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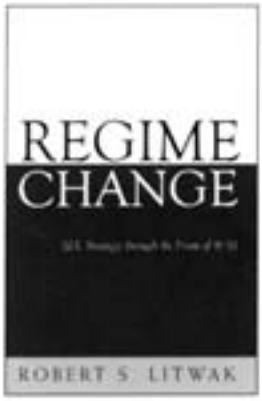

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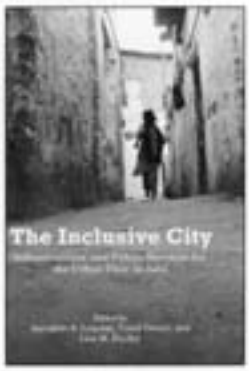

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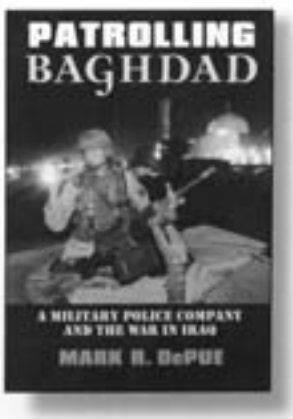

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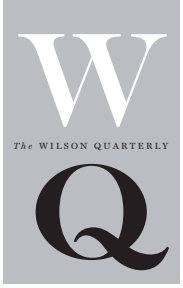

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DEPARTMENTS

EDITOR'S COMMENT

One of the Greats

It can be pretty unnerving to have one of the great American thinkers of the 20th century shamble into your office and flop into a chair for a little afternoon kibitzing. That was a privilege I occasionally enjoyed when Seymour Martin Lipset was a senior scholar at the Wilson Center, and, like a lot of other people, I soon came to delight in the company of this man who seemed like a brilliant, oversized, and unexpected addition to my list of uncles. Marty died this past New Year's Eve at the age of 84, and it's hard to add much to the flood of articles in his honor (including our own item on p. 10 and others at www.usip.org/memorial/lipset). He thought and wrote about many subjects during his long career, but he will be best remembered as the person who, like no other since Tocqueville, showed Americans who they are. In books such as *The First New Nation* (1963), Marty created so persuasive a portrait of America as an "exceptional" nation that many now take this view for granted. The United States, he wrote, is a nation built upon ideas and values rather than ethnicity or faith, forever negotiating the tension between its egalitarian and its individualistic commitments.

Marty was a social scientist, but the humane quality of his thinking was one of the things that set him apart. While he didn't shy from the occasional regression analysis and his work was studded with footnotes that reflected his wide-ranging intellectual appetite, he was not in thrall to the pretensions of science. He was a gatherer of facts, experiences, ideas, and aperçus, and all of these were evident in his thinking, giving it a suppleness and realism rarely seen in contemporary social science. There should be more like him. In some ways he was the intellectual equivalent of the family doctor—not necessarily much for the very latest technology, but precisely the person you turn to when you need to know what's really going on. He was a man you always greeted with a smile, and he will be remembered that way, too.

—Steven Lagerfeld

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Does America Have a Political Philosophy?

Join an award-winning professor as he chronicles American political thought

America is often described as a nation of doers. Its folk heroes are men and women of action, like Daniel Boone and Annie Oakley, who subdued an untamed wilderness on the way to forging a great nation. But is that the whole story? Is American history really just a tale of dynamic movers and shakers who left philosophizing to their European counterparts?

In *Cycles of American Political Thought*, you'll examine the often neglected philosophical underpinnings of this nation's history. Professor Joseph F. Kobylka weaves a tale of nation-founding and nation-building. Learn how, from its earliest days, the nation has borne the imprint of influential thinkers from the European continent, from the Reformation theology of John Calvin to the Enlightenment philosophy of John Locke. Examine how these ideas have influenced the greatest Americans as the nation has cycled between variants of a single revolutionary political theory.

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About Your Professor

Dr. Joseph F. Kobylka is an Associate Professor of Political Science at Southern Methodist University. He received his B.A. in Government and History from Beloit College, graduating magna cum laude, and earned his Ph.D. in Political Science from the University of Minnesota.

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LETTERS

AMERICA'S BIG BUCKS

Leslie Lenkowsky reminds us that the rich make us better off by donating to charity ["Big Philanthropy," *WQ*, Winter '07], but that isn't the most important contribution they make to the commonweal.

Economies move forward on waves of innovation. New goods and services typically enter the market with sales to a small number of consumers—the wealthy. In times gone by, the rich have forged initial markets for electric lights, automobiles, airplane travel, color televisions, air conditioning; in recent decades, they have served as midwives for cellular telephones, microwaves, videocassette recorders, camcorders, and computers.

They do so simply because they can afford to buy, even at what for most of us would be prohibitive prices. In 1908, the first Ford Model T sold for $850, the equivalent of more than two years' earnings for an average factory worker. Ford sold only 2,500 cars that year, and critics dismissed the automobile as a "rich man's toy." Many products started out in a niche for the rich. Videocassette recorders went for $1,395 in 1972. Cellular phones cost $4,195 in 1984. The same year, IBM PCs sold for $3,995.

Few entrepreneurs get rich selling only to the wealthy, even at extravagant prices. The real money—and the real benefit to society—lies in bringing products within the reach of the masses. The "rich man's toy" will remain so forever unless it gets cheaper in the currency that really matters, hours of work.

Since 1972, the price of a VCR has fallen from the equivalent of 365 hours of work to a mere two hours. A cell phone has dropped from 456 hours in 1984 to four hours today. A Dell PC, jazzed up with more than 2,000 times the computing power of IBM's 1984 PC, has declined from 435 hours to 25 hours. Even cars are taking a smaller toll on paychecks: A 2007 Ford sedan, fully equipped, requires only a third of the work time of the first Model T.

The democracy in luxuries James Twitchell humorously describes ["Lux Populi," *WQ*, Winter '07] owes its very existence to the rich.

W. Michael Cox
Chief Economist
Richard Alm
Economics Writer
Federal Reserve Bank of Dallas
Dallas, Texas

Leslie Lenkowsky focuses on the pitfalls faced by new megafoundations such as the Bill and Melinda Gates Foundation. What he does not mention is the danger to American democracy posed by the fact that a growing number of gigantic family foundations are run by a very small number of family members. For example, the Gates Foundation, with assets that exceed the national budgets of more than 70 percent of the world's countries, will annually distribute more than $3 billion of tax-deductible money without public accountability. Its decision-making mechanism offers very little protection to the nation's taxpayers or the national interest.

The Gateses believe that accountability should be measured by the impact the foundation has in meeting its goals, not by the way it's governed. They are dead wrong. The nature and size of a foundation board are important. Given the huge tax breaks the Gateses receive, the foundation's board ought to be expanded to include more nonfamily or public members. (It currently has three trustees: Bill and Melinda Gates and Warren Buffett, who is the other major contributor.) The same demand should be made by law of all other large family foundations.

There is also good reason to think seriously about limiting the size of private foundations. If the projected transfer of up to $40 tril-

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lion from one generation to the next by 2050 should result in the creation of 25, 50, or more new foundations comparable to or larger in size than the Gateses', this country will be faced with enormous concentrations of private wealth run by an oligarchy, determining public priorities and, possibly, national policy. Such a situation would not be healthy for either our civil society or our democratic institutions.

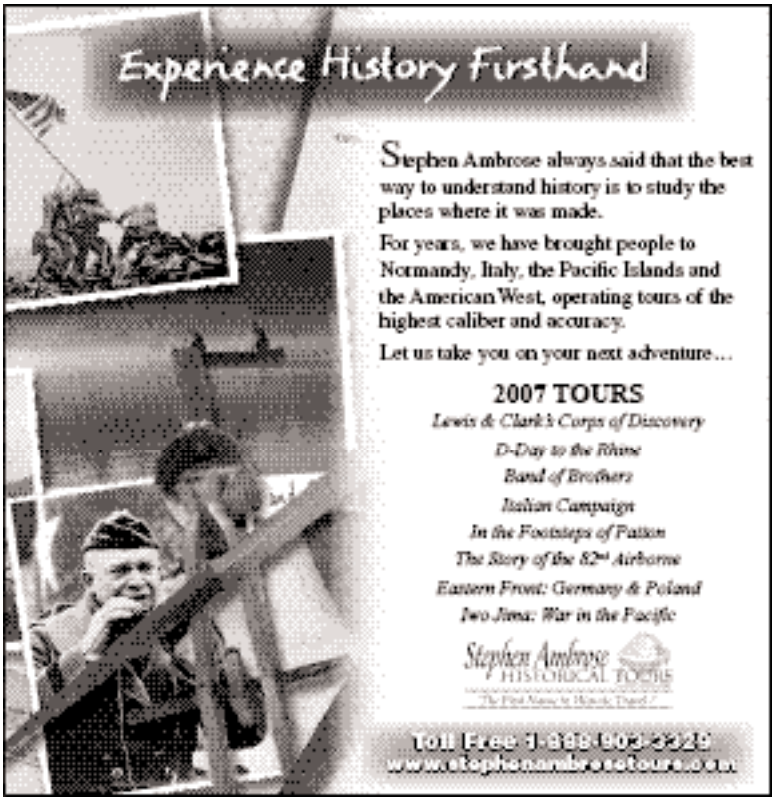
As our federal government slowly abdicates its responsibility for the social welfare and the maintenance of a safety net, that responsibility is increasingly being foisted on an elite philanthropic sector that gives only a tiny sliver of its money to those in our society who are most in need or to the activist and watchdog groups that are the best guarantee of constructive social and institutional change.

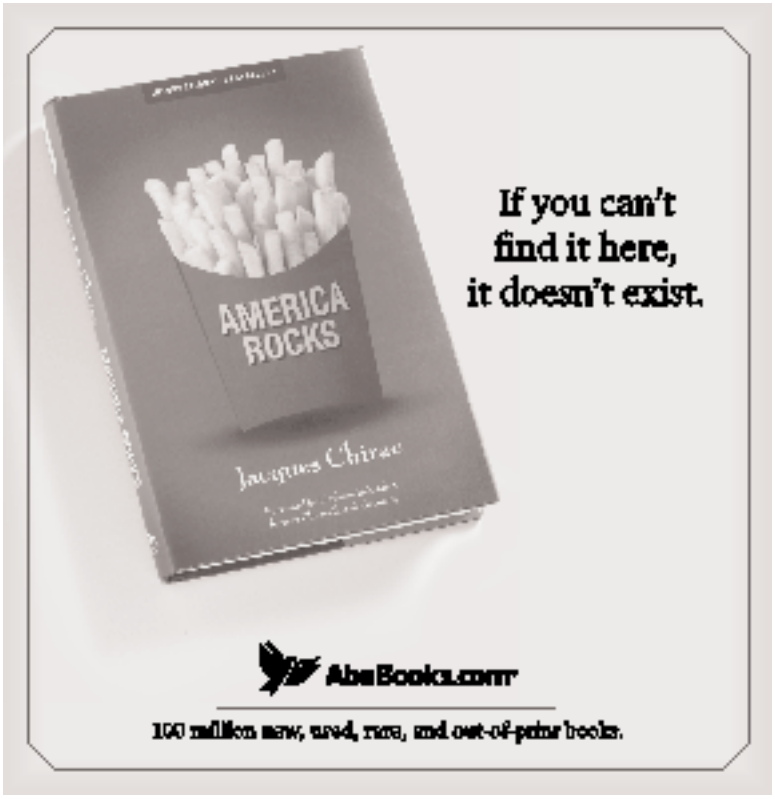
A policy of "noblesse oblige" is not the way to build a healthy democracy.

Pablo Eisenberg
Center for Public and Nonprofit Leadership
Georgetown University
Washington, D.C.

IRAQI SECTARIANISM?

There is an important difference between the two essays in the *WQ*'s cluster "One Iraq or Three?" [Winter '07]. On the one hand, F. S. Naiden notes in his article "Lines in the Sand" the significance of Iraqi history only when it impinges on the concerns of white Europeans. A classicist by profession, he writes [*Continued on Page 7*]





FROM THE CENTER

WILSON AT 150

One way to gain historical perspective on a president is to look at his relevance to the current debate. As we celebrated the 150th anniversary of Woodrow Wilson's birth with discussions and an exhibit here at the Wilson Center, it was clear that the man who gave his name to both the Center and the *WQ* ranks high in the richness and durability of his legacy among the 18 individuals who served the United States as chief executive in the 20th century.

Wilson's domestic agenda continues to have an impact on the way the American government and economy functions. Three pillars of the American system—the Federal Reserve, the federal income tax, and the Federal Trade Commission—are products of the Wilson presidency. Wilson also signed legislation outlawing child labor, instituting an eight-hour workday, and setting clear antitrust guidelines. Taken as a whole, the Wilson agenda implemented a vision of capitalism that curbed abuses, provided a more equitable distribution of wealth, and spelled out new modes of interaction among government, business, and labor.

Of course, Wilson is known primarily for his leadership during World War I. By bringing the United States into that European war, and by declaring that America would "make the world safe for democracy," he dramatically expanded the role of the United States in the world. Wilson launched a century of American interventionism, American leadership in European affairs, and ultimately the ascendance of America as a superpower.

Wilson's impact owes as much to his efforts to make peace as it does to his entry into world war. The Wilsonian vision of the world was spelled out in the Fourteen Points, which he advanced at the war's conclusion. These objectives prominently included arguments on behalf of free trade, self-determination for peoples that had previously been under Austro-Hungarian or Ottoman rule, and the formation of an international "League of Nations" to resolve disputes peacefully.

In Wilson's day, the goals articulated in the Fourteen Points went largely unmet. Congress rejected U.S. entry into the League of Nations. Many of the peoples singled out for full independence did not achieve it. Wilson died without seeing his boldest dreams realized, and within two decades Europe was once again at war.

Yet Wilson's ideas endured. The League of Nations paved the way for the formation of the United Nations at the end of World War II. The notion of democracy promotion became a cornerstone of U.S. foreign policy. Wilson's distinctive view of American interventionism and leadership in the world outpaced isolationism. To this day, foreign leaders from places as diverse as Poland and Kurdistan pass through the Wilson Center and herald President Wilson for giving voice to the aspirations of their people. And thinkers and policymakers from all points on the ideological spectrum—from the most dogged proponents of unilateral intervention to the most dogged proponents of multilateral cooperation—claim Wilson's ideas as their own.

Wilson's idealism had its own limits. He was a segregationist, and he maintained a condescending attitude toward women's suffrage. Here at the Wilson Center, we seek to extend the enlightened aspects of Wilson's worldview: his support for a capitalist system that is free and fair, pursuit of sustainable international cooperation, and commitment to American leadership on behalf of democracy. And we seek to redeem the dark side of Wilson's worldview, by pursuing a broadly inclusive dialogue that gives voices to people of all backgrounds and points of view. Above all, we honor the only president to hold a Ph.D. by promoting the Wilsonian view that the scholar can and should join the struggle and help shape the events of the day, just as the policymaker can and should be informed by the scholar.

Wilson was that rare person who altered the course of world history. He was a man—and a president—who made us see new possibilities at home and abroad. Here at the Wilson Center, and in the pages of the *WQ*, we pay tribute to this legacy by exploring new possibilities in the world of ideas, and by ensuring that the light from Wilson's life is carried well into the 21st century.

Lee H. Hamilton
Director

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[*Continued from page 5*] a superficial history of "Mesopotamia" that never comes to grips with the fact that the country being described from old maps and consular literature is a real place called Iraq by the mass of unacknowledged, anonymous natives who have inhabited it for thousands of years.

On the other hand, Reidar Visser's article, "Other People's Maps," is an eloquent—and elegant—appraisal of Iraq's complex national traditions and its long history of political integration in the face of periodic conspiracies to tear it apart. Visser, a historian who reads Arabic, Turkish, and a slew of European languages, correctly places Iraqi nationhood in a multiethnic and regional perspective. Shooting down the "hopelessly unsubstantiated theory" that Iraq is nothing more than an artificial construct, he restores agency to the Iraqis, an act so elemental as to be subversive amid today's heated talk of "soft partition" and "controlled devolution."

Throughout his short but trenchant essay, Visser shows that not only did schemes of separation fall on deaf ears from the very beginning, but that historically, the one political bloc purportedly affiliated with a separatist agenda—the Shia—was adamantly in opposition. Even after the 2003 war, "the more recent idea of a single Shiite region . . . is still struggling to make headway outside its SCIRI [Supreme Council for Islamic Revolution in Iraq] core constituency."

Most important of all, Visser recognizes the quintessential truth that politicized sectarian agendas have never held sway in Iraq and, absent foreign, Arab, and Muslim funding and support, they would never have achieved the intensity they have today. On the contrary, as Visser's excellent work makes clear, sectarianism in Iraq has traditionally been far less important than the diverse regional and multiethnic traditions that have characterized Iraqi society in the past and continue to do so today.

Hala Fattah
Independent Scholar
Amman, Jordan

TURKEY'S TROUBLES

Soli Özel brilliantly captures the energy and sense of limitless possibility that infect Turkey's urban residents and its globalizing businesses ["Turkey Faces West," *WQ*, Winter '07]. He describes how both secular elites and the conservative Muslim middle classes are moving self-confidently toward a "new cosmopolitanism" of finance, art, real estate, and other trappings of Western-style success. Many Turks are calling for freedom of speech, broader democratic engagement, and more rights for Kurds and Turkey's other minorities.

Özel describes the sometimes violent attempts to counter these calls as "nationalist reflexes" and the "birth pangs" of a country redefining itself. While that is surely the case, he understates the power of these forces—including elements of the old secular elites in the judiciary, the military, and the media who are afraid of losing control, and ultranationalists who

are intent on undermining Turkey's bid to join the European Union. This nationalism is especially powerful outside the cities, and the government has lacked the will to resist it. Events such as the recent assassination of the Armenian-Turkish journalist Hrant Dink; the continual indictment of Turkey's authors, journalists, and publishers for the crime of "insulting Turkishness"; and the failure to implement reforms giving rights to Turkey's religious and ethnic minorities all demonstrate the significant challenges Turkey faces. The European Union's frequent rebuffs of Turkey's good-faith efforts at reform embolden those who would rather see Turkey turn inward than westward.

Jenny White
Associate Professor of Anthropology
Boston University
Boston, Mass.

GEORGE WASHINGTON'S SECULAR VISION

Christopher Clausen's article wrongly describes George Washington's view of the separation of church and state as looking increasingly naive ["America's Design for Tolerance," *WQ*, Winter '07]. In truth, Washington's position looks increasingly suitable for modern society globally.

Clausen states that the doctrine Washington articulated is not suited to handle full-strength religion, but in fact Washington's views were formulated in an era when religious passions were strong. The previous several hundred years of incredibly brutal warfare between Catholics and established Protestants had graphically illustrated the bloody consequences of mixing military and police powers with religious intensity. Besides persecuting each other, both Catholics and Protestants were ecumenical in persecuting nonestablished Protestants such as Baptists and Quakers. During Washington's time, Baptists and other dissenters in Virginia were whipped and otherwise punished for practicing their religion. A good many of those doing the whipping as well as those being whipped were full-strength religious believers. The conflict even infected Native Americans, with French-oriented Catholic tribes fighting English-oriented Protestant tribes.

As a working politician, Washington lived through the bitter, long-running battles over the disestablishment of the Anglican Church in Virginia, which was not accomplished until 1786. He was not naive.

Clausen is also mistaken in suggesting that a separation of church and state is somehow a better fit for a country in which religious beliefs are muted. In fact, it is well suited for countries where there are strong religious movements contesting for adherents. Clausen seems to regard today's evangelical environment as a phenomenon that would somehow take Washington by surprise, but few of today's evangelists could match the level of enthusiasm of the Great Awakening in Washington's day.

Clausen's identification of Washington's description of separation of church and state with today's Left is anachronistic and incorrect. Rather than being captives of Left or Right, limited government in general and separation of church and state in particular have enjoyed support across the U.S. political spectrum.

Clausen's belief that we cannot export the principle of separation of church and state is also wrong. We certainly can export it, and indeed our country has long stood as proof that the absence of a state religion can be beneficial. The inability to establish the separation of church and state is one of the key reasons for the existence of failed states and grossly underperforming societies.

We enjoy a very valuable inheritance from Washington and the many others since his day who have sustained the separation of church and state. At the same time, we should also respect this separation's inherent fragility. Human nature has not changed, and it is all too easy to bring back sectarian violence.

Fulton Wilcox
Colts Neck, N.J.

THERE'S NO PLACE LIKE HOME

What a welcome and clever piece James Morris offered us with "Off the Road" [*WQ*, Winter '07]. As a lover of travel, but also a lover of contemplation and stillness, I appreciate his views—ideas that are rarely aired because they lack commercial appeal. The aspect of travel that I have always found most comforting is the opportunity to come home again, tired and aching for a

bit of peace and serenity. Sometimes the exertion traveling requires forces me to examine the static nature of day-to-day existence—often with illuminating results.

Nathan R. Sponseller

Crawford, Colo.

Alexander von Humboldt
Stiftung/Foundation

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THE ROAD TO COLLEGE

As a loyal subscriber who has always been impressed by the even-handedness of the *WQ*'s articles, I was distressed to see a letter published in the Winter 2007 issue that amounts to an unpaid advertisement for the International Baccalaureate (IB) program and fails to mention the Advanced Placement (AP) program. I think it is important to set the record straight. AP and IB both promote academic excellence, but American schools have no need to import the costly IB system from its sponsors in Geneva, Switzerland, when the AP program is readily available here at home.

The AP program of the College Board has been around since 1955 delivering world-class curricula and college-level examinations. It is the most rigorous and most affordable program to insure academic excellence. For this reason, the state of Florida made a commitment to adopt AP classes in all of its high schools and, as a result, raised its math and English scores to unprecedented levels over the past three years.

Through AP curricula and standardized exams, American high school students have the opportunity to earn college credits for their work. Last year, more than 1.2 million students took more than 2 million AP exams. We need to train more educators to teach at the AP level and thereby serve an even greater number of our children.

Michael Hogan, Ph.D.

Standing Committee on International Concerns
National Council of Teachers of English
Laredo, Texas

LOOKING AT BOTH SIDES

Just a note to say I liked the recent compare/contrast articles on nuclear power ["Nuclear Power: Both Sides," *WQ*, Autumn '06]. If the topic lends itself to it, I hope that you can utilize this format more often. I find it even more edifying to read different views on the same issue at the same time than to read just one.

Keep up the good work.

Jeff S. Berg

New York, N.Y.

CORRECTIONS

The caves of Qumran are located in the Judean Desert near the Dead Sea, not in the Galilee region, as was stated in "Findings" on p. 13 of the Winter '07 *WQ*.

Due to an editing error, "Off the Road" [*WQ*, Winter '07] misstated the total number of U.S. domestic person trips in 2004 according to the Travel Industry Association of America. The correct number is 1.2 billion.

We regret the errors.

FINDINGS

BRIEF NOTES OF INTEREST ON ALL TOPICS

Exceptional American

The public intellectual

On December 31, 2006, Seymour Martin Lipset died at 84. The obituarists' encomiums were lofty—"one of the most influential social scientists of the past half-century" (*The Washington Post*), "a leading expert in democracy" (*The New York Times*), "Tocqueville's heir" (*The Weekly Standard)*—and amply deserved. Lipset was the author of *American Exceptionalism* (1996) and some 20 other books, the only person to serve as president of both the American Political Science Association and the American Sociological Association, a senior fellow of the Woodrow Wilson International Center for Scholars, and a *Wilson Quarterly* author and editorial adviser.

Marty Lipset established himself as a leading public intellectual long before the term came into vogue. But when the occasion called for it, he could be a shrewd critic of the American intelligentsia too. In *Encounter* magazine (April 1957), he published an article that is characteristically incisive and clear-headed, as well as strikingly relevant 50 years later.

Seymour Martin Lipset (1922–2006): the consummate American public intellectual.

Why, Lipset asked, do American academics complain so much about the hoi polloi's anti-intellectualism? Polls find that people highly respect college professors. True, intellectuals generally enjoy higher status in Europe, but so do all elites. In comparing themselves with their European counterparts, Lipset wrote, "what many American intellectuals fail to see is that they are objecting to the egalitarian value system of America, rather than to the lower status of the intellectual in America."

Another grievance of the American professoriate—academics earn a fraction of what corporate executives make—simply reflects the difference between public-sector salaries and private-sector ones. "The professor who complains that he could earn much more in private industry does not recognize that this very fact disproves the thesis that his talents are undervalued. Rather he, like the lawyer who has chosen to be a judge or politician rather than a corporation counsel, has indicated that the noneconomic rewards . . . outweigh monetary gain."

Lipset went on to argue that anti-intellectualism in the United States typically targets an ideology, not a group. Which ideology? "The dominant coloration of the social science academicians, of most of the significant literary figures, of the intellectual

journals of opinion, has always been on the left of the political spectrum. . . . The political bent of the American intellectual happens to be a fact, whether one shares it (as I myself do, more or less) or detests it." The Right denounces intellectuals, then, just as the Left denounces corporations. That's politics.

American academics should "frankly defend their right to be heard as advocates of a point of view, much as do labor unions and business groups." But they shouldn't expect ivy-covered walls to shield them from criticism. A small-d democrat par excellence, Lipset concluded, "If a position is unpopular and consequences are to be faced for holding it—well, if one wants to participate in politics, one must face up to the consequences, and not suddenly claim to be above the battle and shriek 'anti-intellectualism' whenever the guns are turned in one's direction."

Working Woes

On-the-job nostalgia

Bad news for workers—that's been the message of a slew of books for more than a decade. Between the global economy, multinational corporations, outsourcing, hostile takeovers, independent contractors, and other shifts, our jobs are less secure than ever.

In *The Sociological Review* (Feb. 2007), Tim Strangleman of the University of Kent at Canterbury challenges that popular thesis. Long before callers seeking tech help were routed to New Delhi, Karl Marx wrote that modern capitalism causes the "disturbance of all social relations, everlasting uncertainty and agitation." Strangleman interviewed British railway workers in the 1990s and found that they longed for a golden past; another researcher got similar responses from trainmen in the 1980s, and yet another in the 1960s. The steadfast stability of the workplace turns out to lie in the recurrent proclamations of its unprecedented instability.

Paperless Trails

Error messages

In *Send: The Essential Guide to Email for Office and Home* (Knopf), David Shipley and Will Schwalbe list some ill-considered e-mail phrases that have ended up in court records: "Can we get away with it?" "They'll never find out." "This might not be legal." "DELETE THIS EMAIL!"

The Master's Voice

A Remington rhythm

In 1897, suffering from writer's cramp, Henry James (1843–1916) began dictating to a typist. The result was a new style, baggy and meandering. "I know that I'm too diffuse when I'm dictating," James told his typist, Theodora Bosanquet, but "it all seems to be so much more effectively and unceasingly *pulled* out of me in speech than in writing." The clacking of the Remington "acted as a positive spur," Bosanquet later recounted. When the typewriter was being repaired, James found the muted mutter of the substitute, an Oliver, "almost impossibly disconcerting."

In late 1915, James suffered a stroke and then contracted pneumonia. He called for Bosanquet and the Remington. In *The Iron Whim: A Fragmented History of Typewriting* (Cornell Univ. Press), Darren Wershler-Henry reports that James dictated several sentences and then, inexplicably, two letters purportedly from Napoleon. The novelist seemed to find comfort in the clatter of his mechanical muse.

After James died, according to Wershler-Henry, Bosanquet tried to re-establish contact through automatic writing, a spiritualist practice of communicating with the Other Side. Bosanquet's pen moved and she thought she received messages from James, but it just wasn't the same. Whether she tried automatic typewriting is unrecorded.

The Medium Is the Maker

The wires of Hell

Marshall McLuhan (1911–80), guru of the electronic age, had a god of his own. In his twenties, McLuhan read G. K. Chesterton's essays and began questioning his family's polyglot Protestantism,

Marshall McLuhan called Satan "a great PR man."

Thomas W. Cooper recounts in *The Journal of Media and Religion* (vol. 5, 2006). Before converting to Catholicism, McLuhan prayed for a sign. "He reported that almost immediately, not one but a deluge of signs arrived," according to his son Eric. "And they continued to arrive unabated for a long time. As to just what the signs consisted of and what happened next, well, some things must remain private."

Thereafter, McLuhan attended Mass most days, read the Bible every morning, and, he told Cooper in the mid-1970s, sometimes spoke with the Virgin Mary. When Cooper asked McLuhan if his religious beliefs provided a sense of transcendence, McLuhan replied, "Totally. . . . At all times." His faith led him to speculate on the unholy potential of electronic media. Satan was "a great PR man, a great salesman of new hardware and software, a great electric engineer, and a great master of the media," he observed. Elsewhere he asserted, "This could be the time of the Antichrist. When electricity allows for the simultaneity of all information for every human being, it is Lucifer's moment." Hot media indeed.

