ReVista

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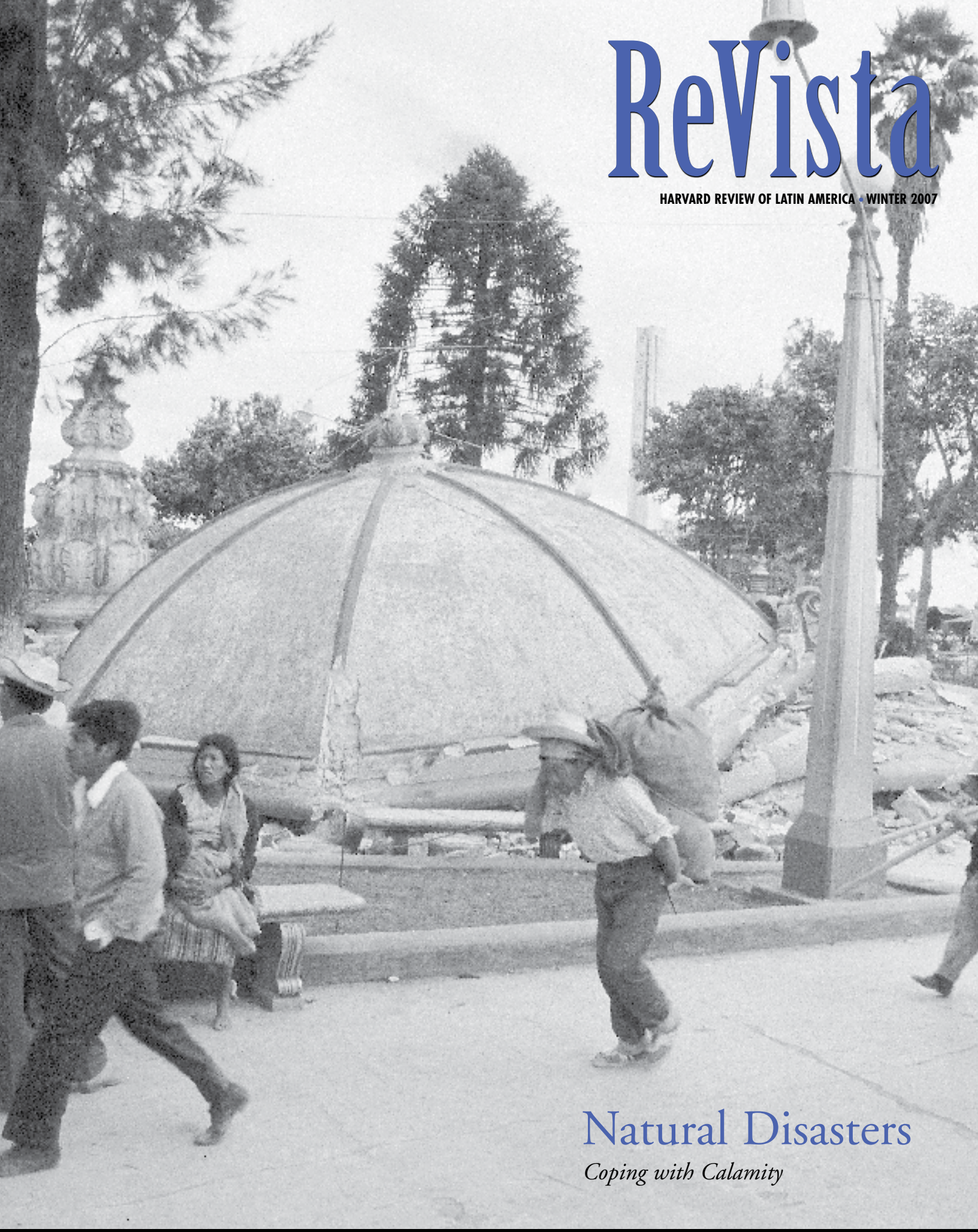

Natural Disasters

Coping with Calamity

DAVID ROCKEFELLER CENTER FOR LATIN AMERICAN STUDIES, HARVARD UNIVERSITY

EDITOR'S LETTER

My very first reporting trip to Latin America was to cover the aftermath of a natural disaster. Hurricane Fifi had smashed into Honduras in the fall of 1974, and my neighbor Angela Acosta Wagner had mobilized our community in Lakeland, Florida, to collect clothes and toys for her home community of Olanchito.

As the only Spanish-speaking reporter on *The Lakeland Ledger*, I was assigned to accompany her on a pre-Christmas journey to the small rural town nestled in a valley among the Honduran mountains. I soon discovered that Acosta-Wagner wanted me on the trip not only to report back to the donating community, but also to avoid government bureaucracy and possible corruption. When officials in the Tegucigalpa airport discovered that she had a foreign reporter in tow, their somewhat belligerent attitude rapidly changed. The donations swept through customs.

A year later during a recession in the newspaper industry, I took a voluntary layoff to travel around Latin America for a year. I started back in Olanchito, where I had met townspeople, and was told that the town had actually improved post-hurricane because of community organization and effective use of international donations for reconstruction. A neighborhood called "Sal Si Puedes"—Get Out If You Can—had been entirely rebuilt. It was now called "La Esperanza"—Hope.

In Guatemala, on the next leg of my journey, I met a young man named Rudy. He had the most incredible brown eyes and winning smile. He loved books and music, and tried to convince me that we should go beyond kisses. When I wouldn't, he told me that he had cancer and who knows if he would be alive if we waited? I wasn't yet 30, but I decided to trust my instincts and just travel on. In 1976, a devastating earthquake destroyed much of Guatemala City. I never found out what happened to Rudy. Much later, writing my book *Disappeared*, about a courageous Guatemalan reporter, I found out that the earthquake that took 24,000 lives had also stimulated citizens to band together to rebuild the country. Disaster had sown the seeds for a strong civil society.

The impact of natural disasters became an informal leit motif of my 1975 journey. In Managua, I toured a suffocating depressed city without a center; rubble from an earthquake three years earlier still formed a gaping scar that cut through what used to be downtown. Dictator Anastasio Somoza had squandered international relief money for his own benefit. People were angry, but they were also afraid to talk; one could almost feel the smoldering violence in the oppressive tropical air; the Nicaraguan earthquake exposed the fault lines of the repressive system and led to the Sandinista Revolution.

My experience with natural disasters has shown me that they are catalysts. They provoke social reform or foster corruption. They inspire poems like Chilean Pablo Neruda's *Maremoto* (Seaquake) and paintings like Colombian Fernando Botero's *Terremoto en Popayan* (Popayan Earthquake). Scientists investigate disasters and try to anticipate them; psychologists try to understand the trauma they cause. For a short vulnerable moment, the rich can understand what it means to be poor. Disasters mobilize communities, as well as international aid and transnational efforts like Acosta Wagner's long ago toy and clothes drive. Civil society often works together to make a difference.

That is why in this *ReVista* issue on natural disasters, it is appropriate that we begin a new feature, "Making a Difference." As DRCLAS Director Merilee Grindle so eloquently states in her letter introducing the feature (p. 69), we at Harvard and beyond must work together "to turn ideas into realities that make a difference."

ReVista

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DRCLAS: Merilee S. Grindle, *Director*

EDITORIAL STAFF: June Carolyn Erlick, *Editor-in-Chief* • Anita Safran, Maria Regan, *Publications Team*
Frankie Chen, *Chief Editorial Assistant* • Kelly McMurray/2communiqué, *Design* • P & R Publications, *Printer*
1730 Cambridge Street Cambridge, MA 02138 *Telephone:* (617) 495–3366 *Facsimile:* (617) 496–2802
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READER FORUM: <jerlick@fas.harvard.edu>
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On the cover: Coping with the 1976 earthquake in Chimaltenango, Guatemala

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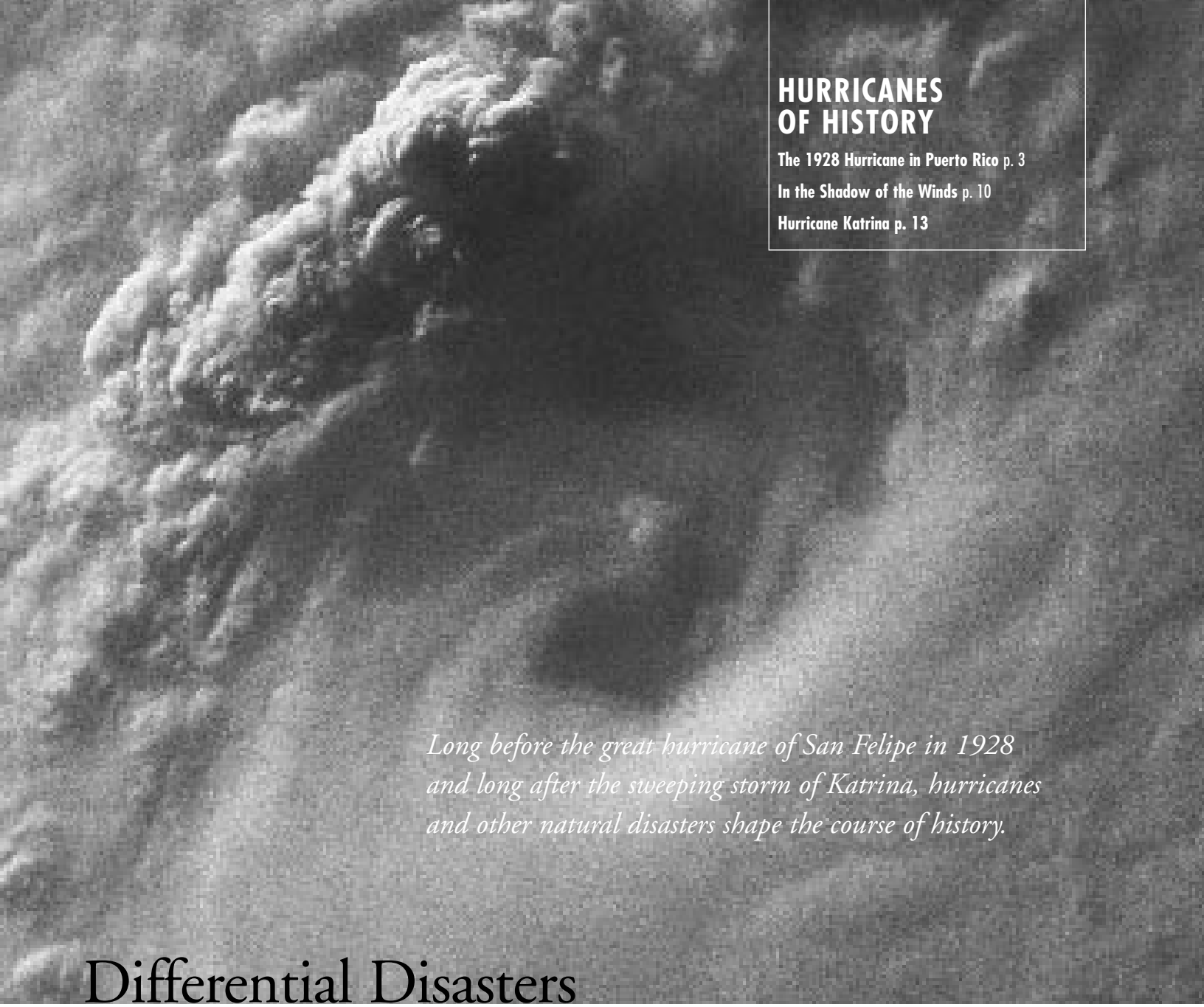
<WWW.JOEG.COM>
E-MAIL:<JOEGPHOTO1@MINDSPRING.COM>



HURRICANES OF HISTORY

The 1928 Hurricane in Puerto Rico p. 3

In the Shadow of the Winds p. 10

Hurricane Katrina p. 13

Long before the great hurricane of San Felipe in 1928 and long after the sweeping storm of Katrina, hurricanes and other natural disasters shape the course of history.

Differential Disasters

The 1928 Hurricane and the Shaping of the Circum-Caribbean Region

BY STUART B. SCHWARTZ

Temporal, temporal, allá viene el temporal.
¿Que será de mi Borinken, cuando llegue el temporal?
(Hurricane, hurricane, here comes the storm)
(What will become of my Puerto Rico when the hurricane arrives?)

Every Puerto Rican knows this plena and can sing its chorus, and on that island where from July to October everyone frequently checks the weather reports and looks to the sky, the song seems to describe a generic situation, a way of life, and a common reality. Few people today remember that the song was originally composed to commemorate a particular storm: the great hurricane of San Felipe that traversed Puerto Rico on September 13, 1928.

Hurricanes are no novelty to the islanders, but the fury of that one was memorable. No one who lived through the howling winds and the terror of a sky filled with the flying zinc roofs of the demolished houses forgot it. Winds reached 150 miles per hour, the strongest ever recorded on the island. Property damage was in the millions, and more than 300 people officially (but perhaps as many as 1,500 in reality) lost their lives as a direct result of the storm, the number, in fact, kept relatively low because of the lessons learned and precautions taken after the hurricane of 1899 (San Ciriaco) that had killed more than 3,000 islanders. In the 1928 storm, the island's coffee crop was almost lost in its entirety, and thereafter Puerto Rico never regained its position as a coffee exporter. The island had been devastated.

But the great storm was not done. It had already run its deadly course, respecting no cultural or political frontiers. Hurricanes

PHOTOGRAPH BY GETTY

never do. Before it crossed Puerto Rico, the storm had battered the British West Indian island of Dominica and French-speaking Guadeloupe and then had followed a northwest track ripping into the Virgin Islands and leaving devastation and death in its wake. Now, after traversing Puerto Rico, it headed northward passing over the Bahamas and then slammed into West Palm Beach on September 16, 1928. Then it moved west and north, skirting the glades and passing over Lake Okeechobee, where thousands of Bahamian migrant laborers brought in to work the new fields perished in the rising waters and bursting dikes. It then turned northward to New England. The impact of the storm, and even what kind of "natural disaster" it was, had differed according to the social and political arrangements that had preexisted it and those that followed it. The storm brought, or had created, challenges and opportunities, but these had varied along its path.

Empires, nations, and people in the Circum-Caribbean have created historical realities and cultural differences that have served as the basic markers for understanding and interpreting the region. However, the San Felipe storm, like others of its type, demonstrated an underlying environmental unity that also provides a central thread or means to understand a Caribbean region too often viewed in terms of its insularity and cultural differences. The storms marked the importance of region in a historiography of places. As much as slavery, race, immigration or imperialism, the hurricanes have defined the region. The same storm produces a differential impact on the societies that it crosses, and within those societies, its effects are suffered differentially by different groups and interests. Recently, Hurricane Katrina has made that all too clear. It is by looking both comparatively across imperial and national frontiers and internally across social and ethnic boundaries that the impact of the hurricanes is best understood. The 1928 San Felipe hurricane can serve as an example of the commonly shared threat of natural disaster and the differential effects caused by the social, cultural, economic and political contexts of the storms.

Like Katrina, the 1928 San Felipe hurricane can serve as an example of the commonly shared threat of natural disasters and the differential effects caused by the social, cultural, economic and political contexts of the storms.

HURRICANES IN HISTORY

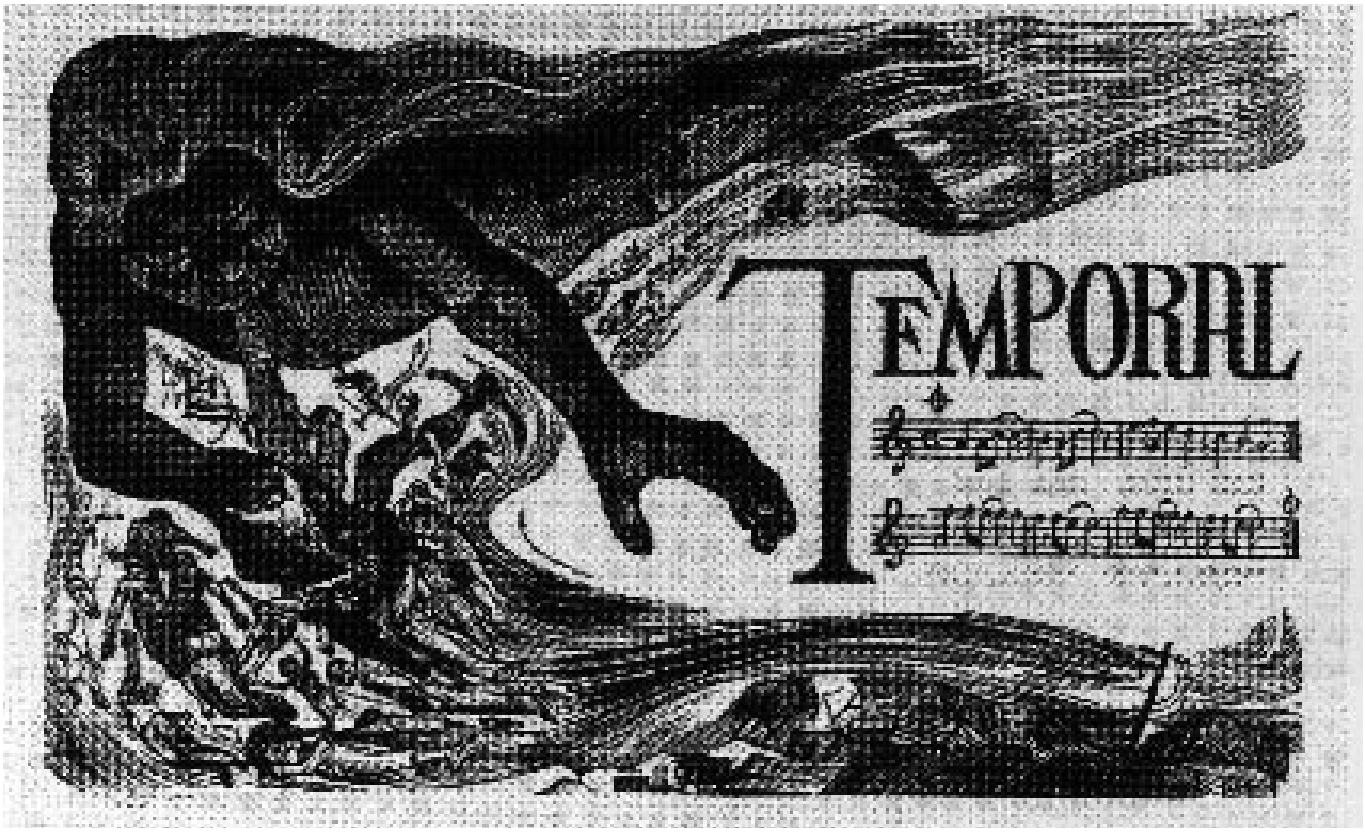
Hurricanes present a variety of opportunities for historians. They are natural phenomena, but they are not necessarily natural disasters, for only when a storm encounters dense concentrations of people or property does it become a catastrophe. The location of populations, the development of beachfront homes and hotels, the failure to impose proper building codes: all have contributed to increasing the destructiveness of the Caribbean storms. We confront a seeming anomaly. Despite technological and scientific advances in prediction, the destructive effects of natural disasters have increased considerably since 1960. The average annual mortality due to disasters increased from 23,000 per year to 143,000 between the 1960s and 1970s, but property damage has increased even more. But property values aside, the Southeast Asian Tsunami of 2004 and the New Orleans hurricane of 2005 underline the fact that in human terms, by far the worst sufferers of the effects of "climatic" disasters have been poor people and poor countries. In the contemporary world, "natural disasters" like hurricanes have been socially selective, and they have probably been so in the past as well.

Historians of the hurricanes need to ask how natural disasters shape politics and social relations, and how political and social structures create the contexts for the impact of those phenomena. How did explanations for and understandings of the storms reflect changing conceptualizations of God, Nature, Science, and human abilities? Then too, there is yet another level of analysis that awaits attention. What has been the long-term cumulative effect of repeated natural disasters on the region? To what extent have the storms contributed to the regional problems of growth or development? Such issues have never been calculated or estimated the way in which economist Eric Jones sought to do in his attempt to explain Europe's economic advantage over Asia by making comparative environmental conditions and their cumulative effects part of a larger economic history of regional development. The Caribbean might lend itself particularly well to such an analysis although information is spotty and the formula for calculation will be extremely complex.

The writing of the history of hurricanes—like that of much environmental history—begins with a problem. For all their power and destructive potential, the history of the hurricanes is, because of their frequency, almost inherently boring. Unlike volcanoes or earthquakes, the great storms are somewhat dependable. Almost every year some island or coast is inundated or devastated. While for individual islands or cities or stretches of shoreline, hurricanes may be spaced decades apart, in a regional sense, the phenomenon is repetitious and the results expected.

The scenes of destruction are all too common and all too similar: shattered homes and shattered lives, boats piled up on the beaches or carried far inland, destruction in all directions, and later on, scenes of relief and aid amidst a backdrop of ruin. The individual stories may be poignant, but their repetition is numbing. Accounts seem to vary only in the level of destruction, the amount of loss, or the level of the force of the winds. If the story to be told is only that of the storms themselves, then the repetitiveness is inherent. The variations from one storm to the next may be interesting from a meteorological perspective, but have less significance from a historical one.

Moreover, as acts of nature or the handiwork of God, the hurricanes are beyond human control and are therefore outside of history, which explains why they have been ignored as a theme in themselves. Storms are the classic deus ex machina that we as historians and social scientists are admonished to avoid like the plague. But, at the same time, because of their ubiquity and regularity, we can also fall into the opposite error of seeing them as the explanation of everything. Almost every event, battle, revolt, revolution or election in the Caribbean region has been preceded by one or several hurricanes. To find the balance between explaining too much and too little in the history of the hurricanes is a tricky business at



This engraving Temporal (1953-55) was made especially by Puerto Rican artist Rafael Tufiño to commemorate the 1928 storm.

best. From the time of Columbus, hurricanes shaped the patterns of settlement in the Caribbean and the structures of maritime commerce. Their effects challenged governments to respond, and those that failed revealed their weakness and lost their legitimacy. Revolts and upheavals have sometimes followed the storms. The storms determined or contributed to the outcome of individual military engagements and imperial struggles as well as the competition for markets. The hurricanes caused populations to rethink the role of God and Nature in human affairs and to seek in the technology of communications and prediction ways to answer the threat. And above all, the hurricanes and their effects have served as prisms through which societies can be seen.

THE CONTEXTS OF DISASTER: THE 1928 HURRICANE

The 1928 San Felipe or Okeechobee hurricane is a particularly interesting example because the storm's differential impact in Florida and Puerto Rico allows us to see the ways in which local conditions contextualized the same natural threat. Leadership in both societies had a vision of an ideal future and were willing to use the disaster as a tool to implement that vision. By 1928, the American National Red Cross was functioning, and its reports and efforts in both Florida and Puerto Rico provided considerable information on the impact and nature of reconstruction.

In Puerto Rico, immediate mortality was relatively low, but the San Felipe storm left about a third of the population of 1.5 million homeless. Most of the $40 million in property loss had been to privately-owned properties. There were those in the political class of the island who saw recovery as an opportunity to restructure society by creating a countryside populated with industrious small farmers living in neat cottages, the realization of the old rural myth of the hardy *jíbaro*. Natalio Bayonet Díaz, ex-member of the House of Representatives, urged the governor to call on Puerto Ricans to shoulder the burden of recovery and not depend on foreign aid. He warned that rural-to-urban migration had to be prevented at all costs, and that only children and women either tending families or unable to work should be able to receive free food. Over 40,000 homes had to be rebuilt to house about 250,000 rural people left homeless by the storm, but that task also offered reform opportunities. Bayonet Díaz argued that building new, orderly residences would be a necessary improvement, "solving once and for all the problem of hygienic dwelling for our laboring men, and causing to disappear from the countryside the wretched sight of the hut (*bohío*) which is a stigma upon our civilization." But one could not give the poor and destitute something for nothing. The rebuilding was to be done under the supervision of the relief agencies and municipal committees by the country people themselves, who were paid for their labor, 10 percent in cash and 90 percent in food rations.

This kind of social engineering also emerged in a plan for relief developed by the sugar growers and supported by Guillermo Esteves, the Commissioner for Puerto Rico. The plan divided the affected population into three categories; small owners, the urban working poor, and the *arrimados*, those working on the big coffee estates who themselves could be divided into two groups, those who lived by cultivating a small plot and those who lived in small barracks as employees without any land. Esteves sought to convince the Red Cross that social divisions or categories within the population had to be treated differently and that "the good qualities of the Puerto Rican small farmer recognized by all" should be stimulated.

TUFIÑO ENGRAVING PHOTOGRAPHED BY AMIR SEÑERIZ LONGO
COURTESY OF PRINARDI ART GALLERY HTTP://WWW.PRINARDI.COM

This engraving Huracán (Hurricane) was made by Puerto Rican artist Rafael Tufiño in 1971.

The small proprietors were of "good moral character" and could be trusted to rebuild and improve their land and did not need to be supervised. In contrast, other groups had to be treated more cautiously. Above all, he opposed moving arrimados from the coffee farms to small towns. Instead, he advocated the building of houses and the distribution of small plots to the workers, but only after the haciendas had recovered and work was available. If work were rushed, the Red Cross would be forced to bear the burden. Esteves claimed "these arrimados love the land they till and they are the seed from which future farmers will sprout." But his admiration had limitations. Since the resources of the landowners had to be used in replanting their lands, funds should be given to the landowners who could provide the rural laborers with shelter and work. It was a plan that responded to the specificities of the island's society, but that once again placed authority and resources in the hands of the predominant planter class since only they could provide for the island's future.

In Florida too there was a desire to rebuild for the future. The power of the storm had not been shared equally. Bahamian and other West Indian workers at Belle Glade and other small communities near Lake Okeechobee had borne the brunt of the storm. In the racially differentiated world of 1920s Florida it was to be expected that in the effort to relieve and rebuild, differences of color played a role as well. Attention went to property losses in Delray and Palm Beach, not to the unnamed bodies swept away by the waters or burned in communal pyres. The Red Cross, in fact, created a Colored Advisory Committee that had among its tasks the refutation of "rumors" about aid not being apportioned

equally among blacks and whites. There were problems. The poor had lost homes that were heavily mortgaged and faced foreclosure. If the Red Cross reconstructed them, it argued, the lenders rather than the homeless would profit. So, such homes were not rebuilt. There were complaints. The Red Cross became defensive in the face of Black criticism. In its final report, it argued: "The Committee, knowing that its people are receiving their full pro-rata of relief, cannot but be embarrassed when ungrounded complaints are aired by chronic kickers."

Such unpleasantness did not stop progress. South Florida was committed to ordered growth and agricultural and urban development. The storm would not be allowed to undermine its trajectory. In March 1929, before the Director of the Red Cross left Florida, the West Palm Beach Chamber of Commerce arranged for him to fly over the area. From the air he saw, as the Red Cross reported, "Cities, towns and villages had been set in order; cleared streets were lined with replanted parkings; agricultural lands were drained and covered with a most luxuriant growth of vegetation that seemed to have sprung up almost overnight; fields were again separated by ribbon-like drainage and irrigation canals; the whole countryside was dotted with reconstructed homes, the new unpainted lumber glittering brightly in the morning sun." The storm had not been allowed to alter the road to progress.

What we witnessed with the response to Katrina is really a part of an old and continuing story that can provide an understanding of the Caribbean and a prism through which societies can view themselves.

In both Puerto Rico and Florida, the storm had been a disaster, made so by actions and decisions that long preceded the arrival of the winds. In both places, responses took place within a social and ideological context that patterned them. What we witnessed with the response to Katrina is really part of an old and continuing story that can provide a pathway to understanding the history of the whole Caribbean region and a prism through which societies can view themselves.

Stuart B. Schwartz *is the George Burton Adams Professor of History at Yale University. A longer version of this essay was presented as the keynote address at "Winds of Change: Environmental, Political, Social, and Cultural Forces in the Shaping of the Atlantic World," the Third Biennial Allen Morris Conference on the History of Florida and the Atlantic World (Tallahassee, February, 2004). That was published as "Hurricanes and the Shaping of Caribbean Societies," Florida Historical Quarterly, 83:4 (2005), 381-409.*

ABOUT HURRICANES AND OTHER VICISSITUDES

T'was the night before the hurricane and out came the *pasteles* (Puerto Rican tamales), along with batteries, candles, radios, matches and canned goods. This may sound like a strange way to prepare for an emergency, but for my family, saving grandma's pasteles was a priority. Since electricity is usually the first thing to go during a hurricane, the meal before the storm was terrific. Frozen delicacies had to be hastily cooked, or else, they would go bad. Perhaps, because of this, I recall hurricanes rather fondly.

During my formative years in the1970s and 80s, the National Weather Service Forecast Office reported that twelve hurricanes or storms swept through Puerto Rico. Most were moderate, except for Hurricane David (1979), which razed the Dominican Republic, and Hurricane Hugo (1989), which went on to devastate South Carolina. Despite the floods, the disease and devastation that sometimes followed, my memories of hurricanes are surprisingly ordinary. I vividly recall the howling sound of the wind and the sight of tree branches and street signs flying down the street. But I also recall our pet chihuahua, Chico, who ran off with a gang of stray dogs during a storm never to return.

I think of the mango tree outside my bedroom that was practically uprooted by Hurricane David. My family worked hard to rescue that tree. We propped it up with wooden studs and rope, but it was never the same. It survived and continued to grow at about a 45 degree angle, but the mangos became bitter and susceptible to disease. I also remember the races to collect water in the days preceding a storm. That seemed a bit ironic given the amount of rain that typically fell. I remember collecting water in the bathtub and every other container I could get my hands on. Puerto Rico may be an island surrounded by water, but water is a chronic problem and a source of national anxiety.

People are also awfully resourceful in the face of adversity. They hustle to survive. My father was particularly adept at this. During a storm, he could always locate an ice-making machine at a nearby hotel or office building. Even without a working refrigerator, he could offer a cold beer in the sweltering heat. He also knew how to get fresh water, either from a mountain spring off some dirt road or from the desalinization plant at the local military base. Hurricanes, my friends, require talent and cunning.

While most Puerto Rican homes are built of concrete, it is not unusual to have wooden sheds or garages covered with corrugated aluminum planks. Thus, plenty of sharp metal planks fly around during every hurricane, as expected and seen on the Weather Channel. But there are also pasteles, lost pets, injured mango trees and precious ice-making machines. You may not find these images in the news, but they keep hurricanes very much alive in me.

Neida M. Jiménez *is Assistant Director of Academic and Development Coordination, Alumni Affairs and Development, Harvard University. She can be reached at neida_jimenez@harvard.edu.*

1976 EARTHQUAKE IN GUATEMALA

In the early morning hours of February 4, 1976, an earthquake that registered 7.5 on the Richter scale ripped through Guatemala. The quake left 23,000 dead, affected almost five million people, and caused damages in excess of one billion dollars. Over a million people—nearly one-sixth of the nation's population—were left homeless. The quake centered on a fault line that cuts a latitudinal path through the country's midsection. As the U.S. Geological Survey terms it, Guatemala is "earthquake country," but the 1976 quake was the most destructive to hit the nation in nearly sixty years.

The earthquake was felt over a 38,000 square mile area. Transportation channels often follow the fault valley, which runs from just north of the capital city to the eastern coast. Miles of railroad tracks and asphalt were twisted and crumbled by the quake or buried by landslides. Food and water sources were severely limited and electricity and communication were cut off in many regions. A series of powerful aftershocks, including one that registered 6.0 in magnitude, added to the destruction and loss of life.

Like hurricanes, earthquakes and other natural disasters change the course of history and often have the most severe impact on the poorest inhabitants.

Cities and towns throughout the central highlands endured immense devastation. Several municipalities in the department of Chimaltenango were completely leveled. Antigua Guatemala, the former colonial capital known today for its spectacular architecture, also suffered the quake's effects. Landmarks such as the Palacio de los capitanes generales—the seat of Spanish government for nearly two centuries—were heavily damaged.

The earthquake had the most severe impact on Guatemala's poorest inhabitants. Guatemala City residents who could afford to do so had constructed homes and offices that could withstand the region's frequent rumbles. Many of the urban poor, on the other hand, were left homeless, or worse, buried beneath the rubble. Rapid urbanization had created a severe housing deficit in the capital city. Squatter settlements had sprung up on mountainsides around the city's perimeter. These adobe houses, perched uneasily on rocky inclines, offered no protection from the quake or the fires that engulfed much of the city in its aftermath. Many settlements were entirely destroyed.

—Kedron Thomas

PHOTOGRAPHS BY JOE GUERRIERO <WWW.JOEG.COM>

Left: devastation in Antigua, Guatemala; above top: riot police after earthquake in Popayan, Colombia, above bottom: Antigua, Guatemala

In the Shadow of the Winds

Rethinking the Meaning of Hurricanes

LOUIS A. PÉREZ, JR.

THE COMPARISONS WERE INESCAPABLE IN THE AFTERMATH OF Katrina. New Orleans as the Third World: displacement and destitution, internal migration and "refugees," hunger and homelessness. That most of the people overtaken by these circumstances were conspicuously men, women, and children of color—and poor—served to make the comparisons all the more compelling. New Orleans in the wake of Katrina was profoundly reminiscent of the Caribbean condition.

The winds and the waves of the great storms bear down particularly hard on the poor of the Caribbean, whether they be men or women, white or black, young or old, the mass of humanity concentrated in the cities or the poor who toil in the countryside. For the displaced and the destitute, hardship only begets more hardship in the wake of a great storm. Families living close to or at the threshold of adversity have a far shorter distance to fall to succumb to indigence. They inhabit fragile dwellings, constructed with the simplest of building materials, often in the most vulnerable locations, and rarely possess sufficient resources for recovery. Living on the edge of penury, they may find themselves suddenly hurled over that edge by the winds and waves of a great storm.

