

## **Understanding Katrina**

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### **Optimizing the Human Response to Natural Evil**

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I wish to address a question raised by two of the slides presented earlier in this conference, from the point of view of a biologist teaching evolution here.

The very first slide of the conference showed that at 48 hr before landfall, the prediction of where Katrina would hit was good enough to assure New Orleans disaster-response teams – and they did exist – that they should mobilize to evacuate anyone protected by a levee. The second slide was from the Sarewitz study, showing an enormously strong signal: a rise in costliness of hurricane damage over decades, not linked to global warming, nor to any other environmental shift whether cyclic or secular, but to the decision to put human lives and human valuables in the paths of hurricanes.

The question these slides raise is, simply put, why do people act so poorly when confronted with the Natural Evil of such a disaster as Katrina, whether by denial as in the case of the paralytic response to forecasts of the time and place of landfall, or by actual self-destructive acts, as in the thousands of decisions to put valuable in a hurricane's path? I am not a psychiatrist, nor a sage of any religion, but only a biologist with a religious commitment of my own, so I will give you my answer in just those terms.

I believe these acts of denial began and were supported by prior acts of denial on a much larger scale: we are a nation built on certain facts of bad behavior – slavery comes to mind – and we have not yet come to terms with those facts. That is, we have acquired a national habit of denial. Certain facts of life as understood by science – the ones that begin with Darwin's hypotheses and build through confirmations emerging from molecular biology, medicine and ecology – directly challenge our country to confront the absurdities of racism that clutter our collective memory. In a response rich in the same denial that emerged during Katrina, these facts themselves are denied by many of our fellow-citizens.

That, I believe, is why our country is currently embroiled in a shocking debate on whether or not certain facts of nature uncovered by science are too terrible to be taught to our schoolchildren. In this context, we may begin to understand the link between what we saw on CNN, and the larger meaning of the emergent notion of “Intelligent Design.” Religious thought has two terms that must be brought into play here, for us to see what we are facing: theodicy and eschatology. Theodicy refers to matters that seem to challenge the notion of a God that is at once all-powerful, all-knowing, and all-good.

Students of theodicy distinguish between challenges of this sort that arise from our own avoidable actions – think Auschwitz – and challenges that emerge unbidden and unchosen from nature – think of the suffering victims of the tsunami, or of the city of New Orleans so like the city of Nineveh after Katrina broke her dikes, or of any sick child. Of these two kinds of evil, the challenges from nature are by far the most difficult for us to fathom, as they are the ones we cannot control by making the right choices. Human evil made an evacuation plan that had no place in it for people too poor or sick to drive out of the city on their own, before Natural evil overspilled the levees of New Orleans.

Eschatology deals with matters of endings, in particular with the implications of the notion that this world may end but that if it does, it will not be the end of us. “Intelligent Design,” by arguing for the evidence of God in this world, seems to have little to say about eschatology. But on reflection it is probably of interest to most people precisely as an expression of a particular eschatology, in which the theodicy problem above is reduced in importance by the notion that all suffering in this world – though it might well be part of God’s design – is but a preamble for a world to come, in which a totally new Intelligent Design will provide all the solace, peace, and love of which nature seems so severely depleted.

Well, we can run but I do not think we can hide. Here’s an excerpt from Robert Frost’s poem, *the Times Table*:

“A sigh for ever so many a breath,  
And for ever so many a sigh a death.  
That's what I always tell my wife  
Is the multiplication table of life.”  
The saying may be ever so true;  
But it's just the kind of a thing that you  
Nor I, nor nobody else may say,  
Unless our purpose is doing harm,  
and then I know of no better way  
To close a road, abandon a farm,

Reduce the births of the human race,  
And bring back nature in people's place.”

The absence of purpose, the impossibility of perfection and the centrality of individual mortality – the “multiplication table of life” we find in Darwin’s fully confirmed model of Natural Selection – I will call the *Natural Design* of life. This Natural Design is the way things are. All that remains to acknowledge it and act accordingly, and that is actually not such a small thing: there is nothing in this Natural Design that prevents us from choosing to act in ways that ameliorate its punitive consequences. Rather, Natural Design gives us all our common humanity, and with it, our natural and absolute dependence upon the goodness of others for the entirety of our mortal lives. But, as we saw in the response to Katrina, we cannot begin to know how to choose to act in good and helpful ways, let alone to take proper actions, until we acknowledge the reality of Natural Design.

This is why as an article of faith, “intelligent design” is truly powerful, and deeply troubling. As science, it is meaningless: nothing in nature supports it; nothing in nature demands it; nothing we can do will either prove or disprove it. But as a belief, it distracts us all from acts that we – as individuals but more important as families, faiths, nations and even as a species – can perform in this world, to diminish the catastrophic consequences of natural disasters and human cruelties.