A Nazi's Umbrage

Speared by trust

While serving his 20-year sentence in Berlin's Spandau Prison, the Third Reich's architect, Albert Speer (1905–81), asked to write his memoirs. Permission was denied, Norman J. W. Goda writes in *Tales From Spandau: Nazi Criminals and the Cold War* (Cambridge Univ. Press), "on the (fully justified) fear that Speer would use the opportunity to sanitize his role" in Hitler's regime. Speer nevertheless managed to draft most of *Inside the Third Reich* (1970), published after his release. He wrote on toilet paper and anything else he could lay his hands on, and smuggled the notes out via an obliging Dutch orderly.

Early on, Speer tested Spandau's security by placing a folded sheet of toilet paper under his bed. When guards searched the cell, "no one paid any attention to the paper," Speer observed, adding sourly, "Such lack of distrust is really almost insulting."

No typewriters were permitted Albert Speer after his conviction at Nuremberg in 1945. The Nazi architect scrawled on toilet paper.

Afterlife Afterthoughts

Fatal distraction

Tell people to contemplate their own death and decomposition, and, for a while, their attitudes change. Studies find that they become more religious and philanthropic, and, at the same time, more nationalistic, racist, and aggressive.

In a new paper, David Cuillier, of the University of Arizona, and Blythe Duell and Jeffrey Joireman, of Washington State University, examine how morbid thoughts affect support for free speech. Half of participants in their study were told to imagine their own death and decay, while the others imagined decay of a different sort, the kind that leads to dental pain. A subsequent questionnaire found the death-minded subjects significantly more willing than the dental-minded ones to censor the news media.

This side effect of confronting one's mortality, the authors suggest, may help explain the increased public support for censorship after 9/11. At least our civil liberties aren't imperiled by rising rates of gum disease.

Freudian Slips

Shards of meaning

Sigmund Freud (1856–1939) surrounded himself with Egyptian antiquities, including a statuette from the tomb of Tutankhamen. "The rooms were so crowded that Freud could barely move," Janine Burke reports in *The Sphinx on the Table: Sigmund Freud's Art*

Freud's antiquities: hidden messages?

Collection and the Development of Psychoanalysis (Walker).

Inevitably, some pieces got broken, and, inevitably, the owner discerned deep meaning in every mishap. While writing an apology to a friend he'd insulted, Freud jerked his arm and broke a glazed figure on his desk—plainly, "a propitiatory sacrifice to avert evil." When his severely ill daughter began to get well, a small marble Venus ended up in pieces—another "sacrificial act," this time to "express a feeling of gratitude to fate." Then again, maybe sometimes a bumbler is just a bumbler.

Dead Ahead

Ancestral augmentation

Mathematicians, environmentalists, journalists, and lots of others assert that today's global population exceeds the total number of people who lived in the past. Not so, according to a March 1 report on the *Scientific American* website, www.sciam.com. A hundred billion members of Homo sapiens have died, population experts estimate, whereas just 6.5 billion people are now alive. Unless we achieve immortality, not to mention a hankering for crowds, the dead will almost surely outnumber the living forevermore.

Skin Deep

Dying for beauty

Victorians romanticized tuberculosis, Marlene Zuk writes in *Riddled With Life: Friendly Worms, Ladybug Sex, and the Parasites That Make Us Who We Are* (Harcourt). Among other things, "the weight loss and subsequent thinness, pallor, and lethargy caused by tuberculosis were all desirable attributes of the upper classes at the time." (Nothing says affluence like lethargy.) By contrast, nobody ever romanticized leprosy, whose disfigured sufferers through the centuries have been ostracized ("Unclean!") and exiled.

Tuberculosis and Hansen's disease, as leprosy is now known, are caused by closely related bacteria, Zuk says, but they differ in one important respect: Tuberculosis is far more contagious. It spreads easily by blood or saliva; Hansen's disease doesn't. Of some 22,000 people who worked closely with untreated Hansen's patients, fewer than one in a hundred contracted the illness. Victorians would've been safer passing the time with lepers instead of mooning over tubercular eye candy.

Intelligent Gulling

Falling for it

In an age before reality TV, Scott Dikkers, editor of *The Onion*, www.theonion.com, grew up thinking that TV *is* reality. "I believed that our government rebuilt a test pilot by giving him super-powered legs, a super-powered arm, and a super-powered eye—and they did this all for the astounding sum of $6 million," Dikkers said earlier this year at a Las Vegas conference on skepticism and the media. "And I believed that David Carradine was Chinese."

Some readers likewise mistake Dikkers's satirical newspaper for reality, as conference organizer James "The Amazing" Randi recounted. Not long ago, the prolific writer Martin Gardner told Randi he was writing a screed against the new theory of "Intelligent Falling," promoted by Christian groups as a Scriptural alternative to the science of gravity. Someone had sent Gardner, who has made a career of debunking bad science, a newspaper article about it, and he was indignant.

Where, Randi asked, had the article appeared?

Gardner checked.

"Oh, my God!" Gardner said. "Don't tell anyone!"

But Randi told all, including the name of the journal in which Gardner had expected to publish his polemic against "Intelligent Falling": *Skeptical Inquirer.*

—Stephen Bates

Africa's Village of Dreams

A small Kenyan village is the laboratory for celebrity economist Jeffrey Sachs's ambitious scheme to lift Africa out of poverty. Can big money buy the continent's poorest people a better future?

BY SAM RICH

Sauri must be the luckiest village in Africa. The maize is taller, the water cleaner, and the schoolchildren better fed than almost anywhere else south of the Sahara.

Just two years ago, Sauri was an ordinary Kenyan village where poverty, hunger, and illness were facts of everyday life. Now it is an experiment, a prototype "Millennium Village." The idea is simple: Every year for five years, invest roughly $100 for each of the village's 5,000 inhabitants, and see what happens.

The Millennium Villages Project is the brainchild of economist Jeffrey Sachs, the principal architect of the transition from state-owned to market economies in Poland and Russia. His critics and supporters disagree about the success of those efforts, often referred to as "shock therapy," but his role in radical economic reform in the two countries vaulted him to fame. Now he has a new mission: to end poverty in Africa.

Sam Rich is a development consultant who has worked on community and international development projects in East Africa for nongovernmental organizations, governments, and the World Bank.

Africa has been drip-fed aid for decades, Sachs writes in his 2005 book *The End of Poverty,* but it has never received enough to make a difference. What money has trickled in has been wasted on overpriced consultants and misspent on humanitarian relief and food aid, not directed at the root causes of poverty. The average African, Sachs says, is caught in a "poverty trap." He farms a small plot for himself and his family, and simply doesn't have enough assets to make a profit. As the population grows, people have less and less land, and grow poorer. When the farmer has to pay school fees for his children or buy medication, he is forced to sell the few assets he has or else go into debt. But if he had some capital, he could invest in his farm, grow enough to harvest a surplus, sell it, and start making money.

It's not this diagnosis of Africa's problems that makes Sachs's theories contentious, but his proposed solution, which might be called shock aid—huge, sudden injections of money into poor areas. Over five years, $2.75 million is being invested in the single village of Sauri, and an equal amount will be sunk into each of another 11 Mil-

A new Millennium? Angelina Aloo Oweg, 52, farms half an acre near Sauri and cares for seven children. Her hand rests on the cross above her husband's grave.

lennium Village sites that are being established in 10 African countries.

The project is structured around the Millennium Development Goals that the United Nations laid out in 2000 as part of an ambitious plan to reduce global poverty. The UN wants poor countries to meet these benchmarks in health, education, and other sectors by 2015. Halfway there, most countries appear unlikely to meet these targets. However, the first two Millennium Villages—Sauri, which was so designated in 2004, and Koraro, Ethiopia, where efforts were launched in 2005—are on track to surpass them.

Sachs has persuaded Western governments, local governments, businesses, and private donors such as Hollywood stars and international financiers to foot the bill. Under the auspices of the Earth Institute, the project he heads at Columbia University, he has gathered specialists in fields from HIV/AIDS research to soil science to work out master plans for these dozen villages.

Never before has so much money been invested in an African community as small as Sauri. If Sauri succeeds, it could usher in a new era for development in Africa. The hope of Sachs as well as those who head the United Nations Millennium Project, with which he has partnered, is that by 2015, when the Millennium Development Goals still seem far away, these villages will be seen as models whose success can be duplicated across Africa. But if Sauri fails, the West may become yet more disillusioned with aid, and perhaps even reduce what it presently contributes. This is a defining moment in the aid debate.

Last year I paid a visit to Sauri, this village on which so much appears to hang. I'd just finished reading *The End of Poverty,* and I'll admit I was skeptical about the soundness of spending vast amounts of money in a single small village. But most of all, I was looking for early indications of what this exhibit in the aid argument might show.

I was carried on a bicycle taxi through the dusty streets of Kisumu, Kenya, past vendors selling barbecued maize in front of shacks cobbled together from tin cans beaten flat and nailed onto wooden struts. Occasionally I could make out the faded logo of the U.S. Agency for International Development on the rusted shell of an old vegetable-oil can. As I neared my destination I caught a glimpse of Lake Victoria's shore, where vendors in stalls sell fried tilapia and chunks of boiled maize meal.

Inside a concrete compound at the headquarters of the Millennium Villages Project, development experts sat at computer monitors in glass-walled offices. As I entered, the receptionist at the front desk was on the phone: "You need notebooks? . . . How many? . . . Three hundred, is that all? Right, I'll order them for you tomorrow. You'll get them in a few days."

I've spent the last five years in Africa, where I've worked with outfits ranging from big international nongovernmental organizations to tiny one-man-band agencies, but I've never seen an order made as breezily as this. At most NGOs, the procurement even of stationery entails filling out forms in triplicate and long delays.

There was a tour leaving on the 30-mile trip to Sauri the next day. I imagined trekking around the model village with one of Sachs's celebrity protégés, perhaps Angelina Jolie or Bono, or maybe a millionaire altruist the likes of George Soros, so I was slightly disappointed to find myself at the appointed hour in a Toyota Land Cruiser beside a couple of unglamorous American professors on a brief visit to advise the project.

The air conditioning purred as our driver bumped the Toyota over potholes on the single-lane highway that runs inland from the Kenyan coast through the capital, Nairobi, toward Uganda. Sauri itself lies just off the road, some 200 miles from Nairobi, and the sight of tall, strong stalks of maize was the first indication that we'd arrived. Women in brightly colored headscarves and second-hand clothes imported from America and Europe sold homemade snacks and Coca-Cola from wooden shacks dotting the sides of the red-brown dirt road. The grass behind them was a lush green, giving way to a wall of maize plants beneath a sky heavy with the clouds that hang in the rainy season.

Our four-by-four negotiated footpaths through

the maize fields and under acacias. The first stop was Sauri's health clinic, which provided stark reminders of the depth of Sauri's problems and the benefits money can bring. The nurse there told us that each household received mosquito nets at the start of the project, when a sample test of villagers revealed that more than 40 percent had malaria. Now that figure has dropped to 20 percent. Malaria, a debilitating and sometimes deadly disease, is being treated free of charge with Coartem, an expensive drug unavailable in most parts of Kenya. The clinic provides condoms and Depo-Provera contraceptive injections, and there are plans to introduce tests for HIV, thought to afflict one in four villagers, and to administer anti-retroviral therapy. Outside the clinic was a covered waiting area furnished with benches. It wasn't big enough to accommodate the burden of the clinic's success: a queue of 50 people waiting to see the facility's sole doctor. More than 200 patients arrive for treatment every day. Most walk from villages miles away.

Minutes later, we arrived at the green courtyard of Bar Sauri Primary School. The red-brick buildings with holes for doors and windows house classrooms for more than 600 children. One of the buildings lacked a roof. The teacher seemed embarrassed to tell us that it had blown off in a storm just days before. He knew roofs don't blow off schoolrooms where we come from.

But he was enthusiastic about the school's innovative feeding program. Ten percent of the village's harvest goes toward school lunches for the children, he said. In addition, the Millennium Villages Project buys fruit, meat, and fish to provide students with necessary vitamins and protein. The project has built upon Sauri's own school feeding program, established five years ago for students in the top year. Now the entire student body receives nourishing meals. Since Sauri began the program, its school ranking has risen from just inside the top 200 in the district into the top 10. Improved nutrition means that the students can concentrate better, and they're also healthier and more energetic. Sauri won everything at the regional sports day, the teacher told us. With a proud smile, he recalled, "And not one of our children fainted!"

The next stop was the information technology center. It was just a shack with a nice sign on the outside and a few books inside. One day, when the village is connected to the electricity grid, computers will be bought and Internet access provided. Bridging the digital divide may seem a low priority when Sauri has so many pressing problems. But textbooks are a rare commodity, and an Internet connection will allow students access to unlimited information; their parents will be able to obtain up-to-date reports on crop prices, pesticides, and fertilizers.

SAURI WON EVERYTHING at the regional sports day, the teacher told us. "And not one of our children fainted!"

We returned to the Land Cruiser and set off to visit another ramshackle brick building with a crude dirt floor. Here, the dozen men and women who constitute the village's agriculture committee make decisions key to the success of the whole project. Improved harvests can support the school feeding program and provide income for farmers. Successful farming should enable the village to continue to grow after the five-year project finishes in 2009.

The project's major contribution to agriculture has been the purchase of fertilizer to increase maize production. Maize, which has been grown for as long as anyone can remember, is the main subsistence crop here, as it is in large parts of Africa. Synthetic fertilizers are far too expensive for the average farmer, but in Sauri the project spends $50,000 a year on them. The chairman of the committee said

Jeffrey Sachs shares a laugh with Bono, one of his many celebrity fans.

the maize harvest has increased two and a half times as a result. Now the question is how to store the surplus so that villagers can sell it in the dry season when prices are high.

At the tour's final stop, the professors stayed in the Land Cruiser to apply more sunscreen. Outside, I found a cement block with a tap jutting out of it. A water and sanitation expert at the site explained that this was an outlet for a filtered spring, and that purified drinking water is supplied to 50 taps around the village. In neighboring villages, long queues form by a single borehole that slops out murky water, which must be boiled over a charcoal stove before it is potable.

The tour over, the professors drove off, but I decided to stay. Clearly, the Millennium Villages Project has achieved some great things, but I didn't feel I'd seen the full picture. As the light fell, I walked toward the guesthouse by the main highway. A woman was handing out cobs of corn to some kids, and offered me one too. We sat on a bench to eat it and watched the steady stream of lorries roll by, carrying imported goods from the Kenyan port of Mombasa into Uganda, 40 miles up the road. The returning lorries moved faster: They were usually empty. None of them stopped in Sauri.

There are two schools of thought about development. The "macro" school, with its emphasis on national-level economic policy, aims at developing an entire society by changing government policies and encouraging investment. This is often called a top-down approach, because people at the top are making decisions for the benefit of those at the grass roots. This is the work of many economists and other academic specialists as well as organizations such as the World Bank and the International Monetary Fund.

Then there's the "micro" school, oriented toward community development, which advocates working with one group of people at a time, trying to solve particular problems by providing training and minimal investment. This bottom-up approach is the domain of most NGOs and charities.

Though these two schools have the same general objectives, their adherents rarely interact and seemingly speak different languages. What's interesting about the Millennium Villages Project is that it is essentially a micro project run by experts from the macro school, such as Sachs.

But Sachs is no ordinary economist. His charisma and fundraising ability are legendary. He convinced Bono, the lead singer of U2 and a well-known activist in his own right, to write the introduction to *The End of Poverty*. In it, Bono describes traveling with Sachs as the economist enthused about development. Bono modestly portrays himself as the smart, clean-cut geek hanging on the words of the wild-haired creative guy.

It was Sachs's influence and initiative that spawned the Millennium Villages Project. In 2004, after a visit to Sauri as a special adviser to Kofi Annan, then secretary-general of the UN, he wrote an open letter in which he outlined a plan of action for the village that he had developed with the Earth Institute and the UN Millennium Project. He called on donors to support the plan: "The rich world needs to wake from its slumber."

Even Sachs's harshest critic, New York University professor and former World Bank economist William Easterly, has described Sachs as "the economist as rock star." But Sachs's fan base doesn't rescue his theories, in Easterly's opinion. He points out that the idea of investing vast sums of money to close the poverty gap in Africa was tried in the 1950s and '60s, and failed. He says that Sachs's book peddles an "administrative central plan" in which the UN secretary-general "would supervise and coordinate thousands of international civil servants and technocratic experts to solve the problems of every poor village and city slum everywhere." The solutions Easterly favors instead include measures designed to improve accountability and reduce corruption, and specific investments aimed at tackling one problem at a time. In his eyes, Sachs is a utopian. Sachs dismisses Easterly as a "can't do" economist.

But economists aren't Sachs's only critics; others within the micro school he wants to win over are asking questions, too. They want to make sure communities such as Sauri are not simply passive recipients of handouts from donors and lectures from experts, but are actively involved in making decisions about their own development. This is what they mean when they talk about empowerment. Any development project can bring temporary benefits. The trick is to ensure that a community is not enjoying a honeymoon that ends when the project does, but is making changes on which it can continue to build. They want sustainability.

When I tried to ask questions on the tour about these issues, I received some evasive answers. Millennium Villages staffers and Sauri residents seemed reluctant to criticize the project. This is a common problem in areas that receive a good deal of aid: Workers on the project don't want to criticize their employers, and villagers don't want to bite the hand that's feeding them. Would the crop yields and health care in Sauri be better in 10 years' time? Did the villagers believe the changes the project had bought were valuable? Would they be able to keep them up when the money ran out, and did they want to? I decided to spend a few more days in Sauri and talk to the villagers themselves.

I crossed the highway and walked into the village to meet one of Sachs's graduate students, a researcher from Columbia University. When I caught up with him, he was wearing a yellow T-shirt that said "Jeff Sachs Is My Home Boy." I'd run into him earlier in the day, and he had offered to take me to the home of a Sauri resident, Ben Bunde.

THERE WAS SO MUCH excitement when the project started that mothers named their babies "Millennium."

When we arrived at Bunde's house, he and his friends were seated under a tree on wooden benches that seemed to grow from the soil in which they were planted. The group was hunched over bits of scrap paper densely covered in handwriting. They had decided to start up a publication called *The Sauri Times*, and the Millennium Villages Project had helped fund the first print run.

"There are so many stories to be told about Sauri," Bunde said. "The problem is which ones to tell."

When I asked him how Sauri had changed in the last two years, he leaned back, laughing, and said, "The girls have better haircuts now." There are more hair salons, he said, warming to his subject, and the girls are all getting braids. For the first time, people are selling French fries on the side of the highway. People are more generous, too. "A funeral is a big event in the village, with lots of food. In the old days we would get rice and beans, but now we get meat and soup too." There was so much excitement when the project started that mothers named their babies "Millennium."

I mentioned the elections that took place at the start of the project. Committees of about a dozen villagers for health, education, agriculture, and other key sectors were elected on the advice of project coordinators. The committees' role is to decide how the Millennium Villages money should be spent, and to empower Sauri as a result. But Bunde didn't seem to have confidence in the elections or the committees.

BUNDE WONDERED fearfully what will happen when the project ends "because we have become so dependent."

"Few people took part, and they didn't know who to vote for. . . . What would Sachs say if he knew about the witchcraft that took place before the elections? The Kalanya were scaring people to vote for them. In Kenya, we have the Kikuyu factor—the Kikuyu are the dominant tribe. Here in Sauri, we have the Kalanya factor. The Kalanya are the dominant clan. Kalanya elders head all the committees, and yet many of them are uneducated and illiterate. And yet here," he said, gesturing at the young journalists around him, "we have some clever, educated people."

Bunde argued that "clanism" was fostering nepotism and other forms of favoritism. As an example, he cited one of the buildings at the new clinic, which was so badly constructed that it has been condemned. And he hinted at other forms of corruption. There were rumors that the clinic was charging patients from outside Sauri. Civil servants and police in neighboring villages were allegedly using their influence to get their children into Sauri's school.

There was fighting both within and between committees, he continued, and this had delayed development in the village. In the early days of the project, he said, Sachs had ceremoniously handed over the keys to a truck that was to be used to take goods to market and as an ambulance. But because of power struggles over it, the truck hadn't been used or seen in the village since.

Bunde said that there wasn't enough education of Sauri's people at the start of the project. After receiving free fertilizer and mosquito nets, some villagers sold them to people in the surrounding communities the very next day and then conspired to get more fertilizer and nets.

When I asked if he planned to put any of these stories in *The Sauri Times,* he shook his head. "No, we don't want the donors to pull out!"

In the end, Bunde questioned whether outside experts really understand the problems in Sauri. While life had improved in the years since the Millennium Village experiment began, Bunde wondered fearfully what will happen when the project ends, "because we have become so dependent." Change, he said, needs to be led from inside the village. "As we say here, only the wearer knows where the shoe pinches."

At breakfast the next morning in the courtyard of the guesthouse, I ran into one of the project coordinators, who agreed to chat with me if he could remain anonymous.

On the tour, our guide had emphasized that the elected committees make all the decisions about how Sauri is run and how aid money is spent. I asked the coordinator if there was tension between what the project's representatives wanted to do with the money and what the committees wanted.

"Yes," he said. "We provided the inputs like the fertilizers, and so the committees just sat back. There were mistakes made on entry to Sauri. There was not enough sensitization. . . . Now the problem is [that] the project is moving so fast, the committees can't keep up."

Lack of education, or "sensitization," both within the committees and in the village generally, has caused problems, the project coordinator observed. The villagers often disappoint their benefactors. When project officials want to implement a change,

People walk for miles to seek treatment at Sauri's health clinic, built in 2005 with funds received through the Millennium Villages Project. Sauri's malaria rate has halved since then. But some villagers wonder what will happen to the facility when the funding cornucopia disappears.

they advise the committees. But the committees sometimes move slowly, because there's not enough support for a particular proposal either within the committee or in the village as a whole. In the surrounding villages to which the project has been expanded, there has been more education, but he doubted that there has been enough.

The basic inputs of the project have also changed. In Sauri, he said, the amount of fertilizer given to farmers was based on plot size. But this scheme was contrary to traditional community practice because its effects were thought to exacerbate existing inequalities and were often divisive. At the new Millennium Villages Project sites, each farmer will be given the same amount of fertilizer.

From Sauri, I walked half a mile down some railway tracks to the neighboring village of Yala, passing the old, dilapidated train station. Even though only one train passes by a week, the station's colonial-era ornamental gardens are still tended with care.

The local government is based in Yala, and I wanted to find out how its members viewed the new Sauri. A hand-painted sign pointed to a small, spare room, where the paint peeled under a corrugated-iron roof. There I found Richard Odunga, a resident of Sauri and Yala's town clerk. His secretary sat next door in front of a typewriter.

Odunga owns a big plot, uses the fertilizer, and has sold a lot of maize. When I asked him if he'd been able to save money, he sighed. He has been forced to support family members who live outside of Sauri. They ask him for help with school fees and medication, and have drained all his maize profits.

He said relations between the local government and project organizers have been strained. "At first, there was no consultation with government. Later, they realized we were a stakeholder and they needed our assistance." Project leaders initially wanted to build not just a clinic but a hospital in Sauri, before the government pointed out that there was already a hospital just a few kilometers away. The project wanted help from government in electrifying Sauri and grading its roads. Two years on, work has started on the roads, but there is still no connection to the national power grid.

Odunga wondered what will remain after the

project finishes. When I asked if the community had started contributing to the project yet, he said, "There is some cost sharing, but it's at a minimum level." Who will pay for the clinic after the project ends? he asked. But villagers will at least benefit from the training they've received: "Skills. That's the most important thing."

A couple of days later, I met a senior official working on the Millennium Villages Project for the UN who has a background in community development, as Sachs, he noted, does not. This official, too, would only talk if he were not identified.

The Millennium Villages Project, he said, "has made all the classic development mistakes. . . . If you give away tons of fertilizer, it's predictable that much of it will end up on the open market. If you put millions [of dollars] in a small place, you're going to have problems."

Encouraging farmers to grow maize is the wrong strategy, he argued. "It just means you move from being food insecure for 11 months of the year to food insecure for just nine months of the year."

Growing only maize year after year depletes the soil. It's also a high-risk strategy, he said, as the entire crop may fail. The price of maize has dropped dramatically around Sauri, he noted, as the village's crop yields have improved and supply has increased. Maize is a subsistence crop that has fed Sauri families for years, but, he contended, its price is too low to make it a cash crop. He is trying to push the project to spend more time touting vegetable crops that fetch good prices at market, such as onions, tomatoes, and cabbages.

In this official's opinion, the project could be more effective if it pushed for some macroeconomic changes, rather than concentrate all its efforts in the village. For instance, farmers in Kenya don't buy fertilizer because it costs three times as much as it does in Europe, he said. If the Kenyan government eased taxes and import duties on fertilizer, "a lot more farmers would buy it."

Many UN officials I spoke to criticized the Sauri project, but none would speak openly. It was clear that dissenting voices were not welcomed, as an e-mail I received from one made plain: "Unfortunately I'm already in a lot of trouble for talking about what every good scientist should be talking about. The current environment is one in which scientists can no longer speak openly and expect to keep their jobs."

The Millennium Villages Project is being launched in locations in Kenya, Ethiopia, Ghana, Malawi, Mali, Nigeria, Senegal, Tanzania, Rwanda, and Uganda. Each cluster of villages will be transformed thanks to the investment of nearly $3 million over five years. The sheer scale of investment in the Millennium Villages Project is difficult to convey. The sums involved are not just bigger than those for other community development projects in Africa; they are hundreds of times bigger.

But is this level of investment really plausible for all of Africa? In Kenya alone, aid from abroad would need to increase 10 times, from $100 million to $1 billion, to blanket the whole of the country with the amounts equivalent to what is spent in Millennium Villages.

Sachs says that if the West spent the 0.7 percent of its gross national product on aid set as a goal by the Monterrey Consensus in 2002, this could start to become a reality. This assumes that all the additional aid would go to Africa, and not, as is often the case, to projects in more developed countries such as those of the former Soviet bloc. Currently, only a few countries, such as Denmark, Sweden, and the Netherlands, are reaching the 0.7 percent mark; the United States gives about 0.2 percent of GNP in aid. It justifies its contribution by pointing out that it's still giving more in absolute terms than any other nation—in fact, it gives more than the world's next two biggest economies, Germany and Japan, put together.

The scale of the Millennium Villages Project makes it seem a different breed entirely from most micro programs, which go into a village with modest funds to achieve a specific goal. They may give a farmer a single cow bred in the West for its high milk yield, and train him to look after it. The farmer passes his first calves on to a neighbor and trains him, and gradually the benefits extend to the wider community. The idea is to create a cycle of develop-

ment that doesn't require extra money. The progress in this kind of program may be slow, but it's much easier to pinpoint what's working and what's not, to figure out why, and to adapt as necessary.

Sauri has achieved more than such projects could ever reasonably hope to, but it's not yet a model village. Instead, Sauri remains Africa in microcosm. All the fundamental problems that exist in Africa still exist in Sauri; in some cases, these problems are magnified.

The village's political framework is confused. Sauri now has two governments in conflict with each other: the committees and the existing local government. The project's committees have introduced a new layer of bureaucracy, and their vastly superior resources have weakened the local government's power. Further, committees are accused of working against each other, and of being corrupt, slow, and unwieldy. Their representatives are said to have been chosen for their ethnic ties and standing in society, rather than their political acumen. As in many parts of Africa, it's unclear which decisions are made by government and which by donors.

Sauri faces the same economic challenges it always has. Most farmers are still growing subsistence crops and depleting their soils. They could instead be growing crops for market or investing in livestock. Low-cost improvements in farming techniques, such as the use of manure and other organic methods that are more sustainable in the long run, are only beginning to be promoted. Growth will be slow because taxation, bad roads, and a lack of electricity need to be addressed at a national level.

Villagers are clearly enjoying better health as a result of the project. The simple extension of a school feeding program has improved students' performance and could serve as a model for schools across Africa. The clinic has transformed health care: The incidence of malaria has decreased, family planning has increased, and soon anti-retroviral treatments will be available to people with HIV and AIDS. But when the project ends, the funds for the clinic and the doctor, the mosquito nets, and the anti-retrovirals will dry up. In three years, the Kenyan government will face the difficult choice between continuing to fund one model clinic in Sauri or cutting the budget considerably.

And Sauri still must contend with the divisions that are typical throughout Kenya: between ethnic groups, men and women, young and old. Witchcraft was employed to influence the outcome of the elections. The practice of wife inheritance remains common, indicative of a wider set of gender issues. These kinds of cultural problems can't be solved with handouts, but only with subtler interventions.

CRITICS OF THE MILLENNIUM Villages Project want to make sure communities such as Sauri are not simply passive recipients of handouts from donors.