Hurricanes haunt the Caribbean like a spectral menace. It has always been thus, and nowhere more so than in Cuba. Stretching 750 miles in length, the long axis of the island lies east and west parallel along the middle latitudes of the Western Hemisphere, extending lengthwise across the paths most frequently traversed by hurricanes exiting the Caribbean into the Gulf of Mexico and up the Atlantic. That Cuba was among the first nations to offer New Orleans assistance after Katrina was a gesture of support and sympathy borne of first-hand experience.

Almost everyone in Cuba has a memory of a hurricane—at least one—and always, it seems, one in particular: that initial encounter with terror, often at an impressionable age. But then, too, hurricanes have a way of making an impression at any age. No passage of time seems to dim the memory of the experience or its effects: it is something that people remember clearly and recall frequently. The experience often persists thereafter as the reference point by which people make those profoundly personal distinctions about their lives as "before" and "after." The experience makes for the memory of a lifetime. In time, it passes into history. With enough time, it becomes the stuff of folklore.

MALIGNANT FORCES OF AWESOME INTENSITY

The word *huracán* appears to have entered the Spanish vernacular from indigenous usage. The Taíno Indians used *huracán* to mean malignant forces which took the form of winds of awesome intensity and destructive power; winds that blew from all four corners of the earth. The word was found in a variety of derivative forms, including *hunrakán*, *yuracán*, *yerucán*, and *yorocán*, among others, and appeared in use among the pre-Columbian peoples of Mexico, Central America, and the north coast of South America. All forms signified the name of a malevolent god, possessing the capacity to inflict immense destruction. Among the Maya, *hurakán* was the name of one of the most powerful gods who, together with *cabrakán* (earthquake) and *chirakán* (volcano), constituted the three most powerful natural forces.

Poor families suffer the most in natural disasters.

In the course of time, the phenomenon of the hurricane insinuated itself into the larger circumstances of the Cuban condition as a variable in the formation of nation. The idea of the hurricane insinuated itself deeply into Cuban sensibilities. The use of the words *huracán* and *ciclón* developed as a popular standard of measure of shared cultural experiences: the encodings by which the temperament of a people was revealed. Usage drew upon an imagery that implied scale and scope and evoked the vastness of the force. In his 1906 analysis of Cuban character, for example, writer M. Márquez Sterling condemned national intellectual traditions as "corrupted by a current of falsehood that makes us at times feel the anticipated sensation of an impending hurricane."

PHOTOGRAPH BY LUIS WEINSTEIN <LUCHO@WEINSTEIN.CL>

Journalist Sergio Carbó despaired in 1958 over the deepening civil war, the murders and the assassinations, the torture and terror, and could only describe the national crisis as a "cyclone of vengeance and death" (*ciclón de venganza y muerte*). Writer Luis Suardíaz described the tumultuous first three decades of the Cuban revolution as "*treinta huracanados años.*"

The proposition of hurricane offered a readily accessible metaphor, means of context and comparison, often as a frame of reference for a state of mind. Its invocation implied a measure of a mood, an accessible reference point possessed of a unique cultural resonance. "A Revolution is a force more powerful than Nature," Fidel Castro would proclaim in October 1963, only days after the passing of Hurricane Flora. "Hurricanes and all those things are trivial (*son una bobería*) when compared to what a Revolution is." It is thus useful to conceive of environmental history within the framework of the national experience. In particular, it is useful to think of the ways that catastrophic storms have acted to shape Cuban socio-economic developments, thereby influencing political outcomes and shaping cultural practice. Hurricanes must be viewed as factors—sometimes decisive factors—which shape the options and outcomes to which vast numbers of people are obliged to respond and to which they are often required to reconcile themselves. Indeed, it was precisely at the conjuncture of response and reconciliation that some of the more notable facets of Cuban national development assumed definitive form. Hurricanes and their aftermaths loomed large in the sequence of events shaping social and economic developments in Cuba and were deeply implicated in the ways that the nation assumed form.

The study of hurricanes has traditionally been devoted to matters of human loss and material destruction. While these circumstances should not be minimized, it is perhaps just as important to study the ways that hurricanes have shaped strategies of economic development, influenced the organization of labor systems, and acted upon the social determinants of nationality. To study hurricanes is to obtain a new way to examine the circumstances by which people were bound together as a nation in the face of forces beyond their control—often, even beyond their capacity to conceive—in cooperative efforts of long-term recovery and the collective will to prevail.

Hurricanes must be examined in a real-life context: they occur at specific historical moments, in specific political environments, within specific economic contexts and at specific stages of technological development. Always, hurricanes provide an occasion to reveal to a people who they really are, often causing them to place in question received wisdom, or to examine anew the assumptions by which daily life is lived. Sometimes, hurricanes reveal contradictions of such magnitude as to set in motion far-reaching political change.

Hurricanes inevitably pass, of course, and life returns to normal. But rarely is "normal" the way it used to be: not immediately, often not for years to come, sometimes not ever. Circumstances of adversity have often caused social consensus and sentimental associations—so central to the emerging notion of nation—to obtain a special type of resonance. The hurricanes that inflicted recurring devastation on all parts of Cuba were experiences shared as a nation-wide phenomenon. In particular, nineteenth-century hurricanes—striking amid the larger landscape of demographic developments and political disquiet—contributed in important ways to shaping the community solidarities that cumulatively gave expression to the shared experiences of nation.

Hurricanes haunt the Caribbean like a spectral menace. They must be examined in a real-life context: they occur at specific historical moments, in specific political environments, within specific economic contexts and at specific stages of technological development.

Care for the homeless and the hungry, the displaced and the injured, was borne by friends and family. Responses to the disruptions of daily life were addressed collectively, through kinship

systems interacting within larger community networks. Certainly, those practices were already in place before the disarray occasioned by the hurricanes, but they assumed a new prominence and indeed a new purpose under the circumstances. In the process, they gave form to new contingent relationships by which communities recovered and acquired a truer sense of themselves.

A SHARED SOCIAL EXPERIENCE

In Cuba, then, the hurricane has transformed into a shared social experience, at once a source of community solidarity and the means by which shared elements of the past are forged: the hardship of adversity, to be sure, but also an occasion to celebrate collective triumph. People who previously may have had little contact with one another were thrown together in a common endeavor of survival and recovery, thereby establishing the precedents for collective action, independent of established formal organizations. Indeed, at least as important as the structural readjustments occasioned by hurricanes, and certainly as long lasting, were the social transformations concurrent with and derived from the disarray associated with the storms.

The idea of a national community in Cuba did not originate wholly out of abstract notions and sentimental attachments. Much was forged out of actual experiences, those occasions in which common experiences passed into elements of a familiar shared history: the stuff of memory of the past, as a source for the future. The observations made in another context by sociologist Russell Dynes relating to the social consequences of disasters have relevance to the Cuban experience with hurricanes. Dynes suggests that disasters contribute in important ways to the forging of community solidarities, whereby the "consequence of a disaster event . . . is in the direction of the creation of community, not its disorganization, because… a consensus on the priority of values within a community emerges; a set of norms which encourages and reinforces community members to act in an altruistic fashion develops." He adds: "For those living close together, facing a common problem may bring about the development of organization. The result of struggling with a common problem which stimulates joint action may actually result in a locality's becoming more closely knit than it was before."

These circumstances contributed to the development of behaviors and attitudes that acted to redefine and expand the realm of public responsibility and enlarge the collective stake in the community. The attending emphasis on collaborative behavior and common action assumed form in the context of the hurricane, by which hierarchies of values were arranged to meet the requirements of individual well-being and collective recovery within the larger setting of community needs. "Some people have compared disasters to a drama which grips people's imaginations," Dynes astutely observes, "heighten[ing] the sense of importance of human action, and facilitat[ing] emotion identification."

The larger implications of hurricanes in Cuba thus stand in sharp relief. The recurring and frequent experience of common hardships and shared adversity served to contribute to the memories by which the meaning of community assumed accessible form, the terms by which local triumphs and tragedies provided an all-encompassing narrative of a shared past as a source of binding affinities. This was a recurring experience, to be sure. But it was not only a matter of a common past, for it implied too a future in which all were inextricably bound. Hurricanes would surely come again, and once again the community would be threatened, thus obliging all members to join together again for the common good.

The idea of national community in Cuba did not originate wholly out of abstract notions and sentimental attachments. Much was forged out of actual experiences, these occasions in which common experiences passed into elements of a familiar shared history.

The terms by which nationality acquired definition were further ratified through the presentation of a past that celebrated the triumph of collective resolve, either as an expression of regional virtue or national valor, and sometimes both. The character of Cuba was thus extolled explicitly as a function of resilience and resolve over powerful and otherwise uncontrollable forces of nature. The process by which Cubans came to terms with the recurring hazards of their physical environment necessarily implied the need for cultural adaptation to the circumstance of adversity. If indeed it was to be the inescapable fate of Cuba to confront periodically the peril of the hurricane, it could only be through the indomitable collective purpose that the survival of the nation would be guaranteed. This has served as one source of the resolve with which a people make their way through life, both as a quotidian experience and a historical process.

Louis A. Pérez, Jr. *teaches in the Department of History at the University of North Carolina at Chapel Hill.*

MY FAVORITE METAPHOR: HURRICANES

The hurricane is my favorite metaphor for the study of both Cuba and political science. Living through hurricanes as a little boy predisposed me to study both. Hurricanes combine certainty and uncertainty, which are key concerns in the study of politics anywhere and of Cuba in particular. Hurricanes are metaphors for revolutions, election campaigns, and nearly every topic that I have studied. Hurricanes have a well-identified structure, origin and location. They have a predictable trajectory during a specified period of time. They recur. And yet, some of their most important features are known to be unknown: We do not know when and where they will hit, and their force is quite variable even during short periods of time.

Jorge I. Dominguez *is the Antonio Madero Professor of Mexican and Latin American Politics and Economics.*

Hurricane Katrina and the Re-Latinization of New Orleans

Some Theological Reflections

BY M. CHRISTIAN GREEN

One of the things that was most immediately obvious to those of us working in relief shelters in the aftermath of Hurricane Katrina was the relative absence of the color brown. Race relations in much of the South and in the city of New Orleans have long been characterized as matters of black and white. One of the most surprising statistics for those around the nation getting a sustained look at the region for perhaps the first time in the aftermath of Katrina was the strikingly low percentage of Latinos in the population.

In a course, "Understanding Katrina: Theology, Ethics, and Praxis," that I taught at Harvard Divinity school this past fall, we reflected on Latino and other experiences of the natural disaster that was Hurricane Katrina. There, we examined the diverse range of issues raised by Katrina: race, class, ethnicity, gender, health, environment, media, faith-based relief efforts, community organizing and numerous other dimensions.

We observed that within the first weeks after the storm, Latino workers flowed in from around the nation in search of employment in the clean-up and reconstruction. This was a startling change from the previous low statistics. Because of previously declining economic opportunities, only 3.1 percent of the residents of New Orleans before Katrina were Latino, compared to 2.4 percent statewide and 12.5 percent nationally. The meager percentage of Latinos in New Orleans had been an aberration in light of sustained migration from Latin America in recent years to places like Georgia, North Carolina, and Virginia and other more prosperous New South locales.

Perhaps there was a special significance in New Orleans' return to its Latin roots. The Spanish history of the region is pronounced, beginning with the exploration of the area by Spanish explorers in the region in the early 1500's and culminating in Spanish ownership of Louisiana from 1762 to 1803. The Spanish legacy remains in the architecture of what is now known as the French Quarter, particularly in impressive buildings such as the Cabildo, the seat of the Spanish colonial government located adjacent to Saint Louis Cathedral in Jackson Square.

Hurricane Katrina left a path of destruction that caused an estimated $25 billion dollars in damage.

My students and I examined questions of diaspora and place—certainly topics essential to the Latino experience in this country and in Latin America more generally. In part, these topics seemed to emerge as particularly important because, with the exception of a few students in the class from the New Orleans area, most students were wholly unfamiliar with the region and its "exotic" culture. Of course, the very criteria according to which New Orleans is exotic—warm weather, spicy food, the pronounced incarnational character of the local religion and its rituals like Carnival, or Mardi Gras—are exactly its affinities with Latin culture.

But students were also especially eager to think not only about what makes "place" and culture so central to identity, but also what it meant, particularly theologically, for so many victims of Katrina to have been displaced in what has been described as the largest internal migration in the United States since the "Dust Bowl" days of the Great Depression. The theme of diaspora has been a prominent feature of many world religions, starting in the Judeo-Christian tradition with the exodus of the Jews from Egypt. It is also seen in the syncretism of Afro-Caribbean religions and the synthesis of Roman Catholicism with local traditions in Latin America. In the Katrina class, we inquired into the social and theological meanings of place, including the question of whether attachment to place is anachronistic in our modern, globalized world, so characterized by mobility and migration. We also asked whether diaspora and the portability and mutability of identity are not, in some larger sense, characteristic of our postmodernity and globalization. Latino experience is shaped as much, if not more, than other transnational cultures by these concerns for diaspora and place. The re-Latinization of New Orleans may be yet another case study of that cultural fluidity.

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For Latinos, for the most part, it has not been an easy transition. In an front-page article written just two months after the storm, "In Louisiana, Worker Influx Causes Ill Will," *New York Times* reporter Leslie Eaton observed, "Much of the overt hostility is focused on the army of Latino workers who appear to be doing much of the dirtiest cleanup work, often in the employ of those big companies, and often for less money that local workers might insist on." Eaton and other journalists described tent cities under highways, next to cemeteries, and in supermarket parking lots in which Latino workers were living in situations not much better, and in some cases probably worse, than those of the native residents and evacuees whose homes and neighborhoods they were proposing to clean up and cart away as day-laborers for $10 an hour.

In addition to the deficient housing and pay, some Latino workers faced even grimmer scenarios. Reports began to be heard of Latino men being beaten up in the French Quarter by disgruntled mobs and even by officers of the New Orleans Police Department. The story of Juan Molina, a businessman originally from Honduras with a native Louisiana wife and status as a naturalized U.S. citizen for thirteen years drew particular attention. In October 2006, Molina alleges that he was manhandled and subjected to verbal abuse by a police deputy after stopping his truck to talk to a day-laborer whom he thought he knew while on his way out of the Lowe's hardware store where he had stopped to purchase materials to rebuild his own home. With the help of the Louisiana chapter of the American Civil Liberties Union and the New Orleans Worker Justice Coalition (NOWJC), Molina has initiated an investigation of procedures at the Jefferson Parish police department. The NOWJC has recently released a report titled "And Injustice for All: Worker's Lives in the Reconstruction of New Orleans" detailing injustices against Latino, African American, Native American, and Asian workers in the rebuilding. (See www.neworleansworkerjustice.org).

These stories of exploitation, abuse, and injustice, as tragic and unfortunate as they are, testify to a very common effect of natural disasters—the potential for dramatic demographic, social and cultural change. The influx of Latino workers to New Orleans and the Gulf Coast is the flip-side of the diaspora and dispersal of predominantly African American evacuees to points around the nation. Far from being a matter of chocolate or vanilla, as New Orleans Mayor Ray Nagin, so memorably, if controversially, put it in asserting that post-Katrina New Orleans would remain "chocolate city," some argue that we may be seeing the re-Latinization of New Orleans in a manner consistent with its Spanish past.

The new flavor of New Orleans may well be, as columnist Ruben Navarrette, Jr. put it, the golden brown, caramel color of *dulce de leche*. In an article titled, "There's More than One Color in the Rainbow," Navarrette describes New Orleans as a potential "ground-zero in the tug of war between African Americans and Hispanics" over economic opportunities. Writing in April 2006, he reports a 20 percent increase in Latino population in New Orleans, with projections of 30 percent in the near future. Navarrette ultimately debunks the specter of African American-Latino antagonism, pointing to the possibility of peaceful coexistence through a further gastronomic remark on the similarities between jambalaya and paella.

In another report on Latino life after Katrina, "¡Vaya Tormenta! In the Shadows of Katrina," writer Christopher Miles argues from his perspective on the Mississippi Gulf Coast, "In the shadows of Katrina, Latinos have become part of our cultural landscape. Yet they have always been here." Miles is speaking here of the Spanish history of the area, as well as the more recent settlement of Latinos, particularly across the South in a remarkably dispersed fashion to cities and towns of various sizes. Of the increase in Latino population in Mississippi from 1.4 to 1.5 percent in recent years Miles observes, "The state's population is found primarily in small towns and rural areas. There outsiders are much more noticeable." This paradox of shadowy invisibility in some respects and extreme vulnerability in others is a continuing challenge for Latinos along the Gulf Coast. The visibility and vulnerability from having a skin color that is neither black nor white has been cited as a factor in some of the violence and abuse that has been perpetrated against Latino workers.

Concerns about injustice led to another issue that captured the interest of my class. In an editorial on the aftermath of Katrina,

(PREVIOUS PAGE) PHOTOGRAPH BY ELYSIA BAKER

political theorist Michael Ignatieff wrote about "The Broken Contract." Much class discussion on the state of social contract, before and after Katrina, hinged on matters of race, particularly black and white. Yet Native Americans, Asian Americans, and Latinos equally demand a seat at the contract drafting table, especially in times of demographic change. What do changing demographics require in the way of redrafting the social contract? These are questions with which New Orleans and the Gulf Coast will be dealing in the years ahead.

At the theological level, our discussions initially centered on classic theological concerns of theodicy, prophecy and lamentation. How is it that natural disasters raise questions of the goodness and justice of the divine cross-culturally and across religious traditions, as suggested in religious responses to the Asian Tsunami of 2004? If we discern that human agency (environmental degradation, poor levee construction) is at fault instead of or alongside other factors, what prophetic and political call for accountability and justice is required of us? How do we find the capacity to lament and mourn our losses from natural disaster in a fast-pace modern world that urges us to seek "closure" and move on?

Toward the end of the course, our theological reflections moved more in the direction of a particular political science term that has been invoked to explain everything from the suburbanization of American residential patterns to the Red State-Blue State divide in American politics. It was named one of the most important ideas of 2006 in a *New York Times* year-end retrospective. It is also implicated in the singling out of Latino workers for abuse. This is the idea of *homophily*—what some identify as human tendency to seek out and surround ourselves with people like ourselves and to resist those who are different. As we considered the idea of homophily in the Katrina class, we wanted very much to supplant it with a theme of hospitality. Hospitality is very much a theme of the Christian Gospel message, illustrated in the many instances of hospitable receptions of Jesus in the New Testament and even toward strangers, as in the story of the Good Samaritan. It has even older roots in the Hebrew Bible in the command to take care of widows, orphans, and especially the "aliens" or vulnerable strangers among us.

The theme of hospitality with its connection to mobility and journeys and its demand that we receive and welcome the stranger seems especially resonant after Katrina—in the reception of evacuees, in the diaspora that is likely to be permanent for many, and in the call to welcome displaced residents back home, particularly those who may have a sense of never having been welcome in the first place or who now feel unwelcome as a result of the government's slow political response to the disaster. It is a crucial theme in the treatment of the new Latino population, who are contributing greatly to the rebuilding but working in conditions that are frequently unjust. The theme of hospitality seems applicable, indeed, so broadly in our world, which increasingly finds itself globally connected in ways that promise harmony and unity, but which also heighten perceptions of difference and relationships of conflict. Hospitality may be equally broadly applicable as a theological concept in circumstances of natural disaster, which, while they tend to affect some people disproportionately, particularly the poor, also call us to solidarity and relationship.

M. Christian Green *is Visiting Lecturer on Ethics at Harvard Divinity School. She is a native of New Orleans. In March 2006 she accompanied HDS faculty, staff and students on a Katrina relief trip to the Gulf Coast, and she is planning to do so again.*

THE WINDS OF JUSTICE

In the wake of Hurricane Katrina, Arsalan Suleman, a third-year Harvard Law School student from Kenner, Louisiana, was one of the 240 students from 57 law schools who traveled to hurricane-affected regions in Louisiana and Mississippi to provide legal assistance. Columbia Law School was the only school that had more students than Harvard.

"I spent part of January 2006 in New Orleans working with the People's Hurricane Relief Fund in a project assisting a group of workers camped out on Scout Island, City Park," wrote Suleman in an e-mail. "Many of the workers were Latinos from Mexico, Colombia, and other Latin American countries. Unfortunately, the conditions at the campgrounds were very poor, including deficient water supplies, nonexistent lighting, large mud puddles, and mosquitoes. The workers were paying rent to camp there, so we were working on ensuring better conditions at the camp grounds for them in addition to informing them of their labor rights.

"Quite concerning was the lack of access to legal services for the workers, as many of them were victims of contractors who disappeared without paying them. The camp ground was closed a few months after our project—I often wonder what many of them did after that, given the short supply of housing in New Orleans. Hopefully they found places to live, and in better conditions than at City Park," she asserts.

The Harvard Law School community has provided a variety of financial assistance, community service, public education, and legal aid and research. Overall, the school contributed more than $100,000 in support. In addition to monetary donations by individual sections, faculty, staff, and students, several fund-raising events were held, including a local Jazzfest to raise money for the Red Cross and for Hope Haven, a children's shelter destroyed by the hurricane.

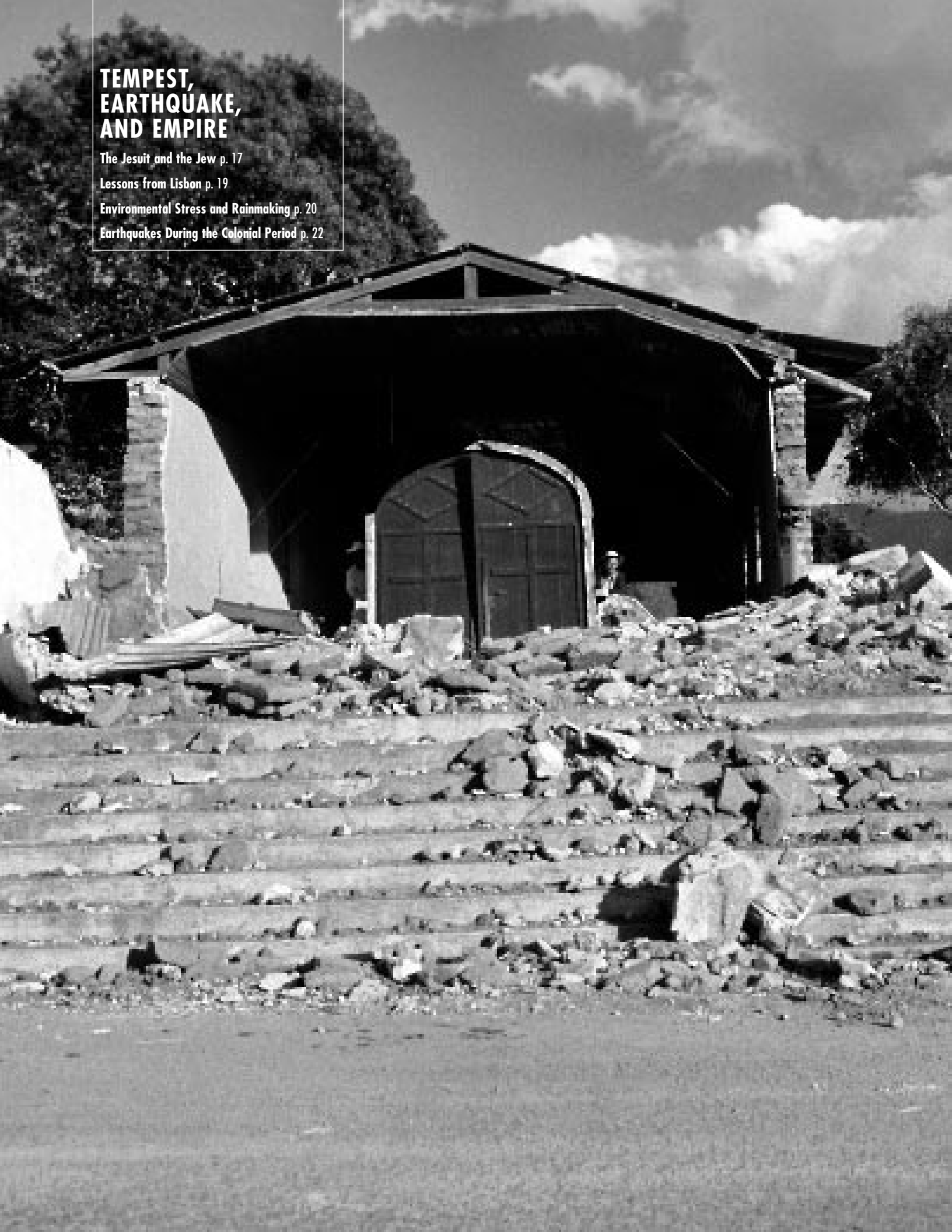
The HLS Office of Clinical and Pro Bono Programs has worked closely with the Student Hurricane Network, a national group of volunteer law students who are coordinating relief efforts <http://www.studenthurricanenetwork.org>.

Amy Chen, a Harvard Law School student, wrote in her evaluation of her winter break experience: "Highly recommended for anyone, whether or not they are generally interested in public interest or not. The magnitude of some of the legal and social issues that must be overcome are staggering, though not impossible, and I think it's the responsibility of all members of the legal community—and, frankly, Americans in general—to do what we can to help out."

—June Carolyn Erlick

TEMPEST, EARTHQUAKE, AND EMPIRE

The Jesuit and the Jew p. 17
Lessons from Lisbon p. 19
Environmental Stress and Rainmaking p. 20
Earthquakes During the Colonial Period p. 22



From the 16th to 18th centuries, science and religion contended fiercely to explain the universe. Natural disasters—violent natural events intertwined with human vulnerability—became a staging ground for the debate.

The Jesuit and the Jew

The Lisbon Earthquake in Modern Perspective

BY KENNETH MAXWELL

"Such a spectacle of terror and Amazement, as well as the Desolation to Beholders, as perhaps had not been equalled from the Foundation of the World." Thus an English merchant writing from Lisbon to a friend on November 20, 1755, described the "Late dreadful Earthquake which laid the Capital of Portugal in Ruins…" More recently, philosopher Susan Neiman has called the Lisbon earthquake the first modern disaster, "The sharp distinction between natural and moral evil which now seems self-evident was born around the Lisbon earthquake and nourished by Rousseau."

But if modern, how is it so? Portugal rarely, if ever, makes it into any general discussion of world history, and much less where "modernity" is concerned. So the debate about the Lisbon earthquake and its impact has become curiously disembodied, philosophical rather than historical, rooted in European thought rather than Portuguese documentation.

What was indeed new about the reaction to the Lisbon earthquake has not been recognized. For example, post-earthquake Portugal faced a virulent debate between those who saw the hand of God and attributed the disaster to retribution for past and present sins, and those who insisted earthquakes had natural causes.

In Portugal, the dispute over causality was exemplified on one side by the Italian-born Jesuit Gabriel Malagrida, a famous missionary to Brazil and a favorite of the Portuguese court, and on the other by António Nunes Ribeiro Sanches, a Paris-based Portuguese philosopher of Jewish ancestry. Portugal's all-powerful first minister, Sebastião José de Carvalho e Mello (1699-1782), better known to history as the Marquês de Pombal, had published Ribeiro Sanches' book on public health and, in the aftermath of the Lisbon catastrophe, ordered it to be distributed to all public and religious officials. Appended to this book were Ribeiro Sanches' observations on the natural causes of earthquakes. Father Malagrida was outraged. He wrote to his friend, the German-based retired Father Ritter, the former confessor to the Queen: "Do you wish to know my crime? Read the booklet you will receive with this letter and you will know all. They criminalize me for daring to oppose this booklet and the pernicious doctrine that is propagated in this Court and City, that one should not attribute the earthquake to our sins and the anger of a God, punisher of our crimes; but instead to purely physical and natural causes. It is for this that I am accused, sentenced and condemned without being heard…"

Malagrida argued that the cause of the fires and destruction of Lisbon "…are not comets, are not stars, are not vapors or exhalations, are not phenomena, they are not natural contingencies or causes; but they are solely our intolerable sins." He continues: "I do not know how a Catholic subject dares to attribute the present calamity of this tragic earthquake to causes and natural contingencies. Do not these Catholics understand this world is not a house without an owner?"

Ribeiro Sanches, in his considerations about earthquakes, had written specifically about "the force of vapor and the exhalations of the interior of the earth." This was in fact the title of one of his chapters. It was precisely, therefore, about Ribeiro Sanches and his sponsor the Marquês de Pombal that Malagrida complained.

Pombal was not one to let such an overt challenge to his authority go unanswered. He was already engaged in an increasingly bitter dispute with the Jesuits, which eventually led to their suppression and expulsion from Portugal and its empire in 1759. Pombal personally denounced Malagrida to the Inquisition. The old Jesuit was found

1976 Guatemalan earthquake

PHOTOGRAPH BY JOE GUERRIERO E-MAIL <JOEGPHOTO1@MINDSPRING.COM>

This 1755 copper engraving shows a German portrayal of the Lisbon earthquake and the resulting tidal waves in the harbor.

guilty of "heresy" and condemned. He was to be, in fact, the last person burned in Portugal. Soon thereafter, Pombal reformed and secularized the Inquisition and abolished the designation of "New Christian," that had since 1497 been used to identify the descendents of Portuguese Jews forcibly converted to Christianity.

The Inquisition, established in Portugal in 1536, had investigated thousands of "New Christians," and those who were found "guilty" of practicing Judaism provided the human fodder for its fires. In drafting these new laws, Pombal had called on the advice of Ribeiro Sanches, a "New Christian" who had reasserted his Jewish identity in exile. It was a formidable historical irony: The Jew reforming the Inquisition, the Jesuit its last victim. Privately, Ribeiro Sanches was skeptical about what legislation could accomplish to change people's prejudices. He wrote in his diary: "But can this law extinguish from the minds of a people ideas and thoughts they have acquired from their earlier years?"

Voltaire, who remained attentive to Portugal and Pombal's activities, found the burning of Malagrida and its justification preposterous, finding it excessive in its absurdity and horror. Pombal was sufficiently concerned by the negative European reaction to publish the sentence against Malagrida and a justification for it in French.

Nevertheless, the burning of Malagrida helped to make Pombal's name notorious in Europe. Europeans did not see the modern, commercial, and resurgent Portugal that Pombal had worked so hard to create after the earthquake. Rather unfairly, it was the old image of a land of irrational superstition that was reinforced. Voltaire led the pack in *Candide*: "…the [Portuguese] sages could not think of any better way of preventing total ruin than to treat the people to a splendid auto-da-fé." He had, of course, totally missed the gruesome irony of the Malagrida's death and the dispute with Ribeiro Sanches that lay behind it: a man of faith burnt in the name of reason.

Pombal boasted in his "Most Secret Observations," written on June 6, 1775, at the time Lisbon's grand new waterfront square was inaugurated:

> "The sumptuous and well built edifices of Lisbon demonstrate the flourishing state of architecture. These things abundantly prove to foreigners that Portugal has no cause to envy them either their draughtsmen, or their painters, or their sculptors"

But he was mistaken. Very little attention was paid to the new city he had constructed. The philosophes remained more exercised by the earthquake itself than by the remarkable measures taken to deal with its consequences. And this was thanks in part to the words of Voltaire and the fate of Father Malagrida.

Kenneth Maxwell *teaches in Harvard's History Department and is director of the Brazil program at the David Rockefeller Center for Latin American Studies. He is completing a book on the Lisbon earthquake to be published by Harvard University Press.*

ARTWORK: LISBON: PÚBLICO AND FUNDAÇÃO LUSO-AMERICANA, 3 VOLS, 2005),VOL 1., P. 18.

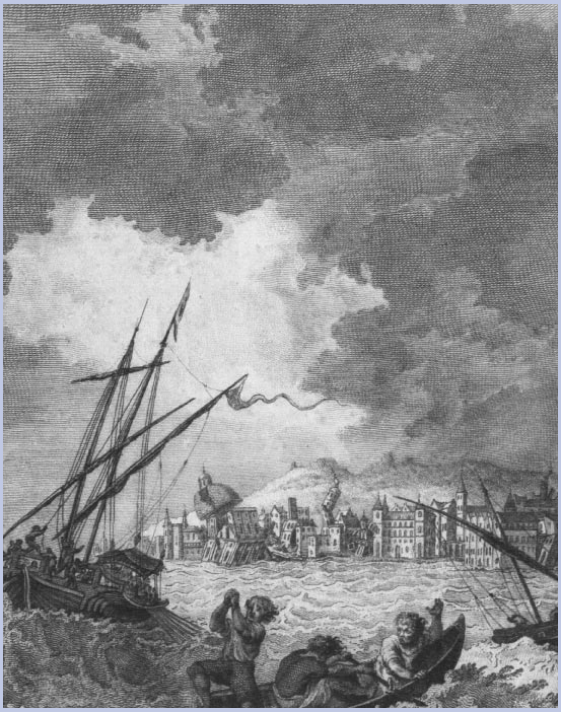
"Bury the dead and feed the living"

Lessons from Lisbon: An Opinion

BY ADAM N. KHEDOURI

"Bury the dead and feed the living." These were the words attributed to Portugal's pragmatic, all-powerful first minister, the Marquês de Pombal, as he contemplated the damage wrought by one of history's most devastating natural disasters, the earthquake that struck Lisbon on November 1, 1755. Estimated by scientists today to have been close to 9.0 on the Richter scale and followed by a tsunami, the earthquake killed thousands and leveled much of the city.

