend be stopped?

When things cool down, what happens to the northern plains as the breadbasket of the world? What's going to happen with less bread? Or

with less land to cultivate or inhabit? What if I took 20% of the water from my fish tank? Or fed my fish with 20% less food? I'll tell you what would happen – fewer guppies.

## **Who Benefits?**

I am reminded of an account in Martin Dugard's great book, *The Last Voyage of Columbus*, of how shipwrecked Christopher Columbus manipulated the natives of Jamaica into giving his crew food by telling them that he, Columbus, would have his god blot out the moon as their punishment for neglecting their guests. You see, Columbus was an experienced astronomer and he was quite familiar with the upcoming predicted eclipse of the moon. Having demonstrated the consequences of their sins at the height of the eclipse, the chiefs swore their continued allegiance to Columbus and began delivering food that night. To show his god's power and grace, the moon was restored.

When I speak with regular folks, many students and friends, about heady and interesting things such as sea level variations and the history of the earth, it comes as a surprise to the non-scientific that the sea is more characteristically rising or falling rather than remaining constant. With a little patient explanation, it is easy to convince them that sea level variation is the norm and the rise we're experiencing has been occurring for millennia. Sea level today is nowhere near its historical maximum. Sadly, the study of earth science is often neglected in our high schools. It would thus seem that an absence of basic scientific knowledge amongst our general population serves its nefarious purposes.

Could it be that commonplace ignorance of relevant earth history serves those who might manipulate others into paying tributes based in fear? Just like Columbus, could I profit or become powerful by convincing the natives that they have caused a natural calamity that is, in fact, simply a natural phenomenon? Are there people doing that today?

## **Conclusions.**

1) Before any meaningful discussions and suggestions of remedies for our present state of accelerated warming, we must consider the longer view of history. The crucible of human existence, planet Earth, is delicately balanced in orbit, chemistry, and energy (and geologic history) which results in a complex system called "climate." Tampering with any key element of our condition may jeopardize the narrow envelope of our existence. Some might argue that human release of CO<sub>2</sub> in the last 150 years is tampering with the system. Others might say that we should recognize the brevity of our perspective, as we are the guppies in the tank or as the comedian George Carlin said, "fleas" on the "dog."

2) Our misguided "solutions" might have unintended and woeful consequences. Some solutions may even be proposed simply to exploit the situation to enrich and empower the few. Every suggested fix has





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some climatic, social, economic, and environmental impact. Remember that exploitation of power and control is a pretty big part of our human nature.

3) Without global warming, fewer of us would have been born (my friends, my wife, and my children) if the climate had not warmed over these last 12,000 years or if this warming cycle had ended early. I didn't get to pick when I was born. But I am glad I was born and lived in an age when the climate is warming. You and I are products of this age – of this longstanding process. I feel fortunate and blessed to be alive in this time – to see, to learn, to love, to think, to drive my car.

4) Global warming causes people. Without global warming these many centuries, I believe the few humans might all still be huddled in their cave, gnawing mammoth bones, wondering why they have to walk everywhere, and grunting about why Uncle Ned has such a prominent brow.

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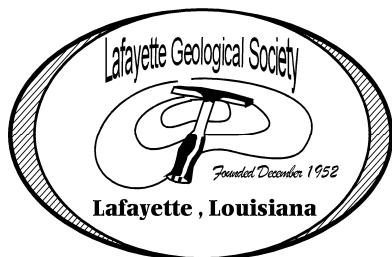
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