This is not to say that Sauri cannot change, or that investment in the village is wasted. But if Sauri is to become a useful model for development on a bigger scale, and not just another development expert's white elephant, Sachs and others working on the project must acknowledge that they are still learning about Africa. Sauri is not yet a success.

Lasting changes in Sauri will come about not through distribution of commodities, but through education for children and training for adults. To put it another way, give a man a mosquito net, and when it rips, he'll come and ask for another one. But show him how using a mosquito net benefits his health and how it will save him money on medication in the long run, and he might just go out and buy one for himself. ■

Scatteration

"Sprawl" has become an empty epithet for everything we dislike about life beyond the city limits. It's time for a fresh look at what's wrong with the way we live now—and how to improve it.

BY WITOLD RYBCZYNSKI

Whatever their opinion of development, most people believe that sprawl is bad. Conservationists decry the loss of agricultural land. Proponents of mass transit don't like spending more money on highway construction. Environmentalists oppose continued dependence on fossil fuels. Sociologists claim that low-density suburbs undermine community. Urban planners see suburban sprawl as consuming resources that would be better spent on revitalizing inner cities. Architects object to sprawl on aesthetic grounds. And, of course, opponents of development see sprawl as their chief enemy.

The issue is not so simple. For example, sprawl is often blamed for urban poverty, on the grounds that peripheral growth drains jobs from the inner city. Yet Anthony Downs, a Brookings Institution researcher and longtime critic of sprawl, has found no significant relationship between sprawl and urban decline. "This was very surprising to me," he wrote, "and went against my belief that sprawl had contributed to concentrated poverty and therefore to urban decline."

What about sprawl using up land? Most people would tell you that sprawl threatens farmland, but there is no evidence that a shortage of agricultural land is a serious national problem; in fact, during the last three decades of rampant suburbanization, food prices have dropped, not risen. Environmentalists make sprawl sound like a voracious monster. Yet America is not running out of land. One researcher has calculated that to house the entire population of the United States at a low suburban density of one family per acre would require an area smaller than the state of Oregon. Only about five percent of the United States' landmass is currently urbanized, that is, occupied by buildings, roads, and parking lots, compared with 20 percent devoted to farming, and more than 30 percent covered by forest. The balance—almost half—is wilderness. Indeed, as unproductive farms have been abandoned and people have moved from rural

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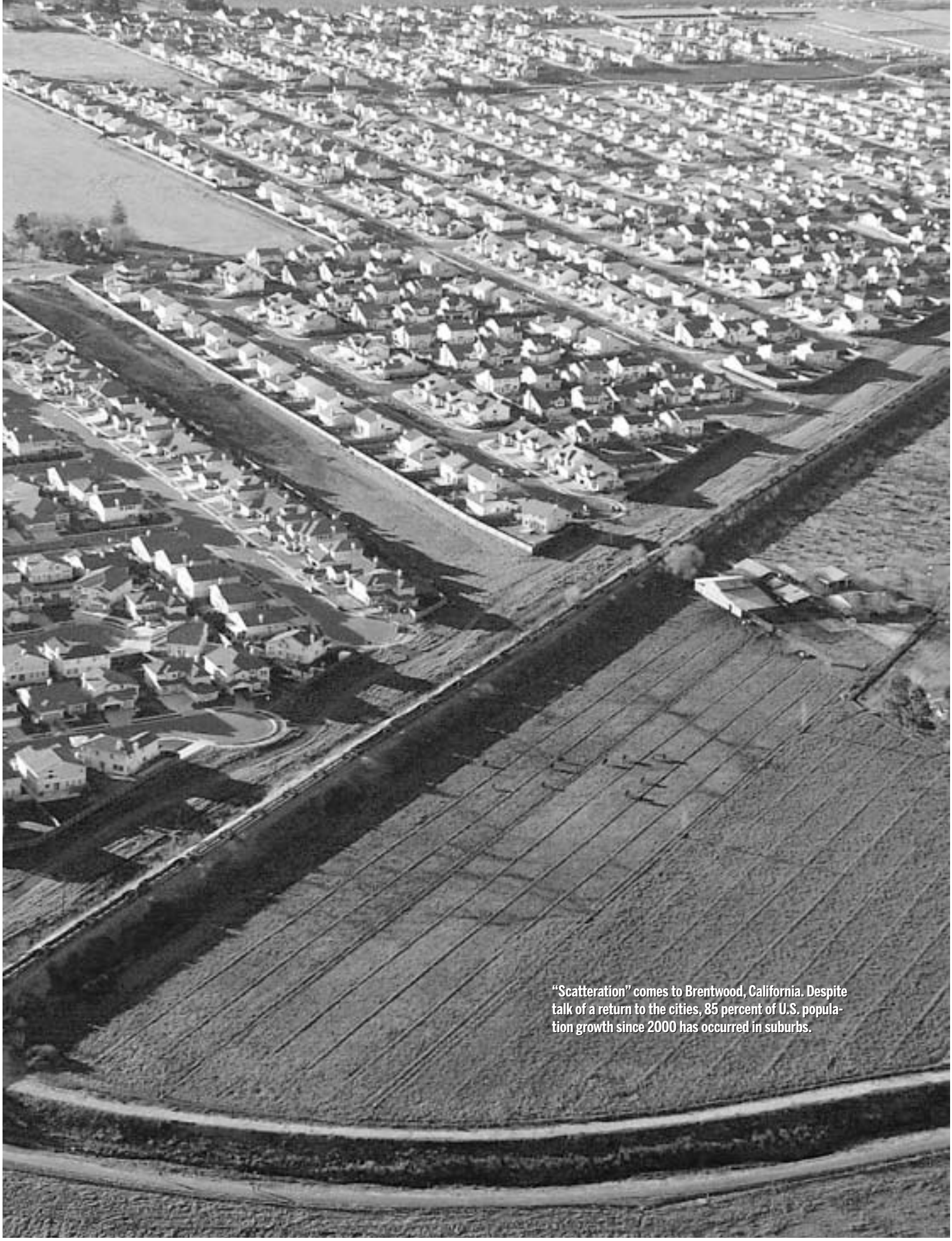

“Scatteration” comes to Brentwood, California. Despite talk of a return to the cities, 85 percent of U.S. population growth since 2000 has occurred in suburbs.

to urban areas, wilderness has actually increased. "If preserving large ecosystems and wildlife habitat is your priority," wrote John Tierney in *The New York Times*, "better to concentrate people in suburbs and exurbs rather than scatter them in the remote countryside."

Perhaps one reason for the confusion about sprawl is that there is no widely agreed-upon definition. Some describe sprawl as a particular type of low-density growth, and others as a symptom of runaway development. And for some it is merely a temporary stage in the urbanization process. Late-19th-century photographs of upper Manhattan show brownstones and apartment houses surrounded by open space—which looks like the sort of scattered development commonly associated with sprawl, yet in relatively short order the empty spaces were filled in, and sprawl turned into city.

Most people think they know sprawl when they see it. But do they? Los Angeles is popularly considered an example of sprawl, yet the population density of its built-up metropolitan area is actually greater than that of metropolitan New York. Likewise contrary to popular belief, Los Angeles is not a city of freeways; it has the fewest miles of freeway per capita of any American urbanized area (which is why its freeways are so congested). The least dense metropolitan areas in the United States are not around the new cities of the South and the West but around older cities such as Detroit, Philadelphia, and Boston. Between 1982 and 1997, the urbanized areas of all three increased more than five times as quickly as their populations. This reduction in population density is chiefly the result of home rule. All three cities are bounded by small independent municipalities whose zoning restricts growth by requiring large lots, or by creating other obstacles to development. This, in turn, reduces density and pushes new construction farther and farther into previously rural areas.

The media commonly fuel misperceptions about sprawl. A 1995 cover story in *Newsweek* titled "Bye-Bye, Suburban Dream" described the growth of Phoenix in alarming terms: Between 1950 and 1994, the area within city limits increased 26-fold although the population grew only 10-fold. Obviously a case of sprawl—or is it? When a city expands by annexation it acquires empty land, as well as unbuildable areas such as wetlands and mountain slopes. If one counts only the parts of metropolitan Phoenix that were actually urbanized in the 15 years leading up to 1997, the area of metro Phoenix increased only half as quickly as its population; that is, metro Phoenix grew *denser*. Moreover, in 1997 the population density per urbanized square mile was greater than the metropolitan densities of Chicago, Boston, and Philadelphia.

Sprawl is often contrasted with dense downtowns, as if the choice were between living in a suburban rancher and an urban high-rise. However, according to the 1990 Census, the densities of American suburbs and cities are not vastly different: The average gross population density of suburbs then was 2,149 persons per square mile, and that of cities was 2,813. The explanation for this similarity is the nature of American housing stock. As one might expect, the majority of suburban dwellings—almost three-quarters—are one- and two-story buildings. However, considerably more than half of city dwellings are also one- and two-story buildings. In fact, only five percent of city dwellings nationwide are in buildings of seven stories or more.

If American suburbs and cities are more similar than different, why does the specter of sprawl loom so large in the public's imagination? One reason is that sprawl is often equated with suburbanization. Virtually all postwar metropolitan growth in the United States has been suburban, but not all suburban growth, as Los Angeles and Phoenix demonstrate, is sprawl. As Downs points out, "Sprawl is not *any* form of suburban growth, but a *particular* form of it." (He lists low densities, leapfrog development, and extreme political decentralization as some of the traits.)

Another reason that sprawl appears pervasive is that the effects of growth can be so visible. Since moving to Philadelphia, my wife and I sometimes drive through Bucks County to a large flea market near Lambertville, New Jersey. It's as much a chance to get out in the country as to look at cracked teacups. Bucks County, roughly halfway between New York City and Philadelphia, used to be strictly a rural area; then it was a place for weekend retreats, and now city people are moving there permanently, drawn by good schools and relatively inexpensive housing. Over the last 10 years, the quiet country roads we take have become congested thoroughfares, and the picturesque fields have filled up with housing developments and discount malls. In fact, development in the county is generally concentrated and large parts of the countryside remain open, but that is not the view we have from the road.

A lot of the new houses in Bucks County are the work of K. Hovnanian Homes, a company that has built more than 150,000 homes across the United States since it was founded in 1959. According to president and CEO Ara K. Hovnanian, "The challenge for home builders is to try and figure out the type of housing that will be demanded by buyers, and where the demand will occur geographically. The good news is that, over the long term, the size of the actual demand for new homes is entirely predictable." The predictability he describes is the result of three conditions. The first is population growth. Thanks largely to immigration, the U.S. population has been increasing every year by more than two million persons. These people need somewhere to live. The second is steadily increasing prosperity. As people become better off, they want newer, better-equipped, and larger homes. The third is mobility. New jobs don't necessarily coincide with existing housing, and as people move—from cities to suburbs, from suburbs to rural areas, from one coast to the other—they, too, need places to live. As a result, every year, year in and year out, the American home-building industry produces between one and two million new homes, four out of five of which are single-family houses. Add to these new workplaces, new shopping places, new entertainment places, new schools, new hospitals, and new roads tying them all together, and you have a Monopoly game in full play.

It's unsettling to live in a state of perpetual upheaval. That's probably why sprawl has become a whipping boy for so many of the things we don't like about modern life: traffic jams, overcrowding, instability, change itself. George Galster, an urban economist at Wayne State University, in Detroit, described sprawl as "the metaphor of choice for the shortcomings of the suburbs and the frustration of central cities . . . a conflation of ideology, experience, and effects." I have a friend who has lived in Chester County, Pennsylvania, west of Philadelphia, for the last 50 years. He originally had an old house on a piece of land large enough so that he could shoot rabbits without disturbing his neighbors. Over the years, he has seen the surrounding horse farms gradually replaced by residential subdivisions. Naturally, he grumbles about the influx of newcomers, the increased traffic, the noise, the slow disappearance of his bucolic surroundings. More than a decade ago, he subdivided his 15 acres into three lots, sold two, and built himself a new house on the third. In other words, in a small way, he became a real estate developer. But if I were to call him that, he would be outraged—sprawl is always somebody else's fault.

According to the *Oxford English Dictionary,* "sprawl" first appeared in print in 1955, in an article in the London *Times* that contained a disapproving reference to "great sprawl" at the city's periphery. Lewis Mumford referred to "sprawling suburbia" in his 1961 classic *The City in History.* A 1965 article in *Land Economics* defined sprawl as "areas of essentially urban character at the urban fringe but which are scattered or strung-out, or surrounded by . . . underdeveloped sites or agricultural uses." At that time, a more neutral term, "scatteration," was also used to describe this phenomenon. Thanks to a famous 1974 study titled *The Costs of Sprawl,* which computed the direct costs and adverse environmental effects of low-density development, "sprawl" entered the planning lexicon. The methodology of the study was later called into question, but the term stuck. There is no better way to occupy the high ground in a debate than to define its language.

SPRAWL HAS BECOME the whipping boy for so many things we don't like about modern life: traffic jams, overcrowding, instability, and change itself.

The Costs of Sprawl study was prompted by the fact that in 1970, for the first time, more Americans lived in suburbs than in rural areas or cities. The authors of the study predicted that suburbanization between 1970 and 2000 would be almost as great as in the previous 20 years, which had been "the period of greatest suburban growth in the nation's history." They underestimated on two counts. Suburban growth was not 70 percent, as expected, but 80 percent, and

the overall population grew not by 46 million but by 76 million. As a result, the increase in the number of people living in the suburbs turned out to be almost twice as great as predicted. The United States had become, in the words of one commentator, a "nation of suburbs."

When railroads and streetcars opened up the urban periphery in the 19th century, only the well-off could afford to commute, whether it was from Chestnut Hill to Center City Philadelphia, from Brookline to downtown Boston, from Lake Forest to Chicago's Loop, or from Tuxedo Park to Manhattan. That might have remained the pattern—a select number of wealthy garden suburbs on the distant fringes of dense, blue-collar, industrial cities—but for Henry Ford. Inexpensive automobiles gave mobility to everyone.

John Nolen, who was a student of Frederick Law Olmsted Jr. and one of the most prolific American planners of the early 20th century, predicted the revolutionary impact that cars would have on urbanization. In 1927, in *New Towns for Old*, he wrote, "If the movement away from the cities assumes the formidable aspect of a hegira (and the magnitude of recent modern developments like the automobile and the radio makes this appear quite likely), then it is immensely important that it be organized and directed accordingly."

Nolen's solution to suburban growth was to channel it into planned garden suburbs, among them his exquisitely planned model town of Mariemont, outside Cincinnati. He believed in design, but unlike most city planners today, he was not wedded to high-density development. He agreed with his friend Raymond Unwin, who once wrote a pamphlet called *Nothing Gained by Overcrowding!* Nolen and Unwin decried the congested tenements and walkups of the old industrial cities. They wanted everyone—not just the rich—to have their own homes, their own gardens, and access to nearby parks and playgrounds. Garden suburbs delivered on that promise. Nolen and Unwin's suburban strategy still appears sound. As Gregg Easterbrook wrote in *The New Republic* in 1999, "If suburbs are where Americans choose to live—and that verdict is in, the suburban class now constituting the majority of Americans—then brainpower should be applied to making 'burbs as livable as possible."

One of the planning ideas advanced as an antidote to scattered development is so-called smart growth, which originated in the 1990s. Smart growth, like sprawl, is a slippery concept, not least because it is espoused by anti-growth environmentalists as well as pro-growth developers. In a 2001 article in *Planning* magazine, Anthony Downs wrote that advocates of smart growth do have some things in common. They are for walkable communities and mixed-use town centers, and generally favor preserving open space and redeveloping inner cities. However, depending on who is speaking, smart growth can also include such controversial ideas as subsidizing mass transit to reduce car dependency, creating regional governments, and establishing urban growth boundaries to restrict growth into rural areas. While environmentalists see smart growth as a way of placing limits on growth, developers would like to change zoning to permit higher densities, and land conservationists would like to restrict development to selected areas. Downs concluded that, as a national strategy, smart growth is simply too contradictory to be effective, and he argued for elements of smart growth to be applied selectively at the regional level. As he succinctly put it, "What is 'smart' in New York City may be 'dumb' in Phoenix."

The battle over sprawl and smart growth usually comes to the fore when a community is faced with new development. For the last five years I've been following the creation of a small subdivision called New Daleville, in Chester County. It is an example of New Urbanism, also loosely referred to as neotraditional planning, an idea that has gained currency among some developers and planners. In brief, this approach aims to build walkable, compact communities, with smaller lots and higher densities than conventional subdivisions. There is more emphasis on common areas, such as parks and playgrounds, and because the houses are bunched close together, these communities sometimes resemble old-fashioned villages—hence, the neotraditional label. New Urbanism hardly dominates construction on the suburban fringe, but it's yet another factor that confounds the stereotypes. Neotraditional development appeared at New Daleville because the community had been resisting a conventional half-acre-lot proposal, and decided it wanted to try something different. The new plan involves more houses on smaller lots, and sets aside half of the 90-acre site for a township park.

How smart is New Daleville? If sprawl is measured in consumption of land, the fact that there are more lots on less space appears to limit sprawl. Compared to the

Sprawl or smart growth? With its town-like layout and plentiful public spaces, this Pennsylvania subdivision embodies the New Urbanist style of development.

86 houses that were originally planned for this site, New Daleville will have 125, an increase of almost 50 percent. However, since the lots at New Daleville will be smaller, it is likely that the houses will appeal to smaller families and empty-nesters. If the average family size in New Daleville is three rather than four, the total population will be 375 persons versus 344. Still an increase, but nowhere near as dramatic.

On the other hand, if sprawl is defined as building over farmland, then New Daleville will contribute to sprawl. Since the township has no real master plan, merely a collection of zoning districts, any development, however well designed, will remain an isolated residential island. Although the New Daleville planner has designed a walkable community, there will not really be anywhere to walk to, since the place will be too small to support a village center. Since the density of the township will always be too low for mass transit, the future inhabitants of New Daleville will be heavily dependent on their cars. Their comings and goings will add to the traffic and congestion of the back roads of Chester County. Thus, for hard-core, transit-first, rebuild-the-center-city, regional planning advocates of smart growth, New Daleville is merely more of the same, what they don't want.

Yet New Daleville's compact layout will likely foster a greater sense of community than if the houses were spread out. Children will play in the parks—and probably in the back lanes. People will more easily meet their neighbors. They may even organize public events on the common green. With its compact plan, New Daleville will be a nice place to walk—for exercise and for pleasure. The narrower streets and denser layout will reduce the amount of asphalt. Hence, there will be less polluted runoff; more rainfall will be absorbed into the ground naturally. Half of the site will be left unbuilt in perpetuity—no small accomplishment. Kids will be able to walk or bicycle to the playing fields. Above all, New Daleville, unlike other subdivisions in the area, will include shared public spaces: sidewalks, walking trails, play lots, village greens, parks. These will be small reminders to the people living there that they are not only private homeowners but also members of a community. That will be smarter growth indeed. ■

Euler's Constancy

Leonhard Euler is seldom remembered as one of the Enlightenment greats, but he should be. His discoveries changed the course of mathematics forever, and 300 years after his birth his ideas continue to resonate in classrooms and laboratories.

BY JOHN DERBYSHIRE

Who is the greatest mathematician of all time? In 1937, Eric Temple Bell, the most widely read historian and biographer of mathematics, placed Archimedes, Isaac Newton, and Karl Friedrich Gauss at the top of the list, adding, "It is not for ordinary mortals to attempt to arrange [these three] in order of merit." This judgment, widely known among mathematicians, stirred a protest in 1997 from Charlie Marion and William Dunham in *Mathematics Magazine*. The protest was in eight stanzas of verse, of which the fourth and fifth read:

> Without the Bard of Basel, Bell,
> You've clearly dropped the ball.
> Our votes are cast for Euler, L.
> Whose *Opera* says it all.
>
> Six dozen volumes—what a feat!
> Profound and deep throughout.
> Does Leonhard rank with the elite?
> Of this there is no doubt.

Marion and Dunham were paying tribute to the mathematician Leonhard Euler (1707–83), one of the great yet little-known figures from Europe's Age of Enlightenment.

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Euler's discoveries continue to influence such disparate fields as computer networking, harmonics, and statistical analysis, and they did nothing less than transform pure mathematics. Children still learn Euler's lessons in school. It was Euler, for instance, who gave the name i to the square root of -1. To mark his tercentenary, admirers are holding symposiums, concerts, and a two-week Euler tour, which will stop in St. Petersburg and Berlin, the two cities where he spent his working life, as well as Basel, Switzerland, the city of his birth. There is even an Euler comic book, *A Man to Be Reckoned With*, in German and English editions.

Compared to Gauss and Newton, both of whom published sparingly, Euler was prolific. This makes the assignment of precedence somewhat subjective. But Archimedes and Newton can hardly be excluded from the top ranks. For sheer breadth and quality of mathematical thought, I believe most scholars would place Gauss ahead of Euler. It is a close call, though, and nobody would disagree that Euler ranks with the crème de la crème in mathematical excellence. So who was he?

Leonhard Euler was born April 15, 1707, into a German-speaking family (the name is pronounced "Oiler"). His father, Paul Euler, was a Calvinist clergyman, and Leonhard remained a firm, uncritical Calvinist his whole life, believing that all events were preordained

Leonhard Euler's visual impairment is evident in this 1760 portrait by Emanuel Jakob Handmann. Euler's eyesight began to fail in the 1730s, but his vision problems did little to curb his immense productivity.

by God at the Creation. He once wrote a tract defending the truth of Revelation against Enlightenment skeptics. These beliefs did not make him a grim fatalist. To the contrary, he was a cheerful, industrious, and kind-hearted man, reliably humble despite his fame. Though given to "good-natured sarcasm," as a contemporary noted, and short-lived outbursts of temper, he was altogether one of the more attractive personalities in the history of mathematics.

When the precocious 13-year-old Euler commenced his studies at Basel University in 1720, Johann Bernoulli, another great name in the history of numbers, held the chair of mathematics. Bernoulli was also an old acquaintance of Leonhard's father. Though a proud and prickly man with no great fondness for teaching, Bernoulli granted the boy individual seminars on Saturday afternoons, and must soon have recognized his mathematical ability. Paul Euler wanted his son to study theology and follow him into the clergy, but Bernoulli persuaded Rev. Euler to approve a switch to math and physics. Leonhard graduated in 1726, and published his first mathematical paper that same year.

At just that time, Johann Bernoulli's eldest son, Nicholas, died in St. Petersburg. Both Nicholas and his brother Daniel had taken positions at the new St. Petersburg Academy, established in 1724 as part of Tsar Peter the Great's grand plan to modernize his nation, and Daniel wrote to his father to suggest that Nicholas be succeeded by Leonhard Euler. Glad of the rare opportunity to attain an academician's post at such a young age, Euler traveled to St. Petersburg in May 1727, a month after his 20th birthday, and a month and a half after the death of Newton. Unfortunately, Peter the Great was already dead, and his wife and successor died just as Euler arrived. The new regime was skeptical of the academy, so the scholars took pains to make themselves appear useful to the state. Euler secured a commission in the imperial navy, though he seems never to have gone to sea.

Through the 1730s, Euler worked on various projects for the Russian state—notably in the areas of cartography and shipbuilding—while making his international reputation as a mathematician. These were unhappy years for Russia, with the country descending into state terror during the reign

of Empress Anna (1730–40). "Common prudence forced [Euler] into an unbreakable habit of industry," E. T. Bell writes, suggesting that Euler's extraordinary productivity had its foundations in this period. Another biographer remarks, "In all of Euler's vast correspondence there is no mention of politics." His Russian experiences either inoculated Euler against politics or confirmed an innately apolitical disposition.

In 1733, after Daniel Bernoulli left Russia in disgust at the continuing political horrors, Euler was elevated to the St. Petersburg Academy's chair of mathematics. Two years later, he made his name throughout Europe by solving the famous Basel Problem: finding a closed form—a precise value—for the infinite sum

$$1+\frac{1}{2^2}+\frac{1}{3^2}+\frac{1}{4^2}+\frac{1}{5^2}+\frac{1}{6^2}+\ldots$$

The Basel problem had already defeated many of the top mathematicians of Euler's time, including Jacob Bernoulli and Gottfried Leibniz, but Euler showed that the sum was $\pi^2/6$. It was a striking result. π (pi) is, of course, a well-known geometric constant, the ratio of a circle's circumference to its diameter. Mathematicians nowadays are accustomed to seeing it crop up in unexpected places, but in 1735 it seemed remarkable for such a geometric value to appear in the solution to a mathematical problem. It was Euler, by the way, who popularized the symbol π in its now-familiar usage.

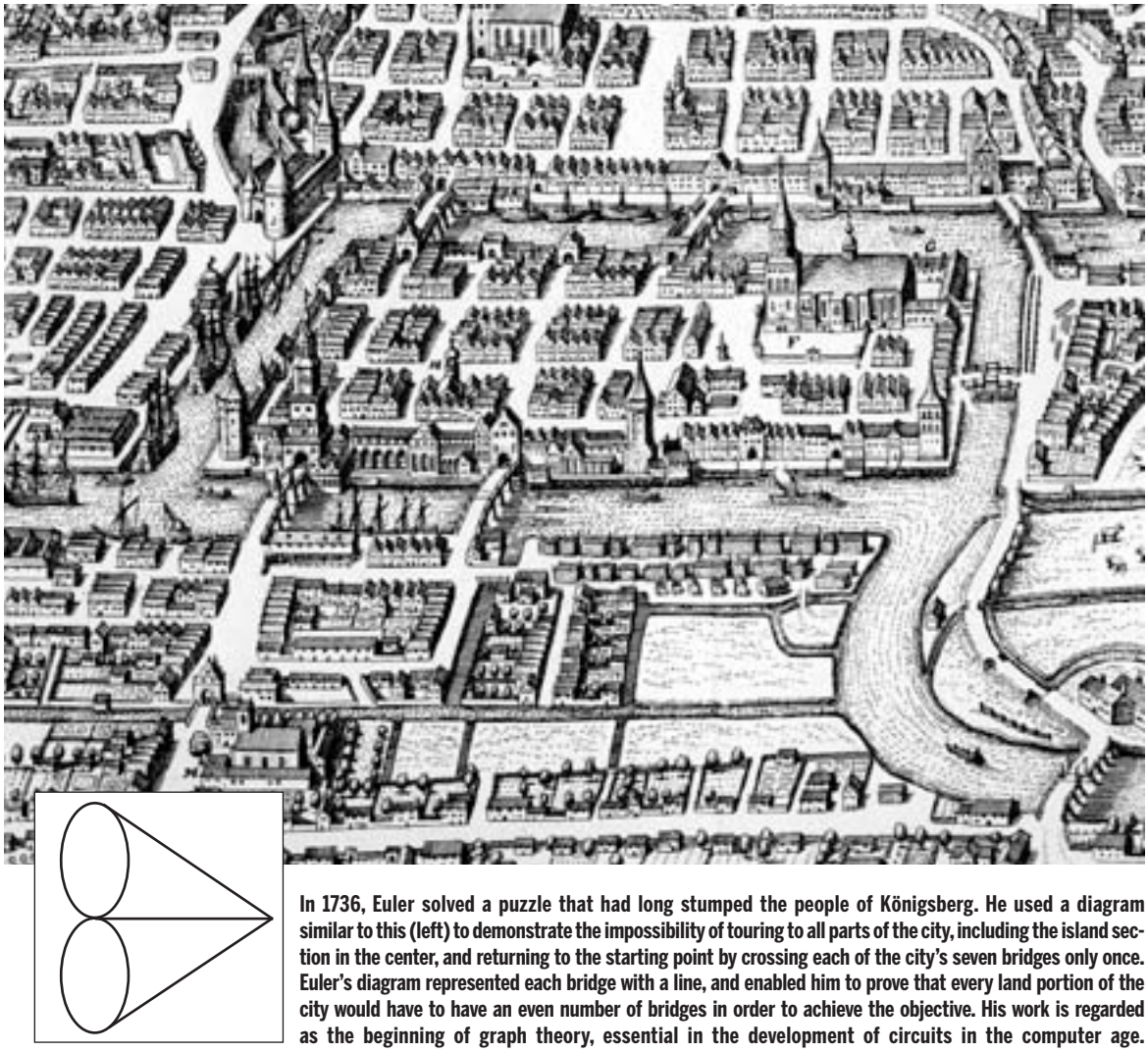
With the improvement in his finances that came with the mathematics professorship, Euler could afford to marry, and he took as his wife Katharina Gsell, the daughter of a Swiss painter whom Peter the Great had invited to his court. He and Katharina had 13 children in their 40 years together. Although only five of those children survived to adulthood, they managed to produce a large number of grandchildren—26 were alive at the time of Euler's death. Family life seems to have suited the great mathematician. Euler boasted that he could write mathematical papers with an infant on his knee—a claim that would be impressive even for a writer who traded only in words.