Pombal's famous order was just the first part of a comprehensive disaster-relief strategy, detailed in a 1758 book of measures he took, here called *providencias*. Though it purported to heap obsequious praise on the monarch, King José I, the *Providencias* reads more like a manual for emergency response. The true object of its praise, of course, is Pombal himself, who was responsible for implementing the strategies it outlines.



The earthquake and tidal wave depicted in a Dutch print 1755: O Grande Terramoto de Lisboa.

These eleven *providencias* are not a bad set of rules to follow after any catastrophe, and the dates of the statutes that initiated them—as well as Pombal's unmistakable signature—almost defy belief in light of the belated response to Katrina: on November 2, the day after the earthquake, Pombal ordered the disposal of dead bodies to prevent plague. Speedy distribution of food and a freeze on grain prices to prevent hunger and price-gouging were ordered on November 3. Subsequent days saw the sick and injured taken care of, inhabitants restored to their city, troops sent to maintain the peace, and measures taken to prevent thefts and punish criminals. Before the end of the week, Pombal was already making plans to rebuild the city.

Naturally, some historians contest the veracity of Pombal's lightning-quick response, wondering if the tales of daring assistance were simply invented, or at least greatly exaggerated, in order to buoy his popularity and influence in Portugal and abroad. It is difficult to believe that the occupational forebears of disgraced FEMA director Michael Brown could have acted with such haste and efficacy. But newly discovered documents at Harvard's Houghton Library confirm that Pombal's self-praise was well deserved: a mere two days after the earthquake, with large sections of Lisbon still ablaze and the royal family camped out in tents at their summer palace, Pombal was busy promulgating measures to ease the city's turmoil and provide for its reconstruction. The Houghton documents include three drafts of decrees to control grain prices, with annotations and corrections in Pombal's hand.

The example of Lisbon in 1755 contrasts sharply with the inadequate response to Katrina some two-and-a-half centuries later. Failures that sparked outrage in New Orleans—such as looting, bodies in the street, and inadequate temporary housing—all might have been dealt with quickly and effectively had a FEMA official run through the checklist provided by Pombal's *Providencias*. Not all of these rules are immediately applicable to the present day, of course, and many were aided by Pombal's ruthless and absolute exercise of power: looters were summarily hanged on street corners, while special permission was obtained from the Archbishop of Lisbon to carry decomposing corpses out to sea and dump them in the ocean without funeral rites in order to avoid an outbreak of plague. And one measure that could probably be ignored by FEMA was "collecting the nuns, who were wandering around the city, and putting them back in the cloisters."

Still, the basic strategies used by Pombal to restore order and sanitation could have been readily employed by FEMA in the aftermath of Katrina. Indeed, many who attack the agency stress the fact that it did not adhere to a simple set of rules.

Since Katrina, FEMA has heard enough criticism to last it until the next disaster. What it and other disaster-management agencies need now are constructive solutions. Pombal's *Providencias* show that effective disaster relief can be accomplished without fourteen-page responsibility flowcharts or 1400-page procedural manuals; the volume is thin enough to read on the flight to the next disaster site.

Already Americans may have difficulty recalling the thoughts of desperation and disbelief that many of us felt as we witnessed the inability of a nation equipped with all the marvels of the 21st century to cope with such a disaster. It is providential that this new documentary evidence, confirming the speed and efficacy of the response to the 1755 Lisbon earthquake, has surfaced at such an opportune moment. The current FEMA director might wish to pay some heed to this centuries-old example and tack a modern version of the *Providencias* up on the office billboard.

***Adam N. Khedouri** is a senior in Sociology at Harvard College.*

ARTWORK: LISBON: PÚBLICO AND FUNDAÇÃO LUSO-AMERICANA, 3 VOLS, 2005),VOL 1., P. 19.

Environmental Stress and Rainmaking

Cosmic Struggles in Early Colonial Times

BY KAREN ORDAHL KUPPERMAN

When Europeans first attempted to settle in North America north of the Rio Grande, their confrontations with Indian cultures were marked by cosmic struggles over environmental conditions, particularly rainfall. Christian priests and native religious leaders, however recklessly, both claimed the power to make rain, and this rivalry took on special sharpness in the extreme conditions that characterized the later sixteenth and seventeenth centuries. Recent scientific research has demonstrated that serious recurring drought plagued both northern New Spain and southeastern North America during that time. On July 17, 1588, during the worst three years of drought in eight hundred years, St. Augustine's governor Pedro Menéndez Marqués wrote home of the hardships his colonists faced: "There has been a very long drought the present year in this part of the world, particularly so in Florida, where not a grain of maize could be planted; and we were in very great distress" (printed in *The Historical Magazine*, III 1859, 275-6).

One of the questions posed most often by Indian leaders was whether the Christians might have greater ability to modify the weather through their special relationship with God. At the same time, European Christians firmly believed that American priests had powers and that they could use those powers to produce environmental effects that could harm them. Rainmaking contests offer an important perspective on the struggle between Christianity and American religions because Indians and Europeans understood these effects in the same way. If drought meant that God was angry, that anger fell on Europeans and Indians alike. And every encounter was marked by fear and hope on both sides.

In northern New Spain, Jesuits entered directly into rain contests with leading shamans in struggles of Biblical proportions. Converted Indians sometimes sought out native deities when catastrophe threatened. In one case, the pueblo of Tehueco appealed to a "sorcerer" "to bring rain in a time of great drought." Despite all his conjuration and "great promises of abundant water," the shaman failed. Rain did come when the Jesuit priest organized a procession in honor of "the true lord of the rain." Fray Andrés Pérez de Ribas compared this episode to the prophet Elijah's confrontation with the priests of Baal. Pérez de Ribas coupled his story with one from Tehueco, where "a famous sorcerer" lamented his loss of power: "I do not know what is happening. We are no longer any good at healing. After we were baptized our familiar spirits left us." [See Andrés Pérez de Ribas, *History of the Triumphs of our Holy Faith Amongst the Most Barbarous and Fierce Peoples of the New World*, ed. Daniel T. Reff (Tucson, 1999)].

Christians knew that they were playing a very dangerous game in demanding God's intervention on their behalf. Did they fear falling into the sin committed by the Israelites at Massah and Meribah? Afraid that they would not find water in the desert, "the children of Israel . . . had tempted the Lord, saying, 'Is the Lord among us, or not?'" Those who tempted God by demanding demonstrations of his power were, according to Hebrews 3:7-19, destined to join those "whose carkeises fell in the wildernes."

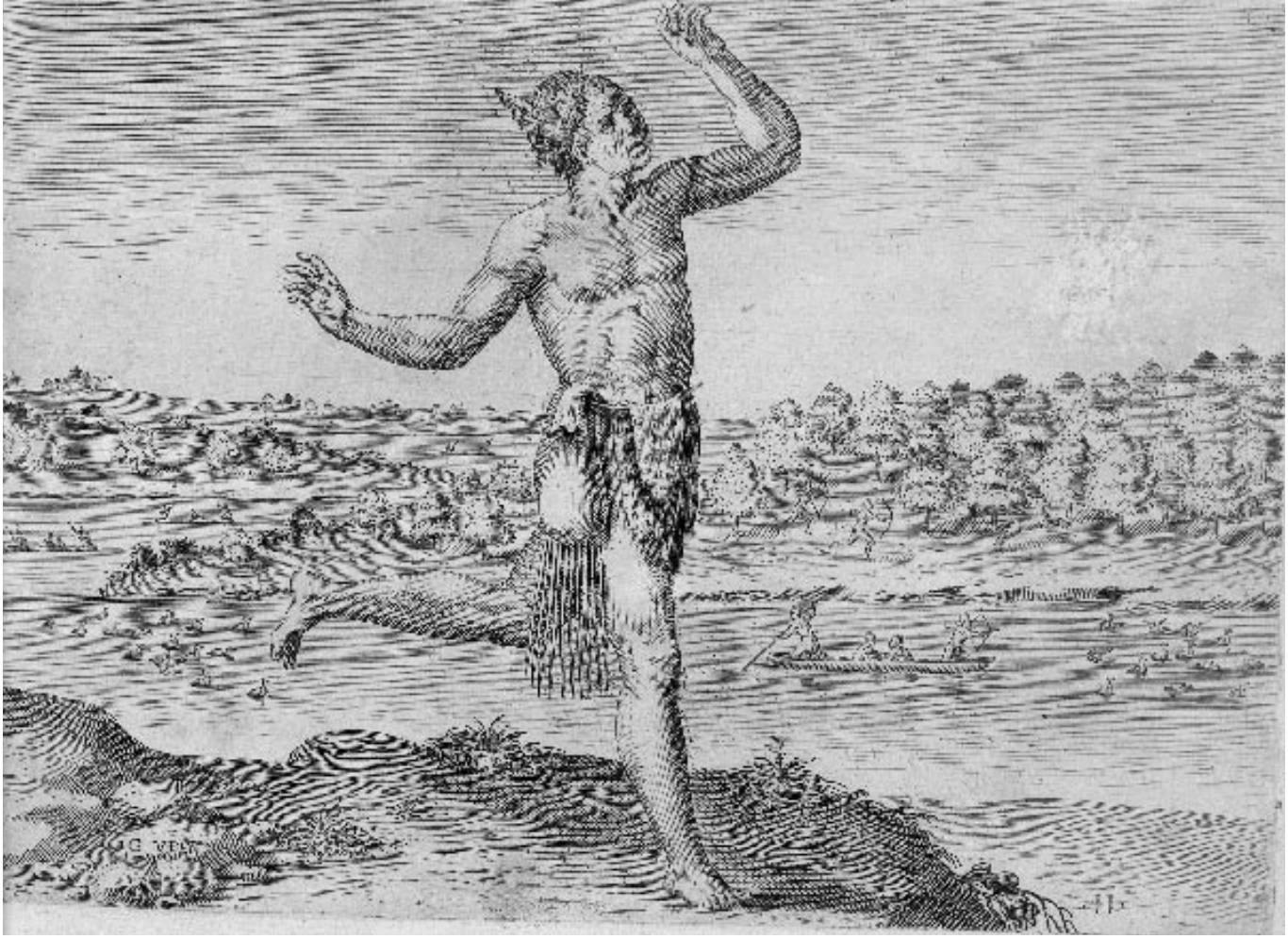
French Jesuits were as willing to make such promises as were their Spanish counterparts. In 1634 at Quebec in the midst of a multi-year famine caused by failure of the snow that facilitated their moose hunt, the Jesuits led by Paul LeJeune fed visiting Montagnais Indians as best they could with "a little feast of peas and boiled flour." While the Indians ate, the Jesuits talked to them about Christianity, and the Americans made clear what they expected of God. "As to the proposals we make to them to believe in God, one of them said to me one day, 'If we believe in your God, will it snow?' 'It will snow,' I said to him. Will the snow be hard and deep?' 'It will be.' 'Shall we find Moose?' 'You will find them.' 'Shall we kill some?' 'Yes; for as God knows all things, as he can do all things, and as he is very good, he will not fail to help you, if you have recourse to him, if you receive the Faith, and if you render him obedience.' 'Thy speech is good,' answered he, 'we will think upon what thou hast told us.' Meanwhile, they go off into the woods, and soon forget what has been said to them."

And New England's puritans also engaged in public demonstrations of their ability to call on God, the first being when the Plymouth colonists fasted and prayed for rain "in extreame Drought." The Narragansett leader Hobbomock who witnessed the prayer service "fell a wondring" at their actions on such a sunny day under a cloudless sky, "and thought that their God was not able to give Raine at such a time as that." The "poore wretch" was ultimately amazed to see clouds gathering and, as the Pilgrims ended their prayers, a "most sweet, constant, soaking showre. Hobbomock then "fell into wonderment at the power that the English had with their God." He said, "Now I see that the English-mans God is a good God, for he hath heard you, and sent you Rain, and that without Storms, and Tempests, and Thunder, which usually we have with our Rain, which breaks down our Corn . . . ." From then on favorable weather continued, giving them "a fruitful and liberal Harvest."

In a similar fashion, a cosmic drama marked the coming of Christianity in the arid Southwest. As Juan de Oñate and his men, in the vanguard of the first attempt to found Spanish settlements in New Mexico in 1598, approached the Piros pueblos, according to eyewitness Gaspar Pérez de Villagrá,

> It seemed the earth did tremble there,
> Feeling the great force of the Church
> Shaking the idols furiously,
> With horrible, impetuous violence
> And furious tempest and earthquake.

The priests began to pray and "The Lord, in pity, showed His power." The skies "turned about" and became "calm" and "serene" and the sun showed "his bright rays." It was in this "noble weather" that the Span-



'The Coniuerer' (The Conjurer) was engraved by Theodor DeBry after a painting by John White. Courtesy of the John Carter Brown Library.

ish party arrived and were welcomed at the first pueblo. Fray Alonso de Benavides later wrote that the "terrific hailstorm and tempest" was the work of the devil trying to turn back the Spanish, but he acknowledged that the Spanish were as amazed as the Indians at the sudden change in the weather When they entered the Piros houses, they saw representations of the "haughty demons" that were their adversaries, and took particular note of the "god of water." [See Gaspar Pérez de Villagrá, *Historia de la Nueva Mexico*, 1610, trans. and ed. Miguel Encinias, Alfred Rodríguez, and Joseph P. Sánchez (Albuquerque, 1992), 141-2].

Oñate's expedition moved on to the pueblo of Ohke where they encountered such "loud and fearful" lamentations that they thought "The last moment had now arrived / To the tremendous judgment, final point / of universal end for all the world." The earth, which had had no rain for a long time, was "so cracked and so burnt with thirst" that they could raise no crops; "twas for water all the people wept." The Spanish had themselves endured four days "In which we drank no drop of water" and expected death. Nevertheless, the commissary told the Indians not to weep because he would ask "their Father" in heaven "to have pity." Even though they were "disobedient children," the priests "hoped" that God would "give much water to them all" in time to save their crops. "The Indians believed" and God answered the priests' prayers for a miracle. "It was remarkable, for, while the sky was as clear as a diamond, exactly twenty-four hours after the outcry had gone up, it rained almost throughout the land so abundantly that the crops recovered in good condition."

But though they gloried in their successes, no one believed that the Indian priests had lost their powers; reports from every region blamed harmful episodes on their machinations. John Ley reported a revealing episode from one of the earliest English attempts to explore the Amazon basin. "In these partes we had most tirrible tempests of windes, raine lightninge and Thunder, One Evening I shewed my Indian a black Cloude comminge threatninge a cruell storme, And sodenlie he said 'naughtie Indian make naughtie weather', And made signes howe they did cut the throate of a man, and utter altogeather certaine wordes as he he, Chy Chy." Unfortunately Ley did not elaborate: "I am compelled to be short or els I wold write more touchinge this matter."[See John Ley's Exploration of the Lower Amazon, 1598," in Joyce Lorimer, ed., *English and Irish Settlement on the River Amazon, 1550-1646* (London, 1989) 132-6, quote 134]. Europeans everywhere reported that Indians employed the weather in their strategies. Governor Pedro Menéndez de Avilés wrote to Philip II from Florida with an urgent request for crossbows. He said the Indians attacked in the rain when they knew the Spanish arquebuses were useless.

And the association of the powerful Christian God and his followers with superior control of the natural world could be a double-edged sword. Jean de Brébeuf, cataloguing the dangers in which the Jesuits stood in New France, wrote, "And then you are responsible for the sterility or fecundity of the earth, under penalty of your life; you are the cause of droughts; if you cannot make rain, they speak of nothing less than making away with you."

***Karen O. Kupperman** is Silver Professor at New York University. She recently published* The Jamestown Project *(Belknap Press, 2007).*

Political Memory

Earthquakes during the Colonial Period

BY FRANCISCO ORTEGA

Late in 1717 Dr. Joseph Surin, precentor of the Cathedral of Old Guatemala, carried out some calculations: had the mudslide that wiped the city on the 28th of August, feast day of Saint Augustine of Hippo, constituted a sign from God? After all, 28 was the result of 13 and 15. Wasn´t God trying to tell us that the Assumption of the Virgin Mary did not take place on the 15th, as ecclesiastical authorities claimed, but on the 13th as some unorthodox theologians argued? Dr. Surin´s words should not surprise us as he had started an account of the tragedy with the following words: "He looketh upon the earth, and maketh it tremble, He troubleth the mountains, and they smoke." To him the origins of the volcanic eruption and related tremors did not constitute a mystery; their meaning did.

Noted critic and philosopher Raymond Williams claimed that "Nature is perhaps the most complex word in the language." Its complexity responds to the tight interdependency and interplay of its meanings with what he called "one of the two or three most complicated words:" culture. These two concepts have defined our understanding of the modern period, characterized as the progressive emancipation of man from nature. Modernity seeks domination of nature as the ultimate goal, and progress seeks to expel nature from the domain of history. For the most part, this formula has succeeded in convincing us that nature has faded from the horizon. That is, until it erupts violently—through earthquakes, hurricanes, volcanic eruptions, floods, droughts or plagues—and reminds us that, after all, we are but small creatures in this world.

An approach to disasters in colonial Latin America must distinguish between natural events and natural disasters. Natural events may be destructive but they only become disastrous when they take human lives and disrupt the functioning of societies. A natural disaster, therefore, is the coincidence between violent natural events (say, seismic movements or high winds), conditions of social vulnerability (such as high levels of demographic density, inadequate construction standards or corrupted bureaucracies), and a moralistic perception of human suffering. This last element should not be forgotten as disasters are as much about material destruction as they are about symbolic devastation. Collective perception changes when destroyed buildings are emblematic (i.e. the Twin Towers) or "merely" humble shacks in a small, poor and remote outpost. Similarly, understandings of the events change substantially depending upon whether violent eruptions are perceived as a whim of the gods, a signaling of the end and beginning of a new era, a random event in a meaningless world, the release of underground stress along fault lines; or simply, a terrible divine punishment. Economists, sociologists and political scientists study disasters to discern social and economic patterns, political arrangements and institutional responses. More recently, historians and cultural critics approach them to explore physical and social landscapes sealed from view (for instance, religious female cloisters) and investigate their belief and value systems.

> Earthquakes shape material and symbolic culture and forge local identities through dynamics of co-existence, response and reconstruction.

Earthquakes play a significant role in the Americas, a land where "Heaven and Earth have spoken … often […] a pleasant and unknown language which casts us into admiration and fear at the same time," as Jesuit Jerome Lalemant wrote in 1663 in Quebec. They shape material and symbolic culture and forge local identities through dynamics of co-existence, response and reconstruction. Native American lore abounds with stories about their origins and meanings. The *Huarochirí Manuscript* —a collection of Andean myths—reads:

"Regarding Pacha Cuychic, the World Shaker, this is what people said:

> When he gets angry, earth trembles.
> When he turns his face sideways it quakes.
> Lest that happens he holds his face still.
> The world would end if he ever rolled over."

Native Andeans appeased seismic rumblings through appropriate rituals and offerings. Conversely, in various Guatemalan pre-Hispanic sites, archeologists found evidence linking the disappearance of the Mayan Empire to earthquake activity. Mexican codices record earthquakes as omens of the Spanish invasion.

Early European settlers responded to such unknown language by recording, commenting and even fictionalizing earthquakes. Spanish doctor Juan de Cardenas, author of *Problemas y secretos maravillosos de las Indias* (1591), justified their frequency and intensity by appealing to the New World´s marvelous nature. Municipal authorities in Lima and Caracas discouraged the construction of high level buildings while settlers in Almalonga, former capital of Guatemala, relocated to Antigua after a mudslide in 1541, moving again after the devastations of 1717 and 1773. In 1647, Chilean Indians and slaves took advantage of the ensuing chaos to conspire for their freedom. Earthquakes even prompted the appearance of the first newspaper in Santafé de Bogotá, when Don Antonio Espinosa de los Monteros published "*Avisos del Terremoto*" in August and September of 1785.

Earth movements have similarly influenced religious life. In Mexico earthquakes adopted the names of saints; in Guatemala and Arequipa they gave rise to nuns' mystic visions; in Rio de Janeiro, Rosa Egipciaca, an African-born slave widely regarded

Terremoto en Popayan,1999, Oil on Canvas, 173 x 112 cm

PAINTING BY FERNANDO BOTERO (MEDELLIN, 1932)
COLECCIÓN BANCO DE LA REPÚBLICA DE COLOMBIA, REGISTRO 3257

This anonymous 1651 painting depicts the earthquake the previous year in Cuzco from the perspective of the Cuzco cathedral.

a saint, predicted in 1756 that the city would be destroyed, just like Lisbon the year before. Her unorthodox visions led to her arrest and trial at the Inquisition. In Cuzco the *Taytacha de los temblores* (Lord of the Earthquakes), the Andean Christ that serves as the city's patron saint, continues to lead the main procession on Holy Week Monday in remembrance of the great destruction of 1650. Every October, since 1746, Lima residents display the *Señor de los Milagros* (Lord of the Miracles) in what is one of the largest religious processions in Latin America.

Earthquakes as manifestation of the divine will bring a fundamentally different understanding of natural disasters than our secular view allows. Scientific theories explained earthquakes as caused by the gathering of air under earth and suggested preventive measures such as poking holes in the ground in order to release repressed air. Some colonial intellectuals even made fun of religious views: the Peruvian Juan del Valle y Caviedes, for instance, wrote the sonnet "*Que los temblores no son castigo de Dios*" (That Earthquakes are not Punishment from God) on the occasion of the 1687 Lima earthquake, "*que nada de castigo en sí contienen; /pues si fueran los hombres sin pecado,/ terremotos tuvieran como hoy tienen.*" ("Earthquakes are not punishment-filled; even if men were sinless, earthquakes would shake the earth as they do today.") In these accounts the word "disaster" approaches its etymological meaning (*dis astrum*, from the stars) as it refers to a sign that originates in the heavenly realm, a semiotic model already present in the Bible—"When disaster comes to a city, [says the prophet Amos to the disobedient people of Israel] has not the Lord caused it?"(Amos 3:6). Thus, the author of the vivid "Individual and Truthful Account of the Extreme Ruin Experienced by Lima in 1746" acknowledged that "Amidst the horrors with which nature has shown itself as a manifestation of Divine Justice … the sudden jolt of earthquakes, at once warning and punishment, is the most dreadful." In such view, social suffering is construed as the consequence of God's just rage against man while earthquakes are a sign of the Divine presence among humans, an anticipation of Judgment Day.

Earthquake documentation allows us to understand three essential components to a disastrous experience. These documents reveal the collective sense of disaster, that is, the perception of how divine punishment disturbed social life. They specify the nature of the moral infraction, that is, the reason the earthquake was sent by God. And, finally, they animate their audience to repent and be part of the process of turning the world back upon its feet.

> In both the cases of Lima and Caracas, existing documentation provides an accurate portrayal of elites responding to extreme social emergencies.

Collective perception of disasters often circulated in an image that synthesized social suffering by staging a world upside-down, a vivid representation of how natural

IMAGE COURTESY OF PROFESSOR THOMAS B. F. CUMMINS

violence led to social disintegration, particularly in terms of cherished basic social hierarchies. The author of the 1650 *Relación del temblor que Dios Nuestro Señor fue servido de embiar à la ciudad de Cuzco* declares that "… vino de repente un gran temblor, que todos salieron huyendo a las plaças, y calles, llenos de confusión, sin haber adonde acudir, pues ni el marido cuydava de su muger, ni la muger de sus hijos, sino cada cual procurando escapar la vida." This allusion to a domestic life turned upside down—husbands disregarding their wives and mothers their sons—is a frequent one in natural disaster narratives.

Though colonial disasters level social distinctions and overpower local conventions, social suffering is never random: it is directed against those in society distinguished by their rank and position, understood to be morally in charge of the populace. Thus, it is not surprising that the earthquake´s destructive force is best portrayed by representations in which their violence is directed against infamous authorities and notables. An illustrative example is that of Beatriz de la Cueva, conquistador Pedro de Alvarado´s widow, who in 1541 forced the local *cabildo* (municipality)to name her governor. Her arrogance, excessive ambition and disorderly conduct presumably led to an ensuing catastrophe. Several accounts show Beatriz in agony, begging for forgiveness and locked in an oratory with twelve ladies in waiting, at the mercy of an imminent and deadly mudslide.

The hermeneutical task of witnesses, informants and commentators consisted in elucidating how such extraordinary and cruel social suffering fit the preordained script for human events. Visual and written documents evince an anxious desire to discern the meaning of material destruction; smoke and ruins are but the spatial cipher of God's will. Thus, it is not surprising we find learned men debating the significance of dates, scrutinizing the wreckage, chronicling the fate of preeminent victims, and repeating, in amazement, stories of miraculous deliverances.

The examination leads to an obsessive listing of sins perpetrated by locals dwellers—homicide, the nefarious sin (homosexuality), greed, stealing, sacrilege, vanity and rebelliousness—that as a consequence led an otherwise benevolent God to exert such cruel means. These accounts reveal divine designs and instruct audiences on restoring the moral balance within the *polis* —through repentance and penitence. The overwhelming majority of these documents—from official reports, epistolary exchanges and panegyrics to sermons, novenas, admonitions, exemplary histories and eulogies—and visual artifacts (such as the painting commissioned by Don Alonso Cortés de Monroy found in Cuzco´s Cathedral) had a specific social life which animated or even accompanied collective performances. Furthermore, these actions, exemplified by the ever present massive public processions, endeavored to right the world by seeking reconciliation with God.

However, natural disasters cannot be solely understood in the context of religious drama. Once the imminent danger passes, these societies, fearful still, initiate a process of response, rebuilding and adjustments that cannot be reduced to religious language. A cogent approach to natural disasters must take into account local contexts, particularly, the struggles that defined political cultures and the variety of representations produced in the wake of the event. Allow me to discuss two such cases.

LIMA 1746

At 10:30 p.m. on October 28, 1746, a massive earthquake struck the coast of Peru with such force that it flattened Lima, damaging most of its ecclesiastic and civic constructions, and setting off a tsunami that swamped Callao. Estimates of the number of dead range up to 10,000, out of an approximate population of 60,000 in what the pref-

DESPUÉS DEL TERREMOTO: LA VIDA DE JUAN

Juan era ayudante de construcción. Vivía en Armenia, de padres antioqueños, finaditos por la violencia. La madre de sus dos hijos se llamaba Teresa. No vivían de asiento, pero la mayor parte de su dinero era para ella.

Esa cotidianidad y su magia contagiante se rompió en mil pedazos cuando rugió la tierra. Edificios, casas y ranchos fueron cayendo, llevándose consigo vidas, sueños e ilusiones. La población pobre puso la mayor cantidad de víctimas, miles de viviendas destruidas y enseres vueltos añicos. La tierra se tragó también el orgullo y la prepotencia, se le dio sepultura a la vanidad. Juan, de repente, se encontró en un mundo de igualdad donde los ricos con lágrimas en los ojos hacían fila para obtener una bolsa de agua o un mendrugo de pan. El sufrimiento y la desgracia los unió con los pobres. Hubo necesidad de aportar muertos, quedar damnificadas miles de familias para que pudiera surgir la humildad y la solidaridad. Juan de repente se volvió una persona solidaria, se dedicó todo el tiempo a auxiliar heridos y a sacar "muerticos." Luego, ante la presencia de las ONG y el FOREC, Juan reclamó siempre de forma airada sus derechos y los de su comunidad, porque notaba la existencia de una "sordera institucional". Juan entró a hacer parte de un asentamiento. Allí compartiendo con las diferentes familias, se identificó con las necesidades de todos los damnificados y empezó a organizar las comunidades. Fue tanto el tiempo que le dedicó a esta labor que por primera vez vio un norte en su vida. Atrás quedaron los tabaquitos de marihuana, las peticiones airadas, la indiferencia total y empezó a entender lo que significaba concertar.

Tomado de: Amariz, Oswaldo, "Expresiones Comunitarias: en un lugar del eje …", Zona Uno, No. 4, noviembre de 2000, p. 5. citado en Tomado del caso sobre FOREC (Noviembre 2001) preparado por Roberto Gutiérrez,Profesor Asociado de la Facultad de Administración, Universidad de los Andes y Coordinador General, Social Enterprise Knowledge Network<http://www.sekn.org>. Se puede leer el caso completo en: <http://administracionf.uniandes.edu.co/publicaciones/casos/pdf/PaperForecFinal.pdf>

A translation of this story about the life of a Colombian man who gets involved in civil society after an earthquake can be read at http://drclas.fas.harvard.edu/publications.

ace to "A True and Particular Relation …" called "one of the most dreadful, perhaps, that ever befel this Earth since the general Deluge." Archives overflow with traditional sermons and clerical admonitions, though modern scientific approaches were changing the way that disasters were perceived and responded to. From the outset, local reports indicated slaves and the plebs seized the occasion to loot and rebel and expressed concerned about their licentious behavior, a situation further aggravated by the decade-long revolt by Juan Santos Atahualpa.

The physical and symbolic reconstruction of Lima, the economic and political hub of South America, takes place in the context of a siege mentality. The morning after, the Viceroy Manso de Velasco organized several militias and sent them out to protect important buildings in Lima and the desolated port of Callao, setting up gallows in both cities to discourage any further ransacking. He requested French cosmographer Louis Godin, who went to Peru with La Condamine, to design a new, portentous fortress for Callao and Lima and he drew on Jesuit José Eusebio de Llano y Zapata, Pablo de Olavide and other notable individuals to fortify weakened constructions, re-organize the city and take other measures that would restore control and strengthen authority in the face of what they perceived to be the threat from a growing plebeian and multiracial society.

Parallel to this strengthening of royal authority, the local elite soon began to transform desolation into signs of resilience by portraying Lima as a rising Phoenix, emerging from the ashes more glorious than ever. Poets, clergy and bureaucrats tapped on a longstanding Peruvian literary tradition that poeticized such "*materia …esteril*" (sterile subject), as Pedro de Oña dubbed it in 1609. In the resulting odes, casual bards reminisce about the old city and lament the fate of beloved ones, but also pay tribute to authorities and lavish praise on the new emerging city. They are elegies that work as eulogies.

Restituting Lima to its deserving fame proved as important as rebuilding the city. The author of "Desolation of the City of Lima and Deluge of Cuzco" (1746) entreats local inhabitants to be frugal in their expenses to ensure that in twenty five years the new city will be "… more beautiful … and safer than the one we have lost." Twenty-five years after the earthquake, Felipe Colmenares Fernández published *The Desired Day* (1771), an account describing festivities accompanying the inauguration of the Nazarene Church. The splendid church was designed to host the revered image of the *Santo Cristo de los Milagros*, Lima´s patron saint and protector against earthquakes. Local elites could finally claim Lima once again had attained a preferential regard in God´s eyes. If frequent recurrence of earthquakes made Lima "the most licentious spot upon earth," as the British translator of the 1746 account remarked, the city´s resurgence and flourishing made it the most resilient and spiritually devoted.

Earthquakes as manifestation of the divine will bring a fundamentally different understanding of natural disasters than our secular view allows.

CARACAS 1812

The earthquake of Lisbon in 1755 revealed that natural disasters no longer had to be explained as a manifestation of God's paradoxical benevolence. However, the Caracas earthquake of 1812, which took place in the midst of the struggles for Spanish American Independence, demonstrated the appeal such narratives still had for a great number of people.

In 1808 Napoleon invaded Spain and forced King Ferdinand VII to resign. Most Spaniards and Americans rebelled against the French and set up a provisional Supreme Governing Junta. However, as the war in Spain worsened, American elites—including the Caracas *Cabildo* (municipality) decided to resume sovereignty in April 1810. A political rift ensued between those who remained loyal to the faltering Spanish Junta and those in favor of an autonomist position.

The next couple of years display intense political struggle as young revolutionaries rehearsed various political formulas. However, on Holy Thursday of 1812, a horrific quake rattled the region and seemed to put an end to these republican experiments. It killed more than 10,000 people out of a total population of 40,000, destroying Merida and Guaira as well. Patriot commentators wrote the earthquake sealed the fate against liberty as the city fell again to Spanish pro-Junta forces two months after devastation.

The Caracas earthquake caught the interest of few commentators. From Philadelphia, Jonathan Plummer, a self proclaimed missionary, physicist and poet, stated the earthquake was the just punishment to those patriots who read Thomas Paine´s political pamphlets. Louis Delpech, a French official stationed in Caracas, carried on ethnographic descriptions for his French newspaper, the *Journal de Paris*, by describing the extreme callousness of Spanish Americans: "I saw parents who had lost five and six children, friends who had lost all their possessions, without shedding a tear. Most were comforted by speaking to an image of the Virgin or of a favorite Saint. Others happily drowned their sorrow with rum …." Later still, Richard Longeville Vowell, a British officer in Caracas, wrote a novel in which a Native chief saved a noble young White American couple from fanatic monks who incited the mob against them for their republican beliefs.

Like Plummer, the Archbishop of Caracas, a staunch Spanish royalist, claimed the earthquake was a sure sign of God's anger. Since it happened on Holy Thursday, two years after Caracas separated from the Spanish Junta and a year later after the Venezuelan Constitutional Congress convened, the earthquake was but another Biblical recurrence of the fury unleashed on sinful cities. Venezuelans, according to the Archbishop, incurred in two major offenses: non-elite Venezuelans allowed themselves to be deceived by the young revolutionary elite while the arrogance of the latter led them to disown Spain, America´s natural mother. Only Monteverde, the Spanish officer in charge of re-conquering Caracas, could restore the tutelage of the natural mother and put an end to these "imaginary republics."

