

## STATE OF THE ART

*A SURVEY OF TECHNOLOGY AND SOCIETY, BY THE EDITORS*

---

<b>The Lessons of Katrina</b> <i>Natural Horrors and Modern Technology</i>	115
<b>Relaunching NASA</b> <i>Back to the Moon by 2018—Or Sooner</i>	118
<b>Bush-League Science</b> <i>Are Republicans Conducting a “War on Science”?</i>	122
<b>Cicely Saunders, RIP</b> <i>Remembering the Founder of the Hospice Movement</i>	126
<b>Hollywood’s Fertile Imagination</b> <i>Baby-Making Goes Primetime</i>	128
<b>Chief Justice at the Bedside</b> <i>John Roberts and the End of Life</i>	129

---

### *The Lessons of Katrina*

Natural Horrors and Modern Technology

**H**urricane Katrina, which devastated the Gulf Coast and led to the flooding of New Orleans, was a natural disaster made worse by human failings: mismanagement, misreporting, and missed opportunities. The hurricane and its aftermath have disrupted millions of lives and displaced hundreds of thousands of families; they have transfixed the nation’s attention and transformed the national political conversation; they will have profound economic consequences; they will have implications for national, state, and local government; and they have already affected the international perception of America.

Several important technological aspects of the Katrina story deserve consideration. All the facts about the disaster have not yet come to light; as we go to press, the recovery is well

underway and numerous investigations have begun, seeking to establish timelines, separate truth from rumor, and learn lessons for the future. But sufficient information is already available to allow us to form some preliminary conclusions and make some common-sense recommendations.

- Katrina underscores the need for ordinary citizens to better prepare for disaster. In normal circumstances, it is easy to forget how dependent we are on complex technologies to serve our most basic needs. When electricity and gasoline and clean water are unavailable, everyday life can quickly fall apart. Families and individuals should be encouraged to develop emergency evacuation and communication plans, and to stockpile the basic supplies sufficient to meet personal needs for an emergency of several days’ iso-

lation—radios, batteries, water, food, and so forth. Government authorities, of course, must prepare to care for citizens who cannot care for themselves, and it seems that in New Orleans, excellent advance planning was undermined by insufficient physical preparation and faulty execution. But citizens have a responsibility to prepare themselves to survive disaster, because government *will* fail to meet everyone's needs in an emergency.

- The immediate response to the events in the Gulf also serve to remind us of the need to improve emergency communications systems. Especially troubling were the communications breakdowns among first responders. Some of these problems clearly should have been anticipated and rectified: More than a month before Katrina, in June 2005, a terrorism drill in the New Orleans area revealed critical problems with the emergency communications system in the city and its neighboring parishes. It is true that no communications system can have perfect resiliency, and in the confusing chaos of an unfolding catastrophe, there will always be technical problems. But local governments should make it a priority to test and upgrade their communications systems—both checking their equipment and improving the training of personnel responsible for keeping emergency communications working.

This is not just a nation-wide problem, it is a *national* problem, and the federal government has a responsibility. A major focus of the 9-11 Commission's final report was the communications

difficulties among emergency responders during the terrorist attacks of 2001. The commission recommended that Congress move to increase the "assignment of radio spectrum for public safety purposes." As of this writing, both houses of Congress are considering versions of bills to follow that recommendation, although all the versions delay the spectrum handover for many months—in some cases, until 2009. Congress should advance the handover date and move quickly to pass the legislation.

- The flooding of New Orleans was not a problem of inadequate foresight. Over the course of many years, numerous reports from government agencies and news organizations predicted the flooding of New Orleans in the wake of a powerful hurricane. But various projects to protect the city from flooding were downsized, delayed, and underfunded. This reveals something already familiar to any student of politics: given conflicting priorities and limited resources, politicians generally will not invest money in forestalling disasters deemed unlikely or not imminent. If a crisis is not near at hand, our political system responds sluggishly, or not at all. While this tendency might appear to save taxpayer dollars, in fact, all it does is free up Congress to spend money on non-essential projects (like the pork in the recent transportation bill). Crises have a way of focusing the mind and concentrating the attention, however, and hopefully in the wake of Katrina our leaders will put a new priority on protecting our critical

infrastructure against terrorist attacks and natural disasters.