In the same year he triumphed over the Basel Problem, Euler suffered a severe fever that almost killed him. It was at this time, or soon afterward, that troubles with his eyesight began. By 1740, he had completely lost the sight in one eye. But failing vision did little to impair Euler's remarkable mathematical productivity. It was in this period of the later 1730s that he produced some of his best-known work. In 1736, for example, he published a famous paper solving the problem of the bridges of Königsberg (see opposite page). The central part of that Prussian city (now Russian and called Kaliningrad) was on a large island, where two branches of the Pregel River diverged. Seven bridges connected the city's various parts, and there was much speculation by the citizens as to whether one could make a complete tour of the town and return to the starting point, crossing each of the seven bridges exactly once. Euler proved that this could not be done. His paper, in which he developed a formula for determining the number and layout of different routes from one point to another, is regarded as the beginning of modern graph theory, a major branch of mathematics critical to the design of modern networks and circuits.

Also dating from this period is Euler's modestly titled paper "Various Observations About Infinite Series" (1737). Here, Euler considered an infinite sum generalized from the one shown for the Basel problem, with the exponent—i.e., *2*—in the denominators replaced by *any exponent at all*—i.e., x. Euler showed that this sum is equal to an elegant expression involving all the prime numbers (which can be divided only by 1 and themselves), of which there are an infinite number.

It was not only pure mathematical results that emerged from these fruitful years. Euler's book *Mechanica* (1736) recast Newton's theories of motion in the latest, most sophisticated mathematical language, allowing mechanical problems to be understood and solved in a less theoretical, and hence more practical, fashion. Applying findings from his twice-daily astronomical observations at the St. Petersburg observatory, Euler published a paper on calculating the precise instant of true noon. He won the prestigious Grand Prize of the Paris Academy in 1738 for a treatise on the nature of fire, and again in 1740 for a paper on the tides.

By 1741, Euler had had enough of Russia. Frederick the Great was on the throne of Prussia, and was intent on making his country a great European military and cultural power. He invited the 34-year-old Euler to be director of mathematics at the revivified Academy of Sciences in Berlin. Euler remained at this post for 25 years, through all the horrors of the Seven Years' War, when foreign armies occupied Berlin twice and one in 10 of Frederick's subjects died of hunger or disease, or by the sword.



In 1736, Euler solved a puzzle that had long stumped the people of Königsberg. He used a diagram similar to this (left) to demonstrate the impossibility of touring to all parts of the city, including the island section in the center, and returning to the starting point by crossing each of the city's seven bridges only once. Euler's diagram represented each bridge with a line, and enabled him to prove that every land portion of the city would have to have an even number of bridges in order to achieve the objective. His work is regarded as the beginning of graph theory, essential in the development of circuits in the computer age.

Euler's productivity never faltered. His greatest mathematical work of this period was the 1748 masterpiece *Introduction to Analysis of the Infinite*. "Analysis" is a key word in modern math. It names, in fact, all of that part of math that depends on the idea of a finite result emerging from some infinite process: The limits of infinite sequences, infinite sums and products, all of calculus and the classical theory of functions—this is "analysis" as the word is now used. It was the *Introduction,* more than anything else, that turned the meaning of the word toward this modern sense. Until Euler's time, analysis had been loosely used as a synonym for algebra. The *Introduction* has a good claim to being what math historian Carl Boyer called it: "the foremost [mathematics] textbook of modern times."

Aside from helping to establish modern analysis, Euler obtained one of the founding results of modern topology, a formula relating the number of vertices, edges, and faces of any flat-sided and simple (no "doughnut holes"!) solid figure: $V - E + F = 2$.

In applied mathematics, too, Euler made major contributions. He carried out some straightforwardly practical projects—designing a system of water pumps for the fountains at Frederick's Sans-Souci palace, for example. He also weighed in on the controversy over the nature of light, taking the side of the wave theorists against the Newtonians, who believed that light consisted of particles. The sun, wrote Euler, was "a bell ringing out light."

He viewed light as a vibration in the ether, analogous to sound waves propagating through air. (Twentieth-century discoveries indicate that light exhibits properties of *both* waves and particles.)

Acoustics was a long-standing interest; one of Euler's earliest papers, written at age 19 before he left Basel for St. Petersburg, dealt with the nature of sound. Euler's interest in acoustics no doubt emerged from the great pleasure he took in listening to music. In the profusion of works he published during the fertile period of the late 1730s when he was losing his eyesight was a treatise on musical theory. His disciple Nicolas Fuss observed in a eulogy that Euler was attempting nothing less than to find "the fountainhead of pleasurable harmonies." This 1739 work contained "too much geometry for the musician and too much music for the geometer," as Fuss said. Yet Euler's invention of the tonnetz—a two-dimensional lattice diagram for showing the relationships between musical notes and intervals—was a breakthrough in music theory, and is taught in advanced musicology courses to this day. Scholars such as Princeton musicologist Dmitri Tymoczko have recently advanced Euler's theory into spaces of more than two dimensions, opening up the possibility that entirely new musical forms, as pleasing to the ear as those of the Baroque and classical composers, might be out there in these abstract spaces waiting to be discovered.

Frederick the Great was himself a keen music lover, holding evening concerts of chamber music at his court that included such luminaries as Johann Sebastian Bach. But music may have been the only affinity between Frederick and his famous mathematician. The king wanted his court to be one of Europe's great salons, filled with brilliant people saying brilliant things. Euler, though well educated in philosophy, history, and literature—his phenomenal memory "did not permit him to forget anything," said the French philosophe Condorcet—held only commonplace opinions on those subjects. In a court that hosted Voltaire for several years, the plain, unsophisticated mathematician hardly could have shone. Soon after arriving in Berlin from St. Petersburg, he explained his reserve to Frederick's mother by saying, "Madame, I have come from a country where every person who speaks is hanged." His simple piety irritated Frederick, who was scornful of all religion. Relations between the king and his mathematician soured, Frederick referring cruelly to the partly blind Euler as "my Cyclops."

"I HAVE COME FROM a country where every person who speaks is hanged," the reserved Euler once said.

Incredibly, Euler's position at St. Petersburg had been kept open for him, and in 1766, four years after Catherine the Great took the throne of Russia, he packed his bags and returned, living the rest of his days there.

This period in St. Petersburg was autumnal for Euler. His one seeing eye deteriorated, and by 1771 he was totally blind, forced to rely on his son Johann and younger mathematicians such as Nicolas Fuss to serve as amanuenses.

In that year, a fire destroyed his house. Katharina died two years later. (Euler later married her 53-year-old half-sister, Salome.) Of his five children who lived to adulthood, the two daughters died, in 1780 and 1781.

None of this seems to have slowed Euler. From this last phase of his life came a three-volume work on optics; a textbook on algebra that was still used in American schools in the 1830s; and books on hydrodynamics, integral calculus, and insurance. In his pure-mathematical inquiries he ventured into uncharted territory by carrying the concept of function, which is central to analysis, into the realm of complex numbers. A function relates each of the inputs of an equation to only one output. If, for instance, y is the number of feet traversed by an object falling freely and x is the number of elapsed seconds on a stopwatch, then the formula $y = 16x^2$ expresses the number represented by y as a function of the number represented by x. Permitting the use of the square root of –1 as x or y opens up a rich field of inquiry, which came to its full flowering only in the mid-19th century, decades after Euler's death.

Also from this period dates the publication of Euler's unexpected pop-science bestseller *Letters to a German Princess* (1768). The source material here was more than 115 lessons in math, physics, and philosophy that Euler had written at Frederick the Great's command for the monarch's niece. *Letters* covered a remarkable range of topics: "Of the 12 tones of the harpsichord," "Of the azure color of the heavens," "Of moral and physical evil," and so on. Not all the science is strictly correct—one commentator sniffed that "Euler's strength lay rather in pure than in applied mathematics"—but *Letters* was immensely popular, and was translated into nine European languages.

There never was a mathematician as productive as Euler. Math writer W. W. Rouse Ball computed that from 1736, when Euler began publishing regularly, to his death from a stroke in 1783,

> there is for each and every fortnight in 47 years a separate effort of mathematical invention, digested, arranged, written in Latin, and amplified, often to a tedious extent, by corollaries and scholia. Through all this mass, the power of the inventor is almost uniformly distributed, and apparently without effort. There is nothing like this, except this, in the history of science.

Though it seems almost impertinent to emphasize any of the man's contributions above others, probably most mathematicians would agree that Euler's work in analysis advanced mathematics the furthest. It is here that his single most memorable result belongs. The famous Euler equation

$$e^{i\pi} + 1 = 0$$

manages to establish a correlation among five of the most important numbers (0, 1, *i*, *e*, and π—the last three all owe their symbols to Euler!) as well as among three key operations (addition, multiplication, and exponentiation).

Euler, uniquely among mathematicians, has not one but *two* "pure" numbers named after him. (Pure numbers aren't very relevant to the average person toting up his tax bill, but they are extremely significant in various kinds of mathematical work.) To 16 significant figures, these numbers are 2.718281828459045 and 0.5772156649015328. The first was glimpsed shortly after the invention of logarithms in the early 17th century, and employed in mathematical work by Jacob Bernoulli, Johann's elder brother, and by John Napier, but it was Euler who first showed its full importance: It is the basis of the exponential function for which growth rates are the same as the values at any given point on a graph. He also assigned it the symbol by which it has ever since been known: *e*. (This was not vanity on Euler's part; *e* was simply the first vowel not in common use for any mathematical purpose.)

The second number, known as "Euler's constant" and always denoted by γ (Greek gamma), turned up in Euler's explorations of logarithms during his early St. Petersburg days. It is the limit, as n becomes indefinitely large, of

$$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \ldots + \frac{1}{n} - \log_e n$$

Because the constant distills a complex calculation "sufficiently accurately and with very little effort," to use Euler's own words, it remains an invaluable tool in analytic number theory.

In addition to these particular numbers, Euler has an infinite series of integers named after him: the Euler numbers $E_0, E_2, E_4, E_6, \ldots$ (the odd-numbered ones are all zero). The first six in the series have values of 1, –1, 5, –61, 1,385, and –50,521. These numbers appear in certain problems in analysis and number theory.

Most mathematicians would die happy knowing a single theorem had been named after them. To have *numbers* associated with your name is an honor bestowed on very few.

Fuss's funeral eulogy paid tribute to Euler as "a good husband, good friend, good citizen, and loyal in all of his relations to society." That is more than elegiac boilerplate. All accounts of Euler's life suggest that he was an admirable man, generous not only to his family and friends but to his critics and rivals as well. When a dispute arose over precedence in what is now known as the Euler-Maclaurin method for computing infinite sums, Euler wrote to a friend, "I have very little desire for anything to be detracted from the fame of the celebrated Mr. Maclaurin since he probably came upon the same theorem for summing series before me, and . . . deserves to be named as its first discoverer."

That was Leonhard Euler: a mathematician of towering genius who lived nobly, calmly, cheerfully, and well. Perhaps his unassuming nature is one reason that the nonmathematical public does not better know his name. Let us hope this year's tercentenary celebrations will put matters right. ■

The Homeland Security Hash

The Department of Homeland Security gets little credit for the fact that terrorists have not staged an attack on American soil since 2001, and it is an open question whether it deserves much. Conceived in haste and crippled by its design, the newest addition to the cabinet desperately needs an overhaul.

BY PAUL C. LIGHT

On guard at the Homeland Security Operations Center in Washington, D.C.

Four years after it opened its doors, the Department of Homeland Security is by general agreement one of the most troubled cabinet-level agencies in the federal government. Hardly a day goes by without some fresh report on a contract gone bad, a new technology that does not work, a new Coast Guard cutter that is not seaworthy, or more cargo that slips through port without inspection. Year after year, virtually every assessment, including those by Congress, the 9/11 Commission, and the department's own inspector general, has given the department the same mediocre grades. "While the terrorists are learning and adapting, our government is still moving at a crawl," said 9/11 Commission chairman Thomas Kean in December 2005.

Homeland Security's personnel agree. According to the federal government's latest survey of its own employees, the department is the worst place to work in the government. It received the lowest ratings of 36 federal agencies for job satisfaction, management, and leadership. It is plagued by high turnover, internal bureaucratic struggles, and a variety of structural handicaps stemming from its creation in the aftermath of the 9/11 attacks.

As a result, the department is far behind in achieving many goals. It still needs funding to inspect more cargo shipments; the authority to regulate and protect chemical plants and railroad cars; a clear strategy for protecting bridges, roads, trains, subways, and other critical infrastructure; more personnel to reduce the backlog of immigration cases; an effective screening program for airport employees; better technology for detecting hidden explosives; an accurate watch list of potential terrorists; and perhaps most important, improved intelligence capabilities.

If destiny is largely determined by birth, this is a federal bureaucracy destined to stumble, and perhaps to fail.

Paul C. Light, the Paulette Goddard Professor of Public Service at New York University's Robert F. Wagner School of Public Service, has frequently testified before Congress on the Homeland Security merger. He is the author of *The Four Pillars of High Performance* (2005).

The product of the largest and most complex governmental merger since the creation of the Department of Defense in 1949, it was cobbled together by White House aides in just a few frenzied weeks.

With 180,000 employees and a $43 billion budget, the department is a collage of 22 distinct government agencies drawn from different corners of the federal organization chart and glued together into a single, largely dysfunctional unit. Even as they continue doing all the unrelated tasks they brought with them—from screening airline passengers for weapons and explosives to administering the national flood insurance program and rescuing boaters in distress—its component agencies have been directed to make defending the nation against terrorism their top priority. It is as if a group of widget makers were brought together in a private-sector merger and told they must now start producing software.

HOMELAND SECURITY IS a collage of 22 distinct government agencies glued together into a single, largely dysfunctional unit.

Homeland Security is still striving simply to win the hearts and minds of its own employees. Many of them do not doubt that defending against terrorism is an important mission, but they do not necessarily see it as the primary job of their particular unit. It is no wonder they think this way. Only 65 percent of the department's budget is spent on programs properly defined as homeland security. That points toward the fundamental problem. The Department of Homeland Security includes bureaucratic pieces that do not belong in an organization designed to protect the nation from terrorism. It may have a mission statement, but it lacks a unified mission.

Secretary Michael Chertoff recently reminded Congress that it took 40 years for the Department of Defense to finally come together—and that was after the first secretary committed suicide. But the nation does not have four decades to wait for the Department of Homeland Security to succeed. There are important steps that can be taken now.

Homeland Security was born in the wake of 9/11 in a climate of fear and shared determination to prevent fresh terrorist attacks, but political considerations were never far from the forefront. Congress and President George W. Bush agreed on the need to coordinate the agencies that would caulk the borders and track those the president had labeled the "evil-doers." Yet the administration hoped to deflect calls for what Vice President Dick Cheney dismissed as a "big government" approach by recruiting former Pennsylvania governor Tom Ridge in October 2001 to head a tiny White House Homeland Security Council.

Ridge himself soon concluded that his office was not strong enough to do the job and began pushing for a merger of the Border Patrol, the Customs Service, and the Immigration and Naturalization Service (INS). As Ridge later told *The Washington Post*, "The only person at the time that thought it was a good idea was yours truly."

The Democrat-controlled Senate was already well ahead of Ridge. The Senate Governmental Affairs Committee held its first hearings on the need for reorganization the day after the 9/11 attacks, and in the spring of 2002 recommended the creation of a cabinet-level department. The proposal focused primarily on border security, with elements of the Border Patrol, the Coast Guard, the Customs Service, the Federal Emergency Management Agency (FEMA), and the INS at its core.

Much as it opposed a new department, the Bush administration felt it could not let the Senate Democrats take the lead on homeland security, especially not with the congressional elections looming in November. By early spring, the White House had decided to design its own merger.

It could not be just any merger, however. According to a 2005 retrospective by *Washington Post* reporters Susan B. Glasser and Michael Grunwald and a study last year by four researchers at the Naval Postgraduate School's Center

for Defense Management Reform (*Legislating Civil Service Reform: The Homeland Security Act of 2002*), the White House concluded that if it wanted to take back the homeland security issue, nothing but the biggest merger in modern history would do. Ignoring warnings of bureaucratic train wrecks and a clash of cultures, the administration put five White House aides to work on designing a maximum merger.

Selected for their loyalty more than their collective knowledge of government reorganization, the Gang of Five—or the G-5, as its members liked to call themselves—included a future Internal Revenue Service commissioner, a National Guard major general, and three other mid-level aides. But experienced or not, the G-5 was given firm instructions to think big. "The overriding guidance," G-5 member Bruce M. Lawlor later told the *Post*, "was that everything was on the table for consideration."

Only a few barriers are in place along the 1,951-mile-long U.S.-Mexico border. Plans to install hundreds of miles of additional fence and new "virtual" border technology such as cameras and drones are years from completion.

The members of the G-5 took their mandate seriously, and began searching the federal organization manual for merger targets. Although the G-5 used the Senate proposal as a foundation and certainly knew enough to get started, the planners soon strayed far from the notion that the new department should be built around agencies with similar missions. What about adding the Federal Bureau of Investigation (FBI)? The Secret Service? The National Guard? The Drug Enforcement Administration? The Federal Aviation Administration?

The choices seemed endless. The G-5 even considered detaching the Lawrence Livermore nuclear research laboratory from the Department of Energy and slipping it into Homeland Security. Richard Falkenrath, a G-5 member, simply called up a friend and asked which laboratory might

fit: "He goes, 'Livermore.' And I'm like, 'All right. See you later.' Click."

It was all part of the maximum-merger zeitgeist. More agencies equaled a better reorganization.

THE SECRECY CAME AT a price. As the G-5 proposal took shape in the White House basement, it was shielded from what could have been useful scrutiny.

Even Cheney offered suggestions. According to Lawlor, the G-5 started out with the eight agencies already in the Senate bill. "Then the vice president came along and said, 'You've got to do something more about bioterrorism.'" Other White House aides also weighed in, later leading one anonymous insider to criticize the merger as the work of "people who didn't know a whole lot about the boxes they were moving around."

Throughout the process, the G-5 operated in secrecy. That provided what one G-5 member called "freedom of deliberation" and protected the group from attack, especially by the affected agencies. "Everybody realized the agencies were not going to look at mission first; they were going to look at turf first," Lawlor recalled.

The secrecy came at a price. As the G-5 blueprint took shape in the White House basement, it was shielded from what could have been useful scrutiny. As Falkenrath remembered, there were dozens of questions during his first encounters with congressional staff after weeks of hush-hush tinkering. "Every one of these staffers had some little angle on something that we hadn't thought of. I was like, 'We better go figure out what we've missed here.'"

The secrecy also showed in the holes in the department's organization chart, notably in the failure to provide for a high-level policy planning unit of the kind normally found in a cabinet department. Policy planning staffs typically look at department-wide issues and take a longer-term perspective than bureaucrats charged with day-to-day responsibilities. When they work well, they can serve as the strategic brain trust of a department. Lacking such a unit, which was not created until a Chertoff-sponsored reorganization in 2005, the new department would be able to implement strategic plans, but not make them.

The G-5 also forgot to create the post of chief intelligence officer. Without a top official to provide leadership, the department's tiny intelligence unit drifted for its first three years. That post, too, was finally created in 2005, but a second handicap remains. The department is not authorized to collect intelligence on its own but must rely on the FBI, the Central Intelligence Agency, and a host of other sources in order to create a picture of potential threats to the homeland and plan its next moves.

June 6, 2002, was a very important day for the White House. Not only was it the date chosen to announce the creation of the new department, but it was also to be the moment when FBI agent Coleen Rowley would testify before the Senate Judiciary Committee about her office's aborted efforts to investigate Zacarias Moussaoui, who had paid cash to train on a Boeing 747 flight simulator in Minnesota less than a month before 9/11. Rowley had been rebuffed by her supervisors when she asked for permission to seek a warrant to search Moussaoui's laptop computer.

It was precisely the kind of testimony that would dominate the front pages. But the story was easily eclipsed by the White House proposal. Under the Bush administration's rollout strategy, Ridge released the proposal the morning of the 6th, an assortment of White House aides and enthusiastic members of Congress made the rounds of the major television outlets in the afternoon, and Bush made a nationally televised speech at 8 PM. By the next morning, the president was back in charge of the homeland security issue. He signed the White House bill into law on November 25.

When the new Department of Homeland Security formally opened for business in March 2003, the facts of geography revealed an unhappy truth about its position in the Washington power matrix. At his new headquarters in an old Navy annex building tucked away in

the northwest corner of Washington, Secretary Tom Ridge was miles away from the White House, the Capitol, and the headquarters of other federal departments, not to mention the nearly two dozen separate organizations that were now part of his new department.

Even Ridge came to wonder about the scope of the reorganization. "The notion that everyone was going to join hands and sing 'Kumbaya,'" he later told *The Washington Post*, "I don't think anybody in our leadership expected that to happen. And it didn't." It still hasn't. Turf wars over budgets and staffing rage inside the department, especially among the remnants of the Customs Service and the INS, which have similar missions. On Capitol Hill, congressional committees and subcommittees refused to reshape their jurisdictions to match all the organizational shifts that occurred when agencies were wrenched out of their old homes. Last year, as a result, department officials were required to testify before 70 different congressional units. And in the federal budget process, top administrators have been forced to fight for every spending increase.

There is nothing quite like the Homeland Security merger in the history of the federal government. The creation of the Defense Department after World War II involved more people, but the Homeland Security merger involved many more agencies, split and recombined many of their component parts, and, astoundingly, demanded that they focus on a mission almost none of them had ever dealt with before: combatting terrorism.

Moreover, Congress wanted the new department to operate without any budget or personnel increases. Savings were supposed to come from the elimination of duplication and overlap. The department's different agencies were expected to incorporate the war on terrorism into their existing missions, and somehow find enough dollars and employees to add it to their already complicated mandates.

The merger combined some of the best and worst agencies in the federal government. Indeed, some of the pieces of the Homeland Security collage were thrown in chiefly to ensure that the department was not composed only of subpar performers. In its "Government Performance Project" series, which concluded just before the merger, *Government Executive* magazine rated the Coast Guard one of Washington's most successful agencies, applauding its planning, esprit de corps, and ability to do more with less. It also rated

A Big Agenda

Weapons of Mass Destruction

This is "the gravest danger facing America," according to the Department of Homeland Security. Plans include a ring of radiation detectors 50 miles from Manhattan. Technology is a limitation: Today's detectors can be triggered by banana peels and often miss nuclear materials. The multibillion-dollar Project BioShield effort to create defenses against viruses, toxins, and chemicals has produced few results.

Aviation

DHS screens 730 million people traveling on commercial airlines each year—and all 700 million pieces of their checked luggage. But federal investigators with bomb-making materials successfully passed security at all 21 airports tested last year.

Critical Infrastructure

This year, DHS will award $445 million in grants to protect everything from ports to commuter rail lines against threats such as bombs and biological weapons.

Border Protection

Though the spotlight shines on the Mexican border, terrorists have sought to enter the United States from the north. Each day, 18,000 trucks cross the Canada-U.S. border. No passport is necessary until 2009.

Pandemic Outbreak

Avian flu is a top concern. In February a Food and Drug Administration panel endorsed the first vaccine, though it had been successful in less than half of the clinical trials.

Cyber Security

Viruses and other forms of attack on computer networks cost some $50 billion worldwide each year. The National Cyber Security Division of DHS leads collaboration between the public and private sectors to combat technological infiltration.

Natural and Manmade Disasters

Nine of the 10 most costly presidentially declared disasters have been natural—either hurricanes or earthquakes. September 11, number two on the list after Hurricane Katrina, is the sole exception.

FEMA near the top of the class. But the magazine's reporters rated the Customs Service as average at best, citing its antiquated information technology and problems collecting and accounting for duties, taxes, and fees. And they reserved their harshest assessment for the INS, noting among other things its long history of mismanagement, top-heavy bureaucracy, and decaying detention facilities. The Transportation Security Administration (TSA), with its 43,000 airport security screeners and other personnel, was too new to be rated.

HOMELAND SECURITY'S leaders have less access to information than many state and local security offices.

Adding to the turmoil, Homeland Security has experienced extraordinary personnel turnover. In its first four years, the department has gone through two secretaries (Ridge resigned late in 2004), three deputy secretaries, eight under secretaries, three FEMA administrators, four TSA administrators, a dozen assistant secretaries, hundreds of senior executives, and nearly 100,000 civil servants, many of whom left the baggage and screener lines in search of higher pay.

It is surprising that a department built around this uneven inventory of assets and liabilities was able to design a logo and seal, let alone create a sense of common identity across its agencies. It is even more surprising given the 22 personnel offices, 19 financial systems, 13 contracting units, and eight payroll processes that its agencies brought with them, along with every uniform color in the spectrum, from Coast Guard blue to Border Patrol green.

Many of Homeland Security's problems came to the fore in the summer of 2005, during Hurricane Katrina, when virtually everything that could go wrong did. FEMA was late in responding to the catastrophe, and the White House ignored the obvious need for action. It is well known that FEMA was led by a group of inexperienced political appointees headed by Michael Brown, fresh from an unsuccessful stint as commissioner of the International Arabian Horse Association. But there were other factors involved. FEMA's natural disaster budget was in shreds after three years of cutbacks designed to free money for antiterrorism efforts. It had lost dozens of experienced senior executives. Buried deep in the new department's organization chart, FEMA lacked the direct access to the White House it had once enjoyed. Moreover, the agency had been stripped of its responsibility for preparing the nation for natural and terrorist disasters only weeks before Katrina as part of Chertoff's reorganization, so its executives lacked the key connections with state and local officials that might have accelerated its response.

Although Congress recently restored at least part of FEMA's independence, including its direct line to the president and its preparedness duties, terrorism still consumes three-quarters of its budget, leaving few resources for the next Katrina.

It is still too early to declare the Homeland Security merger a failure. While we do not know how much credit the department can claim, the United States has not suffered another terrorist attack on its soil. The department has produced notable gains in border security. Most U.S. seaports will have radiation detectors within three years, airplane cockpit doors are impenetrable, and the Border Patrol is still catching illegal immigrants. The department has regained at least some of the productivity its components lost at the start of the merger, and it has built some of the missing parts the G-5 neglected to create.

It is also making progress in its partnerships with state and local governments, particularly through the "fusion" centers that blend information from state and local law enforcement with intelligence from federal sources. Secretary Chertoff's reorganization in 2005 finally gave the department two essentials, a policy planning staff and an intelligence chief, as well as a much greater sense of shared purpose.

Yet Homeland Security still falls short. In coping with the great uncertainty involved in defending against terrorism, four characteristics are vital: alertness, agility, adaptability, and alignment around a core mission. Alert-

ness depends on access to information, and the department is still fighting for that. It has been forced to rely on the cooperation of strangers in the intelligence community to find out what it needs to know, a disadvantage that has been compounded by the fact that the community's own reorganization under the national director of intelligence has been highly contentious. The department is often the last to know, and its leaders have less access to information than many state and local security offices (which, ironically, are funded by the department itself).

Hurricane Katrina was a management disaster for the federal government. The cartoon president echoes then secretary of defense Donald Rumsfeld's widely criticized response to charges that U.S. troops in Iraq were ill equipped.

Despite the TSA's quick reaction to last summer's terrorist plot to bomb U.S.-bound airplanes with liquid explosives, the department as a whole has a well-deserved reputation for poor agility and missed deadlines. The long-promised "virtual border" composed of drones, pole-mounted cameras, satellite monitors, and 700 miles of two-layered fence at selected points along the U.S.-Mexico border is years away from implementation; new technology for inspecting seaborne cargo containers is proving much more expensive than expected; and a promised "bioshield" for protecting the nation from biological attacks and pandemics is still an expensive dream. And none of these projects will necessarily prove effective.

In its lagging effort to improve adaptability, the department is still looking for a reasonable rate of return on the billions it has spent seeking new technologies to further its mission, including radiation detectors for the borders, information technology for tracking foreign tourists and students as they enter and exit the country, and cameras that can detect illegal immigrants as they cross the border. Homeland Security's research directorate, with a limited staff and an inadequate $800 million budget, is still struggling to integrate the eight research programs that were merged under its authority.

Finally, the department has yet to resolve the tensions among the competing missions its agencies brought into the merger. Just visit the Coast Guard's homepage (www.uscg.mil) on any given day and read its news summary, which reports such things as emergency rescues, ice-breaking work, and environmental protection efforts, but rarely anything about terrorism. To be a truly unified department, Homeland Security will need to create a department-wide identity around one all-encompassing mission.

The department's creation followed standard Washington procedure in moments of national crisis. New missions demand new bureaucracy, and the bigger the mission, the bigger the bureaucracy. The conventional wisdom also holds that a seat at the president's cabinet table provides a fulcrum to leverage greater coordination while creating the high visibility that is needed to get big jobs done.