Conversely, Creole patriots insisted on the non-religious nature of the event. To them, the earthquake was both materially damaging and symbolically devastating,

This anonymous painting is a depiction of the invocation to San Emigdio during the 1772 Bogotá earthquake and can be found in Bogotá's Dominican Convent.

for it only served to be narrated as punishment from God and as an apt metaphor for the difficulties faced by young patriots in giving political form to such variegated nation. In spite of the difficulties, Bolívar proudly claimed, standing atop the wreck, that "if nature opposes us we will fight against her and force her to obey us." From the revolutionaries´ perspective, such claims demystified clerical discourse, but for many Catholics they only confirmed their arrogance and illegitimacy. Furthermore, as the utterance subordinates the natural order to a unified will, this famous allocution (repeated in 2005 by the ambassador of Venezuela to the OAS in the aftermath of Katrina's tragedy) must be understood in its double signification. On the one hand, it is an ironic response to the accusation leveled by Royalists; on the other, it reveals a clear consciousness of the task ahead: Nation-building is a historical construction requiring engagement—and often times subjugation—of those social groups (blacks, mulattoes, mestizos and Native Americans) who do not conceive themselves as being part of an independent Venezuelan Republic.

In both the cases of Lima and Caracas, existing documentation provides an accurate portrayal of elites responding to extreme social emergencies. However, in both cases, the proliferation of local elite discourse drowns subaltern perceptions of the earthquake. The actions of some Native Andeans, slaves and free blacks in the wake of these disasters highlight budding social antagonisms at the core of colonial society. Their actions speak of conflict and agony rather than self-assurance or arrogance. Dare we say that for some of them the earthquake did not bring about a disaster but an opportunity to rid themselves of degrading conditions? How do we otherwise understand the crew of blacks who rode at night into Lima few days after the earthquake spreading the rumor of a second tsunami and looting the houses deserted by their terrified white inhabitants? Furthermore, what shall we say about the enormous popularity gained by the procession of the *Señor de los Milagros* after October of 1746, particularly as one remembers that the black Christ (*Cristo moreno*) had longstanding connections to both Native Andean and black communities? Did 1812 constituted a disaster for black slaves in Venezuela or an opportunity to escape their owners, many of whom were fervent revolutionaries? And could we say their vehement opposition to the republican experiment illustrated their ignorance—as Bolivar argued—or had something to do with the news arriving from Saint Domingue, a land where republican freedom meant the destruction of the plantation system?

Francisco A. Ortega *is the director of the Center for Social Studies (CES) and Associate Professor at the History Department of the Universidad Nacional in Bogotá, Colombia. He was a Visiting Scholar and Teaching Assistant at Harvard's Department of Romance Languages and Literatures from 1995 to 1999 and one of the founders of the Colombian Colloquium at Harvard in 1997.*

IMAGE COURTESY OF PROFESSOR FRANCISCO ORTEGA

CICATRICES

Sobre mi ceja derecha tengo una cicatriz. Es producto de un accidente doméstico infantil que realmente no tuvo ninguna consecuencia grave más allá de cambiar mi rutina futbolera de domingo por la mañana. De hecho, podría haber olvidado el asunto si no fuera porque de vez en cuando el espejo me recuerda la cicatriz y algunas veces me han preguntado que fue lo que me pasó encima de la ceja derecha. Con el temblor de 1985 pasa algo parecido: no tuve ninguna pérdida directa más allá de la rutina alterada, sin embargo, es otra cicatriz que aparece cuando me enfrento a los espejos adecuados o cuando alguien me pregunta si estuve en el temblor (así a secas, pues aunque en la Ciudad de México se registran cientos de movimientos sísmicos al año, el terremoto de 1985 sigue siendo "el temblor").

Era jueves y como siempre había que prepararse para salir rumbo a la escuela. Tenía 9 años. Sólo recuerdo que estaba buscando algo en la alacena cuando las cosas se empezaron a mover solas, volteé hacia la parte superior de la alacena para descubrir que la alacena completa se movía. Eran las 7:19 de la mañana del 19 de septiembre de 1985, la primera vez que sentía un temblor, esas cosas que me habían contado que existían, que pasaban muy seguido en México, la Ciudad donde estaba creciendo, pero que en ese entonces me parecían más cuentos de adultos. Esperamos a que pasara. Cuando finalmente la tierra dejó de moverse mi madre dijo algo terriblemente profético: "Estuvo muy duro y muy largo, esto va a provocar derrumbes e incendios".

Lo que siguió fue una avalancha. A pesar de su profecía, mi madre decidió que había que ir a la escuela. Al llegar ahí la imagen era de caos: padres preocupados, compañeros llorando y mil rumores corriendo. Mi madre, mi hermana y yo regresamos a casa mucho antes de lo previsto en una ciudad sin semáforos, y con los teléfonos funcionando muy caprichosamente. Dedicamos horas a ver en el canal 13 lo que había pasado en el resto de la ciudad. Más impresionante que las imágenes en la televisión eran las interminables listas de personas que querían avisar a sus familiares fuera de la ciudad que estaban bien. Comimos algo frío pues era peligroso utilizar la estufa. Toda la familia en la ciudad, y cuando digo toda lo digo en un sentido muy mexicano, se reportó: todos bien.

This essay recalls a child's memory of the 1985 earthquake in Mexico. A version in English can be found at <http://drclas.fas.harvard.edu/publications>.

Durante esas horas frente a la televisión varios nombres se quedarían grabados en mi mente, parte de la cicatriz: Hotel Regis, la Súper Leche, Edificio Nuevo León, Multifamiliar Juárez. Algunos otros nombres se inscribían en mi cabeza justo a un costado de los héroes infantiles: La Pulga (rescatista improvisado al que se le atribuye el rescate de más de 10 personas vivas durante los días siguientes al temblor), el tenor Plácido Domingo (cuyos familiares habitaban en el derrumbado Edificio Nuevo León en Tlatelolco), Sociedad Civil (nunca supe quien era esa señora, pero sé que en esos días escuché su nombre). Las imágenes, los relatos y los adultos a mi alrededor preparándose para ayudar de una u otra forma a las labores de rescate fueron uno de los más importantes ejercicios de aprendizaje. Junto a eso palabras nuevas que enriquecerían el vocabulario de todos los niños de mi generación, escala de Richter, escala de Mercaly, epicentro, trepidatorio, oscilatorio, desgracia, fragilidad, solidaridad.

Unos meses, varias demoliciones y miles de velorios después, la ciudad, y con ella mi vida, irían regresando paulatinamente a la rutina. Los campamentos de damnificados serían el último recordatorio de lo que había sucedido pero también se fueron mezclando con el paisaje y sus reclamos se fueron fusionando con otros problemas sociales en la ciudad. Como leitmotif de las posteriores luchas democráticas, la Sociedad Civil se convertiría en la antagonista de las viejas estructuras de poder en la ciudad. Estructuras que mostraron sus primeras fisuras en 1968 pero que habrían de empezar a derrumbarse el 19 de septiembre de 1985.

En los siguientes años, cada que un temblor me sorprendió en algún lugar público, recordaba las tres consignas que nos repitieron en la primaria (por supuesto, después de "el temblor"): No corro, No grito, No empujo. Cada que entro a una habitación desconocida mi primera reacción es voltear a ver las lámparas para tratar de adivinar si serían un buen indicador telúrico.

Desde entonces, los marcos de las puertas no son sólo esos trozos de madera que rodean la entrada a cualquier lugar, sino también refugios potenciales. Y nada de esto hace mi vida especialmente diferente a la de gente que no ha vivido desastres comparables, simplemente son signos de una cicatriz que llevo conmigo, justamente como la que esta encima de mi ceja.

***Sergio Silva-Castañeda**, estudiante de historia en la Universidad de Harvard, es un estudiante de doctorado asociado (Graduate Student Associate) en el David Rockefeller Center for Latin American Studies.*

PHOTOGRAPH BY PEDRO VALTIERRA, E-MAIL <ARCHIVO@CUARTOSCURO.COM>


BIMBO
El Alma de su Automóvil
Jugos, Jaleas
Mermeladas de uva
DOMECQ
Genuino TEHUACAN
Alliance 1700

THE NATURE OF NATURAL DISASTERS

Natural Hazards p. 30

Volcano Monitoring. p. 34

Natural Hazards

Keeping them from becoming natural disasters in Latin America

BY MATT PRITCHARD

Natural disasters in the Americas are a paradox. The region has the dubious honor of boasting some of the largest natural hazards on the planet. Yet, the largest events are not always the most destructive, while much smaller events can be catastrophic. Two volcanic eruptions in South America illustrate this point. The 1991 eruption of Cerro Hudson volcano in southern Chile was perhaps the fifth largest of the 20th century, but resulted in no known human fatalities. At the other end of the continent, a small eruption (there are usually one or two this size or larger per year) at Nevado del Ruiz in Colombia in 1985 initiated mudflows that killed more than 23,000 people, making it the second deadliest volcanic eruption of the 20th century.

The paradox of large events causing little damage and small events creating major havoc illustrates the difference between natural hazards and natural disasters. Natural hazards are events with a potential to cause harm to human interests, while disasters indicate that human interests were in harm's way and suffered serious destruction. Latin America has been fortunate that few human interests have been in the path of some of the largest natural hazards. Nevertheless, about a half million people died in Latin America in the 20th century as a result of natural disasters. Civilization is incapable of stopping natural hazards, but steps can be taken to keep these hazards from becoming disasters. First, we need to understand what these hazards are, how often they occur, and where they happen. To understand the situation better, we will define the different categories of natural hazards facing Latin America, and what science can contribute to keeping these hazards from becoming disasters.

CATEGORIES OF DISASTERS

It is perhaps useful to divide natural hazards into two categories: meteorological (hurricanes, floods, droughts, wildfires) and geological (earthquakes, volcanoes, tsunamis). Not all of these hazards occur in all parts of Latin America. Some meteorological hazards like floods and droughts are widespread, and not surprisingly, are the most common types of natural disasters both in Latin America and the rest of the world. Other types of meteorological hazards are restricted to certain climatic regions. For example, hurricanes occur only in the Caribbean, Middle America and northernmost South America. Landslides are among the most deadly natural hazards because they typically cover a large area with little warning, and can be triggered by other hazards, particularly earthquakes, volcanic eruptions, and heavy rainfall or hurricanes.

In Latin America, the majority of earthquakes occur along the western coasts, an area where several tectonic plates collide (Figure 1). The land regions are part of the North American, Caribbean and South American plates, and they are being thrust over oceanic plates (called the Rivera, Cocos, Nazca and Antarctica plates) that are sinking into the Earth's deep mantle at rates of 2-10 centimeters per year. The process of collision, bending of the plates, and sinking is called subduction, and results in the build-up of stress, which is

PHOTOGRAPH BY MATT WELSH

What is the science behind natural disasters? How can natural hazards be prevented from becoming natural disasters? What is the role of climate change? Here's a glimpse into practical and theoretical science perspectives.

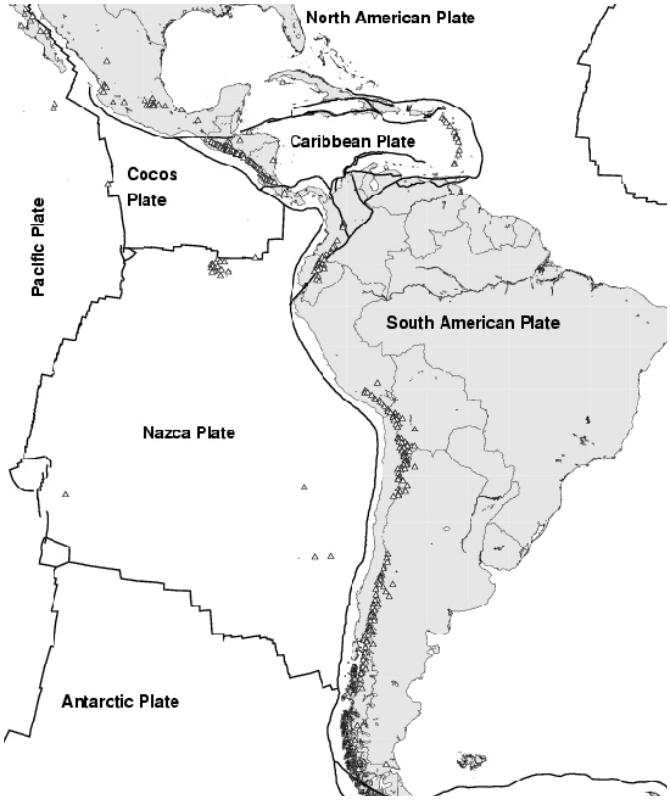
A panoramic view of Tungurahua Volcano in Ecuador

eventually released in earthquakes. The largest earthquakes occur on large faults in the subduction zones called megathrusts, where the over-riding and sinking plates come into direct contact (Figure 2). Earthquakes along this megathrust can often have magnitudes of 7 to 9 on the moment magnitude scale (the Richter scale does not produce a reliable estimate for earthquakes in this size range). In fact, the largest earthquake in recorded history occurred in southern Chile in 1960, had a moment magnitude of 9.5, and that single event accounted for about 25 percent of the seismic energy released by all earthquakes during the entire 20th century. Because of the high rate of collision in western Latin America, a given part of the subduction zone will rupture in a large earthquake once every 100-300 years. Historical records indicate that the previous fault ruptures in the area of the 1960 earthquake occurred in 1575, 1737 and 1837, although only the 1575 earthquake seems to have been of the same size as the event in 1960.

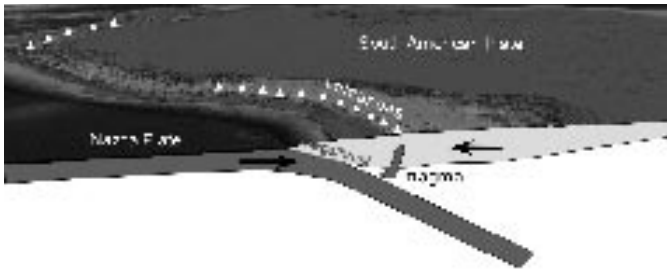
There are numerous other faults in Latin America besides the megathrusts, although the earthquakes are usually smaller (maximum moment magnitude of 6 to 7). It can take thousands of years or even longer for these events to happen again. Despite being smaller, these other faults can produce tremendous damage, because the earthquakes are typically closer to population centers—such as the moment magnitude 7.6 earthquake that damaged Guatemala City and killed about 23,000 in 1976, or the moment magnitude 7 earthquake in San Juan, Argentina, that killed about 10,000 in 1944. The eastern part of South America has a relatively low risk of earthquakes, although the Caribbean region is seismically active and has numerous faults that are not completely understood.

Because megathrust earthquakes are at least partially underwater, they cause movement of the ocean floor and tsunamis—ocean waves that can devastate areas near the earthquake, as well as thousands of miles or kilometers away. The tsunami from the 1960 Chile earthquake killed Chileans as well as residents of Hawaii, Japan and the Philippines. Although sometimes mistakenly called "tidal waves," tsunamis have nothing to do with tides. Tsunamis can be created by any type of sudden movements in water, such as landslides, asteroid impacts, or earthquakes. Of particular concern for the Latin America region would be large tsunamis initiated by landslides on the Hawaiian or Canary Islands.

The process of subduction is the ultimate cause of most volcanic eruptions in Latin America. As the oceanic plates sink into the mantle, water is driven back towards the surface, where it encour-



1. A tectonic view of Latin America showing boundaries between tectonic plates and recently active volcanoes.



2. Cut-away view of the collision between tectonic plates in the South American subduction zone showing the location of the megathrust.

TABLE 1.

Number of people killed by various classes of natural disasters during the 20th century (1900-1999) in Latin America and the Caribbean.

	NUMBER OF EVENTS	NUMBER KILLED
Earthquakes	176	190,576
Floods	404	91,524
Volcanoes	53	67,744
Wind Storms (including Hurricanes)	305	65,633
Slides	109	18,964
Everything else (includes drought, extreme heat/cold, tsunamis, and wildfires)	119	1,936

Compiled from the OFDA/CRED International Disaster Database compiled by the Université Catholique de Louvain in Brussels, Belgium (www.em-dat.net).

ages the rocks to melt and eventually erupt at the surface. The volcanic region is typically 100-150 kilometers from the top of the megathrust (Figure 2). This process usually causes a particularly explosive type of eruption. In fact, three of the five largest volcanic eruptions of the 20th century occurred in Latin America: Santa Maria Volcano, Guatemala in 1902, Cerro Azul (a.k.a. Quizpu), Chile in 1932; and Cerro Hudson, Chile in 1991. Eruptions also trigger mudflows and landslides that are particularly deadly (such as at Nevado del Ruiz, Colombia). Although subduction is continuous along the west coast of Latin America, volcanoes are not continuous—there are gaps in volcanism in southern Mexico, northern Peru, and central Chile (Figure 1).

FREQUENCY AND SEVERITY OF DISASTERS

We have summarized the number of natural disasters of each type during the 20th century (1900-1999) in Table 1 using data from the OFDA/CRED International Disaster Database compiled by the Université Catholique de Louvain in Brussels, Belgium (www.em-dat.net). On average, four flooding disasters took place yearly in Latin America in the 20th century. Although not all of Latin America experiences earthquakes, they are the most deadly type of events in the database, claiming about 200,000 lives in the 20th century. Also among the most deadly type of events are landslides, although this is hard to decipher from the OFDA/CRED database because it does not make a distinction between destruction from landslides and the triggering event itself and subsequent landslides. For example, about 67,000 deaths are attributed to the 1970 Peru earthquake, but perhaps one third of these deaths were caused by the large landslide from Nevado Huascaran. Hurricanes (called wind storms in the database) are the second most common type of natural hazard with more than 300 events, and are the fourth most deadly (following earthquakes, floods and volcanoes).

The database is useful for determining the types of events that occur, where they occur, and the relative importance of the different types of hazards, but several caveats should be considered when interpreting the results. First, estimates of the impact of the events (monetary damage, number killed or injured) are always difficult, because records are often destroyed. Furthermore, records from the early 20th century, particularly from floods or other long-lasting events are particularly incomplete. Secondly, while we can learn much from past events, there are several reasons to think that the number and extent of natural disasters could be higher in the future, particularly considering the growing population, the increasing tendency for people to move to more hazardous areas near the coast, and continued global warming. In addition, we know that a 100-year record is not sufficient to document all the possible types of natural hazards. During that time period, most areas of Latin America have not experienced 500 year or 1,000 year floods, the largest possible earthquakes or supervolcano eruptions (that may occur every 10,000 years or so with global ramifications).

PREVENTING HAZARDS FROM BECOMING DISASTERS

It is a safe bet that particular regions of Latin America will have natural disasters during the 21st century—the western coasts will experience earthquakes, and hurricanes will strike Middle America and the Caribbean. It is especially sobering to note that with population growth and population migrations, the high death toll from

CHART BY RICK ALLMENDINGER, CORNELL UNIVERSITY

natural disasters in the 20th century is likely to be exceeded in the 21st century. Considering that all the people cannot be moved out of all the hazardous areas, and that it is too expensive to make all structures in these areas 100 percent impervious to natural disasters, what steps can we take?

Lives can certainly be saved through short term warnings. Hurricanes arriving at the coast are no longer a complete surprise thanks to satellite images of their formation far out at sea, although it is still difficult to predict precisely where they will make landfall days in advance. Scientists have also had some success at warning local populations about impending volcanic eruptions, in particular, during the 1991 volcanic eruptions of Mt. Pinatubo in the Philippines. As magma moves towards the surface, it causes uplift of the ground and numerous small earthquakes. In fact, deformation of the Earth's surface by magma can be detected from space. With this technology, I have surveyed more than 1,000 volcanoes in South America and found six areas where magma is moving, and that should be further monitored. Deaths from tsunamis can also be reduced, because there is a delay between the start of the tsunami (by earthquake or landslide) and when the waves arrive at the shore. For sites near the tsunami, the delay is short, maybe only a few minutes. But if the population can be trained to immediately run to higher elevation, and stay there for several hours (the duration of a typical tsunami) many lives can be saved.

Unfortunately, scientists haven't yet determined how to provide warning before every hazard. Sometimes earthquakes produce larger than expected tsunamis (like the 1992 moment magnitude 7.6 earthquake in Nicaragua) and volcanoes that erupt with no obvious precursory activity. Earthquake prediction has proven especially elusive, and there are no reliable short term indicators that an earthquake is imminent within days to hours. On the other hand, historical records indicate where there are seismic gaps—areas where large earthquakes are likely to occur within the next 50-100 years. One of the largest seismic gaps is along the coast of northern Chile and southern Peru. During the 21st century, this area is likely to produce an earthquake with a moment magnitude of 8 to 9, and a tsunami which may devastate some of the towns in the region like it did during earthquakes in 1868 and 1877. Even if earthquakes cannot be predicted, technology may be useful in providing some advance warning. Mexico City experiences strong shaking from earthquakes several hundreds of kilometers away at the subduction zone megathrust. Because it takes time for the waves to reach the city, a warning can be sent from the coast to the city approximately 60 second before the strong shaking starts.

In the final analysis, many different approaches are necessary to keep natural hazards from becoming natural disasters. Certainly land use planning is critical to keep populations out of the most dangerous areas—especially areas susceptible to landslides. But, less disruptive activities such as education of local populations and research into the causes of disasters (from both natural and social sciences) are also necessary.

Matt Pritchard *is an Assistant Professor of Earth and Atmospheric Sciences at Cornell University, and is the newest member of the inter-disciplinary Cornell Andes Project. He is a geophysicist and his research is focused on understanding earthquakes, volcanoes, landslides, and mountain building.*

A 20th century landslide near Las Cuevas, Argentina on the road between Mendoza, Argentina, and Santiago de Chile. Note bus in foreground for scale. Photo by Sue Kay, Cornell University.

Lascar volcano (in background) is the most active volcano in the central Andes with several eruptions during the 1990's. Photo by Mark Simons, Caltech.

A tsunami warning sign in the city of Antofagasta, Chile, which in 1995 experienced a moment magnitude 8 earthquake, but a relatively small tsunami. Photo by Mark Simons, Caltech.

PHOTOGRAPHS BY SUE KAY(TOP)AND MARK SIMONS

Deploying Wireless Sensors for Volcano Monitoring

A Harvard Computer Scientist on Volcán Reventador, Ecuador

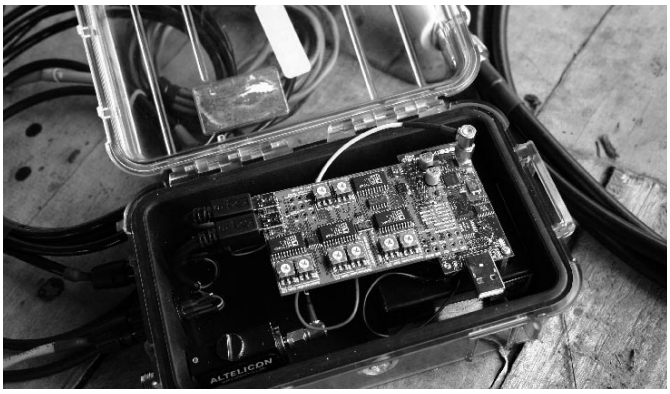
BY MATT WELSH

I'M KNEE-DEEP IN MUD, CARRYING FORTY POUNDS OF EQUIPMENT on my back, exhausted from a grueling hike—no, make that scramble—through the jungle to reach our deployment site. I'm doing all I can to keep up with the rest of the research team, not to mention a group of Ecuadorean porters who make it look easy to carry twice my load. (I'm thinking that specializing in computer science did not exactly prepare me for *this*.)

After three hours, the jungle suddenly disappears. I find myself staring at the naked branches of long-incinerated trees on the edge of a vast open clearing—a surreal landscape that seems to belong on barren Mars. Ahead of us looms the caldera of Volcán Reventador, one of several highly active volcanoes in Ecuador, about 56 miles from the capital, Quito. I can barely make out the cone of the volcano, shrouded in low clouds and mist.

This is where we will be installing sixteen wireless sensors to monitor the earthquakes and eruptions of the volcano. As we reach the upper flanks, the vent is clearly visible above us, a white fumerol rising out of its depths. There are no trees, no bushes, barely any vegetation; the volcano conveniently deforested the area in 2002 with an enormous eruption that closed down the Quito airport with its ashfall. We scout a few likely locations for our sensors, which we will install over the next three weeks. Then we set up camp for the night, exhausted.

We are computer scientists from Harvard and seismologists from the University of North Carolina, the University of New Hampshire and the Ecuadorean government's volcano monitoring agency, Instituto Geofísico. Our group has been working together for the last three years to develop a new kind of wireless, portable sensor for monitoring activity at volcanoes. Each sensor measures both seismic activity (ground motions caused by earthquakes within the volcano) and infrasound (low frequency acoustic signals, well below the range of human hearing). Collecting this data from an erupting volcano can assist geophysicists in understanding the physical processes occurring within the volcano. It can also help government agencies assess the volcano's potential hazard level.



Two features make our sensors special. First, they have a low-power radio, allowing them to transmit and receive data via a wireless connection. Each node can relay data for the others, so we can string the sensors along in a line several miles long, allowing data to hop from sensor to sensor until it arrives at a gateway radio that transmits data back to the volcano observatory. Second, each node is fairly small, fitting in a small case the size of a thick paperback book. This means that even out-of-shape computer scientists like myself can carry five or six sensors in a backpack, rapidly deploying them in remote locations like Reventador. This is an enormous improvement on current monitoring systems, which are bulky, heavy, and powered by multiple car batteries. Just imagine carrying a car battery, on your back, up the side of a muddy slope for four hours!

Our sensors are in fact small computers, powered by D-cell batteries, which we can program to detect interesting signals (such as the seismic signature of an eruption), record data to a local flash memory, and transmit the data over the radio. We can also use the wireless link to send commands back to each sensor to vary

PHOTOGRAPHS BY MATT WELSH

Clockwise from left: Reventador volcano, doctoral student Geoffrey Werner-Allen places a sensor, a closeup of the wireless sensor

sampling parameters and to update its software. Signals are relayed back to the volcano observatory, which in this case was a small hotel several miles from the volcano itself. There we can visualize the data on a laptop to watch volcano activity unfold in real time. Other research groups are also exploring this new technology of wireless sensor networks in other application domains, including such diverse areas as monitoring animal habitats, microclimates in redwood forests, leaks in water pipelines and structural safety of bridges and buildings.

We deployed this sensor network at Reventador in August 2005, collecting data on hundreds of eruptions, earthquakes and tremors. As with all field work, the deployment was not without its challenges. At one point, a software bug caused all of the nodes to crash. One of my graduate students had to hike back to the volcano, with his laptop, to reprogram each sensor by hand. Fortunately, I was back in the United States by then. And, perhaps predictably, the volcano actually destroyed one of our sensors. A soccer-ball-sized rock ejected from the vent during one of the frequent eruptions managed to shear off the radio antenna mast. If you imagine hitting the flag from a 200-yard golf drive, you'll realize how improbable this was.

Our group is continuing to develop larger and more intelligent sensor arrays for volcano monitoring, with the eventual goal to be able to pinpoint the source of an earthquake in real time or to display a 3D "movie" of the volcano's interior as the data streams in from the sensors. We hope that wireless sensor networks will soon find their way into the hands of monitoring agencies that want to rapidly install large sensor networks on hazardous volcanoes. We do have our work cut out for us to make the technology reliable and easy to use, and more field deployments to test our ideas will be needed.

I guess that hike was not so bad after all.

Matt Welsh is an Assistant Professor of Computer Science at Harvard University.

CLIMATE CHANGE

While those of us on the East Coast have noted and hardly complained about the warm winter weather, including the record-breaking absence of snow in Central Park or cherry blossoms in Washington in January instead of April, other aspects of this year's climate shift have hit much harder in the state of Rio de Janeiro, Brazil. Torrential rains fell for weeks, leading to mud slides and dozens of deaths. Thousands lost their homes. States of emergency were declared. The housing stock in Brazil is often of low quality, including homes built poorly on steep slopes, setting the stage for negative effects from nature's forces. Emergency response units are also less well equipped to respond than, for example, their counterparts in the United States.

Climate change is about increased variability. This means, for example, instead of 6-8 hurricanes of category 3 to 4 each year, there can be some years with no hurricanes and some years with many more hurricanes (both formerly infrequent occurrences). Moreover, some of the hurricanes may be weaker and some of them may be stronger. We call this variability, as represented in the 2005 and 2006 hurricane seasons. Of course, the more frequent and stronger natural disasters (whether they be hurricanes, tornados, rains, and so on) in the tail end of the variability are the concern of modern society and, along with energy prices and security, probably the ultimate motivation that the U.S. government is expected to take some actions in the next few years to regulate greenhouse gases. We tend to clamor less because of the absence of widespread negative societal impacts, but we should nevertheless be just as concerned by variability in the other end of the tail, i.e., the reduced hurricane number in 2006 or the warm weather in New England this year, because of what it portends about overall increased variability.

Why, if the world is on average getting warmer, do we also get an increase in variability? There are a number of reasons, which in particular are tied to the increase in water vapor flux and therefore latent heat energy at warmer temperatures. In the abstract, however, we can also understand that the earth climate system had attained some relatively steady state of checks and balances over hundreds of years and that now, by global warming, we are pushing that system strongly towards a different steady state. The ride between there and here is very bumpy as the system accommodates the changes, and these stresses lead to greater variability.

***Scot T. Martin**, Gordon McKay Professor of Environmental Chemistry, will spend his sabbatical year in 2007/8 at the University of São Paulo working on the connections among Amazonian vegetation, atmospheric particles, and clouds. He teaches an introductory course, "ES6 Environmental Science and Technology," in the College.*

Gender and Disaster

A Guatemalan Landslide through the Eyes of Boys and Girls: A Photoessay

BY NANCY MCGIRR AND FOTOKIDS

On October 5, 2005 hurricane Stan ripped into Guatemala, causing several tons of mud to slide off the mountainsides burying an estimated 700 people. What was once an up and coming barrio of Santiago Atitlán, Panabaj, is now a barren wasteland.

Fundación de Niños Artistas/Fotokids has been working in Santiago with Tz'utujil young people since 1997. With the help of Bridges Development, high school age students created a digital video using their own photos and interviews.

Because of the girls' reluctance to fully participate when the boys are involved, we divided them by gender. The two groups went out to take photos for their videos.

Although both videos used a personal narrative and occasionally used some of the same images, the results of the 3-minute movies were decidedly different in their focus and tone.

The boys' movie, called *My Sentiments*, was highly emotional and spoke of the devastation, suffering, danger and the isolation of the survivors. As all communication had been cut off for those students going to school in Guatemala City, they were left agonizing over the fate of their loved ones. One boy took buses, hitchhiked rides, and walked for six hours in the pelting rain to arrive home and find his own house intact, while the neighbors on either side were buried up to their roofs in mud. Many of the photos documented his journey and the video went on to highlight the communities' cooperative efforts; the dispensing of aid, the burial of bodies, the feeding of the homeless and the housing of survivors in shelters. The movie in Spanish with English subtitles ended with the hope that the disaster would ultimately unite the village to fight the problems of poverty and youth gangs, and maintain the spirit of working together without regard to race, religion or social standing. The video finished by saying with faith and hope and through the survivor's combined solidarity efforts "anything was possible."

Boys' photographs: clockwise from left: Many died, many were injured and many simply lost everything (Diego Lancan). The biggest problem is the lack of work and education (Andres Sosof). The whole village was united after the tragedy (Diego Lancan).

The girls' video, *Viva Santiago,* took a much more pragmatic tone following a first person account of the mudslide. This has happened—now what can we do about it? Although they also focused on the hardships, shelters and homes destroyed, they primarily worried what the disaster would mean to the many children who would have to go to work to help their families economically. For these children. there would be little hope of going to school. The video—in their native language Tz'utujil, with English subtitles—concludes that poverty is best fought by education. Their interviews include one with the first indigenous councilwoman, who suggests they talk with younger children about their experience of having had the opportunity to study and what it has done for them. She encourages them to take the lead. The girls' movie ends with a promise that they will work with the small children but notes that the school needs repair and makes a plea for school funding.

Nancy McGirr is Founder and Executive Director of Fundación de Niños Artistas de Guatemala/Fotokids < www.fotokids.org>.

Clockwise from top: Some 6,000 people were in the temporary shelters including my sister and her family who lost everything (Berta García). Our school needs repair and $7 will buy school supplies and keep a child in school (Sara Ajutul). Berta stands in the flood path of what was once the school in Panabajj (Marta López). The fear is that many children won't be able to go to school and will have to work instead (Jessica Aguilar).


DOTACIÓN DE
DE COMPUTO
ESCUELA PANABAJ
Escuela Oficial Rural Mixta Cantón Panabaj
Aa
Bb
Cc
Dd

CIVIL SOCIETY AND COLLECTIVE MEMORY

Local Government: San Salvador p. 40

A Latin American Round Table p. 45

Social Suffering in Guatemala p. 48

Pinochet: General Earthquake p. 52

Urban Poverty, Disasters and Local Government

Social Organization: A Look at San Salvador

BY HECTOR SILVA

SARA GUTIERREZ, A SINGLE MOTHER AND the only source of support for her four children, approached me and my two companions when I was running for mayor of San Salvador. "All of you candidates seek us out when you want our votes, but later you forget your promises," she charged. I asked her, "And what is it that you most need from me if I'm elected?" She answered immediately, "You need to construct dikes to contain the river waters when it rains, so we don't die next winter."

That reply gave me cause for thought about the hard reality that this woman faced every day, and the enormous responsibility that we would have if we won the elections.

Sara heads up one of the some 35,000 families who have migrated to the capital city of San Salvador in the last twenty years. Initially, people headed for San Salvador, fleeing the violence of twelve years of bloody war. Later, they migrated for economic motives. The rural-urban migration has increased massively in the last two decades, causing San Salvador's population to increase almost 40 percent in that time.