- Broadcast media played an important role in alerting the residents of the Gulf Coast of the impending hurricane and its potential consequences. And during the height of the emergency, the media were essential to keeping the nation informed of the events in the region. This was a significant public service, and it may have saved lives.

At the same time, much of the coverage of Katrina and its aftermath was grossly wrong. Many unsubstantiated rumors which have since been proven utterly false were taken at face value and reported for all the world to hear—stories of piled corpses, ten thousand dead, shootings, rapes, and murders. This reporting was outrageous and disgraceful. It could have cost lives by causing government officials and aid organizations to delay sending their personnel into areas erroneously considered too dangerous. What's more, inaccurate reporting and knee-jerk opinionating gave a misleading sense of the federal response and led to distorted impressions of racism. This inflicted great harm on the already none-too-high international opinion of the United States, as the whole world watched American reporters confuse falsehood with fact for days on end.

There is also a much deeper problem here, too. Television can pack an emotional wallop, in a way that the printed word cannot. Footage of devastation and interviews with hungry, thirsty, angry, lonely, sad, displaced

people in New Orleans had an undeniable emotional impact. But while the emotions are genuine, the media's unremitting feeding on those emotions is profoundly unhealthy for the body politic. Emotional images can distort truth and distract from what really matters. It is clear that television coverage of disasters can be both a blessing and a curse.

- The Internet, meanwhile, performed admirably during the disaster. While bloggers don't have the platform available to broadcast media, they did provide useful information before, during, and after the crisis—although much of it was, of course, unavailable to the people left powerless by the storm. Countless websites made it easy for people elsewhere in America (and around the world) to make charitable donations to relief organizations like the Red Cross. Aid efforts—including some spontaneously formed online—were organized and mobilized over the Internet. Several websites hosted registries of missing or unaccounted-for individuals, allowing families paralyzed by separation to regroup and make decisions about what to do next. And while the false reports from the major media were frequently repeated online, it is worth noting that the blogosphere's native skepticism has meant that much of the impetus for checking facts and correcting the record has come from bloggers.

- Hurricane Katrina (and its weaker successor, Rita) exposed the fragility of the American energy sector. Not only is the United States

too dependent on foreign sources of energy, but it is too dependent upon oil and gas from the Gulf region. And while increased exploitation of oil resources elsewhere in the country will help diversify America's oil supply, America's refinery capacity is woefully inadequate. There are only 149 oil refineries in the United States, and no new ones have been built since the early 1970s. All these refineries have to run at full capacity to keep up with the nation's energy demands, leaving essentially no room for error. A disturbance like Katrina—which temporarily shut down a significant number of refineries—can have a tremendous effect on gas prices, and by extension, on the entire economy. Tapping into the nation's strategic oil reserves can help to stabilize prices, but the best way to prevent a crippling emergency would be to build more refineries—a move that would also lower gasoline prices. To that end, the burdensome load of state and federal regulations making it difficult to build new refineries should be lightened.

It is worth noting that other critically important sectors are also operating always on the brink, with very little

margin for error. Disruptions to supplies of food and medicine, for instance, are not unimaginable, even in a world of advanced networking and high-tech logistics. The need for increased redundancy and resiliency in these sectors should be investigated and, wherever necessary, measures should be taken to avert disastrous shortages.

- Finally, on a related note, Katrina is yet another reminder of how much the real world matters. In an age of movies where anything is possible, it is bracing to remember that some things are not. In an age of instant online shopping, it is good to remember that some tasks take time. In an age when television can take us anywhere, it is useful to be reminded how much roads, rails, and bridges matter. In an age of fantasy novels, it is important to remember that the laws of physics still apply. In an age when comic book heroes can save the world, it is valuable to be shown that real leaders sometimes fail. And in an age when our increasing power over the natural world sometimes leads us down utopian paths, it is humbling to be reminded of the terrible natural forces we cannot control.