Sometimes a new bureaucracy *is* essential to success. Every one of the federal government's greatest achievements of the past half-century involved at least some new bureaucracy—the National Aeronautics and Space Administration helped the United States win the space race in the 1960s, the Environmental Protection Agency opened a new era in clean air and water in the 1970s, and dozens of other agencies such as the Centers for Disease Control and

Prevention and the National Institutes of Health have produced stunning gains in Americans' lifespan. But sometimes a new bureaucracy can turn out badly. Thirty years after its launch, the Energy Department is still in disarray, and still searching for a coherent policy to end the nation's addiction to foreign oil.

Congress and the president now face a simple choice. They can either hope the merger will eventually work out or undertake an ambitious new reorganization. The chief goal would be to tighten the department's focus on a single core mission of preventing terrorism, with the related task of dealing with natural and terrorist disasters. There are three ways to do it:

THE COAST GUARD'S modernization efforts have produced an undue number of horror stories about delays, cost overruns, and bad management.

Give some agencies back to their original owners. Although all Homeland Security agencies share at least part of the same mission, many share so little common ground that they should go.

There is no reason that the Secret Service should stay in Homeland Security, for example. In addition to protecting the president and other top officials, it guards against counterfeiting and financial fraud. It was perfectly comfortable as a quasi-independent agency housed in the Treasury Department, as was the Federal Protective Service, which guards federal office buildings, as part of the General Services Administration, the Federal Law Enforcement Training Center, as part of Treasury, and elements of the Animal and Plant Health Inspection Service as part of Agriculture.

All could easily move home, thereby reducing the span of the department to a more manageable number of agencies and offices.

Reduce the number of agencies through internal mergers. Assuming that it rebuilds quickly, FEMA could easily absorb the department's entire preparedness bureaucracy, including the Fire Administration, which helps local fire departments buy new equipment and educate the public on fire prevention, as well as the $3 billion state and local grants program, which provides the dollars for preparedness for both natural disasters and terrorist attacks.

The department could also merge two of its other bureaus, Customs and Border Protection and Immigration and Customs Enforcement. Both share law enforcement responsibilities, focus on the same entry points, and undergo similar training. Although such an internal merger would introduce its own costs in lost productivity in the short term, the longer-term benefits for border security would outweigh the costs. The two agencies have been squabbling for the past four years about budgets and responsibilities, in part because they overlap so much.

Set some agencies free. After more than 200 years of operating first within the Treasury Department and later within the Transportation Department without a break in performance, the Coast Guard has earned its independence. It not only has one of the broadest missions in government, it also has some of the most pressing needs for modernization. Its efforts so far have produced an undue number of horror stories about delays, cost overruns, and bad management by the Coast Guard and the rest of the Department of Homeland Security. Given its freedom, the Coast Guard could pursue modernization without constant worries about the antiterrorism agenda.

The more one looks at the Department of Homeland Security, the more one admires the parsimony of Tom Ridge's original proposal for an agency with a highly focused border security agenda. Instead of taking on a host of unrelated missions, such an organization could spend its time and resources on a much more sharply defined mission. Ridge may have been the only one who thought it made sense, but it looks more and more like the kind of department that could work.

Homeland Security can still become one of the federal government's success stories. This organization born in a fever of necessity and politics can be repaired if common sense is allowed to prevail. The price of failure is too high for the country to shoulder. ■

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The Climate Engineers

As alarm over global warming spreads, a radical idea is gaining momentum.

Forget cuts in greenhouse-gas emissions, some scientists argue. Find a technological fix. Bounce sunlight back into space by pumping reflective nanoparticles into the atmosphere. Launch mirrors into orbit around the earth. Create a "planetary thermostat." But what sounds like science fiction is actually an old story. For more than a century, scientists, soldiers, and charlatans have hatched schemes to manipulate the weather and climate. Like them, today's aspiring climate engineers wildly exaggerate what is possible, and they scarcely consider political, military, and ethical implications of attempting to manage the world's climate—with potential consequences far greater than any their predecessors were likely to face.

BY JAMES R. FLEMING

Beyond the security checkpoint at the National Aeronautics and Space Administration's Ames Research Center at the southern end of San Francisco Bay, a small group gathered in November for a conference on the innocuous topic of "managing solar radiation." The real subject was much bigger: how to save the planet from the effects of global warming. There was little talk among the two dozen scientists and other specialists about carbon taxes, alternative energy sources, or the other usual remedies. Many of the scientists were impatient with such schemes. Some were simply contemptuous of calls for international cooperation and the policies and lifestyle changes needed to curb greenhouse-gas emissions; others had concluded that the world's politicians and bureaucrats are not up to the job of agreeing on such reforms or that global warming will come more rapidly, and with more catastrophic consequences, than many models predict. Now, they believe, it is time to consider radical measures: a technological

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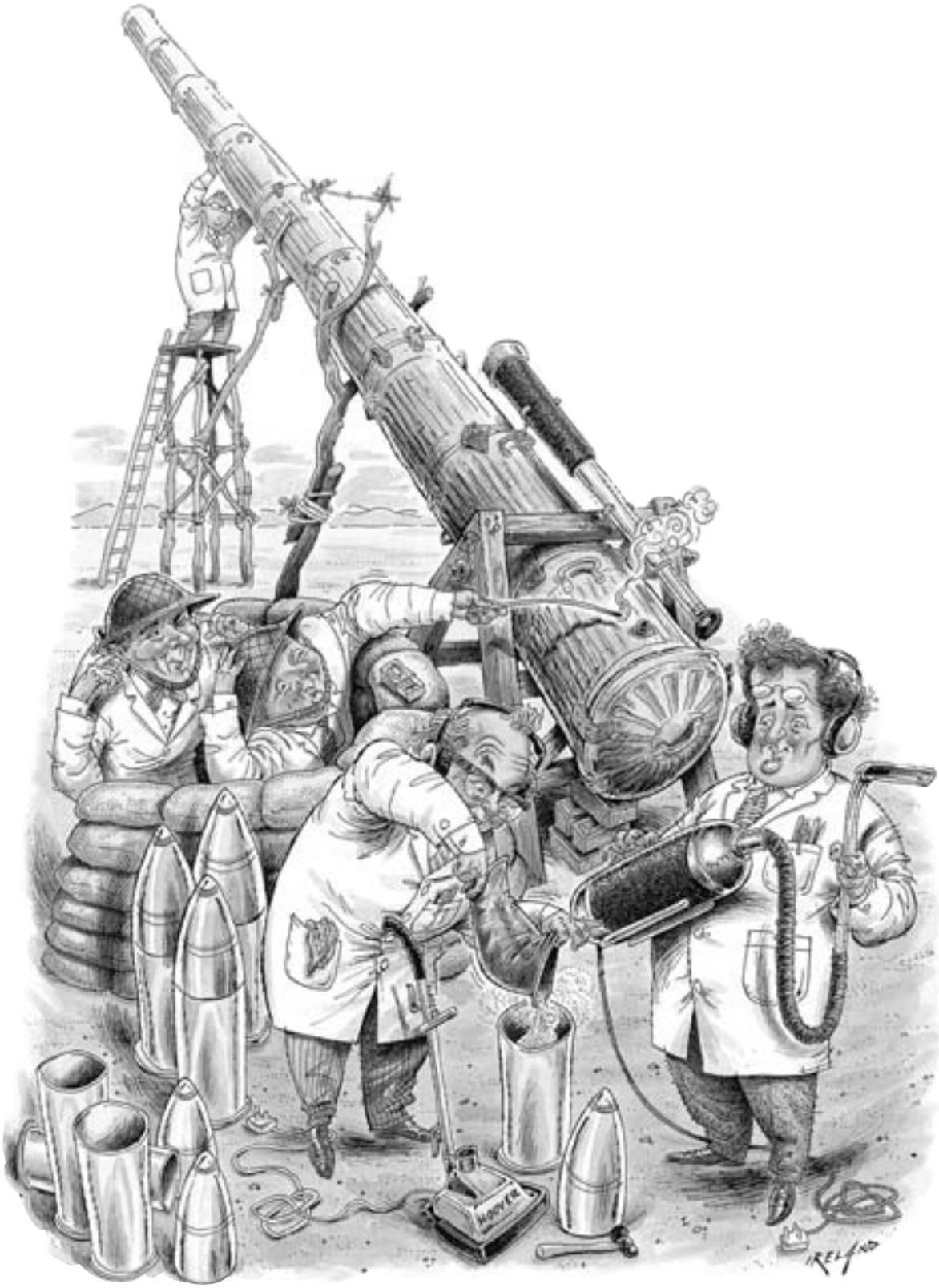


Ridicule greeted a 1991 proposal to combat global warming by shooting reflective particles into the atmosphere. The response could be different today.

Physicist Lowell Wood wants to create a "global thermostat."

quick fix for global warming.

"Mitigation is not happening and is not going to happen," physicist Lowell Wood declared at the NASA conference. Wood, the star of the gathering, spent four decades at the University of California's Lawrence Livermore National Laboratory, where he served as one of the Pentagon's chief weapon designers and threat analysts. (He reportedly enjoys the "Dr. Evil" nickname bestowed by his critics.) The time has come, he said, for "an intelligent elimination of undesired heat from the biosphere by technical ways and means," which, he asserted, could be achieved for a tiny fraction of the cost of "the bureaucratic suppression of CO_2." His engineering approach, he boasted, would provide "instant climatic gratification."

Wood advanced several ideas to "fix" the earth's climate, including building up Arctic sea ice to make it function like a planetary air conditioner to "suck heat in from the mid-latitude heat bath." A "surprisingly practical" way of achieving this, he said, would be to use large artillery pieces to shoot as much as a million tons of highly reflective sulfate aerosols or specially engineered nanoparticles into the Arctic stratosphere to deflect the sun's rays. Delivering up to a million tons of material via artillery would require a constant bombardment—basically declaring war on the stratosphere. Alternatively, a fleet of B-747 "crop dusters" could deliver the particles by flying continuously around the Arctic Circle. Or a 25-kilometer-long sky hose could be tethered to a military superblimp high above the planet's surface to pump reflective particles into the atmosphere.

Far-fetched as Wood's ideas may sound, his weren't the only Rube Goldberg proposals aired at the meeting. Even as they joked about a NASA staffer's apology for her inability to control the temperature in the meeting room, others detailed their own schemes for manipulating earth's climate. Astronomer J. Roger Angel suggested placing a huge fleet of mirrors in orbit to divert incoming solar radiation, at a cost of "only" several trillion dollars. Atmospheric scientist John Latham and engineer Stephen Salter hawked their idea of making marine clouds thicker and more reflective by whipping ocean water into a froth with giant pumps and eggbeaters. Most frightening was the science-fiction writer and astrophysicist Gregory Benford's announcement that he wanted to "cut through red tape and demonstrate what could be done" by finding private sponsors for his plan to inject diatomaceous earth—the chalklike substance used in filtration systems and cat litter—into the Arctic stratosphere. He, like his fellow geoengineers, was largely silent on the possible unintended consequences of his plan.

The inherent unknowability of what would happen if we tried to tinker with the immensely complex planetary climate system is one reason why climate engineering has until recently been spoken of only sotto voce in the scientific community. Many researchers recognize that even the most brilliant scientists have a history of blindness to the wider ramifications of their work. Imagine, for example, that Wood's scheme to thicken the Arctic icecap did somehow become possible. While most of the world may want to maintain or increase polar sea ice, Russia and some other nations have historically desired an ice-free Arctic ocean, which would liberate shipping and open potentially vast oil and mineral deposits for exploitation. And an engineered Arctic ice sheet would likely produce shorter

growing seasons and harsher winters in Alaska, Siberia, Greenland, and elsewhere, and could generate super winter storms in the midlatitudes. Yet Wood calls his brainstorm a plan for "global climate stabilization," and hopes to create a sort of "planetary thermostat" to regulate the global climate.

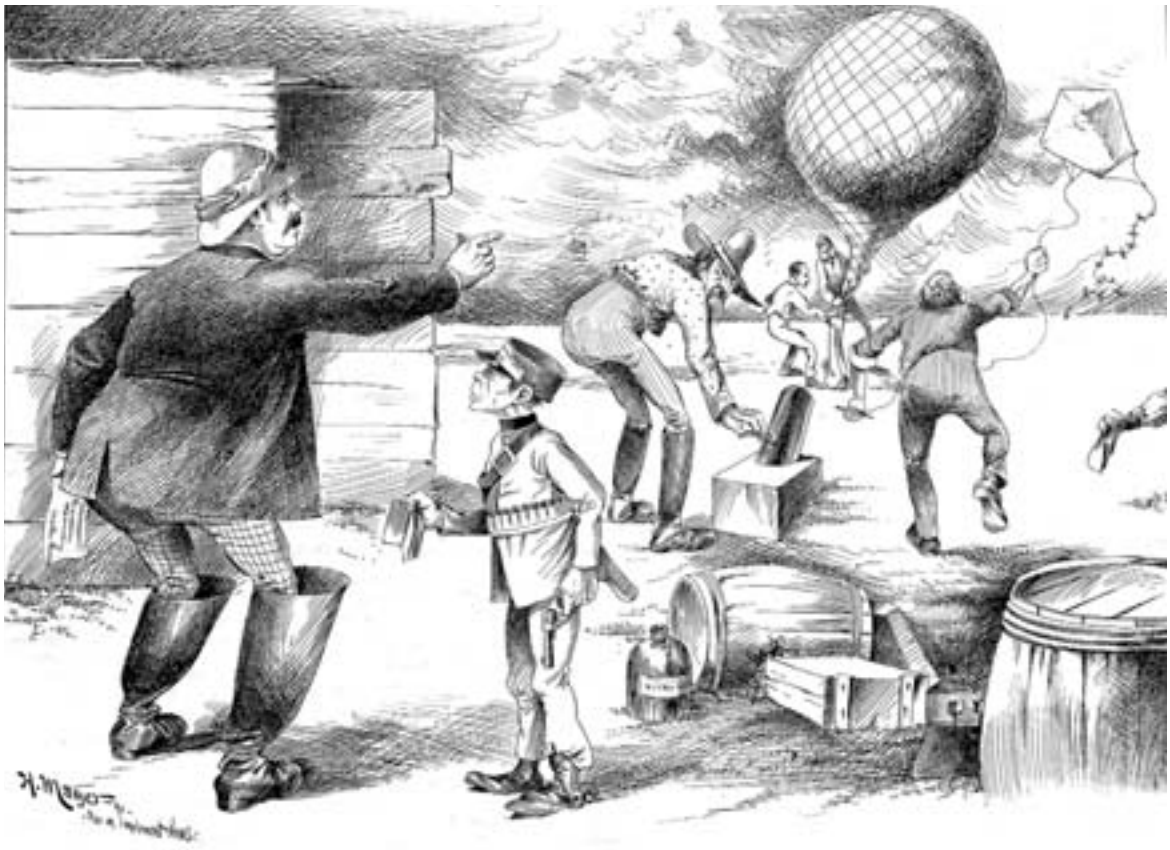
Who would control such a "thermostat," making life-altering decisions for the planet's billions? What is to prevent other nations from undertaking unilateral climate modification? The United States has no monopoly on such dreams. In November 2005, for example, Yuri Izrael, head of the Moscow-based Institute of Global Climate and Ecology Studies, wrote to Russian president Vladimir Putin to make the case for immediately burning massive amounts of sulfur in the stratosphere to lower the earth's temperature "a degree or two"—a correction greater than the total warming since preindustrial times.

There is, moreover, a troubling motif of militarization in the history of weather and climate control. Military leaders in the United States and other countries have pondered the possibilities of weaponized weather manipulation for decades. Lowell Wood himself embodies the overlap of civilian and military interests. Now affiliated with the Hoover Institution, a think tank at Stanford University, Wood was a protégé of the late Edward Teller, the weapons scientist who was credited with developing the hydrogen bomb and was the architect of the Reagan-era Star Wars missile defense system (which Wood worked on, too). Like Wood, Teller was known for his advocacy of controversial military and technological solutions to complex problems, including the chimerical "peaceful uses of nuclear weapons." Teller's plan to excavate an artificial harbor in Alaska using thermonuclear explosives actually came close to receiving government approval. Before his death in 2003, Teller was advocating a climate control scheme similar to what Wood proposed.

Despite the large, unanswered questions about the implications of playing God with the elements, climate engineering is now being widely discussed in the scientific community and is taken seriously within the U.S. government. The Bush administration has recommended the addition of this "important strategy" to an upcoming report of the Intergovernmental Panel on Climate Change, the UN-sponsored organization whose February study seemed to persuade even the Bush White House to take global warming more seriously. And climate engineering's advocates are not confined to the small group that met in California. Last year, for example, Paul J. Crutzen, an atmospheric chemist and Nobel laureate, proposed a scheme similar to Wood's, and there is a long paper trail of climate and weather modification studies by the Pentagon and other government agencies.

As the sole historian at the NASA conference, I may have been alone in my appreciation of the irony that we were meeting on the site of an old U.S. Navy airfield literally in the shadow of the huge hangar that once housed the ill-starred Navy dirigible U.S.S. *Macon*. The 785-foot-long *Macon*, a technological wonder of its time, capable of cruising at 87

Nobel laureate Paul J. Crutzen favors a planetary "shade."



Robert St. George Dyrenforth claimed success after his federally funded rainmaking mission to Texas in 1891, but in this cartoon from a local magazine he is shown ordering his assistants to speed up: "Here's a telegram announcing a storm. If we don't hurry, it will be on before we raise our racket."

miles per hour and launching five Navy biplanes, lies at the bottom of the Pacific Ocean, brought down in 1935 by strong winds. The Navy's entire rigid-airship program went down with it. Coming on the heels of the crash of its sister ship, the *Akron*, the *Macon*'s destruction showed that the design of these technological marvels was fundamentally flawed. The hangar, built by the Navy in 1932, is now both a historic site and a Superfund site, since it has been discovered that its "galbestos" siding is leaching PCBs into the drains. As I reflected on the fate of the Navy dirigible program, the geoengineers around the table were confidently and enthusiastically promoting techniques of climate intervention that were more than several steps beyond what might be called state of the art, with implications not simply for a handful of airship crewmen but for every one of the 6.5 billion inhabitants of the planet.

Ultimate control of the weather and climate excites some of our wildest fantasies and our greatest fears. It is the stuff of age-old myths. Throughout history, we mortals have tried to protect ourselves against harsh weather. But weather *control* was reserved for the ancient sky gods. Now the power has seemingly devolved to modern Titans. We are undoubtedly facing an uncertain future. With rising temperatures, increasing emissions of greenhouse gases, and a growing world population, we may be on the verge of a worldwide climate crisis. What shall we do? Doing nothing or too little is clearly wrong, but so is doing too much.

Largely unaware of the long and checkered history of weather and climate control and the political and ethical challenges it poses, or somehow considering themselves exempt, the new Titans see themselves as heroic pioneers, the first generation capable of alleviating or averting natural disasters. They are largely oblivious to the history of the charlatans and sincere but deluded scientists and engineers who preceded them. If we fail to

heed the lessons of that history, and fail to bring its perspectives to bear in thinking about public policy, we risk repeating the mistakes of the past, in a game with much higher stakes.

Three stories (there are many more) capture the recurring pathologies of weather and climate control schemes. The first involves 19th-century proposals by the U.S. government's first meteorologist and other "pluviculturalists" to make artificial rain and relieve drought conditions in the American West. The second begins in 1946 with promising discoveries in cloud seeding that rapidly devolved into exaggerated claims and attempts by cold warriors to weaponize the technique in the jungles of Vietnam. And then there is the tale of how computer modeling raised hopes for perfect forecasting and ultimate control of weather and climate—hopes that continue to inform and encourage present-day planetary engineers.

James Pollard Espy (1785–1860), the first meteorologist employed by the U.S. government, was a frontier schoolmaster and lawyer until he moved to Philadelphia in 1817. There he supported himself by teaching mathematics and classics part time while devoting himself to meteorological research. Working through the American Philosophical Society and the Franklin Institute, Espy gained the support of Pennsylvania's legislature to equip weather observers in each county in the state with barometers, thermometers, and other standard instruments to provide a larger, synoptic picture of the weather, especially the passage of storms.

Espy viewed the atmosphere as a giant heat engine. According to his thermal theory of storms, all atmospheric disturbances, including thunderstorms, hurricanes, and winter storms, are driven by "steam power." Heated by the sun, a column of air rises, allowing the surrounding air to rush in. As the heated air ascends, it cools and its moisture condenses, releasing its latent heat (this is the "steam") and producing rain, hail, or snow. The thermal theory is now an accepted part of meteorology, and for this discovery Espy is well regarded in the history of science.

His stature has been diminished, however, by his unbridled enthusiasm for rainmaking. Espy suggested cutting and burning vast tracts of forest to create huge columns of heated air, believing this would generate clouds and trigger precipitation. "Magnificent Humbug" was one contemporary assessment of this scheme. Espy came to be known derisively as the "Storm King," but he was not deterred.

Seeking a larger stage for his storm studies and rainmaking proposals, Espy moved in 1842 to Washington, D.C., where he was funded by the Navy and employed as the "national meteorologist" by the Army Medical Department.

THE NEW TITANS see themselves as heroic pioneers, capable of alleviating or averting natural disasters.

This position afforded him access to the meteorological reports of surgeons at Army posts around the country. He also collaborated with Joseph Henry at the Smithsonian Institution to establish and maintain a national network of volunteer weather observers.

The year Espy moved to Washington, the popular magazine writer Eliza Leslie published a short story in *Godey's Lady's Book* called "The Rain King, or, A Glance at the Next Century," a fanciful account of rainmaking set in 1942 in Philadelphia, in which Espy's great-great-grand-nephew offers weather for the Delaware Valley on demand. Various factions vie for the weather they desire. Three hundred washerwomen petition the Rain King for fine weather forever, while cabmen and umbrella makers want perpetual rain. An equal number of applications come from both the fair- and foul-weather camps, until the balance is tipped by a late request from a winsome high-society matron desperately seeking a hard rain to prevent a visit by her country-bumpkin cousins that would spoil the lavish party she is planning.

Of course, when the artificial rains come, they satisfy no one and raise widespread suspicions. The Rain King, suddenly unpopular because he lacks the miraculous power to please everybody, takes a steamboat to China, where he stud-

ies magic in anticipation of returning someday. "Natural rains had never occasioned anything worse than submissive regret to those who suffered inconvenience from them, and were always received more in sorrow than in anger," Leslie wrote. "But these artificial rains were taken more in anger than in sorrow, by all who did not want them."

Leslie had identified the fundamental political pitfalls of manufactured weather that dog it to this day. But the enthusiasm for pluviculture was just beginning. During the Civil War, some began to suspect that the smoke and concussion of artillery fire generated rain. After all, didn't it tend to rain a day, or two, or three following most battles? Skeptics wondered whether generals simply preferred to fight under fair skies, with rainy days therefore tending naturally to follow, and some pointed out that Plutarch had noticed the correlation between battles and rainfall long before the invention of gunpowder. Nevertheless, in 1871 retired Civil War general Edward Powers argued in favor of cannonading in his book *War and the Weather, or, The Artificial Production of Rain.*

Two decades later, the publication of the second edition of Powers's book coincided with a severe and prolonged western drought, prompting a congressional appropriation of $10,000 for a series of field experiments. Secretary of Agriculture Jeremiah Rusk, nominally in charge of both this project and the newly formed U.S. Weather Bureau, chose as the lead investigator Robert St. George Dyrenforth, a flamboyant patent lawyer from Washington, D.C., who possessed no scientific or military experience. Dyrenforth arrived in Texas in August during a severe drought, but also conveniently at the traditional (and commonly noted) onset of the Texas rainy season. He brought an arsenal of explosives, including bombs, cannon, and hydrogen balloons, to be detonated at various altitudes, and engaged in what one observer called "a beautiful imitation of a battle."

After several months of assaults on the heavens, it did indeed rain. Dyrenforth claimed victory, concluding that his practical skills, combined with his use of special explosives "to keep the weather in an unsettled condition," could cause or at least enhance precipitation—when conditions were favorable! He warned that bombarding the sky in dry weather, however, would be fruitless, since his technique could stimulate clouds and precipitation but not create them.

The Nation, which criticized the government for wasting tax dollars, observed that the effect of the explosion of a 10-foot hydrogen balloon on aerial currents would be less than "the effect of the jump of one vigorous flea upon a thousand-ton steamship running at a speed of twenty knots." But if there is one lesson from the long history of efforts to modify the weather and climate, it is that neither commonsense criticism nor flops deter geoengineers.

Just over 100 years after Espy arrived in Washington, another seminal episode in the history of weather and climate control commenced at the General Electric Research Laboratory in Schenectady, New York. On a warm, humid day in 1946, a laboratory technician named Vincent Schaefer dropped some dry ice into a home freezer unit he was using as a cloud chamber. To his surprise, he saw the moisture in his breath instantly transform into millions of tiny ice crystals. He had generated the ice cloud from "supercooled" water droplets. As Schaefer recalled, "It was a serendipitous event, and I was smart enough to figure out just what happened. . . . I knew I had something pretty important." Soon after, another member of the GE team, Bernard Vonnegut of MIT, discovered that silver iodide smoke also "caused explosive ice growth" in supercooled clouds.

On November 14, 1946, Schaefer rented an airplane and dropped six pounds of dry ice pellets into a cold cloud over Mount Greylock in the nearby Berkshires, creating ice crystals and streaks of snow along a three-mile path. According to Schaefer's laboratory notebook, "It seemed as though [the cloud] almost exploded, the effect was so widespread and rapid." Schaefer's boss was Nobel laureate Irving Langmuir, a chemist who had worked on generating military smoke screens and de-icing aircraft in World War II—and who did not lack for media savvy. Langmuir watched the experiment from the control tower of the airport, and he was on the phone to the press before Schaefer landed. According to an article in *The New York Times* the next day, "A single pellet of dry ice, about the size of a pea . . . might produce enough ice nuclei to develop several tons of snow," or perhaps eliminate clouds at airports that might cause dangerous icing conditions, thus, in the words of the story's headline, "Opening Vista of Moisture Control by Man." *The*

Vincent Schaefer reenacts the chance 1946 discovery that sparked fresh weather-control experiments as Irving Langmuir (left) and Bernard Vonnegut watch.

Boston Globe headline read "Snowstorm Manufactured."

From this moment on, in the press and before the meteorological community, Langmuir expounded his sensational vision of large-scale weather control, including redirecting hurricanes and changing the arid Southwest into fertile farmland. His first paper on the subject used familiar military terminology to explain how a small amount of "nucleating" agent such as dry ice, silver iodide, or even water could cause a "chain reaction" in cumulus clouds that potentially could release as much energy as an atomic bomb, but without radioactive fallout. The Department of Defense took due note. It would take an intense interest in the military possibilities of weather modification in the years ahead.

Ironically, in 1953, at the very same time Langmuir was involved in making exaggerated and highly dubious claims for the efficacy of weather and climate modification, he

Experiments with cloud seeding during the Cold War inspired fantastic predictions about America's ability to control the weather and use it as an aid to farmers and a weapon against communist adversaries.

presented a seminar at GE titled "Pathological Science," or "the science of things that aren't so." Yet there is hardly any scientific foundation for most claims about weather modification. Cloud seeding apparently can augment "orographic" precipitation (which falls on the windward side of mountains) by up to 10 percent. It is also possible to clear cold fogs and suppress frost with heaters in very small areas. That is the extent of what has been proved. Nevertheless, millions are still spent on cloud seeding today, largely by local water and power companies.

About the time Langmuir was giving his seminar, the great futurist and science-fiction writer H. G. Wells toured the GE labs, and the young publicist who escorted him tried to interest the writer in its weather control research. Wells gave a lukewarm response. The young man was Bernard Vonnegut's brother, Kurt, and he took up the subject himself in the novel *Cat's Cradle* (1963), in which a quirky and amoral scientist named Felix Hoenikker, loosely modeled on both Irving Langmuir and Edward Teller, invents a substance called "ice-nine" that instantly freezes water and remains solid at room temperature. Hoenikker's intent is to create a material that would be useful to armies bogged down in muddy battlefields, but the result is an unprecedented ecological disaster. Vonnegut got the idea of ice-nine from Langmuir, who suggested it to Wells as a story line.

Weather modification technology seemed of such great potential, especially to military aviation, that Vannevar Bush, a friend of Langmuir's who had served as head of the Office of Scientific Research and Development during World War II, brought the issue to the attention of Secretary of Defense George C. Marshall and General Omar Bradley, chairman of the Joint Chiefs of Staff. The Pentagon immediately convened a committee to study the development of a Cold War weather weapon. It was hoped that cloud seeding could be used surreptitiously to release the violence of the atmosphere against an enemy, tame the winds in the service of an all-weather air force, or, on a larger scale, perhaps disrupt (or improve) the agricultural economy of nations and alter the global cli-

mate for strategic purposes. Military planners generated strategic scenarios such as hindering the enemy's military campaigns by causing heavy rains or snows to fall along lines of troop movement and on vital airfields, or using controlled precipitation as a delivery system for biological and radiological agents. Tactical possibilities included dissipating cloud decks to enable visual bombing attacks on targets, opening airfields closed by low clouds or fog, and relieving aircraft icing.