The migrants have set up their homes closer and closer to the riverbanks and ravines that traverse the city. They construct their fragile dwellings out of tin sheeting and cardboard in spots that flood easily in the winter, when heavy rains cause the rivers to overflow. And in times of severe storms or hurricanes, their dwellings are often swept away.

I felt moved that Sara, in spite of living in conditions of absolute misery, set her priority on the construction of dikes necessary to prevent herself and her children from being killed the next winter. Literally, her priority was survival. For Sara and other families like hers, the construction of the dike was a matter of life and death.

The encounter with Sara took place at the beginning of 1997, when I was running as the opposition candidate for San Salvador mayor against the official candidate. At that time, the polls indicated that I had little chance of winning. Neither I nor Sara thought we would have a chance of actually acting on her concern about the following winter; she didn't go into details about the situation and I didn't ask.

After the meeting with Sara, I asked my two companions what we could do for her if we won. There were two different replies. On the one hand, Miguel, a longtime Communist Party member, replied, "We need to make sure that Sara and thousands more take to the streets to demand a response from the government for their conditions of misery." On the other hand, Margarita, a fervent evangelical Christian, merely answered that we should pray, and the Lord would deliver.

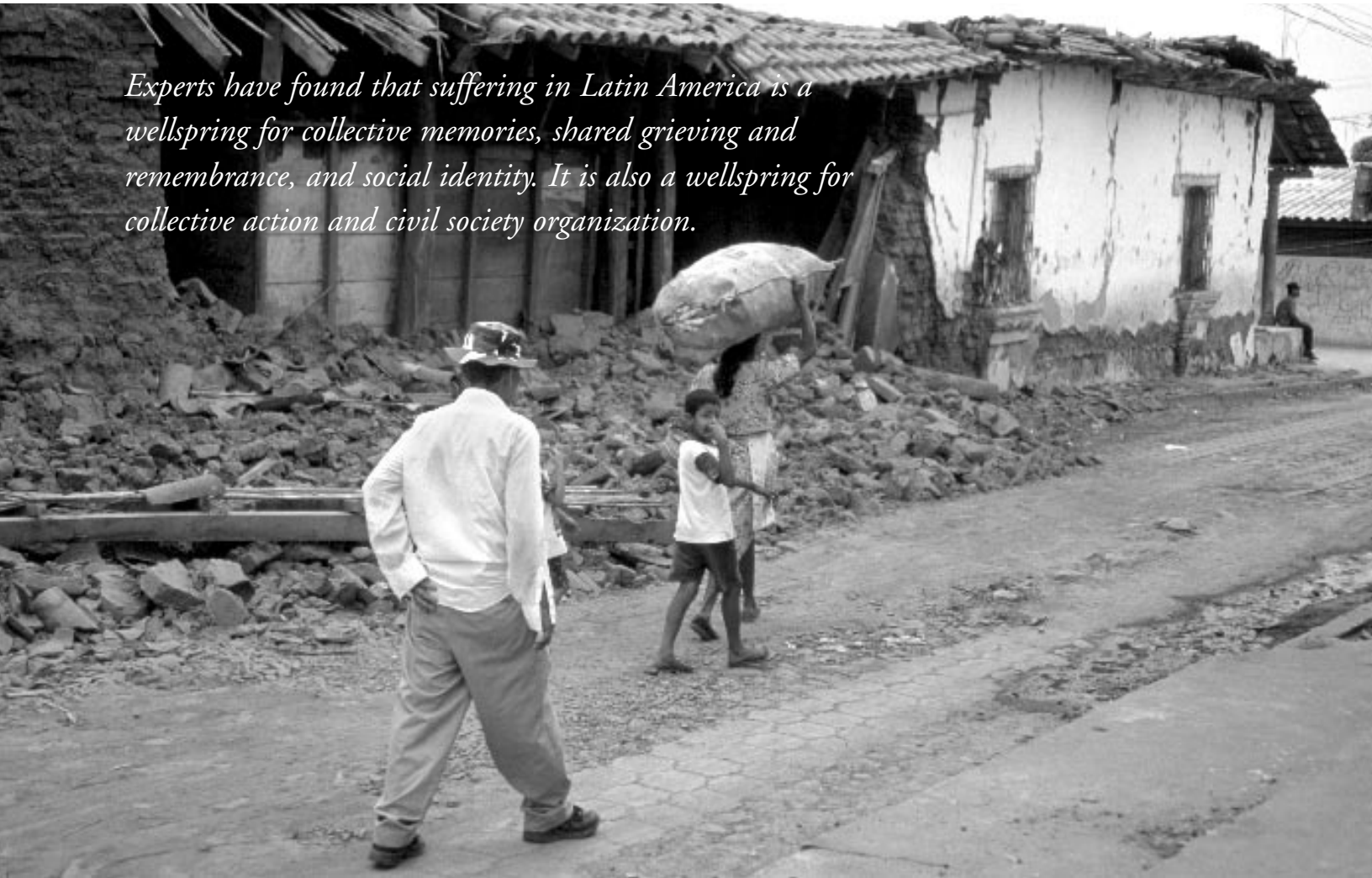
Three months after the discussion, I became mayor of San Salvador, and Miguel and Margarita were elected to the municipal council; our challenge was to fulfill our promises to families like Sara's.

WHEN IT RAINS, WE ALL GET WET, BUT ONLY THE POOR GET KILLED

When I took office in 1997, we found that San Salvador was filled with about 237 squatter communities with around 20,000 families living in conditions of extreme,

Top: Flooding in El Salvador; Bottom: helping with reconstruction in San Salvador

PHOTOGRAPHS: COURTESY OF THE PAN AMERICAN HEALTH ORGANIZATION (TOP) AND COURTESY OF HECTOR SILVA (BOTTOM)



Experts have found that suffering in Latin America is a wellspring for collective memories, shared grieving and remembrance, and social identity. It is also a wellspring for collective action and civil society organization.

Left to right: In San Salvador, marginality is perpetuated by the fact that families do not own their own homes; they do not even rent them; nevertheless, their problems are the problems of the entire city, not only because of human solidarity, but also because of environmental issues.

high, and middle-level risk, isolated and cut off from the urban hub. The families living in those squatter communities made up twenty percent of San Salvador's population. Most of them lived very near the rivers and ravines, on or below the slopes—areas prone to slides, avalanches and flooding. Increased migration had led to more precarious living. Moreover, the fact that these settlements were not connected to urban roads also meant that ambulances, fire engines and garbage removal services did not have access to them. Basic public services are unavailable to these communities.

This marginality is perpetuated by the fact that these families do not own their land; they do not even rent it. Therefore, they don't pay taxes of any kind and have absolutely no incentive to invest in their property. Nevertheless, their problems are the problems of the entire city, not only because of human solidarity, but also because of environmental issues. If the flow of the river is impeded, it represents a danger for all city residents. Nevertheless, those who die are the residents of the shantytowns that line the river.

With the 1997 election, we took over leadership of a city that had suffered dramatic changes in land use, with insufficient regulation and planning in the face of increased poverty, marginalization and turmoil. We also found that a collapsed drainage system led to repeated flooding in different zones, primarily affecting the shanytowns and other poor communities.

TRYING TO KEEP OUR PROMISES TO SARA

Now that we were the government and not the opposition, we had a duty to fulfill our promises to Sara and develop the necessary infrastructure before the next winter. Thus began a long process to improve the lot of the poor communities that live along the riverbanks of San Salvador. That process is still ongoing.

The phenomenon of squatters' communities has become so extensive that it is impossible to even contemplate moving so many people elsewhere. Moreover, experience has shown that when communities are transplanted in this manner, they form pockets of poverty that soon become a social powderkeg.

The solution needs to focus on lessening the vulnerability of already established communities. That ambitious project of social organization and investment in infrastructure is currently underway. Nevertheless, some housing at very high risk does need to be relocated. The establishment of social organizational measures and the development of infrastructure are important, but as long as rural-urban migration continues to swell, they will not be sufficient.

SOCIAL ORGANIZATION MEASURES

With few resources and great demand, previous schemes of social organization had shown themselves to be insufficient and too paternalistic. We realized that if we were going to be effective, we had to be innovative.

The instruments of social organization that have proven to be most effective are the organization of emergency committees, the development of risk maps, and participatory budgeting.

An immediate result with much potential is the formation of emergency committees made up of community members responsible for preparations to respond to emergency flooding or earthquakes. While the committees often ended up assuming other tasks, importantly, the existence of such groups of community leaders was crucial for such socially-sensitive tasks as moving at-risk households, organizing community efforts, and constructing risk maps.

Community members sketched relief maps under the guidance of the emergency committees. The final product was a map with simple icons that indicated such things as the flow of the rivers; how this flow gets altered by torrential rains; which houses ought to be evacuated; the location of emergency shelters; and other landmarks. But beyond simply serving as guides, the maps also made community residents more

PHOTOGRAPHS COURTESY OF HECTOR SILVA

aware, bringing them together around the subject of emergencies and encouraging them to discuss priorities and distribute responsibilities.

Another key element in achieving direct, effective and permanent participation was allowing people to take part in the decision-making process concerning the city budget.

The inspiration came from a similar project in several Brazilian municipalities with which we had ongoing relations. In the case of San Salvador, the municipal council determines the amount of resources available each year and then distributes a portion to each of the seven districts throughout the city. The communities were encouraged to organize themselves and discuss how the money should be spent in each of the districts. And the municipal council agreed to respect the priorities established by the communities.

Invariably, construction to protect housing from the dangers of floods and earthquakes took priority over everything else. Initial participation in this process was almost entirely limited to the poorest residents for whom municipal money was the only way to achieve the desired infrastructure that represented for them the literal difference between life and death the following winter.

In the six years between 1997 and 2003, about US$10 million was spent on infrastructure, thus increasing chances of survival in the face of natural disaster. The successful development of the process then motivated the middle class sector to participate, thus sparking an interesting process in which the middle class' desire for parks and sports venues had to be balanced against the needs of the poorest. At times, this led to strong discussions and even heated arguments. In absolute numbers, the middle-class sector is smaller than the poor, but they pay more in taxes towards the municipal budget. El Salvador and Cuba are the only two countries in the Western Hemisphere that do not have property taxes. Therefore, the available municipal funds come for the most part from taxes on businesses, paid by the middle and upper classes.

Processes such as participatory budgeting have the enormous advantage that the priorities for spending are set through decisions that seek a consensus from the start, even though this means very long sessions of discussion with the community. In the end, it must be decided if priority is to be given to the construction of a dike or a park. Oftentimes, that decision is complicated by the fact that those who seek the construction of dikes pay a smaller amount in taxes, while those who seek the building of a park pay more in taxes, but also don't have their lives at risk. Once the decision is finally made, however, it receives all the necessary social support.

As a result of the implementation of these processes of participatory decision making, the poor communities have come to accept the payment of municipal fees for some services. Moreover, with the experience that communities have acquired through the participatory budget, they have achieved significant qualitative advances. This is what happened in El Garrobo, one of those communities flooded every year with the arrival of winter.

The community of El Garrobo in the southeast part of San Salvador decided to apply its budget toward modifying the structure of a bridge that had a very small hydraulic flow, causing waters to flood housing and on more than one occasion killing community residents. Both the poorest members of the community and their middle-class neighbors accepted that for a two-year period, all the municipal funds assigned to the community would be guarded for the purpose of fixing the bridge.

With the experiences that communities have acquired through the participatory budget, they have achieved significant qualitative advances.

Rebuilding San Salvador.

The "Integral Recuperation of Critical Areas" is a social process strengthened by citizen participation, which translates into concrete results contributing to the physical well-being of depressed and high-risk zones.

In the development of these social processes, the role of local government is as an active but impartial facilitator. These processes should never be used for partisan political benefits.

The real test of fire for what we had done in San Salvador came with Hurricane Mitch. In spite of the intensity of the natural phenomenon, there was only one human death to mourn. And while every single life is important, this loss stood in sharp contrast with earlier tolls. It was an advance.

Another unexpected result was the increase in demand for municipal spending on infrastructure, and the accompanying battle for imposing the necessary taxes.

Not everything has been resolved; it's difficult to advance without confronting such sensitive issues as the payment of more taxes. But for now, Sara can be more certain that she and her children will survive the next winter.

***Héctor Silva** is a medical doctor and former Mayor of San Salvador. He is presently a Visiting Fellow at the David Rockefeller Center for Latin American Studies. He can be reached at hsilva@fas.harvard.edu.*

REMEMBERING ARMERO

Dreadful images bind Colombians together. It doesn´t matter if you are rich or poor; from the coast or from the Andean highlands; if you side with the left or with the right, the one thing we all share—probably the only one—is a collection of iconic events condensed in a single tragic shot.

Granted, every country has its own tragedies imprinted in its collective memory. For Americans, the images are the tumbling Twin Towers, the Abu Ghraib prisoner leashed doglike to the woman soldier, maybe the Rodney King beating. The difference is that for Colombians, one dreary image overlaps the former in a matter of months, sometimes even hours.

Only seven days after Army tanks stormed the government building where M-19 guerrillas held Supreme Court judges hostage, the eruption of the Nevado del Ruíz Volcano swept away the town of Armero. And the image of the Palace of Justice—and 11 magistrates consumed in flames was quickly replaced by that of Omayra Sanchez.

Omayra was a 13-year-old girl, only two years younger than me at the time. Her house—like her whole town—disappeared under a huge avalanche of lava. When the TV crews found the child, she was trapped up to her neck in mud and debris, her legs tangled in concrete. Despite the efforts of the rescue team, this girl of bright black eyes and curly short hair died of gangrene and hypothermia after three days. Colombians were shocked by her TV-transmitted agony, only made worse by the fact that another 23,000 people had faced a similar —though less mediatic—fate.

When some months later, I went to Armero with my mother, a psychologist writing her thesis dissertation on the tragedy's post traumatic effect, I kept looking for some trace of Omayra's short life. But there was only the barren land.

Many survivors remembered the terrifying roar of the river, the noise of the gigantic rocks embedded in the mudflow that destroyed everything they found on their path. One woman kept talking about her little baby girl, who was wrenched from her arms by the river of lava. And one young man burst out crying, consumed with guilt, for having crashed into one person, or maybe three, with his pickup truck while trying to escape the avalanche.

Many years later, covering the war in Colombia, I heard worse stories of suffering, because the pain was inflicted by men, not nature. But up to that moment those were the saddest stories I had known. Nonetheless, they did not haunt me for many nights afterwards as did the eyes of those other Armero survivors, of those who were unable yet to speak. They were in the refugee camps, sitting on makeshift chairs, looking into the nothingness, that now was their place on this earth.

***Juanita León**, author of the prize-winning* País del Plomo, *is currently a Nieman Fellow at Harvard University.*

PHOTOGRAPH COURTESY OF HECTOR SILVA

Hurricanes, Society and the Culture of Citizenship

A Latin American Round Table

MODERATED AND EDITED BY RAFAEL HERNÁNDEZ

PARTICIPANTS:
Rafael Hernández, moderator (Cuba)
Ricardo Flores (El Salvador)
Armando Fernández (Cuba)
Cristina Reyes (Cuba)
Alexis Lorenzo (Cuba)
Rafael Colmenares (Colombia)
Esther Pérez (Cuba)
José Mateo (Cuba)

Rafael Hernández: Today's discussion is on "Hurricanes, Society and the Culture of Citizenship." In addition to physical destruction and the loss of human lives, hurricanes leave their imprint on nature, society, its way of thinking and the culture of citizenship. What are those imprints and in what sense are hurricanes different from other natural disasters?

Ricardo Flores: In my country, we have a culture of earthquakes, drought and volcanic eruptions, rather than hurricanes. Three very fierce tropical depressions have affected us over the last 20 years: Mitch, Adrián, and Stan. Adrián sat out in the Pacific for about five days while the media warned people, "Adrián's getting closer; go buy food and stock up on gas." That is, Adrián became a commercial hurricane that swept away food and gas supplies. People got the idea that a full-strength hurricane was going to hit us, but it was largely a virtual hurricane that was good for the shopping centers.

Hurricane Stan created a new phenomenon. San Salvador is situated in El Valle de las Hamacas—Hammock Valley—with constant seismic activity. It is normal to have 20, 25 tremors in a single day, but Stan, which principally affected the capital, flooded the entire lower part of San Salvador. We had always been a seismic city, and now we became a flooded city. Mitch swept away water reservoirs, made them disappear.

Armando Fernández: The Caribbean is a zone where the hurricanes form a part of its inhabitants' culture. If we look at indigenous peoples, we find that their pottery and ceramics depict hurricane images. In his book *Huracán* (Hurricane), Cuban scientist Fernando Ortiz reconstructs the symbolic imagery of the hurricane among native peoples. For the indigenous population, hurricanes brought water and a lot of wind, but not destruction. To a certain degree, the tempests marked a new and vital cycle for crops. However, the Conquest and colonization based themselves on the exploitation of nature. Thus, Cuban and Caribbean culture have incorporated this sense of disaster that does not exist in nature itself. Nature is, in this sense, amoral. Humans provide the concept of disaster, precisely because they are where they ought not to be. Western civilization has developed technology to predict hurricanes, which are the most predictable among so-called natural disasters. In contrast, while short-term anticipation is possible, it's very difficult to predict an earthquake or a volcanic eruption But one can follow the course of a hurricane until it finally strikes.

Cristina Reyes: Disaster does not exist in nature; what exists is the threat, which

Unlike hurricanes, it's very difficult to predict an earthquake or volcano eruptions.

PHOTOGRAPHS BY ELYSIA BAKER, MATT WELSH, LUIS WEINSTEIN

Above: Housing in aftermath, El Salvador

can be natural or manmade. Disaster is a consequence of this phenomenon, tied closely to the risks of its communities and with the vulnerability of both human beings and the environment. Hurricanes affect human health in several ways. They leave psychological scars, both individual and collective, depending on the cultural and social conditions of the community and individuals, as well as their cultural and social preparation. During the 70s and 80s, there were few hurricanes in Cuba. Many youth had no historical memory of hurricanes. However, during the past few years, hurricanes have become more frequent and aggressive. We are, in a certain way, champions of hurricanes because they visit us constantly. Sometimes they become a factor that alters our daily life and even the way we behave.

Alexis Lorenzo: Hurricanes leave direct and indirect losses. Perhaps the most complex to evaluate are the subjective ones that are produced in the human mind. In the book by Fernando Ortiz that Armando mentions, it is very interesting to see how the natives and the Spanish perceived the losses. In the Cuban case, the perception of the impact of the hurricane is not the same in Havana as in other zones of the country, and within Havana, the reaction varies from neighborhood to neighborhood.

Rafael Hernández: How would you compare the impact of a hurricane with other natural disasters?

Rafael Colmenares: Colombia is a country that is not affected by hurricanes. However, on our Caribbean coast, flooding severely affects the population. In 2004, there were 150,000 people who suffered gravely because of flooding, and in 2005, more than 300,000. Hurricanes and tsunamis are concrete and devastating events, but flooding is long-term, with a strong impact of another type.

Rafael Hernández: What causes the flooding?

Rafael Colmenares: The winter rains. But, actually, the cause is a deeper one: the drying up of the swamps and marshes throughout the area**.** Cattle-raising and other economic activities have contributed to the drying out of the wetlands, upsetting the hydraulic balance. During the rainy season we call winter, the water has no place to go and therefore produces flooding. And the flooding causes the displacement of people. In Cartagena, displacement has been aggravated because of increased migration there due to violence.

Rafael Hernández: The second question to consider is vulnerability and the perception of risk. To what degree is the perception of risk an important factor in the consequences of a hurricane?

Ricardo Flores: Disaster is very much associated with a vulnerable population, in this case, a rural, poor and marginalized population that lives on the riverbanks. These natural phenomena make this population even poorer, but I also want to stress the problem of popular beliefs. People say, "It's God's punishment" or "It's because we are behaving badly" or "There's too much violence." So the natural phenomenon is not perceived as something predictable, but as a matter of divine will and punishment.

In terms of organization, we have a recently passed law that provides for civil protection and disaster prevention, but the government doesn't pay any attention. They wait for the disaster to draw up emergency plans, at which point they call for urgent help and funds. This can later help them in their election campaigns, since they give out food and services to the population. Disasters have a very strong political element, especially in the use of the media.

Cristina Reyes: Vulnerability is a factor that depends on the actions of human beings, closely tied to training and preparation. In the field of public health, we talk about the vulnerability of hospitals. We stress that "Health facilities have to be secure," because we realize that that the functioning of a healthcare institution is also vulnerable during a disaster. This is true in communities around the world. As one colleague noted, in his country, the poorest communities suffer the most in a disaster; they are the most vulnerable; they are not well-prepared. Fortunately, this is not the case in Cuba. Here, housing may be vulnerable; it may not withstand a storm, but there is a system of information, communication and evacuation that has been proven to be quite effective.

In the last fifty years, natural disasters have increased by 142 percent. The poorest countries are those that have the most serious problems, suffer the most, and have the fewest possibilities of preparing, because these measures are associated with development. And sometimes countries—unlike Cuba—do not have enough resources to take preventative measures.

For an expert, the assessment of risk is the possibility that a disaster might occur; for the general public, it is a matter of common sense, depending on various social and cultural factors. How the population understands the catastrophic magnitude of the event determines its fear and anxiety, especially if the disaster could affect children's lives. Communication is a very important element in the perception of risk. The Cuban people are informed when a storm is coming, and civil society is prepared to take measures. There is also the certainty that those who must resort to a shelter will have access to medical care and that people's basic needs will be met. This element of certainty determines how risk is perceived.

Alexis Lorenzo: In the last ten or fifteen years, science has done a lot to reduce vulnerability. I remember that when I was a boy, nobody believed in the phenomenon of *El Niño.* Hurricanes are not the intellectual property of one science, one profession. Other factors are culture, level of training, education, preparation, and all that is done before disaster actually strikes. Societies generally act *during* an event, but poor people most often have no preparation. When we compare the results in Cuba—a

PHOTOGRAPH COURTESY OF THE PAN AMERICAN HEALTH ORGANIZATION

country with few economic resources—in the face of such devastating phenomena like Hurricane Mitch, we can observe how preparation has a great effect on communities, individuals and families. We have experience with children and adolescents, with no historical memory of hurricanes, who are nonetheless aware of elevated risk. Science and technology are essential, but insufficient. The human factor, as I see it, continues to be the most important one.

Armando Fernández: I agree with Alexis, and I'll go even a little further. Technical instruments, both the technological and organizational, offer us the possibility of forecasting. When I refer to organizational instruments, I think of land organization. In Cuba, unlike other Latin American countries, the land and, in particular, the urban sector, has been well organized, a basic factor in the enforcement of policies and risk reduction. Nature has cycles that are longer than a human lifetime and thus, many human beings do not take them into account. According to meterologists, hurricane cycles come about every 25 or 30 years, and we are now beginning a cycle of high frequency, exacerbated by climate change. Because of this, water rises higher along the coastline and the low-lying areas of cities such as Havana, creating the additional risk of flood. When these areas were urbanized in the 1950s or earlier, this problem of land organization was not taken into account.

Rafael Colmenares: The well-known equation is that risk is equal to the amount of threat, multiplied by the amount of vulnerabilty. We can most easily change the latter part of the equation, but there are two factors, one structural and the other depending more on specific circumstance. The structural is more or less what Armando is talking about; if we have a model of land occupancy or a system of production that violates the logic of ecosystems, we are generating a great vulnerability. That is precisely what is happening on the Colombian coast. If we dry out the marshes in areas that flood easily, or if we construct housing on mountainsides in seismic zones, we are creating more vulnerability. This happens with frequency in all our countries. The other factor is prevention, tied to information and adequate social and political organization. In Colombia, after the Armero disaster—where the eruption of the Ruíz volcano set off an avalanche that buried an entire town—communication and alert systems were substantially improved. This was the origin of the National System of Disaster Prevention, an excellent system both on paper and in practice. During the last two years, the Galera volcano in Pasto near the Ecuadorean border has constantly threatened to erupt. The alert system has functioned very well; people have been evacuated in a timely fashion. However, the flooding I have been telling you about has no such alert system.

Finally, I would like to talk a bit about the collective imaginary . When conditions do not exist to resist a disaster, a certain kind of fatalism takes over: "God wants it this way; we have been sinners, and this is our punishment." I would compare this to a situation that attracted my attention a couple of years ago and that, in my opinion, environmentalists ought to publicize more. When the tsunami hit Asia, it was believed that two small islands in the Indian Ocean, Andamán and Nicobar, had been destroyed, along with their aboriginal cultures. Some fifteen days later, it was found that the islands were actually intact and that not one single person had died. Why? Because the natives knew how to read nature's messages and retreated to the high points of the island to wait until the tsunami passed. The United States wants to sell India a very sophisticated device to predict tsunamis. Someone questioned, What sense is there in buying such sophisticated forecast systems, when these aborigines have shown us we need to be closer to nature, to understand it, to be able to read its signals, and, above all, to have an adaptive culture, capable of coexisting with this logic of nature.

Rafael Hernández: Would you say that our perception of risk might be distorted if we believed we live in a safe house, had access to the necessary health services and had alternative sources of information such as battery-operated radios if the lights go out?

Esther Pérez: All of the interventions so far—at least from reading between the lines—have spotlighted the problem of political will. There is an excellent study by Martha Thompson about risk reduction and disaster mitigation in Cuba. She recounts—about Mitch in Guatemala, I believe—how a community located in a vulnerable zone was much less affected because it had organized for the war. The political will of the community meant that the residents not only recognized the risk, but followed their leaders in an emergency plan in the same way as it had organized to defend itself in the war.

Preparation has a great effect on communities, individuals and families. Science and technology are essential, but insufficient. The human factor continues to be the most important one.

José Mateo: I think that sometimes we aren't well enough prepared for the casual, rapid events that just come to pass. I live in Santa Fe, a neighborhood dominated by the sea on the outskirts of Havana, so I'm used to these type of events. Hurricanes are paradoxical events from nature's standpoint. I worked for many years in the Sierra Maestra after Hurricane Flora, and I can guarantee you that after the hurricane, the Sierra Maestra had changed completely. Seventy percent of its coffee crop had disappeared, and people found other ways of earning a living.

We have a civil defense system and a fabulous security system, but the problems of territorial and environmental organization persist. Our vulnerability is increasing in the face of these phenomena that are stronger and more dangerous all the time.

***Rafael Hernández** is a senior research fellow at the Centro de Investigación y Desarrollo de la Cultura Cubana Juan Marinello in Havana. Founding editor of* TEMAS*, a Cuban quarterly in the field of social sciences and the humanities, he was the 2006-07 Robert F. Kennedy (RFK) Visiting Professor in Latin American Studies.*

Hurricane Stan and Social Suffering in Guatemala

The Social Course of Natural Disaster

BY KEDRON THOMAS

In early October 2005, hurricane Stan caused severe destruction in parts of Mexico, El Salvador, Honduras and Guatemala. This was just one month after Hurricane Katrina slammed the Gulf Shore of the southern United States. Since then, Hurricane Katrina has become a prime example of what medical anthropologists call *social suffering*—the clustering of social problems and the dangerous fact that institutional response can compound those problems. The response effort in New Orleans, as is well known, has been slow and largely inadequate. Not as many know of the devastation left in Stan's wake. This storm affected people living on society's margins and their difficult recovery process continues today.

Hurricane Stan was a regional disaster. The weather system dumped 20 inches of rain across Central America and southern Mexico. The torrential rains caused catastrophic flooding and mudslides. Farmland, homes, even entire communities were swept away. According to Red Cross estimates, the storm left more than a thousand people dead and affected more than two million lives. The devastation was compounded by earthquakes throughout the region, followed by a volcanic eruption in El Salvador on October 1. The United Nations Economic Commission estimated total damage at close to a billion dollars.

HURRICANE STAN IN HIGHLAND GUATEMALA

In Guatemala, Hurricane Stan caused more than 650 deaths, destroyed 35,000 homes and affected nearly 500,000 people. Damages totaled close to US$100 million. Hit particularly hard was Guatemala's central highland region, a favorite destination for U.S. and European tourists. Travelers are drawn to market towns that dot the steep volcanic ridges rising steeply around Lake Atitlán. Kaqchikel, Tz'utujil, and K'iche' Maya groups inhabit the towns.

The hurricane's heavy rains triggered immense mudslides around the lake. On October 5, a half-mile river of mud rushed down the volcanic slopes above the town of Santiago Atitlán. Panabáj, a Tz'utujil Maya community on the outskirts of the town, was utterly destroyed. Mud and rocks swept away the homes and possessions of at least 5,000 people. More than 150 were killed; many bodies remain buried even today under tons of earth. Diego Esquina Mendoza, the mayor of Santiago Atitlán, declared the community a mass gravesite: "[Those buried by the mudslide] may never be rescued. Here they will stay buried, under five meters of mud. Panabáj is now a cemetery."

THE POLITICAL ECONOMY OF VULNERABILITY

Natural disasters are never simply natural. They touch down in a particular context. Not all places are affected by disaster in the same way, because not all places have the same kind of infrastructure, economy and services. Several factors make people in highland Guatemala especially vulnerable in the case of a natural disaster.

Guatemala is a poor nation. Nearly 75 percent of the country's 12.6 million residents live below the poverty line. Over half of the population lives in extreme poverty. In the 2006 United Nations Health Development Index ratings—a composite measure of health, education, and standard of living indicators—Guatemala ranks 118th out of 177 nations. Low literacy rates and unequal access to health care and other resources place the country closer to the Sudan and Haiti on this list than to nearby Costa Rica and Mexico. Crime rates have risen sharply in recent years. And government corruption and inefficacy perpetually hinder democratic reforms.

A pernicious racial divide further marginalizes people like the Tz'utujil Maya who live in Panabáj. Between 40 and 60 percent of Guatemala's residents are indigenous. From conquest to colonialism to the recent genocidal civil war, there is a long history of exploitation and discrimination against the Maya. Indigenous communities have been marginalized at best, and terrorized, sometimes massacred, at worst. For example, in December 1990, 13 unarmed civilians were killed in a hail of gunfire while protesting at an army base near Panabáj. Amidst intense criticism from the media and international agencies, the Guatemalan government closed the base and withdrew all troops from Santiago Atitlán.

Peace Accords signed in 1996 ended the 36-year civil war. In the years since, international organizations, the state, and local communities have taken important steps toward reconciliation. But decades of violence are not easily overcome. Racism, fear, and distrust continue to divide Mayan and non-Mayan Guatemalans. And burdens of poverty and poor health weigh heavily on indigenous men, women and children. This combination of economic, sociopolitical, and institutional factors makes indigenous Guatemalans particularly vulnerable to a natural disaster like Hurricane Stan.

SOCIAL SUFFERING

Medical anthropologists have coined the term social suffering to emphasize the ways seemingly natural problems—earthquakes, storms, even illness—are also social problems. Political and economic factors influence the ecology of suffering (who is affected and to what degree). In his book *Infections and Inequalities*, physician and medical anthropologist Paul Farmer documents the disproportionate impact of emergent infectious diseases such as tuberculosis and HIV/AIDS on poor people. Farmer contends that poverty itself acts as a pathogen, enabling the spread of disease and working against its effective treatment.

After the Storm: Street Scene in Guatemala

PHOTOGRAPH BY JUAN CARLOS VEGA

This approach emphasizes the clustering of human problems in local contexts. In their book *Social Suffering*, Arthur Kleinman, Veena Das and Margaret Lock write, "Many of the same sources of breakdown, violence, emerging infectious diseases, and mental and social health problems are at work among poor populations worldwide." This model of clustering runs against the common sense notion that individuals and communities suffer from only one or two major problems at a time.

This is a powerful way to understand the broad social impact of Hurricane Stan in Guatemala. Hurricane Stan did not touch down in a vacuum. It touched down in a context of already existing social problems, and compounded many of those issues.

The towns around Lake Atitlán already had insufficient access to potable water, limited health care services and undeveloped transportation routes in and out of the area. When flooding rains washed out bridges and roads, many residents were trapped without access to clean water or food. Hunger loomed. The colder dry season would begin in November. Without sufficient nutrition and shelter, and with sanitation and water systems damaged, disease susceptibility was a pressing concern. Hepatitis A, cholera, and respiratory infections, compounded by psychological stress and trauma, threatened the health of those who had survived the flooding rains and mudslides.

THE SOCIAL MEMORY OF SUFFERING

Social suffering draws our attention to the cultural and moral dimensions of what suffering means for people. Historians, anthropologists and literary scholars have found that suffering in Latin America is often a wellspring for collective memories, shared forms of grieving and remembrance, and group identity.

In the case of Guatemala, there is a well-documented literature on visions and dreams associated with experiences of suffering. Ted Fischer and Carol Hendrickson, anthropologists who have worked extensively in highland Guatemala, recount the narratives of indigenous people who survived a catastrophic 1976 earthquake. In Tecpán, a mostly Kaqchikel Maya town nearly leveled by the quake, people claim to have seen a pack of wolves in the streets the day before the disaster. "Wolves epitomize the wild, that part of the world that humans cannot control," Fischer and Hendrickson write in their book, *Tecpán Guatemala*, "and in these stories their invasion of Tecpán symbolically foreshadowed the massive disruption of normative ('cultural') patterns of everyday life." Today, the story helps residents explain the horrific disaster and maintain a collective historical memory of the suffering they experienced.

SOCIAL DIMENSIONS OF DISASTER RESPONSE

If suffering is a thoroughly social process, then so too are responses to suffering. Responses are influenced by societal and institutional factors. In the immediate aftermath of Hurricane Stan, there were quick and effective relief and fundraising efforts led by international organizations such as the Red Cross, Water for People, UNICEF, and Doctors without Borders. Anthropologists and other scholars who work in the region also helped in these efforts. Local governments provided food and water for neighboring towns. The US and other nations pledged relief aid. Victims of the storm sought shelter in schools, churches, and other public buildings or filled the homes of extended family members.