The problem with accepting this as a reason sufficient to demand our actions, is that our inevitable mortality lies at its very heart no matter how we choose to act, a fact of exquisite painfulness. One way to avoid the pain is to deny the fact; “intelligent design” is neither meaningful as science nor helpful as religion, but it is an effective way of putting off the task of thinking through the reality that we must act, even though we and every other living thing we live among, have all emerged through a process built entirely the certainty of eventual death at every level, from cells, to individuals, to populations, to species, including our own.

We must stop trying to escape the burden of theodicy by reducing God’s purposes to ones we can easily understand. We can then look again at Natural Design, with neither fear nor false certainty about matters we cannot know. Here is what we find.

Go back only a few hundred generations or so, and people — our species — really are one family. Though people tend to aggregate into groups of majority and minority populations — often separated by religion — by the data of our genomes we are all members of genetic minorities that range in size for

the millions of a founder population, to the dozens of an immediate family, to the irreducible minority of one which is at the heart and soul of medicine.

Genetic differences among us nevertheless do account for many differences between one person and another. From any one person to another, unrelated one, the chances are that there will be more than one difference in any gene studied, as unrelated genomes differ by as much as one letter in a thousand. We cannot imagine a text with that many variations from copy to copy having in any sense one canonical version. Similarly there can be no biological data to support the racist notion of oneself as a member of a genetically privileged group.

Despite these DNA differences, the six billion different human genomes are all in principle capable of coming together with each other through sperm and egg to make another generation of people. The biology of us makes us truly all equal. More to the point, the history of our species' DNA tells us that we are all the descendants of Africans. The evidence for this comes from many quarters, but DNA evidence is most interesting: because Africa is the first home of us all, people who are the least dispersed descendants of the original people – today's Africans – have the greatest genetic diversity of all human subpopulations.

The rest of us are, in a sense, tribal offshoots, each the product of a migration that carrying away only a fraction of the genetic richness of our species, which still remains where it began, in Africa. The irony of universal African patrimony only makes the core American racism more stupid, though not less dangerous, than any other dehumanization: only some of us are African-Americans, but all of us are American-Africans.

In our country today, racism has always been, and remains, an all-too-common behavior, and the choice to steer clear of it, is a good example of the sort of Act that makes one a full human being. The failure to properly evacuate and care for the beleaguered citizens of the Gulf coast was only lastly a failure of government efficiency. It was initially the predictable outcome of decades of persistent racism, the intentional dehumanization of the population of that area whose ancestors had come from Africa most recently as slaves, at the hands of others whose African ancestors had first stopped over in Europe some tens of thousands of years earlier.

Our country's courts have a phrase over their doors that precisely captures our freedom to choose to do good within the biological realities of Natural Design: "Equal Justice Under Law." Lately, and only after a shocking stretch of total paralysis while New Orleans drowned, we are promised a return to Big government, a veritable New Deal, to repair and reconstitute this area of our country. How will we be certain that we do not at the same time choose to reconstitute these biologically bankrupt racial presumptions?

The latest news is not auspicious. Writing this talk while at my schoolhouse in Vermont a few days ago, I turned to my local newspaper – the Barre-Montpelier Times Argus – for the following single headline:

*Bush: Whatever it takes  
New taxes ruled out for Gulf Coast rebuilding*

The poor elsewhere now are slated to lose the government benefits they have depended upon, benefit programs that now must necessarily be cut to pay for the recovery. The rich are now slated to keep their most recent tax cuts. None of us with any means at all will be asked to help the government in its charitable work by the payment of any extra taxes dedicated to the task. The recent dramatic rise in petroleum product prices will not be converted to a tax on excess profits, to pay for any of this. This is not Equal justice Under Law, it is Natural Design unmodulated by kindness of any sort. It is the governmental equivalent of Nature Red in Tooth and Claw.

In his 1987 novel “*A child in time*,” Ian McEwan says of a senior civil servant,

“The art of bad government was to sever the line between public policy and intimate feeling, the instinct for what is right.”

At a time when the line seems quite completely severed in our country if not the world, we must try to understand, and teach how to correct, this scandal of neglect and denial that embarrasses our sciences and trivializes our faiths.

This requires a novel form of pedagogy, in which one does not teach to relieve ignorance, but rather to provide a means for someone to admit a fact they already knew, but found too disturbing to confront. At the Columbia Center for the Study of Science and Religion we have been pleased to find that when we have taught the facts of science to clergy, we have witnessed a transformation: understanding of the data of science enables clergy to put to rest common fears of the process of modern science.

We hope to build upon this initial success to create a permanent program to provide clergy with powerful tools to keep alive embodied religious and scientific obligations to preserve a just and functional natural order. You are all welcome to join us.