Some in the military had already recognized the potential uses of weather modification, and the subject has remained on military minds ever since. In the 1940s, General George C. Kenney, commander of the Strategic Air Command, declared, "The nation which first learns to plot the paths of air masses accurately and learns to control the time and place of precipitation will dominate the globe." His opinion was echoed in 1961 by the distinguished aviator-engineer Rear Admiral Luis de Florez: "With control of the weather the operations and economy of an enemy could be disrupted. . . . [Such control] in a cold war would provide a powerful and subtle weapon to injure agricultural production, hinder commerce, and slow down industry." He urged the government to "start now to make control of weather equal in scope to the Manhattan . . . Project which produced the first A-bomb."

IN THE 1950s, the Pentagon convened a committee to study the development of a Cold War weather weapon.

Howard T. Orville, President Dwight D. Eisenhower's weather adviser, published an influential 1954 article in *Collier's* that included a variety of scenarios for using weather as a weapon of warfare. Planes would drop hundreds of balloons containing seeding crystals into the jet stream. Downstream, when the fuses on the balloons exploded, the crystals would fall into the clouds, initiating rain and miring enemy operations. The Army Ordnance Corps was investigating another technique: loading silver iodide and carbon dioxide into 50-caliber tracer bullets that pilots could fire into clouds. A more insidious technique would strike at an adversary's food supply by seeding clouds to rob them of moisture before they reached enemy agricultural areas. Speculative and wildly optimistic ideas such as these from official sources, together with threats that the Soviets were aggressively pursuing weather control, triggered what *Newsweek* called "a weather race with the Russians," and helped fuel the rapid expansion of meteorological research in all areas, including the creation of the National Center for Atmospheric Research, which was established in 1960.

Weather warfare took a macro-pathological turn between 1967 and '72 in the jungles over North and South Vietnam, Laos, and Cambodia. Using technology developed at the naval weapons testing center at China Lake, California, to seed clouds by means of silver iodide flares, the military conducted secret operations intended, among other goals, to "reduce trafficability" along portions of the Ho Chi Minh Trail, which Hanoi used to move men and materiel to South Vietnam. Operating out of Udorn Air Base, Thailand, without the knowledge of the Thai government or almost anyone else, but with the full and enthusiastic support of presidents Lyndon B. Johnson and Richard M. Nixon, the Air Weather Service flew more than 2,600 cloud seeding sorties and expended 47,000 silver iodide flares over a period of approximately five years at an annual cost of some $3.6 million. The covert operation had several names, including "POPEYE" and "Intermediary-Compatriot."

In March 1971, nationally syndicated columnist Jack Anderson broke the story about Air Force rainmakers in Southeast Asia in *The Washington Post*, a story confirmed several months later with the leaking of the Pentagon Papers and splashed on the front page of *The New York Times* in 1972 by Seymour Hersh. By 1973, despite stonewalling by Nixon administration officials, the U.S. Senate had adopted a resolution calling for an international treaty "prohibiting the use of any environmental or geophysical modification activity as a weapon of war." The following year, Senator Claiborne Pell (D.-R.I.), referring to the field as a "Pandora's box," published the transcript of a

formerly top-secret briefing by the Defense Department on the topic of weather warfare. Eventually, it was revealed that the CIA had tried rainmaking in South Vietnam as early as 1963 in an attempt to break up the protests of Buddhist monks, and that cloud seeding was probably used in Cuba to disrupt the sugarcane harvest. Similar technology had been employed, yet proved ineffective, in drought relief efforts in India and Pakistan, the Philippines, Panama, Portugal, and Okinawa. All of the programs were conducted under military sponsorship and had the direct involvement of the White House.

DURING OPERATION POPEYE, the Air Force flew more than 2,600 cloud seeding sorties over the Ho Chi Minh Trail to, as one wag put it, "Make mud, not war."

Operation POPEYE, made public as it was at the end of the Nixon era, was dubbed the "Watergate of weather warfare." Some defended the use of environmental weapons, arguing that they were more "humane" than nuclear weapons. Others suggested that inducing rainfall to reduce trafficability was preferable to dropping napalm. As one wag put it, "Make mud, not war." At a congressional briefing in 1974, military officials downplayed the impact of Operation POPEYE, since the most that could be claimed were 10 percent increases in local rainfall, and even that result was "unverifiable." Philip Handler, president of the National Academy of Sciences, represented the mainstream of scientific opinion when he observed, "It is grotesquely immoral that scientific understanding and technological capabilities developed for human welfare to protect the public health, enhance agricultural productivity, and minimize the natural violence of large storms should be so distorted as to become weapons of war."

At a time when the United States was already weakened by the Watergate crisis, the Soviet Union caused considerable embarrassment to the Ford administration by bringing the issue of weather modification as a weapon of war to the attention of the United Nations. The UN Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) was eventually ratified by nearly 70 nations, including the United States. Ironically, it entered into force in 1978, when the Lao People's Democratic Republic, where the American military had used weather modification technology in war only six years earlier, became the 20th signatory.

The language of the ENMOD Convention may become relevant to future weather and climate engineering, especially if such efforts are conducted unilaterally or if harm befalls a nation or region. The convention targets those techniques having "widespread, longlasting or severe effects as the means of destruction, damage, or injury to any other State Party." It uses the term "environmental modification" to mean "any technique for changing—through the deliberate manipulation of natural processes—the dynamics, composition, or structure of the Earth, including its biota, lithosphere, hydrosphere, and atmosphere, or of outer space."

A vision of perfect forecasting ultimately leading to weather and climate control was present at the birth of modern computing, well before the GE cloud seeding experiments. In 1945 Vladimir Zworykin, an RCA engineer noted for his early work in television technology, promoted the idea that electronic computers could be used to process and analyze vast amounts of meteorological data, issue timely and highly accurate forecasts, study the sensitivity of weather systems to alterations of surface conditions and energy inputs, and eventually intervene in and control the weather and climate. He wrote:

> The eventual goal to be attained is the international organization of means to study weather phenomena as global phenomena and to channel the world's weather, as far as possible, in such a way as to minimize the damage from catastrophic disturbances, and otherwise to benefit the world to the greatest extent by improved climatic conditions where possible.

Zworykin imagined that a perfectly accurate machine forecast combined with a paramilitary rapid deployment force able literally to pour oil on troubled ocean waters or even set fires or detonate bombs might someday provide the capacity to disrupt storms before they formed, deflect them from populated areas, and otherwise control the weather.

John von Neumann, the multi-talented mathematician extraordinaire at the Institute for Advanced Study in Princeton, New Jersey, endorsed Zworykin's view, writing to him, "I agree with you completely. . . . This would provide a basis for scientific approach[es] to influencing the weather." Using computer-generated predictions, von Neumann wrote, weather and climate systems "could be controlled, or at least directed, by the release of perfectly practical amounts of energy" or by "altering the absorption and reflection properties of the ground or the sea or the atmosphere." It was a project that neatly fit von Neumann's overall philosophy: "All stable processes we shall predict. All unstable processes we shall control." Zworykin's proposal was also endorsed by the noted oceanographer Athelstan Spilhaus, then a U.S. Army major, who ended his letter of November 6, 1945, with these words: "In weather control meteorology has a new goal worthy of its greatest efforts."

In a 1962 speech to meteorologists, "On the Possibilities of Weather Control," Harry Wexler, the MIT-trained head of meteorological research at the U.S. Weather Bureau, reported on his analysis of early computer climate models and additional possibilities opened up by the space age. Reminding his audience that humankind was modifying the weather and climate "whether we know it or not" by changing the composition of the earth's atmosphere, Wexler demonstrated how the United States or the Soviet Union, perhaps with hostile intent, could alter the earth's climate in a number of ways. Either nation could cool it by several degrees using a dust ring launched into orbit, for example, or warm it using ice crystals lofted into the polar atmosphere by the explosion of hydrogen bombs. And while most practicing atmospheric chemists today believe that the discovery of ozone-destroying reactions dates to the early 1970s, Wexler sketched out a scenario for destroying the ozone layer using chlorine or bromine in his 1962 speech.

"The subject of weather and climate control is now becoming respectable to talk about," Wexler claimed, apparently hoping to reduce the prospects of a geophysical arms race. He cited Soviet premier Nikita Khrushchev's mention of weather control in an address to the Supreme Soviet and a 1961 speech to the United Nations by John F. Kennedy in which the president proposed "cooperative efforts between all nations in weather prediction and eventually in weather control." Wexler was actually the source of Kennedy's suggestions, and had worked on them behind the scenes with the President's Science Advisory Committee and the State Department. But if weather control's "respectability" was not in question, its attainability—even using computers, satellites, and 100-megaton bombs—certainly was.

In 1965, the President's Science Advisory Committee warned in a report called *Restoring the Quality of Our Environment* that increases in atmospheric carbon dioxide due to the burning of fossil fuels would modify the earth's heat balance to such an extent that harmful changes in climate could occur. This report is now widely cited as the first official statement on "global warming." But the committee also recommended geoengineering options. "The possibilities of deliberately bringing about countervailing climatic changes . . . need to be thoroughly explored," it said. As an illustration, it pointed out that, in a warming world, the earth's solar reflectivity could be increased by dispersing buoyant reflective particles over large areas of the tropical sea at an annual cost, not considered excessive, of about $500 million. This technology might also inhibit hurricane formation. No one thought to consider the side effects of particles washing up on tropical beaches or choking marine life, or the negative consequences of redirecting hurricanes, much less other effects beyond our imagination. And no one thought to ask if the local inhabitants would be in favor of such schemes. The committee also speculated about modifying high-altitude cirrus clouds to counteract the effects of increasing atmospheric carbon dioxide. It failed to mention the most obvious option: reducing fossil fuel use.

After the embarrassment of the 1978 ENMOD Convention, federal funding for weather modification research and development dried up, although freelance rainmakers continued to ply their trade in the American West with state and local funding. Until recently, a 1991 National Academy of Sciences report, *Policy Implications of Greenhouse Warming,* was the only serious document in decades to advocate climate control. But the level of urgency and the number of proposals have increased dramatically since the turn of the new century.

In September 2001, the U.S. Climate Change Technology Program quietly held an invitational conference, "Response Options to Rapid or Severe Climate Change." Sponsored by a White House that was officially skeptical about global warming, the meeting gave new status to the control fantasies of the climate engineers. According to one participant, "If they had broadcast that meeting live to people in Europe, there would have been riots."

In China's active cloud seeding efforts, anti-aircraft guns are used to shoot silver iodide crystals into the atmosphere. Beijing promises an intensive effort to clear the skies when the city hosts the Olympics in 2008.

Two years later, the Pentagon released a controversial report titled *An Abrupt Climate Change Scenario and Its Implications for United States National Security*. The report explained how global warming might lead to rapid and catastrophic global cooling through mechanisms such as the slowing of North Atlantic deep-water circulation—and recommended that the government "explore geoengineering options that control the climate." Noting that it is easier to warm than to cool the climate, the report suggested that it might be possible to add various gases, such as hydrofluorocarbons, to the atmosphere to offset the effects of cooling. Such actions would be studied carefully, of course, given their potential to exacerbate conflict among nations.

With greater gravitas, but no less speculation, the National Research Council issued a study, *Critical Issues in Weather Modification Research,* in 2003. It cited looming social and environmental challenges such as water shortages and drought, property damage and loss of life from severe storms, and the threat of "inadvertent" climate change as justifications for investing in major new national and international programs in weather modification research. Although the NRC study included an acknowledgment that there is "no convincing scientific proof of the efficacy of intentional weather modification efforts," its authors nonetheless argued that there should be "a renewed commitment" to research in the field of intentional and unintentional weather modification.

The absence of such proof after decades of efforts has not deterred governments here and abroad from a variety of ill-advised or simply fanciful undertakings. The NASA Institute for Advanced Concepts, for example, has provided $475,000 for atmospheric scientist Ross Hoffman's research on beaming satellite-based microwaves at hurricanes as a means of redirecting them—as if it were possible to know where a storm was originally headed or that its new path would not lead straight to calamity. In 2005, Senator Kay Bailey Hutchison (R.-Texas) introduced legislation "to develop and implement a comprehensive and coor-

dinated national weather modification research policy and a national cooperative Federal and State program of weather modification and development." (Significantly, the Texas Department of Agriculture already supports weather modification programs covering one-fifth of the state.) And China has announced that its Study Institute for Artificial Influence on the Weather will attempt to manipulate Beijing's weather by cloud seeding in order to ensure optimum conditions for the 2008 Olympics.

With great fanfare, atmospheric chemist Paul J. Crutzen, winner of a 1995 Nobel Prize for his work on the chemistry of ozone depletion, recently proposed to cool the earth by injecting reflective aerosols or other substances into the tropical stratosphere using balloons or artillery. He estimated that more than five million metric tons of sulfur per year would be needed to do the job, at an annual cost of more than $125 billion. The effect would emulate the 1991 eruption of Mount Pinatubo in the Philippines, which covered the earth with a cloud of sulfuric acid and other sulfates and caused a drop in the planet's average temperature of about 0.5°C for roughly two years. Unfortunately, Mount Pinatubo may also have contributed to the largest ozone hole ever measured. The volcanic eruption was also blamed for causing cool, wet summers, shortening the growing season, and exacerbating Mississippi River flooding and the ongoing drought in the Sahel region of Africa.

Overall, the cooling caused by Mount Pinatubo's eruption temporarily suppressed the greenhouse warming effect and was stronger than the influence of the El Niño event that occurred at the same time. Crutzen merely noted that if a Mount Pinatubo–scale eruption were emulated every year or two, undesired side effects and ozone losses should not be "as large," but some whitening of the sky and colorful sunsets and sunrises would occur. His "interesting alternative" method would be to release soot particles to create minor "nuclear winter" conditions.

Crutzen later said that he had only reluctantly proposed his planetary "shade," mostly to "startle" political leaders enough to spur them to more serious efforts to curb greenhouse-gas emissions. But he may well have produced the opposite effect. The appeal of a quick and seemingly painless technological "fix" for the global climate dilemma should not be underestimated. The more practical such dreams appear, the less likely the world's citizens and political leaders are to take on the difficult and painful task of changing the destiny that global climate models foretell.

These issues are not new. In 1956, F. W. Reichelderfer, then chief of the U.S. Weather Bureau, delivered an address to the National Academy of Sciences, "Importance of New Concepts in Meteorology." Reacting to the widespread theorizing and speculation on the possibilities of weather and climate control at the time, he pointed out that the crucial issue was "practicability" rather than "possibility." In 1956 it was possible to modify a cloud with dry ice or silver iodide, yet it was impossible to predict what the cloud might do after seeding and impracticable to claim any sense of control over the weather. This is still true today. Yet thanks to remarkable advances in science and technology, from satellite sensors to enormously sophisticated global climate models, the fantasies of the weather and climate engineers have only grown. Now it is possible to tinker with scenarios in computer climate models—manipulating the solar inputs, for example, to demonstrate that artificially increased solar reflectivity will generate a cooling trend in the model.

IT IS VIRTUALLY impossible to imagine governments resisting the temptation to explore military uses of any potentially climate-altering technology.

But this is a far cry from conducting a practical global field experiment or operational program with proper data collection and analysis; full accounting for possible liabilities, unintended consequences, and litigation; and the necessary international support and approval. Lowell Wood blithely declares that if his proposal to turn the polar icecap into a planetary air conditioner were implemented and didn't work, the process could be halted after a few years. He doesn't mention what harm such a failure could cause in the meantime.

There are signs among the geoengineers of an overconfidence in technology as a solution of first resort. Many appear to possess a too-literal belief in progress that produces an anything-is-possible mentality, abetted by a basic misunderstanding of the nature of today's climate models. The global climate system is a "massive, staggering beast," as oceanographer Wallace Broecker describes it, with no simple set of controlling parameters. We are more than a long way from understanding how it works, much less the precise prediction and practical "control" of global climate.

Assume, for just a moment, that climate control were technically possible. Who would be given the authority to manage it? Who would have the wisdom to dispense drought, severe winters, or the effects of storms to some so that the rest of the planet could prosper? At what cost, economically, aesthetically, and in our moral relationship to nature, would we manipulate the climate?

These questions are never seriously contemplated by the climate wizards who dream of mastery over nature. If, as history shows, fantasies of weather and climate control have chiefly served commercial and military interests, why should we expect the future to be different? Have you noticed all the cannons? From Dyrenforth's cannonading in Texas to Crutzen's artillery barrage of the stratosphere, military means and ends have been closely intertwined with thinking about control of the weather and climate. In 1996 the U.S. Air Force resurrected the old Cold War speculation about using weather modification for military purposes, claiming that "in 2025, U.S. aerospace forces can 'own the weather' by capitalizing on emerging technologies and focusing development of those technologies to war-fighting applications." In addition to conventional cloud seeding methods, the Air Force visionaries proposed computer hacking to disrupt an enemy's weather monitors and models and the use of emerging technologies to create clouds of particles that could block an enemy's optical sensors. Hurricanes were also fair game for weaponization. The Air Force pointed out that weather modification, unlike other approaches, "makes what are otherwise the results of deliberate actions appear to be the consequences of natural weather phenomena."

Given such mindsets, it is virtually impossible to imagine governments resisting the temptation to explore military uses of any potentially climate-altering technology.

When Roger Angel was asked at the NASA meeting last November how he intended to get the massive amount of material required for his space mirrors into orbit, he dryly suggested a modern cannon of the kind originally proposed for the Strategic Defense Initiative: a giant electric rail gun firing a ton or so of material into space roughly every five minutes. Asked where such a device might be located, he suggested a high mountaintop on the Equator.

I was immediately reminded of Jules Verne's 1889 novel *The Purchase of the North Pole.* For two cents per acre, a group of American investors gains rights to the vast and incredibly lucrative coal and mineral deposits under the North Pole. To mine the region, they propose to melt the polar ice. Initially the project captures the public imagination, as the backers promise that their scheme will improve the climate everywhere by reducing extremes of cold and heat, making the earth a terrestrial heaven. But when it is revealed that the investors are retired Civil War artillerymen who intend to change the inclination of the earth's axis by building and firing the world's largest cannon, public enthusiasm gives way to fears that tidal waves generated by the explosion will kill millions. In secrecy and haste, the protagonists proceed with their plan, building the cannon on Mount Kilimanjaro. The plot fails only when an error in calculation renders the massive shot ineffective. Verne concludes, "The world's inhabitants could thus sleep in peace." Perhaps he spoke too soon. ■

In ESSENCE

REVIEWS OF ARTICLES FROM PERIODICALS AND SPECIALIZED JOURNALS HERE AND ABROAD

FOREIGN POLICY & DEFENSE

The Curse of Generosity

THE SOURCE: "The Challenge of Global Health" by Laurie Garrett, in ***Foreign Affairs***, Jan.–Feb. 2007.

When the Gates Foundation, Harvard University, and two giant pharmaceutical companies selected tiny Botswana for a collaborative AIDS treatment program, they were accused of picking an easy target. Nearly seven years later, no one is starry eyed any longer.

Botswana, wealthy by African standards, has diamonds, modern highways, a growing middle class, a concentrated population of 1.5 million, the lowest unemployment rate in the region, a supportive government, and, at 37 percent, the highest HIV infection rate in the world. It also has no medical school, a worsening nurse shortage, and few labs or clinics. It took five years to roll out AIDS treatment. After a year, 55,000 people were being treated out of an HIV-positive population of 280,000.

At the moment, the Botswana AIDS program is a success—but with HIV infection rates rising and medical personnel fleeing, a precarious one. Even so, "can-do" Botswana provides a simplified case study of the challenges of spending unprecedented billions of dollars to conquer the diseases of the poor.

At first glance, the outpouring of tens of billions from governments and private donors to improve global health seems like the most generous, hopeful, and visionary event of the 21st century. But the largess could easily be dribbled away.

The global health aid bonanza is now paying for "largely uncoordinated" efforts to treat high-profile diseases rather than public health in general, writes Laurie Garrett, senior fellow at the Council on Foreign Relations and author of *Betrayal of Trust: The Collapse of Global Public Health* (2000). "There is a grave danger that the current age of generosity could not only fall short of expectations but actually make things worse."

The outpouring of tens of billions to improve global health seems like the most hopeful event of the 21st century. But the largess could easily be dribbled away.

How so? Much of the money is donated for specific diseases, such as AIDS, and is not available for anything else. Pregnant women whose HIV is controlled by medicine sometimes become victims of leprosy and hepatitis when latent infections surge and AIDS clinics are unable to treat them. Doctors say HIV-positive children can die of vaccine-preventable diseases, such as polio and typhoid fever, while AIDS clinics are treating only their HIV symptoms.

The world is short more than four million health care workers, and popular disease-specific programs such as malaria eradication suck away doctors and nurses from yesterday's crises, such as tuberculosis and river blindness. Moreover, a vast number of

doctors and nurses emigrate to the West every year. In Ghana, 604 of 871 medical officers trained in the country in the past decade now practice overseas. In Zimbabwe, only 360 of the 1,200 doctors trained during the 1990s remain in the country. In Zambia, only 50 of the 600 doctors trained over the last 40 years remain.

Foreign salaries also tend to destabilize such governmental health systems as exist, as well as local economies. Trained workers are lured from public clinics to work on donor-sponsored AIDS or avian flu programs, crippling the government's ability to deal with other diseases.

Instead of a "hodgepodge of targets," Garrett writes, the world health community should focus on two things: reducing the maternal death rate and increasing life expectancy. Maternal mortality decreases when safe, clean facilities are staffed with well-trained personnel and supplied with antibiotics. Life expectancy increases in direct relation to the availability of safe water, sufficient food, immunizations, and the control of mosquito populations to prevent malaria and other insect-borne diseases. Treating AIDS or wiping out polio is not enough. Unless a coordinated system with long-term support can be set up, many may be saved from death due to AIDS only to be killed by something else.

FOREIGN POLICY & DEFENSE

In the Government's Name, Amen

THE SOURCE: "Chaplains, Censorship, and the First Amendment" by Lt. Steven R. Obert, and "Crossing Swords: 'Let Us Pray'" by Lt. Gordon J. Klingenschmitt and Steven L. Smith, in ***Proceedings***, Dec. 2006 and Jan. 2007.

Nearly three years ago, Navy chaplain Gordon Klingenschmitt, an Evangelical Episcopal priest, concluded a fiery Christian funeral service on the cruiser USS *Anzio* with a prayer "in Jesus' name." Fully a quarter of the mourners "hated the sermon," he says, which was optional but widely attended. Such a memorial ceremony would pass without comment in civilian life, but it was a poor career move in the Navy. Klingenschmitt was reassigned, given a negative performance review, and investigated. A year later, after he conducted an 18-day hunger strike in front of the White House, he was court-martialed for disobeying an order not to wear his uniform during a political protest. Now he is waging a legal battle to overturn his dismissal from the service.

Klingenschmitt is point man in a long-simmering dispute over the role of a military religious corps in a secular government. He contends that the Navy is unconstitutionally requiring its chaplains to pray to a "government god." There are three choices, he writes: The Navy can impose "totalitarian atheism" by banning public prayer in its ranks; it can require chaplains to adhere to "totalitarian pluralism" and "water down their prayers" to avoid naming the deity; or it can follow his preferred course of "democratic diversity" by allowing chaplains to take turns expressing differing faiths.

Chaplains must obey civilian bishops or other religious superiors in sacramental matters, Klingenschmitt writes, rather than their military superiors. His supporters point out that evangelical religious faith essentially commands the acknowledgment of Jesus. They portray the lieutenant as caught between his religion and his job, facing forfeiture of a $1.8 million pension and eviction from military housing. "I was literally convicted of 'worshiping in public' in uniform," Klingenschmitt writes.

But to some fellow chaplains, the affair seems less a matter of religious

EXCERPT

Winston on Iraq

When British tenure in Iraq began, the empire's colonial secretary was none other than Winston Churchill. It was he who installed the first Hashemite king. "I am deeply concerned about Iraq," he wrote in 1922. . . . "At present we are paying eight million a year for the privilege of living on an ungrateful volcano."

—JOSEPH TARTAKOVSKY, assistant editor, reviewing *The Foreigner's Gift: The Americans, the Arabs, and the Iraqis in Iraq*, by Fouad Ajami, in ***Claremont Review of Books*** (Winter 2006–07)

oppression than a case of pressing a sectarian agenda. It is generally acknowledged that chaplains can pray to the god of their choice in religious services, but conflicts come when chaplains preside over services or ceremonies attended by people of many faiths. Steven L. Smith, a retired Navy chaplain and a Southern Baptist, writes that his decision to use the "inclusive language"sought by the Navy stemmed from his effort to think of "the good of the community, not just the individual."

For many in the Navy, the fate of Klingenschmitt is "less important than the debate it has touched off about the role of the military chaplain" when ministering to sailors of different faiths, writes Lt. Steven R. Obert, a submariner who is attending the George Washington University Law School.

The Navy, with a tradition of prayer at sea that goes back to the 18th century, bases the legitimacy of its chaplain corps on the clause in the First Amendment of the Constitution that says that Congress shall make no law prohibiting the "free exercise" of religion. Because sailors are required to serve away from their hometowns and churches, chaplains are needed to facilitate their "free exercise," Obert writes. At the same time, the Constitution also prohibits any "establishment" of religion, a provision that has been used to regulate prayer in public schools and remove religious symbols from courthouses.

The Klingenschmitt affair is unlikely to settle the issue. A federal appeals court dismissed a suit in 1985 that sought to eliminate the Army Chaplain Corps, saying that although there was strong justification under the establishment clause for abolishing the corps, chaplains were necessary to the free exercise of religion by troops serving in remote locations. But since the military chaplaincy passed constitutional muster 22 years ago, new issues have arisen and the ranks of the chaplaincy have changed. Once chaplains were mostly Catholics and mainline Protestants; today there are many more evangelicals. Klingenschmitt has become a cause célebrè on Christian television and the Internet. The Air Force Academy has been roiled by allegations that military clergy were engaged in inappropriate proselytization, and 75 chaplains have sued the Navy on personnel grounds. These evangelicals have filed a class-action suit, claiming that they have been passed over for promotion because of their faith.

PRESS & MEDIA

Two Faces of Revolution

THE SOURCE: "An Emblematic Picture of the Hungarian 1956 Revolution: Photojournalism During the Hungarian Revolution" by Eszter Balázs and Phil Casoar, in ***Europe-Asia Studies***, Dec. 2006.

American photographer Russ Melcher had a symbolic image of the Hungarian Revolution in his mind as he roamed the streets of Budapest on the morning of October 30, 1956. He wanted to portray the "youth and spirit of freedom" that had led Hungarian students and workers to rise up against their Soviet overlords. Sometimes armed only with kitchen implements and gasoline, the rebels had won remarkable victories in a week of fighting across the country, and the Soviets seemed hesitant, even willing to negotiate.

Spotting Jutka, with a wound on her face, and Gyuri, carrying a machine gun too large for him, Melcher was captivated by their half-bohemian, half-proletarian look and their shabby clothes. A passerby, never identified, refused to get out of the frame, and moved toward the photographer carrying a pistol.

Melcher's photograph, "Heroes of Budapest," became emblematic of the revolution, which was effectively crushed by Soviet tanks only a week later, with the loss of thousands of lives. It became a powerful symbol in both the West and the East, write Eszter Balázs, a Ph.D. candidate at the Ecole des Hautes Etudes en Sciences Sociales in Paris, and Phil Casoar, a Paris journalist. In the West, it symbolized the idealism of a dedicated young couple determined to free their native Hungary. In the East, it was evidence that counterrevolutionaries—such as the menacing man with the pistol—had recruited children to overthrow the legitimate government.

A week after Hungarian rebels launched their 1956 uprising against the Soviets, an American photographer took this photo of two young partisans and a pistol-toting passerby that became the iconic image of the Hungarian Revolution. It was used for opposite propaganda purposes in the East and West.

In the tradition of war photojournalism, the picture's genesis was a haphazard affair. It was shot by a photographer who had set out to record another event in another country, but slipped into Hungary when the Czech border was closed. It was falsely credited to a *Paris-Match* photographer, Jean-Pierre Pedrazzini, who was fatally wounded the afternoon the picture was taken. Melcher allowed *Paris-Match* to attribute the photo to the late Pedrazzini in "homage" and to increase circulation of the image. "If a photographer has been killed in action and this is one of his last pictures, every paper wants to publish it," Melcher explained to Casoar in an interview. It was posed, not spontaneous, but the pistol-toting passerby who wouldn't step out of the way added a sinister twist that became its salient element in the Eastern bloc. The picture appeared inside an edition of *Paris-Match* that featured Israeli general Moshe Dayan on the cover, but it is the image from Hungary that has become famous.