Government response was inadequate and in many ways ineffective. The Guatemalan military and public rescue workers were deployed to regions in need, bringing fresh water and supplies. Basic building materials for the construction of temporary shelters arrived in towns like Panabáj shortly after the mud had settled. The Guatemalan Congress authorized around US$135 million for relief and rebuilding projects. Yet bridges, roads, and water and sewage systems remained in shambles for months. Seven months after the disaster, less than one quarter of the appropriated funds had been utilized. Not one cent of the money allocated for housing had been spent. Today, many survivors continue to live in rudimentary constructions intended as temporary shelters, awaiting aid and additional resources promised by the state.

Remarkably, when military personnel showed up to assist with search and rescue efforts, many Tz'utujil Maya residents in Panabáj refused their help. They insisted on digging through the mud for survivors themselves. Their refusal was a form of protest and historical remembering. A history of state-sponsored violence fed into a context of mistrust, and relief efforts were seen as potentially threatening. One form of suffering clearly fed into another in Panabáj.

Government response fell short in other ways. To pull together emergency funding, state officials diverted around US$35 million away from the *Programa Nacional de Resarcimiento (PNR)*, the national fund established in 2003 to pay reparations to victims of human rights violations committed during the civil war. Human rights advocates protested the move and questioned the ethics behind taking funds away from one set of victims to give them to another. In many cases, indigenous communities

On Lake Panajachel

PHOTOGRAPH BY JUNE CAROLYN ERLICK

were double victims: the hurricane devastated areas where the genocide was most aggressive. State relief efforts did not so much bring new relief to those areas, but actually undermined a crucial material aspect of the national peace process.

Understanding the experience of victims in highland Guatemala requires placing Hurricane Stan against this historical and social backdrop. Natural elements—wind, rain, and mudslides—but also forms of structural violence and institutionalized inequalities shaped the disaster's devastating outcomes. An anthropologically-informed relief effort would recognize these factors as crucial to shaping how victims interact with the state and its institutions and the overall recovery process.

That sufferers would resist military assistance is remarkable. Victims in Panabáj responded to the storm's destruction based on their experiences with the state and memories of past suffering. The ongoing Hurricane Stan relief effort, informed by such sociopolitical and cultural contexts, could be part of a broader social justice orientation in Guatemala aimed at undoing the accumulated impact of state-sponsored violence, public distrust, racial and social marginalization and socioeconomic disparities.

Kedron Thomas *is a Ph.D. candidate in the Department of Anthropology at Harvard University. Her research is on indigenous entrepreneurship and the effects of free trade policy in highland Guatemala.*

HURRICANE ISOLATED VILLAGERS; SOLIDARITY JOINED THEM

"Where was the school?" I asked the teacher. He threw a small stone to the middle of the Savegre River, around 150 feet out. "Over there, over there was my school," Marco Alvarez answered desolately. There was only a chunk of cement coming out of the turbulent and strident water.

He had taught in a one-room elementary school in Rio Blanco, an 18-family village in the mountains of Costa Rica's Central-Pacific region. Alvarez had crossed many fresh avalanches and reached his students two days after Hurricane Cesar had destroyed the town, on July 28, 1996.

As a journalist for *La Nación* newspaper, I had met the teacher three weeks after the hurricane. A photographer, a firefighter and I had arrived at Rio Blanco after trekking through the mountainside for a whole day. In my newsroom, in San José, I had heard that several towns were still isolated. Nobody had written about what was happening there.

The river had surged to the middle of the village, pulling out three houses, including the teacher's. Pieces of roof, walls and furniture were spread everywhere. Mud filled many other dwellings. The roads became swamps and the soccer field disappeared under tons of rocks and trunks.

"I burst into tears when I realized that the river had wiped away my little school, because it was one of the best in the area. It was a poor one, but well equipped. It had been built by the local people through our own effort," Marco said.

Cesar didn't hit Costa Rica directly. But its effects were ruinous: 40 people died, 1,417 homes destroyed, 170 bridges collapsed, 126 villages isolated. Losses reached more than US$200 million.

The catastrophe overwhelmed Costa Rican officials. They promised to help the village and sent, by helicopter, basic food, shovels and power saws. However, the government could do little with only three choppers, one borrowed from Honduras. In a poor country with no army, helicopters are a luxury, except when a disaster happens.

Marco was 52. He'd left his house in the city to teach in Rio Blanco. This plump and short underpaid teacher had quickly become a leader.

"My motivation is the children and the community. I cannot leave them behind. I will stay here," Marco told me, while proudly showing me the tin panels his students had just installed to build a temporary school.

Cesar had turned the villagers' pride into a skeleton of debris: a 200-foot long bridge that the Rio Blanco people had constructed by themselves after 10 years of planning. "Everybody here had worked a lot on that bridge and now we'll have to start again," said Arselio Mora, a 77-year-old founder of Rio Blanco.

To enter or leave Rio Blanco it was necessary to go through a dozen landslides, circle cliffs and balance on trunks that served as bridges. The families that lived there showed no fear of the risks. Ever since the heavy rains and the flood had damaged their village, they had worked together, clearing paths through the mountain.

With my notebook full of stories I was ready to go back. It was late, about 4 p.m. Our guide told us that he had found in the map a shortcut to another village about two hours away, where a car could pick us up.

We started to walk. Troubles came soon. The photographer twisted his ankle; the forest grew dark, rainy and foggy; we had no flashlight, no food, no water and we got lost.

To light our way, we used the screen light of the photographer's flash. We had to watch our steps to avoid abysses. We tied ourselves to each other with a string.

I felt irritated when I realized we could go from reporters to victims. We glimpsed a flickering light in the mountain and immediately changed course and began walking toward it. It was a small shack on the top of a hill.

At around 10 p.m. we knocked on the door and explained what was happening. A surprised man and his son welcomed us.

An avalanche had also washed away his little farm. His wife and his daughters had fled to another town. He and his boy had stayed to care for the house. They barely had any food but offered us coffee, a hot meal and a bed.

We sat together on the floor, enjoyed a bowl of soup by candlelight, and told stories of hurricanes and the people who see each other through them.

Mauricio Herrera *is a Costa Rican journalist who writes for* La Nación *newspaper. As an investigative reporter, he has covered politics, human rights and corruption issues. He is currently a Nieman fellow at Harvard University.*

Pinochet: General Earthquake

Political and Natural Disasters

BY CARMEN OQUENDO-VILLAR

"The death of General Pinochet has caused an earthquake among the army rank and file." —Channel 13 news, December 15, 2006, 11:30 a.m.

Chile experienced two earthquakes on September 11, 1973. In this highly seismic country, earthquakes form a part of the daily lives of its inhabitants in certain regions. Only a few of the capital's colonial buildings managed to survive the frequent flooding and earthquakes of that period. One region in Chile has experienced up to 18 small quakes daily, indicating almost permanent seismic activity.

Chile's collective imaginary has become accustomed to natural disaster and calamity. Earthquakes and, to a lesser degree, flooding, have dominated its constellation of disaster. The "imaginary of calamity," as Chileans often refer to catastrophic natural phenomena, finds historical echoes in the devastating earthquakes of 1751 and 1835, which marked the period of revolution and independence of the Republic (1810-1818).

The 1835 earthquake became internationally famous when young Charles Darwin experienced the event during his scientific expedition to Chile. He reflected on this trip in the *Journal of Researches into the Geology and Natural History of the Various Countries Visited by H.M.S. Beagle, Under the Command of Captain Fitzroy, R.N., from 1832 to 1836* (London: Henry Colburn, 1839): "A bad earthquake at once destroys the oldest associations; the world, the very emblem of all that is solid, has moved beneath our feet like a [thin] crust over a fluid." Darwin continues, "One second of time has created in the mind a strong idea of insecurity, which hours of reflection would not have produced."

More than a century later, this earthquake was surpassed by the traumatic 1960 "Great Earthquake of Chile" which registered 9.5 on the Richter scale. That earthquake tumbled buildings, killed almost 3,000 people and left affected two million.

These natural phenomena exist in the realm of the possible and the imaginable in Chile, in spite of their erratic nature and the great destruction they generate. The country's governmental institutions and civil society organizations—such as prevention agencies and emergency aid groups—live in a state of never-ending but always insufficient preparation. Earthquake-prone Chile in 1973 could easily conceive of a possibly catastrophic intrusion of nature into the social and cultural realm. What Chileans could not imagine was disaster of a political nature, so typical of the rest of Latin America in the 60s, 70s and 80s.

The experience of a relatively tumultuous colonial period with a permanent state of war because of fierce indigenous resistence to the Spanish Conquest, a relatively long war for independence and two decades (the 20s and 30s) plagued by coups and de facto governments did not keep Chile from generating a self-concept based on political stability and pride in the longevity of its institutions. Chile had long thought of itself as the "Latin American exception" with its solid institutional base. Chile set itself up as the model example of institutionality, pointing to Diego Portales, the "Organizer of the Republic and "Founder of Institutionality" with his work *The Form of the State (Estado en forma).*

In *La seducción de un orden: Las élites y la construcción de Chile en las polémicas culturales y políticas del siglo XIX* (Santiago: Ediciones Universidad Católica de Chile, 2000), Ana María Stuven argues that since the 19th century, institutionality and social order have been fundamental concepts of Chile as nation. Stuven proposes that the idea of nation during the first fifty years of republican life was shaped by the national elites' fear of endangering the established social order. Thus, these elites sought to avoid the breakdown of the *status quo* at all costs, including at the expense of the very liberal ideals that had inspired the wars for independence. In this sense, the mythology of institutionality made this country, on the verge of experiencing one of the most infamous coups in the world, think of itself as "earthquake-proof" in terms of its social institutions. Chile thought of itself as invulnerable to political catastrophe, or any "abrupt change of the state of the system" (Royal Academy).

SEPTEMBER 11

On September 11, 1973, two tiny earthquakes, both under 3.5 on the Richter scale, went almost unperceived, lost in the military thunder of the Chilean Air Force Hawker Hunters blasting at the scenes of deposed order.

While the coup was, to a certain extent, unintelligible within the framework of the national mythology of law and order, it was, in other ways, quite foreseeable. It was general knowledge that the 1973 political crisis had stirred conflict among the Armed Forces, discontent that could lead to rebellion. Enormous collective anxiety stemmed from the sharp crisis set off by the Unidad Popular government—a period of dizzying change confronting the long-reigning dictatorship of supposed stability. From this point of view, the two milestones of the 20th century would be September 11, 1973, and September 4, 1970, the day Salvador Allende was elected president, when Chile brought to power the chimera of socialism without revolution, "socialism with red wine and empanadas," the famous Chilean way.

During 1973, public opinion debated the looming civil war. In a certain way,

> Chile has long been accustomed to natural calamities, but until September 11, 1973, it conceived of itself as a nation of stable institutions and social order.

1985 San Antonio earthquake: Chile is used to natural geological earthquakes, but not to political ones.

the media gave a discursive reality to what would later become empirical reality. Claudio Rolle contends in *La 'no historia' de un año crucial" en 1973: La vida cotidiana de un año crucial* (Santiago: Planeta, 2003, p. 26) "…paradoxically, the more we argue against a coup, the more a coup appears upon the horizon of expectations, now turned into an almost inevitable threat." However, nothing prepared Chile for the actual coup. Surpassing all parameters with the force of an earthquake, the 1973 military-political shakeup had the impact of the 1960 geological event. Darwin's perception that the 1835 earthquake represented a shattering of the "oldest associations" echoed in the Chilean collective memory. Making almost irrelevant September 11's two small geological quakes, the coup became a historical schism that definitively changed 20th century Chile.

Chile's political earthquake spread out from Valparaiso to Santiago and then sent a tremor through the entire country. Throughout the years, the coup has continued to have an impact, to the present day. September 11, 1973, has been inscribed as the most significant day-event in Chile's 20th century history, resonating in the international imaginary of catastrophe in a similar fashion to that other September 11 of recent U.S. history.

THE GENERAL'S EARTHQUAKE: MAKING TSUNAMI WAVES

If the coup was experienced as a kind of earthquake, Pinochet's leadership in the *caudillo* (strongman) style emerged—after the movement of those tectonic layers called the Armed Forces—as a gigantic tsunami that swept through the narrow but long Chilean geography. From there, from the cracks in the imploded earth, from the shaken architecture, arose the totem—somewhere between telluric, marble-like and technological—of General Augusto Pinochet Ugarte. Pinochet did not produce the coup; Pinochet was produced by the coup. Shaking earth, history and bodies, this event gave birth to the General, with the media serving as midwives. The event gave corporality to his image, projection to his voice, and relevance to his words, generating a body for the dictator, upon which post-coup law would be constituted.

Iconic status has accompanied Pinochet ever since he emerged as a political actor. The dictator's body, with its paraphenalia and gestuality, was generated in the media through images, sounds and words that in 1973 shook the entire world.It would project itself over and over again in the memories of thousands of people and, with its

PHOTOGRAPH BY LUIS WEINSTEIN, E-MAIL: LUCHO@WEINSTEIN.CL

1985 earthquake: How does one measure an earthquake?

expressive force, is still capable of striking spectators down to this day. The seismic wave continues to vibrate.

Even after his death, Pinochet returned to protagonize public debate. Pinochet, now in the grave, emerged once again with seismic force. This was the General Earthquake that shook up, for better or worse (depending on one's viewpoint), Chilean history. With its origins in the coup, this metaphor recurs, just like the earthquakes, without any determinate cycle, to a collective public incapable of reaching a consensus about the strongman's image and legacy.

THE MEASURING SCALE

There are two scales used to measure earthquakes. The Richter scale measures the earthquake's seismic energy, based on the seismographic register. The Mercalli scale, on the other hand, is not based on registers, but focuses on structural damage and people's perceived sensations. With Pinochet's death, the entire country dedicated itself to processing its perceptions about the caudillo, and to reaching closure in regard to this leader who had not been tried legally or historically. In December, various judgements were being discussed, among them, divine, historical and, obviously, legal. In a phenomological sense, the Mercalli scale was being used to measure the Pinochet earthquake, mostly considering the perception of the military government's actions and works, as well as its costs and consequences. On one side of the scale of public opinion weighed Chile's economic prosperity and political stability. On the other side weighed the human and social cost: the assault on democracy and humanity. The strongman's defenders established their version of the historic perspective; his detractors expressed their discomfort with the idea of progress as catastrophe and asked that the bright economic picture be seen in the light of an ethical mirror.

Polarization accompanied the caudillo's funeral. In the style of a Jorge Luis Borges character, Pinochet was both traitor and hero. His cadaver was spat upon by the grandson of Carlos Prat, a former military commander murdered in Argentina on Pinochet's orders. Pinochet's body, draped in the uniform of Chilean forefather and independence hero Bernardo O'Higgins, was honored by a long procession of followers, while others gathered in the Plaza Italia, celebrating Pinochet's death, yet lamenting that he had never been brought to justice.

It is not surprising to anyone that postmortem public judgement has a high visual component. Indeed, as writer Carlos Franz has observed, Pinochet had become an "icon of contemporary pop culture." For many around the world, Pinochet was their only identifiable reference to Chile. As a "Pinochetologist" who has spent the past decade studying the caudillo, I have questioned at times my own monumentalization of the dictator. As a Puerto Rican with only intellectual and emotional connections to Chile, I have experienced this leader as a "larger than life" figure. In my own investigations, I confront the dangerous power of the enchantment of image, and therefore I consider it imperative to take into account the symbiotic relation-

PHOTOGRAPH BY LUIS WEINSTEIN, E-MAIL: LUCHO@WEINSTEIN.CL

ship between projected image, perception and social control. Media projection must be considered to understand the exercise of power, the retention of social control and the construction of historic memory.

Pinochet's funeral wove together publicity codes and military protocols. The obsession with icons was the great protagonist at the funeral. Thousands of people, polarized by their ideologies, took to the streets, their icons in hand. Some of them carried the image of the brutal dictator and others of the founding father of modern Chile. On some occasions, opposing factions used the same image, imbuing it with different meanings. Since the measure of an earthquake on the Mercalli scale is one of perception, the media relied on the play of images. Thus, newspapers and magazines published special issues, remembering Pinochet's trajectory through carefully selected images. New technologies did the same thing; opinions about Pinochet proliferated on blogs and e-mail. Independent Internet broadcaster *YouTube* received an avalanche of Pinochet-themed videos.

AN EARTHQUAKE-PROOF, UNSHAKABLE MONUMENT

The death of Pinochet shook up civil society's public opinion, as well as the government and Armed Forces. Two Army officers, one of them Pinochet's grandson Augusto Pinochet III, demonstrated sympathy for Pinochet during the funeral, expressing their political affinity with a coup as a viable instrument. These remarks alarmed those who believed that 21st century Chile could never endorse a coup, and eventually the remarks were interpreted by the government and the top Army leadership as "political opinions" unacceptable for uniformed officers. Both were dismissed from the Army.

"The death of General Pinochet has caused an earthquake among the army rank and file," was what the journalist for Catholic Channel 13 noted with alarm, underscoring the turbulent situation faced by President Michelle Bachelet and the Army. The polemic centered around issues like the granting of a state funeral and military honors, but soon escalated to an impassioned argument about the possible construction of a monument in Pinochet's memory or the placing of an oil painting in his honor in the Gallery of the Presidents in the presidential palace, La Moneda. Although Pinochet's body had already been cremated, public debate continued about the historic inscription that was to be bestowed upon the caudillo's body. On those December days, the debate was, and continues to be, what image will remain indelibly stamped and unshakably monumentalized in the imaginary mausoleum of Augusto José Ramón Pinochet Ugarte (1915-2006).

Disagreements about the significance of his figure and the decoding of the icon gave way to deep unanimity: the incursion of this military man into Chilean history had changed its course forever. Pinochet's funeral did away with the most optimistic version of the ultra-negotiated Chilean transition, leaving it behind in the rubble. This version affirmed that the former dictator had been buried as an obsolete political actor in this 21st century, that the former ruler was only a shadow, a remora of the past. But, Pinochet had not died before his death on December 10, 2006, as many claimed. He was dying, but not dead. His figure may have been hidden, but his ghost flickered about and was occasionally glimpsed in the national panorama. Unlike an extinct volcano, the apparently fossilized icon—whether simmering in black-and-white or in living color—seemed ready to cyclically emerge in accordance with the perverse logic of calamity. It is possible that Pinochet, as Ariel Dorfman feared in his posthumous reflection in *El País* on December 12, 2006, "will never be extinguished from the earth."

Carmen Oquendo-Villar *is a curator and visual artist of Puerto Rican and Spanish descent. Educated in Latin America, West Africa and the United States, she is now a Ph.D. candidate at Harvard. Also a scholar, she is currently completing a book on performance and politics during Chile's coup, specifically about Augusto Pinochet as its leading political icon.*

EL NIÑO, CATASTROPHISM AND CULTURE CHANGE IN ANCIENT AMERICA

By now, you've read essays in this *ReVista* that mostly span from colonial times to the recent death of Pinochet. There's also an occasional mention of indigenous belief systems.

After having explored Harvard's research on natural disasters for a while, I was confident that I'd ferreted out an inclusive range of multidisciplinary subjects on the theme. It was much to my surprise, when I went to pick up some images for this issue at the office of Tom Cummins, Dumbarton Oaks Professor of Pre-Columbian and Colonial Art History, that he asked, "What are you including on the conference at Dumbarton Oaks?"

It was a lacuna in *ReVista*, and it was two days before deadline. On the Internet, I found a record of the fascinating October 2002 Pre-Columbian symposium. According to the website, the conference proposed to use the El Niño phenomenon, "one of the best studied agents of drastic environmental change" as a way of exploring how past cultures and their transformations are understood and explained.

The symposium, organized by Daniel H. Sandweiss and Jeffrey Quilter, examined the correlation between El Niño episodes and the dynamics of Peruvian prehistoric culture. It looked at the possible relationship of El Niño to the collapse of the Moche empire. And it delved into the question of how change in art styles may reflect the disruptions caused by environmental and social traumas.

The Dumbarton Oaks website states:

"The search for synthesis that resolves the contradictory trends of our understandings of the devastating impacts of cataclysm[ic] environmental events with our appreciation of the ability of humans to create and alter their social worlds [was] a chief goal of this meeting."

It struck me that whether the authors in this issue have discussed Hurricane Katrina or the 1985 Mexico earthquake or Hurricane Stan or colonial Lima, the same theme has emerged throughout this *ReVista*: the environment cannot be separated from human creation and the shaping of social worlds.

—June Carolyn Erlick.

HUMANITARIAN AID AND RISK ASSESSMENT

Dispute Resolution in Resettlement p. 56
Accountable to Whom? p. 61
Large-Scale Risks and Extreme Events p. 65

Because we can't all help disaster victims individually, we trust humanitarian agencies and others to carry out the task. But questions about accountability, catastrophic risk management and global governance remain.

Seeking Higher Ground

Dispute Resolution in Resettlement in Ceará

BY JENNIFER BURTNER

Plans to build Castanhão, the largest dam in Ceará, Brazil, have existed for a century. Incredulous that the project would ever begin, much less be finished, residents of the proposed flood zone continued with their daily lives, building and formalizing communities along the banks of the Rio Jaguaribara. Here they built social, economic and legal ties to the land—ties that in the late 1990s had to be severed.

By 1998 anti-dam community leaders realized that stopping the dam was no longer an option.They acknowledged that their strategies must change, and the best they could do is work, and, if necessary, fight, with the government for their rights to resettlement on higher ground. They used every possible tool at their disposal from established institutions such as the Catholic Church to newly formed international solidarity networks, from face-to-face community meetings following Mass to Internet and fax communications to the World Bank president. Through the new state government mandated dispute resolution process instituted for Castanhão, referred to as the GM (*O Grupo de Trabalho Multiparticipativo*), they learned to know whom to pressure and why, how to make alliances with groups with whom they have had little previous contact or affinity; and how to evaluate whom to trust.

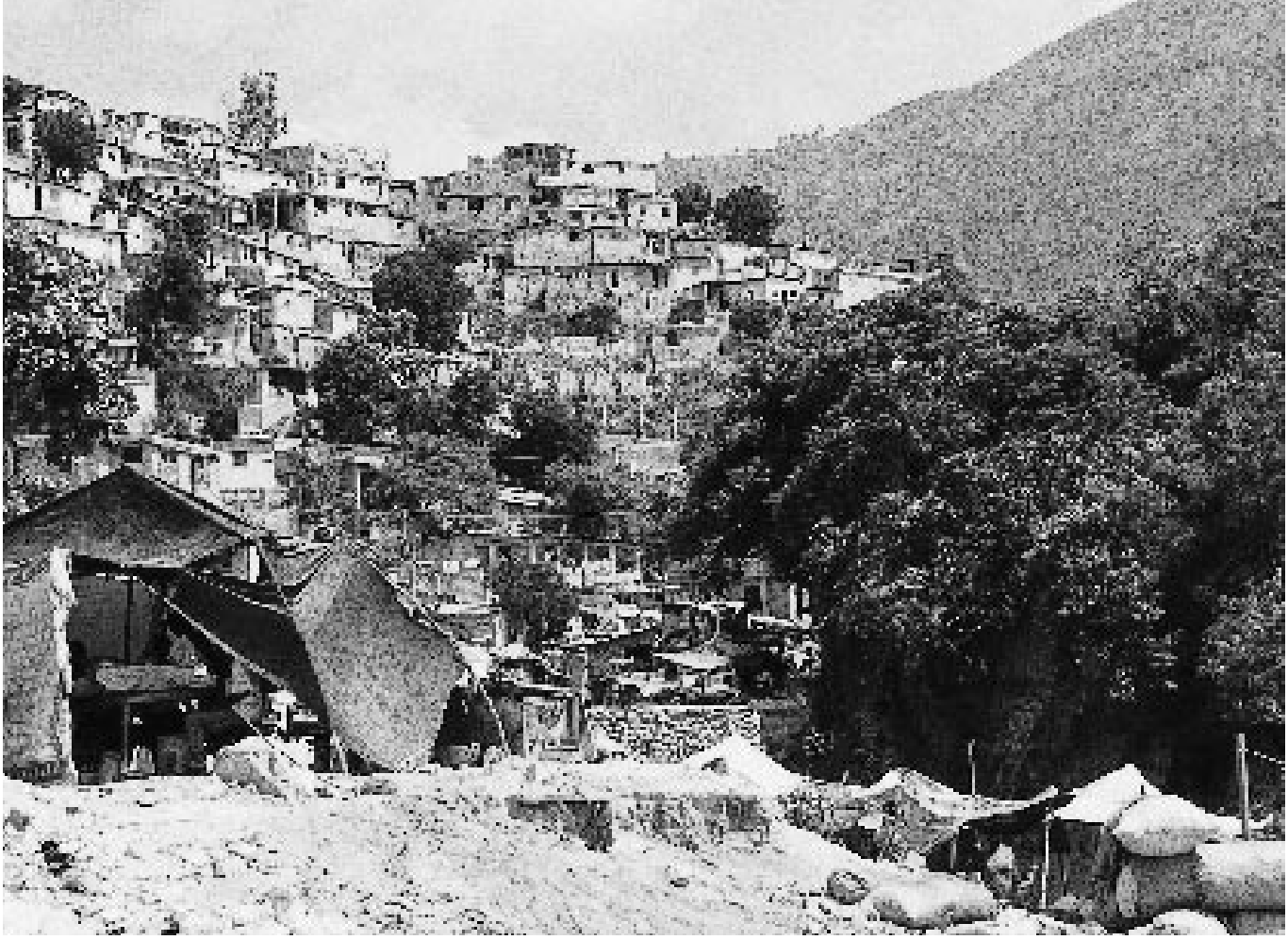
Meanwhile, as the concrete and water rose, so did the expectations of the Brazilian national and state administrations. International solidarity networks were pressuring the World Bank, and Castanhão had become an issue. Although the Bank didn't fund the project, it was funding other smaller scale state water projects through the PROGERIRH and PROURB programs. It and its state level counterparts knew that what happened in Castanhão would effect what happened in the rest of the state: socially, politically and financially. However, they were not the only ones who knew this. A soft-spoken and extremely well organized nun with a jeep, computer and printer living in the parish of Jaguaribara also knew this, and this is where our story begins.

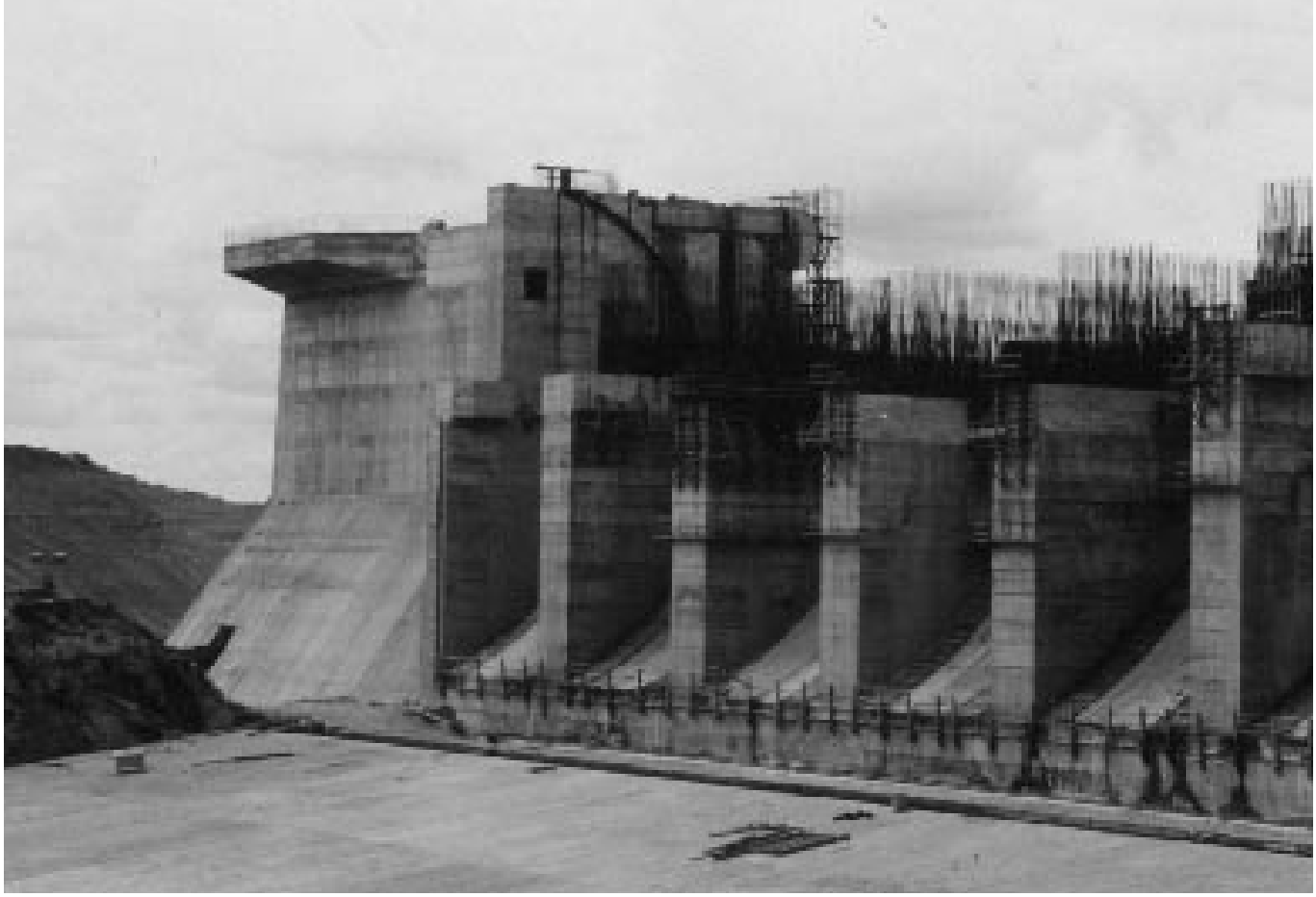
LOVE THY ENEMY

We left the parish house located in front of the Jaguaribara Catholic Church, the same one we had seen in the pictures that would be replicated for the new city, Nova Jaguaribara. We walked down the cobblestone streets to our first meeting with the local Resident's Association. Local leaders had chosen the building since it was the only one with air-conditioning. Although the rest of the *sertão* was

Clockwise from top: a resettlement overview, a community meeting, a local Virgin image to protect against further disaster

PHOTOGRAPHS BY JENNIFER BURTNER





Plans to build Castanhão, the largest dam in Ceará, Brazil, had existed for more than a century, but no one believed it would really happen.

stiflingly hot because of the nine-month drought, this town, built lower down by the river, was relatively green. At night, people moved tables and chairs out onto the sidewalks to sit, drink, play cards, talk and enjoy the evening breeze. But that would all stop soon, once construction on Castanhão was complete.

It was 1998 and I was on my first tour of Castanhão's flood affected areas, one of many visits over the next decade. I was the social scientist in a research evaluation team assessing government resettlement practices among communities to be displaced by dam projects aimed at combating regional drought. Although less dramatic than earthquakes, hurricanes or tsunamis, to Brazilian policymakers drought was the cyclical natural disaster that unrelentingly plagued their country, defining the past and future of all those living within the "drought polygon."

We had come to Jaguaribara to meet Sister Maria Bernadette Neves. Active in building community organizations for 17 years, she was the leader of the local movement against dams and advocate for the impacted communities. We had heard a great deal about her leadership in opposition to the dam, her meetings with Medha Patkar of the Indian Narmada Bachoa Andolan (NBA), and her role in the Brazilian Movement of People Affected by Large Dams (MAB). Although disliked by some extension workers, most pro-dam advocates praised her as a woman of great intelligence, strength and organizational ability. She was a force to be reckoned with and institutional representatives all agreed should be the person we first meet upon entering the project affected communities. We were, however, unsure how this meeting would go. We were contracted by the Secretariat of Water Resources to study resettlement and rehabilitation (R&R) reform and had an interested audience at the World Bank. We had spent the last month interviewing state and private sector representatives and field technicians. Finding out we had strong contacts to the Bank had sparked a great deal of interest on the behalf of service institutions. How the communities would react to our presence was unknown.

After this initial meeting, Sister Bernadette approached a member of our group who was from India. She had learned a lot from Gandhi's teachings, in particular to love thy enemy, she said. She was using his teachings in this struggle, here, now. My colleague added that other leaders facing similar situations had preached similar restraint. He told the story of how after one of the battles of the U.S. civil war, Lincoln praised the bravery of the other side's soldiers. Afterwards, an old woman asked him why he would praise the enemy instead of putting all his energy into destroying them. Lincoln answered that "when I make them my friends, do I not destroy them as my enemies?" The message was clear: despite our different positions and interests, we were willing to work together, and, for now, that was good enough.

CULTIVATING NEOLIBERAL REFORMS

When we began fieldwork in May 1998, Tasso Jereissati was finishing his second term as governor and preparing for October elections. The Northeast was experiencing another bad period of drought, sparking new waves of urban migration, and rending the agricultural economy and rural population "inactive." The state government just instituted emergency programs, including food and emergency employment aid, similar to those implemented throughout the previous 100 years. Jereissati also accelerated the creation of state water resource infrastructure, making it an integral component of development policy aimed at providing municipal water supplies to urban centers and irrigation for food production and agro-industrial initiatives.

Despite the economic hardship caused by droughts, economic

PHOTOGRAPH BY JENNIFER BURTNER

growth within Ceará during the late 1980s and early 1990s outpaced the rest of the Northeast and the more "developed" parts of the country. International and Brazilian business reviews credited higher growth to the distinctly "pro-business" and "modernizing" policies of state level leaders (e.g., Jereissati 1986-90, 1995-99; Ciro Gomes 1991-94). While drought was familiar to Ceará, economic trends in which it performed well were not. The Brazilian Northeast, composed of nine states, encompassing one fifth of Brazil's landmass, and home to 30 percent of the nation's population, is one of its poorest regions, producing only 14 percent of GDP. Despite its primacy during the colonial period and in national culture, the Northeast has been viewed throughout the twentieth century as a national liability: the source of rural out-migration to the cities in the South and Amazon basin and a continuous drain on national funds.

One of the objectives of water infrastructure development in semi-arid regions is to provide stable employment for rural producers, thereby reducing migration. However, the creation of water infrastructure immediately dislocates people. International funders and planners impressed with Ceará's reforms focusing on participatory planning and decision making, hoped that here they would find a new approach to resettlement. For them, the question wasn't "What has gone wrong again?, but "How can an area famed for clientelism and poverty transform into a model of economic growth and 'good government'?"

LOOKING FOR GOOD GOVERNMENT IN THE TROPICS

In 1997, Judith Tendler brought Ceará into the limelight, not as another example of corrupt systems and rural victims, but rather of "good practices." In *Good Government in the Tropics* she challenged conventional Latin American development analyses by formulating advice drawing on cases of good performance; promising programs in rural preventative health, business extension and public procurement from small firms, employment-creating public works construction and other emergency relief and agricultural extension services. These revealed a three-way dynamic between activist central governments, local governments, and civil society, in which the state contributed "to the creation of civil society by encouraging and assisting in the organization of civic associations and working through them. These groups then turned around and 'independently' demanded better performance from government, both municipal and central, just as if they were the autonomous entities portrayed by students of civil society" (Tendler 1997:16). This argument greatly "complicates the currently popular assumptions of one-way causality, according to which good civil society leads to good government and, correspondingly, good government is dependent on the previous existence of a well developed civil society."

One of the objectives of water infrastructure development in semi-arid regions is to provide stable employment for rural producers. However, the creation of water infrastructure immediately displaces people.

Her argument raised questions in Brazilian Secretariats, U.S. and Brazilian NGOs and the World Bank. Beyond its conciliatory stance towards Northeastern reform and extension workers it made sense to those familiar with policy making and funding. Individuals within these administrations knew that decision making regarding water resource allocation was far from unidirectional; NGOs were not disinterested transparent mouthpieces of the masses, and the state wasn't always right. Current social programs were the result of initiatives made by various actors that constituted a dialogue dominated by shifting priorities. The question was, "Was this happening in Castanhão?"

GIVING CREDIT (AND LOANS) WHERE IT'S DUE

Much of the organized resistance to the Castanhão project, and organizational success of Jaguaribara, was led and coordinated by Sister Bernadette. When she first arrived in 1981, the socio-economic conditions and organizational level of the municipality mirrored those of surrounding areas. Since then, she has helped organize to improve conditions, creating a stronger presence of the Catholic Church in the city, improving schoolteachers' wages, and spearheading demographic and socio-economic data collection in the municipality.

Although dam-building had been discussed since the early 20th century, concrete plans only began in 1985, when the state government had the political and financial ability to move ahead. This was when Secretary of Planning extension workers began visits to households marked for resettlement. They were met with great resistance, particularly in the town of Jaguaribara, being driven away with rocks and threats of violence. Communities feared a replication of Oros, the other dam on the Jaguaribe. Residents often referred to stories of "dynamite" and "hydraulic resettlement" in which people were driven from their homes by construction blasts at the dam's axis or by rising water.

Shortly after notification, Sister Bernadette began calling community wide meetings and helped to form a Resident's Association in Jaguaribara City and two rural communities. These associations dedicated themselves to finding out more about the project, collecting and organizing vast quantities of information. Sister Bernadette and Resident Association leaders then built an extended network, first through the Catholic Church, and later through national and international solidarity networks of people affected by dams. This community resistance helped delay the dam for nearly a decade. However, in 1994, work commenced at a serious pace and never ceased.

Dissatisfied with the state's response to the community's concerns, Sister Bernadette met with the Bishop of Ceará, who in turn met with Jerreisati. These meetings had a great impact on the process, eventually forcing the government into a more participative, consultative stance. In 1995 under government decree, Jerreisati called for the establishment of *O Grupo de Trabalho Multiparticipativo* (GM) to create a forum to resolve disputes related to resettlement, provide transparency to government actions related to resettlement and construction at Castanhão and exchange information between project agencies and communities involved.

Initially, the GM was met with considerable skepticism by PAPs, who perceived it as a creation designed to whitewash governmental action. It wasn't until the GM began to produce beneficial results that the communities came to accept its utility.

When we arrived in Ceará, there were numerous stories about the GM's creation. While Jaguaribara residents held that Sister Bernadette had forced the government into dispute resolution, public servants maintained that the government (e.g., governor) had taken the initiative, creating the GM structure, assuming administrative and financial responsibility. We concluded that both were right and necessary for dispute resolution to continue. Brazil's trend towards increased decentralization hadn't meant the withdrawal of government from local matters, but had allowed state governments the freedom to be even more involved in local and regional political processes and the activities of NGOs and civil society; and more agile in addressing recurrent regional natural disasters such as droughts. This fact is illustrated in that this is one of the few times in which the World Bank conceded to agreements directly with the state government. Jereissati and Gomes's successful economic and political strategies had earned them a particular trusted position, allowing them to set up direct loans. Their proactive wish to go ahead and address a crisis (drought) in what they saw as a regional issue in a complex Federal system was viewed as extremely positive by Bank decision makers. This direct control and access to the Bank allowed them the power to administer the funds quickly, institute the GM process and independently review it, creating one of the most successful and enduring multi-participatory dispute resolution models in the region's history.

Jennifer Burtner *is a Lecturer in the Department of Anthropology, Tufts University and a Research Affiliate and Former Brazilian Studies Coordinator, DRCLAS, Harvard University.*

BRAZILIAN CERRADOS: VANISHING BIODIVERSITY

The Cerrados are a mosaic of savannas, grasslands and tropical dry forests that once covered about one-fifth of Brazil, an area the size of Alaska. Among the world's oldest and most diverse tropical ecosystems, they rival Amazonia in species diversity. Despite their ecological importance the Cerrados have received much less attention from conservationists and international media and, at present, are one of the most threatened ecosystems of Brazil. According to a recent study by Conservation International, they may disappear by 2030.

During my summer internship funded by the Rockefeller Center for Latin American Studies, I had the opportunity to study this wonderful ecosystem. At first, I was astounded by the diversity of its flora and fauna. We tend to associate lush, dense tropical wet forests with high biodiversity. However, I was able to see first-hand how a dry environment, such as the Cerrados, can be home to a multitude of plants and animals. Sadly, I also found out how the Brazilian government continues to undervalue and fail to protect this ecosystem.

Until the late 1950's the Cerrados could be found from the south of Brazil until Amazonia. During this period governmental policies encouraged migration to the central areas of Brazil in order to promote the development in this unpopulated part of the country. Together with this burst in human population came the uncontrolled expansion of agricultural activities in the region, which in turn dramatically increased the destruction of the natural vegetation cover. Today, deforestation and natural and anthropogenic fires have decreased the Cerrados' original area by more than one half, and it may be that half of these remaining areas are no longer appropriate for biodiversity conservation.

I developed my research project in one of these reserves, the IBGE Ecological Reserve. Located only 22 miles from downtown Brasilia, it is equipped with good quality lab facilities; its location near the University of Brasilia provides advantageous conditions to do research in the Cerrado ecosystem.

As a first year graduate student at the Harvard Biology department interested in studying how drought events influence the distribution and abundance of trees in tropical forests, I found the Cerrado climate regime and vegetation most attractive. This ecosystem experiences a severe limitation in water availability, having a low relative humidity and a pronounced dry season from June to October when there is almost no precipitation.

According to some global climate models human-driven increase of CO^2 concentrations in the atmosphere will increase the frequency of drought in some tropical forests around the world. The field experiments that I developed this summer shed some light on the physiological strategies that tropical trees employ to deal with water stress conditions. This kind of study is helping us to understand how trees would face such drought events. In turn it provides conservationists and environmental managers with better tools to identify the appropriate steps to protect these ecosystems from anthropogenic activities.

Although some protected areas like these are helping to conserve the Cerrados, more efforts are needed. Only 2 percent of the Cerrados are under protection, compared to 12 percent of the Amazon. The Brazilian Constitution considers such tropical biomes as Amazonia, Pantanal and Mata Atlântica as national patrimony, but the Cerrados have not yet obtained this status, thus hampering the work required to conserve this ecosystem.

Hopefully, in the near future, the Brazilian government, working together with conservationists and local communities, will recognize the importance of the Cerrados and create more protected areas. This would make it possible to conserve its great biodiversity under the new global climate conditions of the Anthropocene geological period. Certainly this task will not be accomplished without massive education programs to make the local and international community realize how valuable the Cerrados are and how urgent it is to protect them.

Juan Pablo Giraldo *is a first year graduate student in the Harvard Biology department. He received a DRCLAS internship grant to Brazil.*

Accountable to Whom?

Whom do humanitarian agencies actually work for?

BY PETER WALKER

The kid across the street falls off his bike; I go across and help him up, noticing he has cut his knee and it's bleeding. I get the first-aid kit from the garage, clean the knee and put a plaster on it, and the boy, still biting his lip and trying not to cry, cycles up the road to his home on the other side of the block.

That was essentially small-scale humanitarian assistance. There was an emergency, an outsider responded in a timely fashion to provide immediate and appropriate assistance, the emergency ended and life went on. It never crossed my mind to think about whom I was accountable to or for what.

Cut to a border zone in Africa. Refugees are pouring across the border in this desolate semi-desert. An agency is rushing to set up a camp for 5,000 people. It wants to provide everything just right so it constructs a perimeter fence, pipes water, as well as electricity and all the works, to each prefab house. However, the process takes so long that the refugees move on to another site, another agency.

Across the other side of the country, drought has decimated the pastoralist population in a remote mountainous area: the same area where a suspected terrorist group has training camps. An aid agency has a plan to deliver individual sacks of food grain into the population using micro-light aircraft that can negotiate these mountainous areas. However, the aircraft will also be taking photographs of the valleys and passing these on to a "friend" who works for a security agency. And in the same area a small NGO is arguing with its donors that the decimated pastoralist community needs just so much water and so much food and the donor is arguing that they are used to living in desert conditions and can get by on far less than that. The country's government is demanding that the aid agencies submit monthly reports of their work. The donors are demanding financial tracking, and the press guy from Fox News wants to know how much out of each dollar goes directly to the beneficiaries.

All of the above are real examples and all beg the questions: who is accountable, to whom, for what and why?

Clockwise from top: The Pan American Health Organization carries out projects in Guyana, Venezuela and El Salvador

PHOTOGRAPHS BY ELS SCHOLTE AND ARMANDO WAAK, COURTESY PAN AMERICAN HEALTH ORGANIZATION

CHARITY OR PROFESSION?

The last 15 years have seen an explosion in the volume of humanitarian assistance around the world, including Latin America. Some would say that there has also been a political sea-change in the nature and purpose. Tracking through all these changes has been the question of accountability.

Why does accountability matter? After all humanitarian assistance is mostly carried out by not-for-profit organizations providing a service which simply would not be there if they did nothing. But, unlike the individual providing first aid to the kid who fell off the bike, aid agencies, whilst well intentioned, are specifically set up to take someone else's money and pass it on in the form of a service to another group. The aid agency is entrusted with the resources of one group and trusted to do the right thing by the other. It is because of this trust that aid agencies absolutely have to be accountable.

ACCOUNTABLE TO WHOM AND FOR WHAT?

Agencies are essentially accountable for three things. They are accountable for delivering an appropriate and competent service. They are accountable for the trusteeship of the resources given to them, and they are accountable for acting according to a pre-agreed set of values or principles. This is essentially a description of what it means to be a profession. Think of medicine or law. There is a value set—the Hippocratic oath or client confidentiality. There is trusteeship of resources (no overcharging). There is the delivery of competent service (thus avoiding malpractice suits).

Aid agencies also have another accountability trait in common with doctors and lawyers. They are accountable to multiple groups. There is no ultimate share holder. They are accountable to those who provide funds (government, foundations, the general public); they are accountable to their peers since most relief operations require many agencies to work professionally together. They are accountable to future generations in that they have a responsibility to build and develop the competence of their profession and their organizations to deliver better service in the future. And, of course, they are accountable to their clients/patients/beneficiaries.

> The aid agency is trusted with the resources of one group and trusted to do the right thing by the other. It is because of this trust that aid agencies absolutely have to be accountable.

TRUST

Aid agencies, particularly international ones, are often criticized, mostly by those on the right of the political spectrum, for being out of control or having no mandate. Humanitarian agencies are not elected to provide a service, critics say. They are not appointed by a recognized authority; they are not hired by the clients/beneficiaries. They are considered self-appointed do-gooders playing God on the adventure holiday of a lifetime in someone else's country —or so the caricature goes. By what right do these self-appointed moralists act??

Of course the cornerstone of this critique is that you can truly divide the world up into them and us. But if your take is a cosmopolitan one that intrinsically values no human life over any other, then your right to provide a service from an aid agency based in Boston to a community in Colombia is no different from your right to cross over the street and tend to the suffering of the kid who fell off the bike. Your right to help each other is an essential part of what it is to be human. Because we can't all help each disaster victim in the world individually, we entrust the aid agency to express and apply our humanity for us. That trust is why agencies have to be professional and accountable.

CODES, STANDARDS AND RISKS

As agencies have grown in size, public profile and professionalism they have developed a whole raft of accountability tools, codes and standards. Some of this has been driven by systemic changes in the way government agencies feel under increasing pressure to demonstrate accountability to the electorate and pass on that responsibility to those to whom they give grants. Some of it is driven by a trend that seeks to instrumentalize NGOs in the humanitarian sector as implementers of foreign policy in crisis zones, and part of it is driven by agencies' anxiety as they grow in size and realize that the old "charitable" way of doing business just does not cut it today.

In the past decade or so, humanitarian NGOs have come together globally to develop a code of conduct, a sort of ethical code on how they should behave when delivering assistance in someone else's country (You can see a full copy of the code at http://ifrc.org/).

In the mid-90s, this process was taken a step further with the development of the Sphere Standards. These global quality standards see humanitarian assistance and its delivery and acquisition as a rights issue, derived from international humanitarian law, refugee law and the human rights conventions. The standards (with indicators) for delivery of food, water, sanitation, shelter and health-care have been translated into at least 20 languages, spawning a global network of trainers and courses aimed at helping agency staff program to these minimal standards (see http://sphereproject.org).

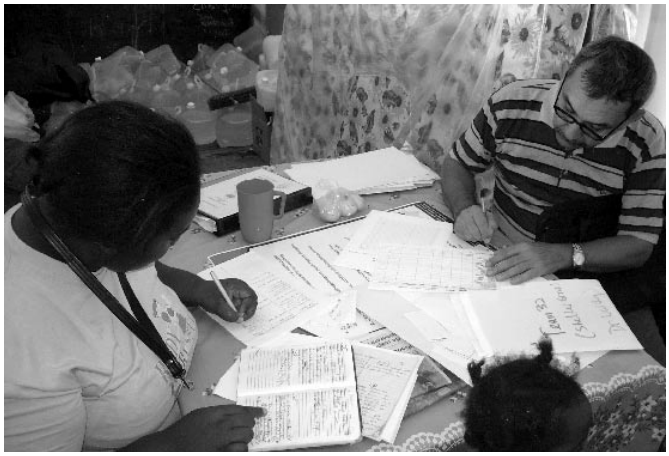
Going a step further, an interagency initiative styling itself the Humanitarian Accountability Project International (HAPI) has sought to develop standards for agencies to help them be more accountable to disaster victims (see http://hapinternational.org>.

All of these initiatives have increased agencies' ability to deliver quality assistance and be accountable to the array of stakeholders to whom they are responsible: donors, professional peers and the victims of disaster.

SHORTCOMINGS OR DELUSIONS?

However, this decade-long push for standards and accountability is now showing some shortcomings.

Two big questions are beginning to emerge. First, in the pursuit of standards and accountability up the chain to donors, have the now transnational NGOs lost their ability to craft evidence-



clockwise from top: Providing humanitarian aid in El Salvador, in the Guyana floods and in Venezuela

driven, nuanced solutions to specific individual disasters? There is anecdotal evidence that the pressure to show success back to donors is causing a systematic skewing of agency reporting, hyping the positive, burying the negative. There is evidence that communities are getting the "agency model" solution, not the specifics of what they want or need. There is also evidence that agencies are becoming more risk-averse, going for yesterday's solutions rather than innovation.

In some ways, this is not unexpected. Many businesses, when they grow rapidly, become focused on standard and control, to the detriment of innovation and flexibility. The critical question, though, is, having recognized this phenomenon, can the humanitarian agencies address it and inject evidence-based risk-taking back into their programming, while still aiming to deliver to internationally acceptable standards?

The second big question concerns intent. In the politically charged environments of Iraq, Afghanistan, Sudan or Colombia, everywhere where the "war on terror" agenda or the "global security through development" agenda is being pushed, have humanitarian agencies essentially given up on being independent, impartial, and needs-driven, and become subsumed to the foreign policy agenda of the North? If they have, then they have in effect reneged on any pretense of being accountable to the victims of conflict and crisis. Neutrality flies out the window and political expedience allied to the long term big picture becomes the mantra. In Colombia, agencies find themselves often accused, by the North, of siding with insurgents, as they seek to align themselves with the poor and vulnerable. Again, neutrality, or at least the perception of neutrality,

PHOTOGRAPHS COURTESY OF THE PAN AMERICAN HEALTH ORGANIZATION

is called into question.

Both these questions—if answered in the affirmative— suggest a bleak future for accountable, independent evidence and needs driven humanitarian assistance. But, of course, it does not have to be that way. Agencies and staff in agencies do have a choice. They can go with the flow and become a subset of someone else's agenda They can program "because we have always done it that way," or they can reclaim their radical roots, putting accountability to the victims of disaster first and organizational imperatives second. The best will be both innovative and up to global standards, accountable to beneficiaries and to donors.

As Yogi Berra used to say: When you come to a fork in the road, take it.

Dr. Peter Walker *is the director of the Feinstein International Center at Tufts University, and a member of the joint Tufts, Harvard, MIT Humanitarian Studies Initiative <http://www.humanitarianstudies.org/>.*

HURRICANE MITCH: A VIEW FROM THE GROUND

We had spent the past several months reading national and municipal level disaster impact reports, reviewing funding proposals for community reconstruction, and talking to different private and public sector organizations, trying to work out institutional agreements to help fund reconstruction efforts within urban communities displaced by Hurricane Mitch. Holding the satellite maps and aerial photographs we had been given to orient us to what we would find on the ground, members of our team peered out of our airplane windows at the rugged terrain of Honduras' central and southern mountains and winding Choluteca River directly below. There, through the clouds and fog, were hundreds of potential sites scattered along the hurricane's path still in need of technical and financial assistance.

When Hurricane Mitch hit Honduras in late October 1998, the Choluteca River flooded; its rising waters tearing out and carrying away much of Tegucigalpa's basic infrastructure, including bridges, homes, factories, hospitals, even prisons. It inundated the downtown business district, sweeping away cars, buses, downed electrical poles, and the entire contents of first-floor stores and residences. But, some of the most wrenching losses occurred when the water-soaked ground triggered mudslides that left entire neighborhoods buried. The surrounding highlands were scarred with "devil's claw marks" where rock and mud slides continued to rework the landscape, burying rural communities and their meager assets. For an almost unimaginable eight days, gale force winds, rain, and flooding continued, refusing to disperse or move out to sea again, dumping more rain in that week than averaged in a typical year.

We were one of many NGO teams that arrived that week for an international conference focused on post-disaster reconstruction, attending meetings, touring the city and outskirts, hearing how the hurricane had enveloped the city, flooding the riverbeds, washing away poorer communities. Members of the upper middle class had galvanized in civic groups such as the Rotary Club of Tegucigalpa, building housing, creating hospital and medical equipment banks, re-establishing potable water and sanitation systems, creating scholarships for vocational training and developing community banks and centers. This local advocacy had been fortuitous for the city and region, given that much of the aid promised directly after the disaster never materialized.

Watching international "donors" streaming into Rotary-supported communities such as Nueva Esperanza and other Tegucigalpa projects frustrated Rotary representatives outside the capital. An engineer from San Pedro Sula asked us to witness the terrible situation there. I went to San Pedro Sula with a U.S. doctor on our team, trying to map out this "less impacted area." We drove by hundreds of makeshift tent encampments, home to families unwilling to go into government settlements. In the formal settlements we recorded the difficulties of camp life, the corruption of local and settlement officials, the fear of cholera, and the growing violence, crime and sense of despair. We left only after one of the camp leaders recommended we go because of holdups perpetrated by local unemployed youth.

The following days were spent visiting more established camps farther from the city. It was during one of these visits and interviews that it happened. I remember hearing the words of the camp leader begin to fade, then the entire community looking down at me and the leader ordering everyone to stand back. I thought I had begun to get a sense of what things looked like on the ground after Mitch, but only now, lying flat on my back, violently ill in the middle of a resettlement camp, coming to consciousness, was I really getting perspective. "It's the water" said one woman. "You drank the water, didn't you?" asked our institutional liaison. "You are going to get very sick now" confided one little boy. "Quiet!" reprimanded an old woman, "She doesn't need to hear that!" They were all right. I was sick, it was the water, and no one needed to tell me what I was in for. Since a big storm was moving in and no flights were available, we decided to take a bus. This was a bad idea. Many others on that bus that night, sick, frustrated and guilty, had also decided to leave and try their luck in the capital.

When we arrived in New England, the decision was made to fund La Nueva Esperanza, where our modest resources would have the greatest impact. Everyone realized that working alone we would be out of our depth in San Pedro Sula. A much larger, stronger network was needed than the one we could provide.We still believed that international civic organizations and small-scale philanthropists had a role to play in disaster relief. However, we had to admit that once we ventured onto the quagmire-like ground of post-hurricane reconstruction, we were just as likely as anyone to get bogged down.

Jennifer Burtner *is a Lecturer in the Department of Anthropology, Tufts University and a Research Affiliate and Former Brazilian Studies Coordinator at DRCLAS.*

Large-Scale Risks and Extreme Events

Entering the New Era

BY ERWANN O. MICHEL-KERJAN

Several years ago, I was invited to give a talk in Europe to a large audience of industry representatives, government officials and experts from academia. The main topic was "new trends in catastrophe risk management and global governance." I discussed, as I will do briefly here, what the future was very likely to look like. At the end of the speech, the organizers opened the floor for a series of questions from the audience. As one would expect, most of the questions related to the implications on countries, companies and citizens of the changes in the risk landscape I had just described. Why does it look like there are more and more catastrophes? What would be the best way for a country or a region to deal with these catastrophes? Who should pay?

One of the participants (a highly visible person in his country), however, stood up and spoke quite loudly: "accidents and natural catastrophes have always existed. There is nothing new here. I don't see why the world has become more exposed to disasters than 50 or even 100 years ago. You're pushing too hard." At first, I was quite surprised by his reaction because I knew he had studied these issues and that facts are now speaking for themselves. But I realized when he came to me at the cocktail party that followed, that his remarks were actually not addressed to me, but rather to the rest of the audience. "You just cannot tell them what you just told them. They are not ready for that, you will scare them!" he told me when we were talking just together.

This was in 1999, and everybody was talking Y2K. The Y2K bug never happened but instead, we got a series of perhaps even more destabilizing catastrophes and threats. I always remember this anecdote when I'm asked to lecture or advise on the challenges of managing and financing the new era of catastrophes we have entered. Indeed, this gentleman had a point: (1) catastrophes are, of course, not new; (2) when the rules of the game change, some people get scared and are afraid to recognize the new reality and act upon it. But, overall, I feel that he was wrong. While not new, the disasters we are now facing have few precedents in scale. Moreover, dealing with two or three major catastrophes in a century is one thing; dealing with 5 or 10 in a decade altogether another. Additionally, I believe decision-makers are actually less likely to be scared when they understand better what is at stake and what are the main drivers of this change. Knowledge helps develop better strategies and policies to address the emerging issues.

Here, I focus on natural disasters, but similar arguments could be made for international mega-terrorism, critical infrastructure protection or pandemics.

A house is destroyed in El Salvador.

NATURAL DISASTERS: WHY THIS IS A NEW ERA

One way to look at it is through the comparison of specific measures over time. I focus on three here: insured losses, economic losses and fatalities.

Insured losses: Catastrophes have had a more devastating impact on insurers over the past 15 years than in the industry's entire previous history. All the figures here are in 2005 dollars, corrected for inflation. Between 1970 and the mid-1980s, annual insured losses from natural disasters (including forest fires) were in the $3 to 4 billion range. In the 1990s, the scale of insured losses from major natural disasters changed radically: $17 billion in 1991, greater than $30 billion in 1992 (with $20 billion from Hurricane Andrew alone), more than $20 billion in 1994 (with $18 billion from the Northridge earthquake), and $25 billion in 1999 (mainly due to major storms and flood in Europe). A new record was reached in 2004 with $49 billion. This upward trend is continuing. In 2005, insured losses from Hurricane Katrina were estimated at $45 billion in insured losses. Worldwide, major catastrophes in 2005 inflicted $83 billion of insured economic damage, this is twice as much damage as in 2004. Imagine now that you were to collect data on all the major catastrophes that happened in the world in the past 36 years (1970-2006). If you were to research the direct economic cost and the portion thereof covered by insurance, you would find that of the 20 most costly events (corrected for inflation) for the insurance industry, fully 10 of them occurred during the past 5 years (in constant prices). Katrina alone, which hit the Gulf of Mexico at the end of August 2005, has inflicted nearly $45 billion in insured losses. That is more than the insured cost of all the major natural disasters that occurred in the world between 1970 and 1980 combined. Just a few weeks later, Hurricanes Wilma and Rita hit the Gulf again, inflicting over $15 billion of additional insured losses. This is characteristic of the new era that I mentioned earlier.

Insured versus Economic Impact: Insurance does not decrease the global losses from an untoward event, but rather, spreads its financial impact by enabling those at risk to pay a relatively small premium so they can be protected against a large loss that has a small chance of occurring. Hence insured losses reflect only a part of the total economic damage inflicted by a disaster. Economic losses follow the same increasing trend described earlier for insured losses. A comparison of these economic losses per decade (in 2005 prices) reveals a huge increase: $45 billion (1950-59), $81 billion (1960-69), $148 billion (1970-79), $230 billion (1980-89) and $705 billion (1990-99). In the 2000-2009 decade, the year 2004 alone inflicted about $113 billion in economic loss, and the following year, 2005, doubled this record up to $230 billion. In other words, 2005 inflicted as much as all world catastrophe losses between 1950 and 1979 or as much as all catastrophe losses for the entire decade of 1980-1989.

Economic versus Human Impacts: Fatalities often do not factor into insurance loss rankings. The correlation between insured losses and fatalities is even less clear than the relationship between insured and economic losses. As a large number of natural disasters occur in the developing world or in poor areas of developed countries where there is limited insurance in place, one needs to pay attention to fatality factors independent of their impact on insured losses. For example, the tsunami that devastated South Asia in December 2004 cost the insurance industry about $5 billion, primarily from losses to tourism activities, but the disaster killed over 280,000 people and constitutes the second most deadly natural disaster event of the past 100 years (a storm and flood killed 300,000 people in 1972 in Bangladesh). A few months later, Hurricane Stan and the floods that followed hit Mexico, Guatemala and other areas in South America, killing over 2,000 people; but insured losses were "only" $180 million.

More generally, the most deadly natural disasters from the point of view of human lives typically occur in developing countries. Between 1970 and 2005, for example, there were 21 catastrophes that each killed over 10,000 people; 20 of them occurred in developing or extremely poor countries.

After the Flooding in El Salvador.

THREE KEY DRIVERS OF THIS RECENT EVOLUTION

With the exception of the terrorist attacks of September 11, 2001, all the other 19 of the 20 most costly catastrophes of recent history were all natural disasters. Among these natural disasters, more than 80 percent were weather-related events: hurricanes and typhoons, storms and floods. This raises the question as to what are the key drivers of this new era of extreme events that can destroy entire regions in just a few hours, and seriously compromise the economic and social development of these regions in the long term. There are at least three main drivers of this major shift: two socio-economic factors (degree of urbanization and value at risk) and the impact of global warming.

Degree of urbanization: In 1950, approximately 30 percent of the world's population lived in cities. In 2000, 3 billion people, or about 50 percent of the world's population, resided in urban areas. Projections by the United Nations show that by 2025, that figure will have increased to 5 billion people, or 60 percent of a world population estimated at 8.3 billion people. A direct consequence of this movement is the increasing number of so-called "mega-cities" with populations greater than 10 million (one in 1950, twenty-six by 2015), many of which are located in areas prone to natural hazards.

Value at risk: The increase in the value exposed to natural hazards amplifies the potential for severe economic and insured losses. One example is the rapid industrialized development in the Gulf of Mexico. The first off-shore oil platform for water depths higher than 100 meters was built in the 1960s. Today, there are numerous such platforms in the Gulf of Mexico and the North Sea, both of which are regions highly exposed to major storms. Indeed, fully 75 percent of the 4,000 platforms administered by the U.S. Minerals Management Service were in the path of Hurricanes Katrina and Rita, and many were subsequently destroyed. Hurricane Katrina shut down an estimated 95 percent of crude production and 88 percent of natural gas output in the Gulf of Mexico, inflicting major business interruption losses. According to the U.S. Department of Energy, two months after Katrina made landfall as a Category-3 hurricane (August 29, 2005), the shortfall of oil production was still one million barrels a day, making it five times as great as the shortfall experienced two months after Hurricane Ivan, which had hit just one year earlier.

The increasing concentration of people and goods in high risk areas will continue to have a major impact on the level of economic and social consequences from natural catastrophes.

Global warming: Another possible driver of future catastrophes in North and South America—while difficult to measure—relates to global warming. One of the expected effects of global warming is an increase in hurricane intensity: higher ocean temperatures lead to an exponentially higher water evaporation rate in the atmosphere, increasing the intensity of hurricanes. And more intense hurricanes have higher destructive power. Focusing only on the North Atlantic—that is, the Atlantic, the Caribbean, and the Gulf of Mexico—it has been shown, for instance, that Category 4 & 5 hurricanes have increased from 16 in the period from 1975-89 to 25 in the period from 1990-2004, representing a 56 percent increase. That being said, there is currently debate in the scientific community as to what are the most likely determinants of this huge increase. While some attribute the increase to global warming, others posit that it could be the occurrence of a new cycle of intense hurricane activity, as last seen in the 1940s and 1950s. A bad scenario—but a plausible one—would be that we have entered into a high cycle of more intense hurricanes to be expected for the next 15 or 20 years, reinforced by higher sea surface temperatures due to global warming. If that's the case, my prediction is that the next 15 to 20 years should see an even greater number of even more devastating weather-related catastrophes than in 2004 and 2005. In other words, the worst might be yet to come.

CONSTRUCTING A NEW MODEL

Most of my remarks above draw on ongoing research undertaken at the Wharton Risk Center, especially with my colleague Howard Kunreuther, who pioneered this field. We see more and more organizations recognizing the changing nature of these risks in our increasingly interdependent and global world. Because of limited space here, I focused on describing the new era but not on how respond to it in an appropriate way. Best practices have been developed that would be important for countries and companies to consider and implement to protect their citizens and economic growth. To end I'd like to acknowledge two recent initiatives by international organizations I collaborate with. Both are based on one principle: global risks call for global answers and for international collaboration.

With 30 of the richest countries as permanent members, the Organization for Economic Cooperation and Development (OECD), headquartered in Paris, is an important source of innovation to deal with emerging issues that impact many countries throughout the world. In June 2006, Angel Gurría (formerly Mexico's Minister of Foreign Affairs and Minister of Finance and Public Credit) took office as the new head of the OECD. Recognizing the new risk landscape we now live in, he immediately established the High-level Advisory Board on Large-scale Risks and Disasters, composed of experts in the field and industry executives. The Board advises the OECD on key recommendations to improve preparedness and better finance the economic and social consequences of future disasters.

In the same spirit, the World Economic Forum has been working for the past two years on a new initiative to address Global Risks (see *Global Risk Report 2007* on the web). These large-scale risks were an integral part of the agenda for the 2,000 top-decision makers who attended the annual meeting of the Forum in Davos at the end of January.

A new era calls for a new model. Those complementary actions are an important step toward developing a new model and constructing global reaction capacity for future large-scale catastrophes. The fact that countries and organizations are working collectively to achieve this goal should also create trust, a critical element of leadership for tackling the new challenges of the 21st century.

Dr. Erwann O. Michel-Kerjan *is Managing Director of the Wharton Center for Risk Management and Decision Processes at the Wharton Business School. His work focuses on managing and financing extreme events. His latest book is* Seeds of Disaster, Roots of Response: How Private Action Can Reduce Public Vulnerability *(Cambridge University Press, 2006; www.Seedsof-Disaster.com). In 2007 he was named Young Global Leader by the World Economic Forum, an honor to acknowledge leaders under 40 round the world. E-mail: ErwannMK@Wharton.upenn.edu.*

Library Grant to the Galapagos

BY FRANKIE CHEN

Just imagine:

300 maps
3,000 aerial photos
5,000 unpublished reports
7,000 books
20,000 slides

That is just a small sampling of the more than 100,000 documents found in the collection of the Corley Smith Library. What those numbers fail to fully capture, however, is the significance of this particular collection: located at the Charles Darwin Research Station in the Galapagos, it is the largest compilation of Galapagos archive material anywhere in the world. The Galapagos, made famous by Charles Darwin's 1831 voyage, have played a singular role in the development of our understanding of ecology and evolution.