Captions and text framed the propaganda battle over the photograph's meaning. *Paris-Match* identified the youths as heroes: "In the eyes of this couple, our reporters on the street saw the soul of the uprising. He took his gun from an army depot. She, wounded, turned her school bag into a first-aid kit. Behind them, a passerby with a pistol." In separate commentary, the magazine lauded Hungary as a "noble and Christian nation [that] has never given its support to totalitarianism and barbarism." In America, *Time* magazine used the *Paris-Match* picture as partial inspiration for its composite Hungarian freedom fighter "Man of the Year."

Soon after, in Budapest, the picture was reproduced in exhibitions, a film, and in popular books to show how "counterrevolutionary elements put children forward to hide their black intentions," according to a caption for an exhibition, Counterrevolution of 1956, that opened in June 1957. Pictures "show well who was behind the children," the caption con-

tinued, referring to the man with the pistol. Communist-bloc reproductions of the picture looked overexposed, dark, or awkwardly retouched with a brush to make the couple look repulsive and frightening, according to Balázs and Casoar. Hungarian books put the pictures in Soviet historical context, describing how imperialist and fascist opponents of the Russian-backed government had been plotting since 1948, waiting for the right moment when Hungary would become the "battlefield of the international class fight." Photos of young fighters taken during the rebellion were used as conclusive proof of treason during later trials, and one young woman was hanged. Gyuri's fate is unknown, but Jutka was listed in Hungarian records as a "prohibited person" until 1989. She died a year later, in exile in Australia.

PRESS & MEDIA

The Dodgy Sex Dossier

THE SOURCE: "The 'Dodgy Dossier': The Academic Implications of the British Government's Plagiarism Incident" by Ibrahim Al-Marashi, in ***Middle East Studies Association Bulletin***, June 2006.

FOUR YEARS AGO, TO BOLSTER support for an invasion of Iraq, British prime minister Tony Blair released a dossier titled "Iraq—Its Infrastructure of Concealment, Deception, and Intimidation." Nineteen paragraphs had been copied almost verbatim from the work of an Iraqi-American Ph.D. candidate at Oxford University. And that was only the beginning.

Ibrahim Al-Marashi's thesis was based on 300,000 declassified Iraqi state documents abandoned in Kuwait when the American–led international forces launched the first gulf war in 1991. In 2003, when the dossier was being written by Blair's "spin doctor," Alistair Campbell, Al-Marashi was on leave from pursuit of his doctorate to work at the Center for Nonproliferation Studies in Monterey, California. Four days after the dossier was slipped to journalists in the final buildup to the war, the doctoral candidate got an e-mail from a British academic: Had he collaborated with the government on the dossier? Al-Marashi hadn't heard of it, but when he placed it side by side with an article he had adapted from the second chapter of his thesis, he found long sections of his own words in the 19-page document. It wasn't just outrage that he felt. As a young scholar hoping to teach in the Middle East, he feared that the use of his research to justify a war against his native Iraq would blackball him forever. But while the British government's plagiarism caused considerable concern, to say the least, writes Al-Marashi, "I found the media's coverage of the incident even more disturbing."

In the press frenzy surrounding the incident, the Blair government's plagiarism of two other authors was largely forgotten. "It was far more incompetent to plagiarize a California 'student' than a published author," Al-Marashi explains. The media played the story as if he were "an undergraduate in shorts and sandals whose 'homework assignment' was copied by the British government."

Alexander Cockburn, in an article for *The Nation*, accused Al-Marashi of writing a "politically inspired document" for an "Israeli think tank hot for war." Within a week, *The Guardian* had promoted him to postdoctoral status. *The Washington Post* wrote that the plagiarized material was 12 years old, though it later issued a retraction. The London *Observer* relayed "mutterings" that the French could not be expected to back a war on Iraq justified only by a "failed doctoral thesis."

Even worse, Al-Marashi had written that one of the responsibilities of the Iraqi intelligence service was "aiding opposition groups in hostile regimes." That was juiced up in the dossier into an assertion that the Iraqi intelligence services were "supporting terrorist organizations in hostile regimes." Al-Marashi's work had opened the door to the charge that Saddam Hussein supported Al Qaeda.

The Al-Marashi dossier was not the only one produced by "spin doctor" Campbell. In an earlier document, he had claimed that Iraq could deploy chemical munitions in 45 minutes, inserting the short time frame into the separate study in order to "sex up" the document, Al-Marashi writes. This became known as the "sexed-up dossier," while the "Al-Marashi" paper was called the "dodgy dossier." Many people lost the distinction, and Al-Marashi repeatedly had to decline responsibility for the "dodgy sex dossier." Then he was enshrined for posterity as a grammatical lout when a misplaced comma in his original thesis was reprinted in a best-selling

punctuation book, *Eats, Shoots and Leaves*.

Saddam Hussein, in the end, did not—as Al-Marashi had feared—retaliate against his relatives remaining in Iraq, although his family has since fled the country following a kidnapping attempt. Al-Marashi got his Ph.D. on schedule in 2004, and he is now an international policy fellow at Central European University's Center for Policy Studies. He is often asked why he didn't sue the British government. He responds: "The ramifications of two governments making an argument to invade a sovereign nation based on evidence that was essentially taken from a journal article, in my opinion, makes the thought of money meaningless."

POLITICS & GOVERNMENT

Conservatism Marches On

THE SOURCE: "Is Conservatism Finished?" by Wilfred M. McClay, in ***Commentary***, Jan. 2007.

The Republican losses in the 2006 midterm elections are just the latest news to have set many conservative pundits to sounding the death knell for their movement. The title of one of the many recent books in this vein labels the lead culprit: *Conservatives Betrayed: How George W. Bush and Other Big Government Republicans Hijacked the Conservative Cause*, by Richard Viguerie. According to Viguerie, Bush may have "talked like a conservative to win our votes, but never governed like a conservative." Bush's foreign- and domestic-policy stumbles, most notably the war in Iraq, have sabotaged "the idyllic spirit of unity at home and cooperation abroad that allegedly prevailed during the Cold War years under [Ronald] Reagan," writes Wilfred M. McClay, a history professor at the University of Tennessee, Chattanooga. But does all this mean that the conservative movement is really finished?

McClay believes that the "modest" election victory for the Democrats, which yielded only a narrow majority in both houses of Congress, does not "justify the claim that *conservatism* lost." He points to the easy triumph of independent senator Joseph Lieberman of Connecticut "over his more liberal antiwar challenger" and the victories of "such relatively conservative Democrats as James Webb in Virginia and Robert Casey Jr. in Pennsylvania" as signs that no major ideological shift is underway. Indeed, McClay says, "the American electorate has . . . moved slowly but steadily in a conservative direction since 1968."

McClay also questions the validity of the conservatives' charges against Bush, each of which "rests on some a priori definition of what conservatism is and what it is not." Jeffrey Hart, for instance, author of *The Making of the American Conservative Mind* (2006), speaks of conservatism "as a realistic and non-ideological approach to governance," and chides Bush for overstepping his authority. But McClay cites many instances when leaders took actions "that involved the transgression of a 'conservative' principle for the sake of broadly conservative ends," such as Abraham Lincoln's suspension of basic civil liberties during the Civil War. Nor is Bush's "insistence on the universal appeal of free institutions out of line" with conservatism of the past. His justifications for his Iraq policy echo Reagan, who once said, "It would be cultural condescension, or worse, to say that any people prefer dictatorship to democracy."

To some conservatives, Bush's evangelical Protestantism—"the source of his involvement of the federal government in promoting educational reform, his faith-based initiative, his African AIDS initiative"—"reeks equally of do-goodism and unlimited government." McClay points to the words of one of conservatism's founding voices, Russell Kirk, who said, "There exists a transcendent moral order, to which we ought to try to conform the ways of society." Even Reagan, McClay reminds his fellow conservatives, frequently quoted Scripture, and favored making inauguration day "a day of prayer."

It's "ridiculous," McClay adds, for conservatives to recall the Reagan

years as a time of comity. Viguerie himself charged in 1987 that Reagan had "changed sides" and was allied with liberals and the Soviets.

McClay believes that the current attention focused on conservatism's "demise" is the best evidence that it is, "intellectually speaking, where the principal action remains." The Democratic Party has so far found "clarity only in discrediting George W. Bush and regaining office." But he cautions that "conservatism in American politics is less an ideology than a coalition." As in any coalition, "not all of the pieces fit together coherently." Conservatives would do well, McClay concludes, to "remember Ronald Reagan as a leader who not only embodied the distinctive characteristics of American conservatism but who finessed its antinomies and persevered against the contempt and condescension of his own era." A more realistic view of the past, in other words, may help conservatives "regain their bearings and prevail."

POLITICS & GOVERNMENT

Why Political Science Doesn't Matter

THE SOURCE: "Wilson's Failure: Roots of Contention About the Meaning of a Science of Politics" by Peter N. Ubertaccio and Brian J. Cook, in ***The American Political Science Review***, Nov. 2006.

At least 10 candidates are campaigning for president in the 2008 election, staffed up with pollsters, consultants, managers, and communications specialists. Where are the political scientists? For the most part, they're writing papers with titles such as "Enhancing the Validity and Cross-Cultural Comparability of Measurement in Survey Research." Or "Bargaining in Legislatures Over Particularistic and Collective Goods." In other words, they're far from the real world of politics.

Modern political science is heavy on exotic statistical analysis and narrow specialization, short on practical insights into democratic governance. These are tendencies that Woodrow Wilson squared off against in 1903 when he founded the American Political Science Association, before he went on to become governor of New Jersey and president of the United States, and which others in the discipline continue to resist, with little success.

Wilson was wary of theory that was not grounded in experience, and believed that "a purely academic orientation, with its embrace of logic and reason, was inadequate as an approach" to the study of the political world, where passions and other forces reign, write Peter N. Ubertaccio and Brian J. Cook, political scientists at Stonehill College and Clark University, located, respectively, in Easton and Worcester, Massachusetts. "Shakespearian range and vision" are needed to understand politics, along with street-level experience of politics, Wilson declared. Modern government requires better leadership, and it should be the mission of political science to develop statesmen and help democracy solve its problems.

Yet political scientists were moving away from Wilson's principles almost as soon as he enunciated them. In part, this was a response to the centralization of political power in Washington that increased during Wilson's own presidency and escalated dramatically under President Franklin D. Roosevelt. With one big power center, the fundamental dilemma of political scientists became acute: How could they counsel political leaders while retaining their scholarly detachment and their ability to speak truth to power? So they retreated from the path Wilson favored.

Today, there are now two main branches of political science. A warts-and-all group examines the behavior of public officials and government institutions down to the minutest detail—for example, why do members of Congress vote the way they do?—but has little to say about how their discoveries might guide either political leaders or citizens. Theory-minded political scientists work with the kind of a priori assumptions Wilson detested, busily constructing sophisticated statistical tests of their hypotheses—"with the results rarely contradicting the theory," the authors remark. Such prescriptions as they offer carry little weight. Both groups have thrown out history, literature, and law as sources of political understanding in favor of the scientific model and methodologies borrowed from economics.

Yet there are dissidents in the discipline's ranks, most prominently Theodore Lowi of Cornell University, a former president of the American Political Science Association. "Political science is a harder science than the so-called

hard sciences because we confront an unnatural universe that requires judgment and evaluation," he told his colleagues in 1992. "The modern state has made us a dismal science, and we have made it worse by the scientific practice of removing ourselves two or three levels away from sensory experience." Lowi calls for a return to Wilsonian principles and to greater engagement with the real world of politics, but his is at least as lonely a voice as Wilson's was in 1903.

ECONOMICS, LABOR & BUSINESS

300,000 Miles and Proud of It

THE SOURCE: "Extreme Jobs: The Dangerous Allure of the 70-Hour Workweek" by Sylvia Ann Hewlett and Carolyn Buck Luce, in ***Harvard Business Review***, Dec. 2006.

THE WORLD OF WORK DOESN'T just appear to be more time consuming and demanding than it did only five years ago. It is. At the top of the nation's job hierarchy, the "extreme job" is becoming ever more so. Nearly half of people with extreme jobs say they are working an average of 17 more hours per week than they did as recently as 2001, write Sylvia Ann Hewlett, president of the Center for Work-Life Policy, a New York nonprofit, and Carolyn Buck Luce, chair of the Hidden Brain Drain Task Force.

Extreme jobs are those that are highly paid—salaries are in the top six percent of all wage earners—and require more than 60 hours of work a week. Tending toward unpredictability, they often require 24/7 availability and extensive travel. About 21 percent of the nation's most highly paid professionals describe their positions as extreme, according to a 2006 survey by the Center for Work-Life Policy. Workers with extreme jobs are frequently expected to handle mentoring and recruiting, to attend after-hours events, and to juggle an inordinate scope of responsibility that amounts to more than one position. Think of the creative director of a large entertainment company, juggling new technologies, new products, and new markets on new continents.

"I just want to go home, crawl into bed, and do some more work."

The rise in the demands of top professional jobs grows out of "sweeping changes in the global economic environment," the authors write. Mergers and flattened hierarchies have shrunk the pool of such positions in some areas—more than three percent of all corporate officer positions in the *Fortune* 500 have disappeared within the past 10 years—even as new female and minority candidates contend for the remaining slots. As competitive pressures throughout the economy make extreme jobs seem more necessary, other changes in society are making them more attractive. As in the world of extreme sports, where the winners perform the most daring, demanding, and gratuitous feats, so professionals wear their over-the-top work commitments on their sleeves, bragging about flying 300,000 miles a year.

Technology facilitates extreme work. Cell phones, PDAs, and the Web make staying in constant touch possible, hence mandatory. As more hours are spent at the office, households and families are starved of time, and they become progressively less appealing. Home becomes the source of stress and guilt, while work becomes the place where successful professionals go to get strokes, admiration, and respect, the authors say.

Even so, "long workweeks cannot

simply be chalked up to the crushing effects of a heartless and unchecked capitalist system." Many extreme professionals find their work enormously alluring. Their intensity and investment may serve companies well in the short run but will pose risks over time. Employees can burn out, undermine their health, and weaken family ties.

The extreme work model threatens to cull real talent, particularly female talent, that otherwise could have reached the top. Women don't shirk the responsibility of extreme work, but the majority—especially women who are mothers—are simply not matching the hours logged by their male colleagues, the authors write. Companies seeking more gender diversity—and perhaps greater lifestyle balance—in their upper ranks should look carefully at the work behavior they are rewarding. Their pool of top talent will shrink dramatically if jobs go from being exhilarating to merely exhausting.

ECONOMICS, LABOR & BUEINESS

No Rest for the Wicked

THE SOURCE: "A Century of Work and Leisure" by Valerie A. Ramey and Neville Francis, as summarized in ***The NBER Digest***, Feb. 2007.

The British economist John Maynard Keynes predicted in 1930 that the central problem of humanity in the future would be how to spend its copious leisure time in a meaningful way. He saw productivity increasing so dramatically that companies would have to dole out work sparingly to have enough to go around. Although Keynes was correct about productivity and, to some extent, the shrinkage of the workweek, he was out to lunch on leisure.

> True leisure time available to Americans remains almost the same as it was in 1900.

Studies show that Americans work hundreds of hours less per year than they did a century ago, potentially opening up vast new opportunities for leisure activities. But measurements of work and leisure depend on who and what is counted. Unlike earlier researchers, Valerie A. Ramey and Neville Francis, of the University of California, San Diego, and the University of North Carolina, Chapel Hill, respectively, include everybody, young and old, in their study of leisure time, because the definition of "working age" has changed so much over the past 100 years. And they define leisure differently as well, toting up only activities that people enjoy performing, not taking the car to be inspected or sending off payments to the utility company.

True leisure time available to Americans, they write, remains almost the same per capita as it was in 1900. The number of paid on-the-job hours has declined, to be sure. What has expanded most is the amount of time spent in education. High school is now required, and more than half of high school graduates enroll in college. The authors conclude that about 70 percent of the decline in hours worked has been offset by an increase in hours spent in school (which are counted as work).

Moreover, despite the proliferation of labor-saving appliances, to say nothing of the relatively recent arrival of takeout food, "home production" work—tasks such as cooking, cleaning, grocery shopping, commuting, and yard work—grew over the century. It increased partly because standards rose. In 1913, a home economist observed that "if one is poor it follows as a matter of course that one is dirty." As America got wealthier, expectations of cleanliness went up, and laundry, dishwashing, and housecleaning took more time. As breadwinners got better jobs, families bought more food and acquired fancier tastes, which required more and higher-quality cooking. As families had fewer children, more time and effort had to be put into the nurture of each one.

The researchers extracted their definition of leisure from a survey rating enjoyment of various activities. The activities with the highest scores were counted as leisure, and among them were sex, sports, playing with the kids, movies, and sleep. The losers on the enjoyment scale were counted as home production work—commuting, babysitting, home repair, gardening, and laundry.

The authors acknowledge a "degree of imprecision" in their estimates, but they believe that, overall, they have accurately captured the direction of change in true leisure time between 1900 and 2000: It went nowhere.

SOCIETY

Teachers' Unions Save the Day

THE SOURCE: "Why Teacher Unions Are Good for Teachers and the Public" by Diane Ravitch, in ***American Educator***, Winter 2006–07.

School administrators are increasingly being required to function like corporate CEOs in a brutally competitive industry. Principals compete against one another for students and staff. Schools are taken over by mayors or governors, or threatened with permanent closure.

Educational systems, just like cities, states, and businesses in a free country, need checks and balances, writes Diane Ravitch, a former assistant secretary of education in the administration of George H. W. Bush. Though often maligned, teachers' unions are a key source of such countervailing power. Not only are they needed to protect teacher rights, but to sound the alarm against unwise policies and to advocate sound teaching methods, especially when administrators are noneducators.

"There's a common view among corporate-style reformers today that the way to fix low-performing schools is to install an autocratic principal who rules with an iron fist," Ravitch writes. Many new principals have been trained in quickie programs to think like corporate CEOs. Some have no classroom experience and lack the background to make wise decisions about curriculum or to evaluate teachers.

In New York City, she writes, the mayor—Michael Bloomberg, a businessman—took over the schools in 2002 and appointed Joel I. Klein—a lawyer—as chancellor. They selected a new curriculum in reading and math, insisted that all teachers adopt the "workshop model" of teaching, and micromanaged teachers' compliance with tight, sometimes daily supervision. The jury is out on the overall results.

But teachers were affected immediately. They found themselves in trouble if they did not teach exactly as dictated, if they did not follow the format of minilessons, if their bulletin boards did not meet detailed specifications, or if their classroom furniture was not aligned precisely according to regulation, says Ravitch, now a professor of education at New York University.

Particularly in the current climate of school reform, unions provide an important means of protecting teachers against arbitrary and unwise decisions made by inexperienced principals, Ravitch writes. They need support in standing up to supervisors who insist that they teach in ways they believe are wrong. They should be glad they have a union that can represent them in cases of "oppressive supervision" over picayune issues.

The ABCs of good education are the same everywhere: a rigorous curriculum, effective instruction, adequate resources, willing students, and a cultural climate in which education is respected. Education works only in a collaborative atmosphere, with teachers, administrators, and elected officials all working toward the same goals, Ravitch writes. Unions are "important, vital, and needed so long as they speak on behalf of the rights and dignity of teachers and the essentials of good education."

SOCIETY

Death by City Life

THE SOURCE: "Cities and Their Consequences" by William H. McNeill, in ***The American Interest***, March–April 2007.

Greater Mexico City, with a population of 11 million in 1975, now has 18 million people; São Paulo, Brazil, has ballooned from 9.6 to 17 million; Mumbai, India, has more than doubled, from 7 to 16 million. If University of Chicago historian William H. McNeill were painting a picture of today's world, it would feature a giant wave cresting as it rushes against the shore. The image, he writes, represents a new and largely overlooked demographic phenomenon: More than half of the world's population now lives in cities.

For more than five millennia, most people lived in villages and small cities that were "very hospitable to human reproduction." Through war and famine, villagers produced enough children to work

their fields, and could also send a surplus of young people to the city or, more rarely, frontier lands. Children were needed. They helped perform simple chores from their earliest years, and later they took care of the elderly and sick. But when families migrated to the cities, there was no work for children, and somebody needed to watch them. Over the centuries, cities have been "demographic sinkholes," McNeill says. In premodern times, urban immigrants found marginal jobs, and many soon died of infectious diseases, leaving few or no heirs. But even as sanitation and living conditions improved, the "sinkhole" description remained apt. Urban life makes child rearing costly and difficult, and the availability of birth control makes it a matter of choice.

Since 1920, McNeill writes, "most Americans of European descent have been urbanized, and, like everyone else in that circumstance, they are not reproducing themselves." The great cities of Europe, Canada, Russia, Japan, and China, as well as urban pockets in Latin America and Africa, are similarly affected. Where urban population growth has flagged, cities have sustained themselves by attracting immigrants, many from different cultural and religious backgrounds.

The settlement of more than half of the world's population in cities threatens to increase disorder.

The settlement of more than half of humankind in cities not only results in a likely population decline, it also threatens to increase world disorder. In European cities and elsewhere, many recent immigrants have failed to be integrated into their new homes. They live in separate neighborhoods, poor and second class, and find themselves unable to grasp even the lowest rungs of the economic ladder. The tensions of cheek-by-jowl inequality provide fertile ground for extremism, both religious and secular. Although man is infinitely adaptable, McNeill writes, the big sociological question is whether man will "learn in time to make cities truly thrive."

SOCIETY

Beyond the Black Caucus

THE SOURCE: "The New Black Realism" by Kay S. Hymowitz, in ***City Journal***, Winter 2007.

Earlier this year, opinion columnists were arguing over whether Barack Obama was "black enough" to win the African-American vote in the Democratic primaries for president. Had his white mother, his failure to grow up in the inner city, and his shortage of civil rights credentials disqualified him? Was his speech at the 2004 Democratic convention—"There's not a black America and white America. . . . There's the United States of America"—a naive effort to curry favor with whites? Then came the polls: Black respondents were moving out of the Hillary Clinton column and into the Obama camp in significant numbers. While it's far too early to venture that Obama might transcend race in his campaign, it is timely to note that black

EXCERPT

The End of the Future

We stopped talking about the Future around the time that, with its microchips and its 24-hour news cycles, it arrived. Some days when you pick up the newspaper it seems to have been cowritten by J. G. Ballard, Isaac Asimov, and Philip K. Dick. Human sexual reproduction without male genetic material, digital viruses, identity theft, robot firefighters and minesweepers, weather control, pharmaceutical mood engineering, rapid species extinction, U.S. presidents controlled by little boxes mounted between their shoulder blades, air-conditioned empires in the Arabian desert, transnational corporatocracy, reality television—some days it feels as if the imagined future of the mid-20th century was a kind of checklist, one from which we have been too busy ticking off items to bother with extending it.

—MICHAEL CHABON, author of *The Amazing Adventures of Kavalier & Clay*, in ***Details***, Jan. 2006

politics are undergoing radical change. "There's a tidal shift away from the black grievance and identity politics of yesterday," writes Kay S. Hymowitz, a contributing editor to *City Journal*. "Blacks are talking a more positive American language of self-empowerment and middle-class virtue and marking a significant turning point in America's ongoing race story."

Black Americans are cheering comedian Bill Cosby for his shape-up-and-stop-whining message. Pragmatist Cory Booker has become mayor of Newark—and is exploring charter schools. National Public Radio's Juan Williams has published "*Enough: The Phony Leaders, Dead-End Movements, and Culture of Failure That Are Undermining Black America—and What We Can Do About It.*"

For more than a half-century, the narrative of race in America has come from a civil rights script. Good versus evil. Black versus white. Bull Connor versus Martin Luther King Jr. But for a younger generation of blacks, the "I-Marched-With-Martin" school doesn't cut it, Hymowitz says. This generation of well-educated, solidly middle-class blacks is still occasionally annoyed, even stung, by racism, but doesn't see it as the cause of every domestic problem.

To be sure, black/white inequality remains a national blight. Black unemployment is twice that of whites. Forty-four percent of the prison population is black, and 70 percent of black babies are born to single mothers.

Nonetheless, the old presumption that oppression is at the root of every evil rings hollow to many within the new generation. In 1960, only 45 percent of blacks lived above the poverty line. Now, 75 percent do. About 40 percent of blacks have now fled the cities—just as whites did before them—and live in the suburbs. Some 46 percent of black families own their own homes. And black millionaires are no longer mostly entertainers or sports figures. Today, the top-grossing black-owned business in America is World Wide Technology, a Missouri-based information technology company whose clients include Dell, Boeing, and DaimlerChrysler.

The old lions of the civil rights movement still roar, and Charles Rangel and John Conyers, will have more powerful megaphones than ever as chairmen of the House Ways and Means and Judiciary committees. Jesse Jackson continues to command a following when he seizes on actor Michael Richard's bizarre racist breakdown and demands to meet with entertainment executives. But a "surging, confident, and varied black middle class," Hymowitz writes, is no longer content with outdated, self-limiting, race-based political leadership.

RELIGION & PHILOSOPHY

The Other Christian South

THE SOURCE: "Believing in the Global South" by Philip Jenkins, in ***First Things***, Dec. 2006.

When Jesus promised that his church would last until the end of time, he didn't suggest that it might not move. The southward shift of the Christianity's center of gravity has been recognized for some time, but how long it has been predicted, and to what effect, is surprising.

St. Vincent de Paul, writing about 1640, in the midst of the Thirty Years' War, said that the church of the future would be the church of South America, Africa, China, and Japan. Today, despite some foot-dragging in Japan and China, St. Vincent's prediction is coming to pass, writes Philip Jenkins, a historian at Pennsylvania State University.

In 2005, the last year for which figures are available, Europe was still the leading Christian continent, with 531 million believers, followed by Latin America, with 511 million, Africa, with 389 million, Asia, with 344 million, and North America, with 226 million. By 2025, a date less distant than the span of Pope John Paul II's reign, the largest groups of the

world's 2.6 billion Christians will be living in Latin America, with 623 million, and Africa, with 595 million. By 2050, Christianity will be primarily the religion of Africa and the African diaspora, Jenkins says.

For the foreseeable future, the "Southern" church will include millions of the poorest residents of the planet. "Northern" Christians have expected these new believers to be liberal, activist, or even revolutionary. But while many of the new converts do espouse liberation, Jenkins writes, they combine it with a concern with deliverance from supernatural evil, which can be manifested in sickness, wickedness, and compulsiveness. Although some European and American Christians accept theories of the diabolic and demonic, most reject them as irredeemably pre-scientific. But in the dominant churches of the future, prophecy will likely be an everyday reality, while faith healing, exorcism, and dream visions will all be fundamental parts of Christian religious sensibility. The new church will also likely be more conservative morally and sexually than the Main Street churches of the North.

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Many wonder if this form of "Southern" Christianity is Christianity at all, or a remnant of an older "animism" in which healing, visions, and prophecy are paramount. Jenkins suggests a different interpretation: African and Asian Christianity will be rooted in the Bible, particularly the stories of the Old Testament, with its tales of famine and pestilence, sacrificial lambs, and kinship responsibilities. "For better or worse," Jenkins concludes, "the dominant churches of the future could have much in common with those of medieval or early modern European times."

HISTORY

Giraffes in a Coal Mine

THE SOURCE: "Audience for a Giraffe: European Expansionism and the Quest for the Exotic" by Erik Ringmar, in ***Journal of World History***, Dec. 2006.

In the 15th century, when Europeans were creeping down the west coast of Africa in tiny ships in search of spices and gold, China's great eunuch admiral Zheng He had already visited Africa's east coast in ships five times as large. Before Columbus set out with 88 sailors on the voyage in which he would discover America, Zheng led nearly 28,000 men to trade with even more distant Mogadishu. Yet it was Europe, not China, that found and colonized the New World. Historians have always attributed expansionism to an insatiable hunger for wealth, but the economic argument doesn't explain why the motivation was concentrated in the West. Erik Ringmar, a professor at Taiwan's National Chiao Tung University, finds a complementary explanation in an unlikely source: tales of pioneering giraffes.

Three rulers of dissimilar societies, republican Florence, imperial China, and Restoration France, were enthusiastic practitioners during the last millennium of the aristocratic hobby of rare animal collection. No species was more coveted than the tall, regal, and nearly silent giraffe.

The sultan of Egypt, seeking to ingratiate himself with the city of Florence's first family, shrewdly gave Lorenzo de Medici a giraffe in 1486. It wandered along the city streets, raising its head to acknowledge admirers on buildings' second floors. It inspired poets and appeared in numerous versions of the *The Gifts of the Magi*—paintings of Oriental kings offering presents to the baby Jesus.

Crowds followed Lorenzo's giraffe, which was considered the very epitome of the exotic. They found it marvelous, and once they had seen such a creature, they wanted more. It was almost addictive, Ringmar writes. It was in keeping with this spirit of the city that within a dozen years of the giraffe's acquisition by Lorenzo, the Florentine explorer Amerigo Vespucci set off to explore the two continents that would bear his name.