Since its inauguration in 1964, the Charles Darwin Research Foundation has been amassing materials for the library, created to serve as a central repository of scientific information for the community of the four inhabited islands of the Galapagos. Over the past forty years, the library's collection has continued to grow. Today, the library contains documents on subjects ranging from the environment and conservation, to evolution and genetics, to development and planning. As such, the library is a valuable source of material for scientific and historical researchers alike.

Even as its collection continues to grow, however, the library has confronted deterioration of documents and photographic material—many of which are original and unpublished—because of inadequate preservation equipment. Citing the Galapagos' climate, with its high temperatures and humidity, as well as the difficulty of pest control, Graham Watkins, Executive Director of the Charles Darwin Foundation, declared that the "ability to effectively preserve and manage existing archives is becoming increasingly difficult," in his application for a grant through the Project for Latin American Libraries and Archives.

Happily for the many fragile and irreplaceable materials, the Corley Smith Library was recently awarded that grant. The funds will be used for improvements in storage conditions for original materials, as well as for general infrastructure. Additionally, the funds will go toward cleaning and recovering old or damaged documents. This grant to the Charles Darwin Foundation's library ensures that the valuable information contained in its archives will be available for future generations.

PLALA was established in 1996 by the Andrew W. Mellon Foundation and is administered by DRCLAS. Its aim is to strengthen the research base for Latin American Studies by means of small grants to Latin American archives and libraries.

Landmark Mental Health Ruling in Brazil

The Inter-American Court of Human Rights recently addressed the issue of mental health disabilities for the first time, ruling in an August 17, 2006 decision that the Brazilian government bore responsibility for the death of a patient in a state-affiliated psychiatric hospital. Professor James Cavallaro, Director of the Harvard Law School Human Rights Program, and a group of HLS students helped bring about the landmark decision, which ruled that Brazil violated the patient's human rights and his right to life and personal integrity. The decision is believed to the first

PHOTOGRAPHS COURTESY OF THE CORLEY SMITH LIBRARY

of its kind in South America. In the months before the ruling, the HLS team worked with the Brazilian NGO Justiça Global, reviewing almost 4,000 pages of documents and advising attorneys on legal strategy.

Air Pollution in the US-Mexico Border Region

Since Fall 2002, the Harvard-based non-profit organization LASPAU: Academic and Professional Programs for the Americas, has been administering the Border Ozone Reduction and Air Quality Improvement Program. The program addresses the extreme air pollution and environmental degradation of the border region between Mexicali, Mexico and Imperial County, California and works to achieve sustainable economic growth that is both socially and environmentally responsible. In Fall 2006, during its third round of funded projects, LASPAU awarded four new research grants, further supporting the development of scientifically based methods to reduce ozone creation and improve air quality. In this way, it is also helping to foster collaborations between academia and the industry, civic, and government sectors.

¡Culturas en el Aire!

In October 2005, Professor Luis Cárcamo-Huechante organized ¡Culturas en el Aire!, a well-attended event in Santiago, Chile that brought together indigenous radio communicators with scholars and intellectuals. The initiative featured radio broadcasters and producers from communities ranging from the Mapuche in Chile and Argentina, to the Guarayo Pueblo in Bolivia, to the Quechua in Peru. The event focused on the role of radio as a communicative medium for the indigenous peoples of Latin America and aimed to both revitalize individual communities and encourage cross-cultural creativity among them. ¡Culturas en el Aire! has served as a point of departure for what has since become an extensive collaboration of individuals working to support the airwaves of indigenous communities. The project will be expanding in the coming years, with one specific goal being the establishment of a summer school for the training of young indigenous radio communicators.

***Frankie Chen**, '07, concentrates in psychology and Latin American Studies. He is the chief editorial assistant of Revista and is the editor of this new feature.*

DIRECTOR'S LETTER

To open a new issue of *ReVista* is to take a wonder-filled journey to Latin America, page after page an invitation to deeper appreciation of its history, culture, environment and contemporary reality. Whatever the specific theme of the issue, *ReVista* highlights the depth and diversity of the countries and people of Latin America and the contributions of the region to our world.

Along with many others, I'm sure you share with me a sense that our commitment to Latin America should make a difference in the region. Personally, this means that my teaching and research, travels and other activities should help others understand the dilemmas of development confronting the region and the role of individuals and organizations in addressing these dilemmas more effectively and equitably.

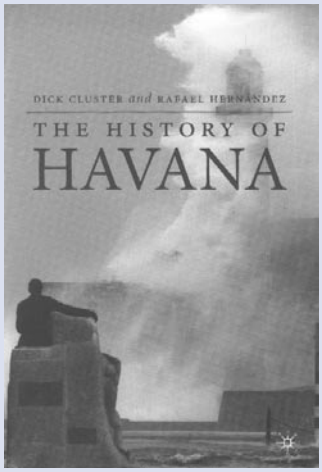
Similarly, I believe that the David Rockefeller Center for Latin American Studies should, through its many activities, be making a difference for the countries and peoples of Latin America. We believe that it is our mission to encourage and inspire students to learn about Latin America; to explore the region through study abroad, internships, and other activities; and to experience "real world" training for their future lives. We want to continue to support and develop faculty whose research and teaching contribute to advancing knowledge and understanding about the region. We think it important that we are able to welcome scholars from other universities to join us in this activity. Through our offices in Santiago de Chile and São Paulo, Brazil, we seek to advance teaching and research, and to make teaching connected to the world and put research into practice. We think it important to encourage connections that are difficult to make within universities—between archeology and art, for example, between the "hard" and "soft" sciences, and between politics and education.

In this issue of *ReVista*, we are inaugurating a new feature that highlights some of the ways in which we think we can help make a difference—not by ourselves, but in collaboration with many others. In this section, you will read about an effort to safeguard biodiversity information in the Galapagos, a significant ruling by the Inter-American Court of Human Rights, an initiative to monitor and improve air quality along the U.S.-Mexican border, and the development of indigenous radio communication in Chile. In each of these initiatives, faculty, students, staff and others at Harvard have worked in collaboration with other like-minded people, to turn ideas into realities that make a difference. I hope you enjoy reading about them in this issue and in issues to come.

What's The Most Welcoming City? How about Havana?

Dick Cluster and **Rafael Hernández**, *The History of Havana*, Palgrave Macmillan, 2006, 300 pages

A REVIEW BY LARS SCHOULTZ



"This city is the most welcoming place," begin Dick Cluster and Rafael Hernández, the former a well-regarded novelist and social critic, and the latter a Cuban social scientist, poet and editor of *Temas,* perhaps the scrappiest academic journal in contemporary Cuba.

The city to which Cluster and Hernández refer is Havana.

Let's concede that Havana is indeed a welcoming place. But who would pick Havana as their favorite city over, say, Prague or Paris or Petaluma? What makes Havana so special? That's what *The History of Havana* sets out to explain to those of us who were not born there, like Hernández, or have not had the opportunity to roam the city's streets since 1969, absorbing their flavors and capturing their character, like Cluster.

The authors inform us that they have not written a history of Cuba per se, but they warn that "we cannot write a history of its capital without doing some of that," and the pages that follow are indeed the story of much more than a city's evolution. Cluster and Hernández also tell us that we'll get a generous dose of what one expects of a volume—say, Havana's architecture and urban planning (or the lack thereof). But, the authors note, "primarily we've tried to tell the story of its people, at all rungs of society, including those who have left many records and monuments behind them and those who have left almost none" (xviii-xix).

So off we go, starting with the 15th century. But by page eight, we're already in the 16th and moving fast, but fortunately, not so fast that we fail to learn about Madrid's grand designs and its important improvements. For example, we learn that the population was provided with drinking water from the Almendares River, miles to the west and connected to what we now call Old Havana via a trench (*zanja*) that passed through today's Centro Habana and Barrio Chino to end as the little alleyway at the back of the Plaza de la Catedral, the tiny street today's visitors walk up to enter the Taller Experimental de la Gráfica.

Given its strategic location, by the mid-18th century Havana's population was significantly larger than Philadelphia and three times the size of New York. In both riches and population, it was rivaled only by Lima and Mexico in the Spanish empire. That word "riches" is, of course, a foreboding one: enter both the pirates and, since this was the time of the Seven Years War, the British navy, bearing boatloads of soldiers from New York, who knew better than to brave the guns protecting Havana's entrance. Instead, they landed to the east and west, then marched in from behind to subdue the Spanish defenders. The Redcoats left only after the war's settlement liberated Spain from its imperial responsibilities in Florida, Canada, and several key spots stretching eastward from the Mediterranean to India.

Thereafter, Havana returned to normal, but now that the city's purchasing power had been revealed, the doors to commerce opened by the British were impossible to close. By the late 1840s, the United States had become Cuba's principal trading partner, with England second and Spain a distant third. In the 19th century, the city became thoroughly internationalized. When Old Havana was placed on UNESCO's World Heritage List in the late 20th century and the Historian of the City initiated today's remarkable restoration effort, workers began to unearth what traders had left behind: bottles of Dutch gin, packets of English toothpaste, and tins of Phillips Milk of Magnesia. The traders and travelers also left behind their diaries, among them the complaints of Richard Henry Dana, who failed to adjust to Cuba's decidedly un-Puritan rhythms. "For sleeping, I might as well have been stretched out on the bass drum," he wrote, describing the drum of the band playing outside his hotel window.

Dana was not the last Yankee to discover that Cubans know how to party, and on the eve of the Cuban Revolution, Graham Greene explained why he selected Cuba's capital as the setting for his novel *Our Man in Havana*: it was "this extraordinary city where very vice was permissible and every trade possible"(190). Gambling was perhaps the principal vice, one that Cubans had already developed in cockfighting, cards, dice, and the illegal numbers racket, *la bolita*. But in the 1950s, the U.S. mafia promoted a new style of luxury casino gambling dominated by blackjack and roulette, accompanied by all the drugs and prostitution that vacationing Yankees could purchase but would never tolerate at home.

Then came the Revolution, which "first and foremost, made the citizens of Havana

conscious as never before that they inhabited the privileged capital of an island whose countryside had long teemed with poverty, hunger, curable diseases, illiteracy and neglect." Along with this realization came a commitment to rectify this disparity which, "together with ideological radicalism and the politics of state socialist centralism, meant that the victorious revolution would pour more resources into the interior than the capital"(224-25).

As with the rest of the Revolution, the evaluation of this shift is still in the hands of the jury of historians who will spend the 21st century debating the Revolution's legacy, but with no dispute over Havana's suffering during the Special Period after the Soviet bloc's collapse, when Cubans once again had to endure the painful process of revolutionizing their economy. Food became scarce—so scarce that eggs came to be known as *americanos*, "because no one knows when they are coming or how many they will be." Gasoline was unavailable; only ten percent of Havana's buses remained in service. "For many thousands, the Special Period brought a bicycle trip of five to fifteen miles every morning and afternoon.... Between the biking and the reduced diet, Havana became a city of citizens who ranged from slender to skinny. Very few looked like their photos of a few years before" (256-57).

Then, in mid-1994, after the first anti-government demonstrations broke out in Centro Habana, the government announced the re-opening of the farmers' markets closed by the "rectification" program of the late 1980s. Cuba, desperate for hard currency, also intensified the effort to restart its tourist industry. Cluster and Hernández clearly approve of the reopened markets, but complain—and well they might—about the "eruptions of contemporary bad taste," as the silhouette of the city's beachfront suburbs is scratched by new hotels "that appeared to have been flown in from Cancún" (263). But they acknowledge the graceful reconstruction of Old Havana's many treasures, including such gems as the hotels Santa Isabel, Telégrafo and Florida. It will be interesting to see how historians assess the influence of tourism. While the impact of a few too many fanny packs attached to the waists of generally inoffensive Canadians and Europeans may be minimal, no one can help but shudder, as Cluster and Hernández do, at the apparently unavoidable affront of tourist apartheid.

The adjustment has been a slow and painful process. Cluster and Hernández tell us that in time "most *habaneros* gained back the weight they had lost, and the sea of bikes in the streets ebbed, so that Havana in peak commuting hours no longer seemed too much like Hanoi." At the end of their charming volume they tell us that the city's residents are emerging from a long, dark tunnel and entering into a very different place than the one they had entered a decade before. It was, they conclude, a tunnel leading into a twilight zone, something that was no longer the Special Period but as yet had no name" (271–72).

Definitions and the inevitable naming opportunities will come later; now, as Havana enters the 21st century, its residents have no choice but "to go on *luchando*, the way residents of the port city had always done."

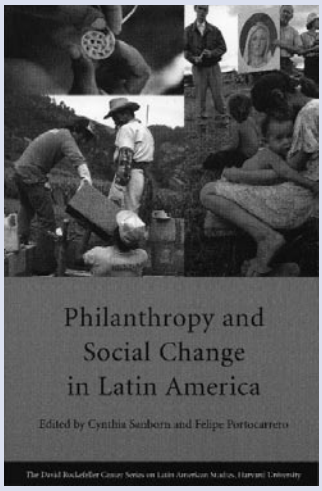
Lars Schoultz *is professor of political science at the University of North Carolina at Chapel Hill.*

Remedying Inequality

Cynthia Sanborn and **Felipe Portocarrero**, eds., *Philanthropy and Social Change in Latin America*, Harvard University Press, 2005, 480 pages

A REVIEW BY ARCHANA SRIDHAR

Standing in *Mixco*, a neighborhood of Guatemala City, on a crisp winter morning, I waited for a ride while digesting the conversation I just had with the director of La Coordinación de ONG y Cooperativas (CONGCOOP), a leader in the field of philanthropy and social change in Guatemala. CONGCOOP is on the cutting edge of legal reform, development and charitable giving in Guatemala. Standing there next to the building's security guard, the importance of the volume *Philanthropy and Social Change in Latin America* struck me. The contributors' research questions had not only anticipated much of the conversation I just had with CONGCOOP but also contributed to it in substantial ways. The volume is an engaging and extremely readable collection from the David Rockefeller Center Series on Latin American Studies at Harvard University. It contains the stories of many organizations like CONGCOOP from across Latin America, and presents astute analysis of trends and statistics regarding philanthropy in the region.



Having to pass through three layers of security just to enter and exit the CONGCOOP office that morning reminded me that, despite its calm façade, I was in one of the most dangerous parts of Guatemala City. It also demonstrated that ten years after the signing of Guatemala's Peace Accords, there is still a great deal of work to be done. Nongovernmental organizations in Guatemala—funded in large part by private philanthropy—have taken over traditional State functions in terms of alleviating the profound inequality between Guatemala's richest and poorest citizens. Such inequality exacerbates the country's problems with violent crime, severe child malnutrition, and high unemployment rates, to name only a few social indicators.

As John H. Coatsworth points out in the prologue to *Philanthropy and Social Change*, this trend is in play across Latin America: private philanthropy is growing to address the region's steep inequality between rich and poor. Coatsworth states, for example, that in Latin America, the top 20 percent of income earners receive roughly 15 times that of the bottom 20 percent (with the gap even wider in countries like Guatemala and Brazil). This compares to a ratio of 9:1 in the United States and 5:1 in several other developed countries. Private efforts at philanthropy and social change in Latin America

therefore stem not only from an environment of poverty and political violence, but also from this entrenched history of inequality.

As the first comprehensive edited volume on the topic of philanthropy and social change in Latin America, the book is extraordinarily useful for current and future researchers because of its constant stream of examples, findings, and research questions. Academics and practitioners in the fields of non-profit management, law, and philanthropy will find the volume to be an excellent resource. The collection is comprised of 17 distinct chapters within four general sections about: (I) history and context; (II) corporate social responsibility; (III) foundation grantmakers; and (IV) general reflections from international practice. The authors are experts in their respective subfields, both as academics and practitioners, including many from across Latin America. Chapters in the volume include the voices of reformers "on the ground" such as nonprofit consultants, tax attorneys, and foundation executives. This range of perspectives increases the book's credibility as a foundational resource.

Together, the chapters focus almost entirely on institutional, or organized, philanthropy, examining most closely private foundation grantmakers and corporations. Many of the chapters contain case studies of philanthropy in particular countries, including Ecuador, Mexico, Brazil, Peru, and Colombia. Primarily profiling large foundations, corporate activities, and federations of grantmakers, the book offers helpful analyses of organizations like El Centro Mexicano para la Filantropía (CEMEFI) in Mexico, Grupo de Institutos, Fundações e Empresas (GIFE) in Brazil, and Peru 2021. The only possible additions to this otherwise comprehensive collection would have been more material specific to Central America, as well as smaller-scale examples of philanthropy and social change in the region, such as microcredit and grassroots organizations.

> This volume is an outstanding collection, providing an in-depth examination of Latin America's transition to "strategic philanthropy." It will surely be an important resource to all those concerned with civil society and philanthropy in the developing world.

The entire volume (as well as the future of philanthropy in Latin America) seems to rest on the notion of "balance." The authors demonstrate that Latin American philanthropic institutions are working to achieve social change while balancing their activities against limited resources and small to non-existent endowments. These institutions are subject to some legal restrictions by the state, but also granted certain valuable legal benefits. Philanthropic organizations in this region are established on the basis of freedom of association on the one hand, and yet are establishing mechanisms for transparency and accountability to the State on the other hand. As the chapters discuss, and my own research in Guatemala confirms, legal frameworks are key to adjusting and maintaining this balance properly through tax incentives, reporting requirements, and government oversight.

A cluster of excellent chapters are of special interest. Chapter 1 describes Latin America's historical traditions of philanthropy. Cynthia Sanborn lays out the key elements of this history, highlighting in particular the struggle between the interests of Latin America's urban elite and the desire to achieve social change and a "progressive distributional impact" through philanthropy. Chapter 11, by Ignacio Irrarázaval and Julio Guzmán, addresses the role of tax incentives in promoting philanthropy, describing the curious discrepancies in many Latin American countries among different types of charitable organizations—discrepancies which often privilege organizations that benefit the urban elite. For example, in Guatemala, my own research analyzes the fact that charitable donations to private universities and cultural organizations result in better tax treatment than philanthropy in other spheres, like health or primary education.

Felipe Agüero's chapter on corporate social responsibility in Latin America is an admirable introduction to this burgeoning field of philanthropy. Corporations throughout the volume are shown to be leaders in the region's philanthropic initiatives. In Guatemala, for example, I spent time with CentraRSE (el Centro de Responsabilidad Social Empresarial), an influential new agency coordinating corporate efforts across the country. Agüero describes how similar corporations and umbrella organizations are doing the same across Latin America. Agüero's treatment does raise questions about the motives of corporations in this arena—To remedy inequality? To avert social discontent? To capture a new market of consumers?—and whether those motives (versus actions) are at all relevant to achieving the larger goal of "social change."

The editors and authors hope that this volume is only the beginning in what will certainly be a fruitful area of research well into the future. Some next steps to build on the sturdy foundation provided by this volume would, for example, include an examination of the political obstacles to legal and/or legislative reform that supports and promotes philanthropy. Also, the editors describe in their introduction a troubling lack of statistics about philanthropy across Latin America; this should certainly be the subject of further research by statisticians, sociologists, and others. The connection between philanthropy and democracy in politically turbulent countries would be another productive avenue of research building on this volume's work.

In sum, *Philanthropy and Social Change in Latin America* is an outstanding collection. The volume provides an in-depth examination of Latin America's transition to "strategic philanthropy" from more traditional "charitable" activities and will surely be an important resource to all those concerned with civil society and philanthropy in the developing world.

Archana Sridhar *is a 2006-07 Fulbright Fellow in Guatemala City, studying tax reform and philanthropy. She received her J.D. from Harvard Law School in 2001.*

Understanding Venezuela: A Case Study on the Nation-State

Jonathan Eastwood. *The Rise of Nationalism in Venezuela*. Gainesville: University Press of Florida, 2006. 212 pages

A REVIEW BY JOHN LOMBARDI

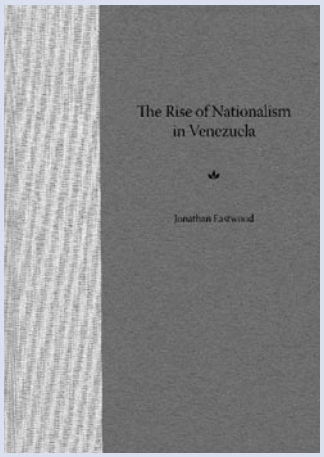
Nationalism and the idea of the nation-state fascinate us all. We come to think of ourselves, govern ourselves and manage our relationship to the rest of the world through the agency of a nation whose identity we take as our own. Yet when historians, sociologists or political theorists attempt to define and explain the emergence and function of nationalism, they find it difficult to agree. Jonathan Eastwood's thorough and fascinating analysis of the construction of the nation-state in Venezuela offers a useful perspective on the larger global phenomenon of nationalism.

Venezuela is an interesting case study because its emergence as a nation takes place within the remarkable transformation of the late 18th and early 19th centuries that within a generation saw the dissolution of the Spanish imperial system and the emergence of almost two dozen recognized nation-states. Venezuela, a Spanish colonial outpost with some recent history of economic prosperity in 1810, a newly engaged participation in the Spanish Bourbon economic and political reforms, and a fragile local political and social structure, offers a particularly interesting place to test various theories, mostly based on European models, about the emergence of nationalism.

Eastwood begins with a useful and comprehensive review of the most significant theories about the emergence of nationalism, emphasizing the challenges of building a theoretical framework. Nation and nationalism exist as general ideas with fuzzy boundaries, and a theoretical construct that appears to explain the emergence of what we might think of as nationalism in one place and time often does not explain the emergence of nationalism in another.

Part of this difficulty stems from the longstanding practice of defining nationalism by taking the circumstances of a particular nation at one point and attempting to explain its nationalistic evolution retrospectively. The problem lies in the assumption that a particular national configuration serves as a stable referent for an analysis of its origins. Often, this is not the case. For example, although we like to imagine the United States as a useful example of national formation, we usually do so with the not altogether persuasive conviction that the Civil War had no other possible outcome than Confederate defeat. We also rarely allow for the possibility that the nation that is today the United States might well have been much different in ideology and identity had manifest destiny not succeeded in capturing all the territory from east to west coasts.

Eastwood's excellent study of the emergence of a national understanding in Venezuela is particularly good at sorting out how the various participants involved in the process of



creating Venezuela defined, redefined, and in the end established an ideology of national identity. His work offers a view of this process, within a strong theoretical framework that raises the conversation into the larger historical discussion of Western nationalism. In this way, he provides an antidote to the particularistic, "special case" approach to Spanish American nation building that too often informs other work on this subject.

Eastwood concludes his work with this succinct summary:

> The idea of the nation [in the Venezuelan case], precisely because of its egalitarian implications, appealed to individuals suffering from pronounced status-inconsistency. The anomie from which late-colonial criollos suffered was resolved by their immersion in a community of first Spanish, then Venezuelan equals. The idea of the nation as a sovereign community of equals was clearly the same idea that had existed in Europe. This is not to say that it was not adapted to local traditions, made use of, and given a local quality when appropriated by Latin American elites, but that in every fundamental respect it remained the same idea. (p.155)

Eastwood's analysis is persuasive, elegant, and well documented. At the same time, however, those of us of a less theoretical bent will struggle with a perspective that sees the emergence of Venezuela's self-definition of national identity as primarily an ideological construct. We will wonder whether the effort to find a vocabulary to explain the idea of Venezuela is not more a process of justifying the realigned elite control that emerged from a brutal civil war. Surely, that civil war—fought primarily over who would control what parts of Northern South America, who would control trade and commerce relationships, and who would have sufficient strength to reinvent a functioning mechanism of government—must have some explanatory power.

Gran Colombia was a terrific idea for a nation, as was Bolívar's view of a united Spanish America. But neither of these ideas had any basis in the practical realities of geography, trade, power, resources, and elite interests. Instead, Venezuela invented itself as a nation as the result of the exer-

cise of power through a series of rebellions and realignments of elites; and as a result of the territory it could claim and control from Caracas. By the late 1840s, the shape of this territory appeared reasonably well established. The elites of that time then proceeded to codify the legends and ideologies that would define Venezuelan national consciousness and assert its exceptionalism, serving as touchstones of national identity to this day.

The creation of Venezuelan nationalism by the mid 19th century might be seen as a justification for the achievements and limitations of the Venezuelan elites who exercised power through the *caraqueño* bureaucracy. Those elites sustained their power by force when needed, and engaged the dynamic Atlantic markets using the agency of the nation-state. We might argue that the attainment of economic advantage for the Venezuelan elites required the existence of a nation-state capable of behaving more or less as expected by its various trading partners. Thus, Venezuela created a nation that could deal with this outside world and only later worked to construct a believable and effective notion of Venezuelan nationality for its own internal use in maintaining the largest possible national territory.

Eastwood's strong theoretical perspective puts local conflicts and an emerging Venezuelan identity into a much larger and useful analytical framework.

Eastwood's book creates a context for understanding how Venezuelans explained their raw exercise of power and the evolving ways Venezuelans came to understand the limits of the sovereignty they could sustain. His strong theoretical perspective puts the local conflicts and an emerging Venezuelan identity into a much larger and more useful analytical framework. Of particular interest is his explanation of Venezuela's nationalism as a collectivistic type, by which he means that "the nation itself is imagined as a 'unity' or 'larger body' that exists above and beyond its individual members. For this very reason, Venezuelan political culture …remains potentially predisposed to authoritarianism."

In short, this work makes a significant contribution to our understanding of the emergence of Venezuelan, and by extension, Spanish American, nationalism. Its theoretical perspective is both well informed and persuasive, and its argument will certainly become a major part of our future conversations as Venezuela and the rest of Latin America continue to define and redefine the terms, limits, and possibilities of their national identities.

John V. Lombardi *is Professor of History at the University of Massachusetts Amherst and author of* Venezuela: The Search for Order, The Dream of Progress *(1982),* Venezuela en la época de transición *(2002) and other works on Venezuelan history.*

FREQUENTLY ASKED QUESTIONS

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***ReVista, the Harvard Review of Latin America*, is published three times a year, and each issue focuses on a different theme. We welcome queries from students, professors (Harvard and non-Harvard) and community members, but most article assignments are made by invitation. Potential book reviewers are also welcome to express their interest. Queries to <jerlick@fas.harvard.edu>.**

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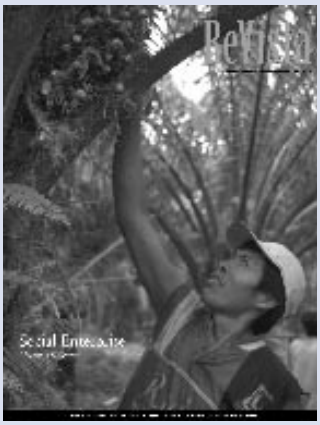


Dear Editor:
These instructive examples give a memorable glimpse into the potential of social entrepreneurship in areas of high poverty. Latin America is notorious for its centuries of income disparity and mismanagement, but these case studies show that history does not have to be repeated. This chronicle of the power of private-public cooperation shows that mainstream business frameworks can resonate in low income areas when they are combined with local knowledge and labor. When companies listen to and learn from communities in need and those communities in turn open their minds and doors to economic innovation, sustained improvements can happen. These important articles convey that the perceived inevitability of poverty is not substantiated, and that solutions can be manifested in something as small as a mushroom and as monumental as a health care system.

JESSE HARDMAN IS A JOURNALISM FELLOW IN PERU WORKING FOR THE KNIGHT CENTER FOR INTERNATIONAL JOURNALISM.

Estimada June:
Deseo agradecer la *Revista* de Otoño 2006... me encantó, igual que todas. El tema de la inversión en empresas de sectores de bajos recursos es muy importante para Latinoamérica. Disfruté, especialmente, los artículos sobre "la base de la pirámide" de Colcerámica de Colombia, el proyecto urbano de recolección de basura no biológica de Buenos Aires, Argentina (muy apropiado para todos los centros históricos de las ciudades centroamericanas), y el de Venezuela sobre el sistema de prepago de cobertura de salud en áreas marginales. Pero lo que más llamó mi atención fue tu carta de editora, en la que cuentas que estuviste un año de sabático en Colombia con una beca Fulbright. Felicitaciones, siempre te mantienes activa.

SALUDOS,
LUCILA CASTAÑEDA
DE GUATEMALA

Distinguida señora June Erlick:
Es un honor para mí para saludar a usted y a los distinguidos miembros de esa prestigiosa universidad. Acabo de leer su número de *ReVista* sobre la política de los EE.UU hacia América Latina (*ReVista,* U.S. Foreign Policy, Spring/Summer 2005) y quisiera compartir alguna información con sus lectores.

Soy embajador de la República de Bolivia ante la Organización de Estados Americanos (OEA) y también vice presidente de la Comisión sobre Pueblos Indígenas de la OEA y quiero felicitar a su institución por llevar adelante foros como el que se realizó ayer 5 de febrero sobre el Futuro de la Relación de las Naciones U.S./Tribales y al que tuve la oportunidad de ser invitado y asistir.

La estupenda moderación del Prof. Joseph Kalt y la participación activa de los panelistas, como los distinguidos Ron Allen, Mark Chino, Karen Diver, Diane Enos y Joe Garcia, representando a los pueblos indígenas de Norte América, me dio la oportunidad de conocer más de cerca las perspectivas de los pueblos indígenas de los Estados Unidos y también de invitarles a participar en un diálogo contínuo hacia la firma de la Declaración de los Derechos de los Pueblos Indígenas, que ocupa a nuestra comisión desde hacen más de ocho años.

La próxima reunión de la comisión se llevará a cabo en Bolivia del 23 al 30 de Marzo, con la asistencia del Cónclave Indígena (Caucus) y los representantes de todos los Gobiernos del Continente americano, por lo que auguramos una amplia y exitosa participación de los pueblos indígenas de América.

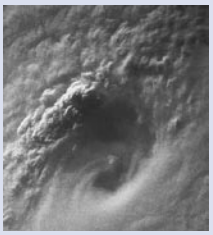
Queremos invitar a la comunidad de Harvard a participar más activamente de este encuentro entre pueblos y también a apoyar nuestro país en los temas de:

- Desarrollo Sostenible, con énfasis en la protección de los bosques naturales y la biodiversidad,
- Desarrollo de tecnología apropiada y aprovechamiento de energías renovables
- Etno-eco turismo
- Acceso, uso y disposición responsable, solidaria y ecológica del agua
- Promoción de una cultura holística
- El comercio justo entre los pueblos fomentando microempresas, economía familiar y de pequeña escala en equilibrio con la industria.
- Investigación y debate sobre la problemática de las drogas
- Coexistencia armónica y pacífica con respeto a los Derechos Humanos
- La equidad en cuanto a oportunidades en educación y salud

LE SALUDA ATENTAMENTE,
J REYNALDO CUADROS A.
EMBAJADOR DE BOLIVIA
ANTE LA OEA

Letters to the editor are welcome in English, Spanish or Portuguese! Please send your comments, suggestions and complaints to: June Carolyn Erlick, 1730 Cambridge St., Rm. 206, Cambridge, MA 02138. E-mail: jerlick@fas.harvard.edu

NATURAL DISASTERS



EDITOR'S LETTER 2

HURRICANES OF HISTORY

The 1928 Hurricane and the Shaping of the Circum-Caribbean Region *By Stuart B. Schwartz* 3

In the Shadow of the Winds: Rethinking the Meaning of Hurricanes *By Louis A. Pérez, Jr.* 10

Hurricane Katrina and the Re-Latinization of New Orleans *By M. Christian Green* 13

TEMPEST, EARTHQUAKE, AND EMPIRE

The Jesuit and the Jew *By Kenneth Maxwell* 17

Lessons from Lisbon *By Adam N. Khedouri* 19

Environmental Stress and Rainmaking: Cosmic Struggles in Early Colonial Times *By Karen Ordahl Kupperman* 20

Earthquakes During the Colonial Period *By Francisco A. Ortega* 22

THE NATURE OF NATURAL DISASTERS

Natural Hazards: Keeping Them from Becoming Natural Disasters *By Matt Pritchard* 30

Deploying Wireless Sensors for Volcano Monitoring *By Matt Welsh* 34

PHOTOESSAY

A Guatemalan Landslide Through the Eyes of Boys and Girls *By Nancy McGirr and Fotokids* 36

CIVIL SOCIETY AND COLLECTIVE MEMORY

Urban Poverty, Disasters and Local Government *By Héctor Silva* 40

Hurricanes, Society and the Culture of Citizenship *Edited by Rafael Hernández* 45

Hurricane Stan and Social Suffering in Guatemala *By Kedron Thomas* 48

Pinochet: General Earthquake *By Carmen Oquendo-Villar* 52

HUMANITARIAN AID AND RISK ASSESSMENT

Dispute Resolution in Resettlement in Ceará *By Jennifer Burtner* 56

Whom Do Humanitarian Agencies Actually Work For? *By Peter Walker* 61

Large-Scale Risks and Extreme Events *By Erwann O. Michel-Kerjan* 65

MAKING A DIFFERENCE

Library Grant to the Galapagos *By Frankie Chen* 68

Director's Letter *By Merilee S. Grindle* 69

BOOK TALK

What's The Most Welcoming City? How about Havana? *By Lars Schoultz* 70

Remedying Inequality *By Archana Sridhar* 71

Understanding Venezuela: A Case Study on the Nation-State *By John Lombardi* 73

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