Nearly 350 years later, a new French king, Charles X, received his own giraffe from an Egyptian tomb robber and antiques dealer who was also seeking to gain influence. Charles X's situation was quite different from Lorenzo's. Charles was insecure, intent on restoring France's absolute monarchy after the 1789 Revolution and Napoleon's wars. The giraffe, promptly classified by French scientists as a *Giraffa camelopardis,* appeared to be a sophisticated and aristocratic figure, the ideal ornament for a royal zoological park.

Giraffa arrived in Marseille in 1827, was outfitted with a blanket of golden fleurs-de-lis, and marched the 500-odd miles to Paris. Initially, just as in Florence, *Giraffa* mania set in, with a new commercial twist. Bakers sold giraffe cookies, and giraffe spots appeared on wallpaper, crockery, soap and furniture. But the fad quickly passed. *Giraffa camelopardis* was a curious toy, the kind of strange beast that provided entertainment to the members of the lower classes or "lesser races." The ability of the scientists to place the giraffe taxonomically was just another example, to the French, of their superiority to other cultures and peoples, and it was this sense of superiority that helped propel them to occupy Algeria three years later and to embark on other imperial ventures.

Ambassadors deferentially present gifts to Lorenzo the Magnificant while his prized giraffe towers majestically in this 1453 ceiling fresco by GiorgioVasari (1511–1574) in the Palazzo Vecchio in Florence.

The Son of Heaven, Chinese emperor Yongle, acquired his giraffe secondhand. Admiral Zheng He accepted the creature as a gift to the emperor from the king of Bengal in 1414. Yongle's giraffe, called a *girin* in its native Kenya, caused a stir among the Beijing populace when it arrived, but it didn't faze his imperial staff. Chinese scholars, serving an empire around which they assumed all other nations circled in envious obscurity, were rarely unprepared. They determined that the *girin* must be a unicorn, or *qilin*, which was well documented in their encyclopedias as a mythological creature that had a horn, the body of a deer, the tail of an ox, and the hooves of a horse. It was a benevolent omen. The emperor called it a reward for the abundant virtue of his father, and a sign that it behooved him, even more than in the past, to cling to virtue. And virtue was a Chinese quality, not to be found among foreigners.

Although Zheng He was bringing back exotic wonders and establishing diplomatic relations with distant lands, his voyages were controversial within the Chinese court. In the end, writes Ringmar, the inward-looking Confucian literati prevailed. Despite the excitement caused by the giraffe and the obvious benefits the Chinese derived

from international trade, 19 years after the *girin*'s arrival an imperial decree was issued limiting foreign trade and travel. As a Confucian official wrote, Zheng's expeditions "wasted tens of myriads of money and grain, and moreover the people who met their deaths on these expeditions may be counted by the myriads. Although he returned with wonderful precious things, what benefit was it to the state?" Five centuries would pass before China began to emerge from its insularity.

The giraffe can be seen as a tall version of the canary in a coal mine: It was an early signal of change whose arrival provided an acute reading of the nation's outlook. The Chinese operated by allegory—the giraffe was a unicorn, which was a sign of heavenly favor, which could be sustained by uninterrupted allegiance to insular Confucian virtues. The Florentines used analogy: A prince who could produce awe-inspiring exotica would himself inspire awe, thus propelling the city into an ever-widening search for the novel and alluring. The French made sense of the world by scientific rationality and classification. French scientific superiority allowed them to classify every known creature and thing, which was beyond the power of the inferior societies they were born to rule.

SCIENCE & TECHNOLOGY

Athens on the Amazon

THE SOURCE: "Virginity Lost" by Fred Pearce, in ***Conservation***, Jan.–March 2007.

Few environmental causes have attracted more passionate support than efforts to save the vast Amazon rainforest from development and deforestation. New research, however, suggests that the image of a primeval virgin Amazon is a modern myth. "Rather than wilderness," writes Fred Pearce, a British freelance writer and the author of *Deep Jungle* (2005), the Amazon's tropical rainforests are partly natural and partly "abandoned gardens."

In all probability, Pearce writes, "the Amazon was dotted with urban centers and crisscrossed with networks of causeways and irrigation canals at the same time [that] the Greek empire flourished in Europe."

The evidence for an urban and suburban Amazon basin began to pile up in the 1980s, when an American oil prospector exploring the grassy lowlands of the Bolivian Amazon in a truck wondered why he was bouncing over corrugated terrain. Clark Erickson of the University of Pennsylvania subsequently found tens of thousands of kilometers of raised banks across the Bolivian Amazon that he believes were dug by humans. A horizontal equivalent of the vertical terraces of the ancient Near East, the corrugated ridges nourished plants and the depressions held water for irrigation. Erickson also discovered a 500-kilometer-square area of ponds and weirs used for fish farming. Archaeologist Anna Roosevelt of the Field Museum of Natural History in Chicago uncovered evidence in Ilha do Marajó, at the mouth of the Amazon, of thousand-year-old roads, drainage networks, and small cities of as many as 100,000 people. Further inland, Michael Heckenberger of the University of Florida, Gainesville, discovered that the floor of one of the deepest, darkest areas of continuous tropical rainforest has not always been forest floor. Most of the supposedly virgin forest was cleared at least once, and perhaps several times, by the Xinguano people for farming—a millennium ago.

The early conquistadors found urban societies when they first floated down the Amazon, but the local civilizations seem to have collapsed shortly after the first contact with Europeans, perhaps destroyed by disease. Francisco de Orellana described a town at the entrance to the Rio Negro in 1542 "that stretched for 15 miles without any space from house to house." But knowledge of these cultures seems to have faded as survivors fled into the forests, and farmers, metalworkers, priests, and scholars became hunters and gatherers.

"The strange truth is that, by inadvertently wiping out the Indian populations, it was the Europeans who created the modern Amazon rainforest," Pearce writes.

SCIENCE & TECHNOLOGY

"Typeprinting" America

THE SOURCE: "Digital Fingerprints" by Julie J. Rehmeyer, in ***Science News***, Jan. 13, 2007.

New "writeprint" technologies can identify messages from terrorists, sexual predators, and digital pirates.

Illicit online activity—from hacking to sexual predation to communication between terrorist cells—requires anonymity. But that same cloak of privacy enables free speech on the Internet and helps protect the identity of whistleblowers. Now researchers are beginning to uncover new ways to identify individuals online, using such unique markers as typing rhythms, punctuation patterns, and Web-surfing habits. While such techniques can increase online security and help law enforcement agencies combat fraudulent activity, they also unlock troubling surveillance possibilities that are raising concerns among civil libertarians.

The ability to identify people through the timing of their keystrokes grew out of a 1980 study by Rand Corporation researchers, according to Julie Rehmeyer, a former *Science News* intern. In the study, seven trained typists keyed in three separate passages, then repeated the task four months later. Without fail, analyzing only "the grids of data showing average pauses between pairs of letters," says Rehmeyer, researchers were able to correctly match all seven typists with their keystroke profiles. Rehmeyer likens the process to the way British intelligence officers eavesdropped on German radio operators during World War II. Although unable to decipher the coded messages being sent, the British soon learned to recognize operators' "fists"—signature styles of signal tapping—and were able to track the movements of their military units by triangulating the identified signals.

Online security companies are now developing software tools that utilize "typeprint-security" technology. California-based iMagic Software, for instance, markets a program that asks users to key in their passwords several times; thereafter, reports Rehmeyer, the program "permits access only if the keystroke timing is sufficiently similar to its initial data." The technology is much cheaper than sophisticated alternative means of identification such as retinal scanning and other forms of biometrics.

Other researchers are developing ways to track malefactors across chatrooms, blogs, and e-mail. Using the same techniques scholars employ to establish authorship of a manuscript—word preference, punctuation, and style—investigators can now identify a person's unique "writeprint" even if he or she adopts an online alias. The technology has been used to identify messages from terrorists, sexual predators, digital pirates, and others.

Mouse clicking provides other means to tag online users. On the security side, new programs can map signatures or doodles "drawn" with the mouse; a procedure that pairs such "clickprints" with a password "rejected more than 95 percent of participants who were acting as intruders, while accepting the legitimate users more than 99 percent of the time," Rehmeyer says. But researchers are also looking at ways of deciphering "clickstream data—what a user clicks on and when—to verify website visitors' claimed identities and to prevent fraud online."

In addition to the privacy concerns raised by such forms of data collection, Rehmeyer points to other "Orwellian possibilities," such as the potential for governments to "probe political forums or to create a profile of people." Indeed, while some may welcome the increased security these new technologies provide to company networks or online transactions, and the added tools they give to efforts to nab wrongdoers online, Rehmeyer says it may be "many years before the full impact of digital fingerprints becomes clear."

SCIENCE & TECHNOLOGY

Cradle of Constellations

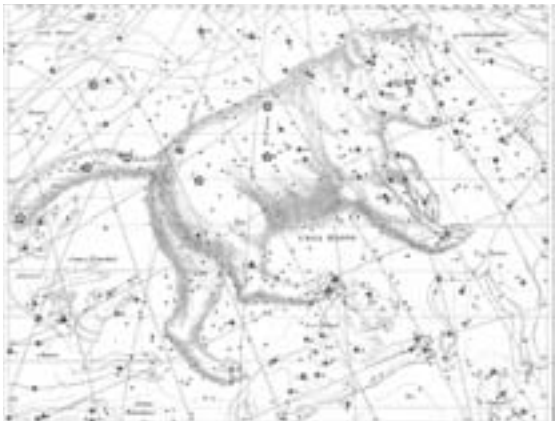
THE SOURCE: "The Origin of the Greek Constellations" by Bradley E. Schaefer, in ***Scientific American***, Nov. 2006.

Whoever looked up at the seven moderately bright stars scattered across the ancient sky in the shape of a dipper and named them the Great Bear may have

Archive password: CENTURY

been the world's first great communicator. Whoever it was certainly lived a long time ago. Even though the seven stars look nothing like a bear, writes Bradley E. Schaefer, a Louisiana State University physicist and astronomer, that's what they were called by long-ago people as dispersed as the Greeks and the Zuni, the Basques and the Hebrews, the Cherokee and the Siberians. All knew versions of the myth of the Great Bear, that the four stars in the bowl of the dipper represent the bear, perpetually being chased by the three stars in the handle, representing hunters. It is virtually impossible that cultures in so many parts of the world would have thought up the story independently, Schaefer says. That means the Great Bear was named at least 14,000 years ago, when there was a land bridge across the Bering Strait that allowed some ancient group to carry the idea to the Americas.

Constellations are among humankind's earliest creations and can be more revealing in some ways than the pottery and tools unearthed by archaeologists, offering a glimpse of what ancient people considered important enough to note in the sky. Through a process called precession, they can even help in dating art and clay or stone tablets. Because the earth wobbles on its axis, the positions of the stars change over the centuries. The positions of the constellations described in ancient poems or depicted in art has been used to date such artifacts to within about 80 years of their creation.



The myth of the Great Bear constellation—seven stars on the hindquarters and tail—traveled across the Bering Strait with ancient migrants.

The oldest known constellations are all named for gods, animals, and farm implements. The sequence of titles changes over time, Schaefer says, moving from religious to folk to practical to scientific. The Great Bear constellation may have been grown out of early religious practice. European cave paintings, artifacts, and ensembles of cave bear skulls date to more than 30,000 years ago and suggest some kind of bear worship. The constellation may have been a folk depiction of an image used by ancient priests or medicine men. Schaefer believes that the Great Bear is quite likely one of humanity's oldest inventions.

ARTS & LETTERS

Mozart Meets Dylan

THE SOURCE: "Laissez-Faire Aesthetics: What Money Is Doing to Art, or How the Art World Lost Its Mind" by Jed Perl in ***The New Republic***, Feb. 5, 2007.

The Morgan Library and Museum in New York, newly luxuriant after a renovation by the famous architect Renzo Piano, simultaneously featured the following treasures this season: medieval illuminated manuscripts and metalwork, a group of drawings by Fragonard and other artists of the 18th century, a show of Mozart manuscripts, and Bob Dylan's American Journey: 1956–1966. If this were an SAT test, the question would be obvious: Which one of these does not belong? But even to raise the question is to invoke the wrath of the intellectual hipsters, writes Jed Perl, *The New Republic's* art critic.

Amid the gold-rush atmosphere of the current art world, a strange philosophy has emerged: laissez-faire aesthetics, he says. Laissez-faire aesthetes have come to believe that any experience that anyone can have with a work of art is equal to

any other. An artist such as the enormously successful John Currin can proclaim that his art is directly descended from Cranach the Elder and a raunchy comic in the *Mad* magazine tradition. "Transcendence and stupidity, formal perfection and kitsch: It's all just part of the same big expensive banquet," Perl observes. Whatever floats your boat.

Of course, nobody woke up last fall to be shocked to see fast money thrown at flash-in-the-pan art. The what-the-heck attitude of the moment has its roots in the early 1960s. But the difference between garbage then and garbage now is that works of pop art and other "bad paintings" were ironic. "They depended on the existence of a standard that was being mocked," Perl says. Laissez-faire painting mocks nothing; irony is too much of an idea for it.

A case in point is this season's star, Lisa Yuskavage, whose "lesbo-bimbo" figure paintings of comically endowed nude women recall Jessica Rabbit in *Who Framed Roger Rabbit*. They seem like a joke—only they aren't.

Forty years ago, the "evil prophet of the profit motive" was Andy Warhol, according to Perl. Warhol launched the trend toward laissez-faire taste that is currently embodied by an artist who does collages incorporating his own semen. A business model has come to drive the art world, Perl says, and the arts community must anoint a new artist to top Warhol, to trump the latest show at the Modern every season, no matter what.

In mixing medieval manuscripts and Bob Dylan, the Morgan curators fail to recognize that high culture and popular culture are so wonderfully different that they cannot be put together, Perl writes. "Laissez-faire aesthetics is the aesthetics that violates the very principle of art, because it insists that anything goes when in fact the only thing that is truly unacceptable in the visual arts is the idea that anything goes."

EXCERPT

The Dead Letter

Cell phones and e-mail have taken the correspondence process one step closer to extinction. Time zones melt. Gone are the leisurely pace, the ruminative voice, the intervening hiatus, the long-anticipated answer.

—**JUDITH KITCHEN**, writer, poet, and teacher, in ***The Georgia Review*** (Fall–Winter, 2006)

ARTS & LETTERS

Manet's Snapshots

THE SOURCE: "The Lost Photographs of Edouard Manet" by Alexi Worth, in ***Art in America***, Jan. 2007.

Edouard Manet (1832–83), arguably the greatest painter of his era, left behind paintings with some odd elements: In his 1864 *The Dead Christ and the Angels*, for example, the dazzling light on Christ's figure shines upward from near the painter's feet, illuminating the legs and torso and leaving the Savior's head and shoulders in near darkness. It's hard to imagine a natural source of such illumination. Alexi Worth, a painter and writer based in Brooklyn, wonders whether Manet's paintings may be based on photographs.

It's commonplace for painters to make use of photographs today, but when Manet was working in the early 1860s, it was scandalous. Painters were being "outed" for relying on the crutch of the camera. Little wonder, then, that no photographs have been found among Manet's papers. Nonetheless, the new technology was sweeping Europe. One of Manet's closest friends was Nadar (1820–1910), among the first photographers to experiment with artificial light. Bright light looks ordinary to the modern eye, but in the 19th century it was startling. The few artificial sources of bright light available, such as arc lamps, were highly volatile, erratic, and dangerous. The intense light certainly could not have been sustained while a painter laboriously worked from live models.

Manet illuminated *The Dead Christ* with the bright, flat light of the amateur photographer, according to art historian Beatrice Farwell. In another painting, his 1865 *The Mocking of Christ*, art

historian Michael Fried points out, Manet used several telltale signs of "awkward realism" that quite likely came from photographs. Christ's feet are oversized and show signs of have worn modern shoes. A figure in the left foreground seems overscale, like a soldier cutout, and the scene is uncharacteristically organized like the *mise en place* of a television chef—each necessary item arranged just so on diagonal lines. But these clues to the use of photos do not do justice to Manet's incorporation of the medium into his paintings, Worth argues.

Brilliant light emanates from ground level in *The Dead Christ and the Angels*, by Edouard Manet. Scholars suspect he used lost photography as a tool in creating the luminescent figure in 1864.

Two hallmarks of Manet's work are the use of frontal lighting and the varying treatment of different figures and elements in the foreground and background—some precise, some almost sloppily painted. His work looks stripped down, emphasizing some figures and minimizing others, making photographic and non-photographic sources cohabit. He was "intent, not on acknowledging photography's power, but on subsuming and subordinating it," Worth writes. "For Manet alone, photography seems to have motivated, and even abetted, a kind of counter-photographic style."

EXCERPT

Shakespeare in Full

The modern biographer who hopes to [reach the essential Shakespeare] will be more likely to succeed as he stands on the shoulders of others. Piety toward the past is becoming and provident too, letting the new arrival on the scene see further. His proper subject is Shakespeare the man, gathered from the plays and poems as well as the life record. Despite what you often hear, the record is substantial. Many look behind it, however, from snobbery, mischievousness, or the thrall of an idée fixe, seeking another Shakespeare than the one it presents. Some . . . deny that Shakespeare existed at all. Urging the record against them, I am not arguing a case, leaving that to the Sunday supplement, and I am willing to say with James Joyce that Shakespeare was written by someone else with the same name. In so many words, the work will always come first; the life, in relation to it, comes second.

—**RUSSELL FRASER**, author of *Young Shakespeare* and *Shakespeare: The Later Years*, among other works, in ***Sewanee Review*** (Fall, 2006).

OTHER NATIONS

The Great Creep Forward

A SURVEY OF RECENT ARTICLES

A GENERATION AGO A BLOCKBUSTER book, *Japan as Number One (1979),* proclaimed Japan's world leadership in industrial competitiveness, crime control, education, and a host of other areas. This triumph appeared almost inevitable—until the Japanese economy melted down in the late 1980s. Now Asia has brought forth a new challenger, China. An academic cottage industry has grown up around new Chinese demographic, military, commercial, and political threats. But scholars are also increasingly pointing out that Chinese hegemony is far from assured, and that in its climb to power and wealth China has disappointed new friends and attracted unsavory allies.

The People's Republic of China has 1.3 billion people, $1.7 trillion in foreign trade, 2.2 million soldiers, and about 200 nuclear warheads. But according to Naazneen Barma and Ely Ratner, Ph.D. candidates at the University of California, Berkeley, writing in ***Democracy*** (Fall 2006), "The real threat posed by China isn't economic or military—it's ideological."

Since the end of the Cold War, Barma and Ratner write, "democratic liberalism has been the dominant model for national development and international affairs." China provides an enticing alternative to some of the world's worst rulers: "illiberal capitalism"—free markets and tightly controlled politics. It is coupled with a hands-off policy toward other nations' internal affairs, no matter how repugnant.

China's "see no evil" policy is especially pernicious when combined with its relentless search for oil, scholars say. "China's drive for energy resources risks gravely weakening international human rights and obstructing global energy security objectives," writes Matthew E. Chen, a research assistant at the James A. Baker III Institute for Public Policy at Rice University, in ***Orbis*** (Winter 2007).

Beijing's move to sign between $70 and $100 billion in oil contracts with Iran complicates world efforts to isolate Tehran's nuclear-ambitious regime. Its growing oil ties to Venezuela may embolden Venezuela's authoritarian president, Hugo Chávez. Its relationship with another oil exporter, Nigeria, could undercut efforts to improve that state's conduct, Chen writes.

Oil-rich Angola, under pressure from the International Monetary Fund to reduce corruption, recently received a $2 billion credit line from the Export-Import Bank of China. Angolan dictator José Eduardo dos Santos proudly described the China deal as free of preconditions.

China's most dangerous African liaison is with Sudan. China has been the biggest investor in Sudanese oil, whose revenue has given Khartoum the ability to sustain its militias and expand its attack helicopter fleet for use in the Darfur area. There, between 200,000 and 400,000 people have died in fighting between government-backed troops and rebel groups. China has used its permanent seat on the United Nations Security Council to block introduction of a UN peacekeeping force or the imposition of sanctions, according to Chen.

In Asia, China has propped up the military regime in Burma with $1.2 billion in trade, and last year signed an agreement to pipe natural gas from a new offshore field, vowing not to meddle in the nation's affairs, Chen writes.

While China is active economically and diplomatically across the globe, "Latin America is the current center of China's global strategy," writes Joshua Kurlantzick, a visiting scholar at the Carnegie Endowment for International Peace, in ***World Policy Journal*** (Fall 2006). In 2004, China's president and vice president made triumphal tours of Latin America, launching trade deals in Brazil and Venezuela, while romancing Bolivia, which has huge stores of natural gas.

In the end, however, scholars are suggesting that China's rise to world hegemony may not be the cakewalk some have predicted. "Less than two years after China and Brazil's courtship, strains have developed in Beijing's relationship with the largest nation in South America as a flood of Chinese imports has not been matched by Chinese consumption of Brazilian goods," Kurlantzick writes.

"China's widely touted investment in nearby Asia actually amounts to very little money passing from China

abroad, while China's foreign-aid effort sees much smaller amounts of money leaving China," writes Georgetown University professor Robert Sutter in ***International Journal of Korean Studies*** (Spring–Summer 2006). "Official Chinese figures show Chinese foreign investment amounted to less than $4 billion and Chinese foreign aid . . . less than $1 billion" worldwide.

Moreover, Beijing's public-relations successes—polls show increased anti-U.S. and pro-China sentiment in South Korea, for example—rest on a "narrow foundation," Sutter says. China's "win-win" approach—neither partner is asked to do anything it doesn't want to do—means that Beijing focuses on achieving "easy things" that avoid costly commitments or major risk.

It has, for example, refused to ease its hard-line stance toward Taiwan, and as a result was forced to rely on the Bush administration to be a voice of reason when Taiwan moved toward independence during 2003–04.

By contrast, according to Sutter, America has worked hard and spent liberally to promote stability and prosperity in Asia, and it asks something in return. As a result, South Korea has put its troops where it believes its true national interests lie: It deployed more than 3,000 to Iraq to sustain its alliance with America, and 2,300 are still there.

OTHER NATIONS

Ukrainian *Implementatsiia*

THE SOURCE: "A Note on Lexical Changes in the Contemporary Ukrainian Language Since Independence (1991–2005)" by Valerii Polkovsky in ***Slavic and East European Journal***, Fall 2006.

Fifteen years of freedom have transformed the language of the Ukraine just as it has changed the nation. Ukrainian has become more modern, colloquial, and functional, even as Soviet phraseology has been tweaked to reflect an uniquely Ukrainian perspective on contemporary life. The slogan "Forward to the victory of communism" has morphed into the jocular "Forward to the victory of 'corruptionism.'" The Soviet army song line "The armor is strong and our tanks are agile" has been transformed into the ironic "The armor is strong and their Mercedes are agile." Rural expressions have acquired urban meanings, for example, "Thousands of them got cozy at the budget udder." And "workers on the hard currency front" has come to refer to black-market money-changers.

Almost extinct are the "palaces of pioneers" and the "stations of junior technologists and modelers," writes Valerii Polkovsky of the University of Alberta. Instead, newspapers and journals describe discotheques and offices. Restaurants, Panasonics, and IBMs loom large as *restoranty, panasoniky*, and *aibiemy*. Favorite new words are *implementatsiia* (implementation), *elektoral'nyi* (electoral), and *hrant* (grant), whose use must be watched to prevent *hrantove uzalezhnennia*, or grant dependence. Many Ukrainians continue to speak Russian, but the Ukrainian language is on the rebound after becoming "lifeless" toward the end of the Soviet period, Polkovsky says. Polish, Czech, and Bulgarian are undergoing a similar renaissance.

Certain borrowed words have suffered in the

EXCERPT

A Gaza Neocon

What [do] the current chaos, lawlessness, random killings, infringements on public land, clashes between families, strewn pedestrian walkways . . . what does all this have to do with the [Israeli] occupation? We've gotten in the habit of blaming others for our own failures. . . . When we walk the streets of Gaza we cannot but be appalled by what we see: disorder on an indescribable scale, indifferent policemen, swaggering young men with weapons draped over their shoulders, big families reenacting ancient blood feuds, all amid a general disregard for the public welfare.

—GHAZI HAMAD, spokesman for the Palestinian government and former editor of the *Hamas* weekly newspaper in Gaza City, in an article in *Al-Ayyam*, translated from Arabic and reprinted in ***Middle East Policy*** (Winter 2006)

Ukrainian language transition, he says, such as the particularly unfortunate "management," which is rendered incorrectly as *mezhmenet* or *menezhement*. Nonetheless, lexicographers have been busy rendering unfamiliar concepts such as "real estate specialists" into Ukrainian. And some straight American imports have proven too good to pass up, such as "offshore," which is used with *banky, zony, kompanii,* and *firmy,* and—to describe the previously indescribable—the term "politically correct."

OTHER NATIONS

A Fleeting Stone Age

THE SOURCE: "Bombing Vietnam: The Long-Term Economic Consequences" by Edward Miguel and Gérard Roland, in ***The Milken Institute Review***, Fourth Quarter, 2006.

If the North Vietnamese don't stop their aggression, warned Air Force chief of staff Curtis E. LeMay in 1965, "we're going to bomb them back into the Stone Age." And he tried. In all, the United States dropped 7.6 million tons of bombs on Indochina, three times the tonnage in all of World War II. It amounted to 200 pounds per person, but roughly 70 percent of all ordnance was dropped on only 10 percent of Indochinese provinces. Quang Tri Province took the brunt, write Edward Miguel and Gérard Roland, economists at the University of California, Berkeley. Only 11 of 3,500 villages in that South Vietnamese jurisdiction went unscathed.

Quang Tri, therefore, should be the test of the Stone Age analogy. Thirty-two years after the last American helicopter lifted off the roof of the Saigon embassy, is that rural province in the central part of Vietnam poorer, less developed, more depopulated, or more backward than the rest of the country? Surprisingly, it is the opposite, write Miguel and Roland. The most heavily bombed regions are slightly better off than similar villages throughout Vietnam that escaped the explosives. The Quang Tri area has experienced moderate reductions in long-term poverty, somewhat better access to electricity, and faster consumption growth than similar, unbombed provinces. The results are similar to those recently reported about bombed cities in post–World War II Japan and Germany.

The authors say some "leapfrogging" might have occurred in Quang Tri as it bypassed intermediate steps and modernized after the war—by means such as getting electricity. Its population—much of which fled or hid during the war—has surpassed pre-war levels. Miguel and Roland found no statistically significant impact of the bombing on contemporary literacy rates, school enrollment, physical infrastructure, or the proportion of skilled workers. Heavily bombed areas do have higher disability rates, the authors say. They were unable to collect data on unexploded bombs, untriggered land mines, or the long-term effects of the use of the herbicide Agent Orange.

It is likely that the bombing retarded the economic growth of the entire country, the authors write, but the legacy of the war clearly did not prevent Vietnam from achieving growth in GDP per capita that has been among the fastest in the world in recent years. The Stone Age was fleeting.

Colorado Rockies pitcher Danny Graves, born in Saigon, demonstrates baseball technique during a demining mission to Quang Tri province, where 3,490 villages were reduced to rubble during the Vietnam War.

Word Crimes and Misdemeanors

Reviewed by Wendy Kaminer

THE LITTLE BOOK OF PLAGIARISM.

By Richard A. Posner. Pantheon. 116 pp. $10.95

Plagiarism, like infidelity, is a habit that few defend but many indulge. You can discern its frequency and covert acceptability in the ready excuses offered by and on behalf of eminent writers and professors periodically caught copying the work of less eminent writers or research assistants. Consider the group of famous novelists who rushed to defend British writer Ian McEwan for borrowing sentences from a memoir by the late Lucilla Andrews in his best-selling novel *Atonement.* McEwan and his advocates stressed that he had acknowledged a general debt to Andrews, and they asserted that fiction writers have creative license to borrow and embellish, especially when writing historical fiction. That principle is not terribly controversial, but it may not apply in this case. As *Slate* media columnist Jack Schafer suggested, while McEwan said he creatively embellished, others might fairly say he copied.

Nonfiction writers and scholars charged with plagiarism are less likely to claim a license to copy than to cop to a lesser offense, such as disorganization. They acknowledge the inadvertent omission of footnotes and quotation marks, or blame their own inadequate notes for leading them to mistake other people's words for their own, while vigorously denying that any of these "mistakes" might constitute plagiarism. This effectively defines plagiarism to exclude even gross or implausible acts of negligence, especially when committed by established writers or scholars presumed by their friends to have no need to plagiarize. As Harvard constitutional law professor Laurence Tribe asserted in defense of historian Doris Kearns Goodwin after the first revelation of her borrowings in 2002 (others followed), Goodwin had merely been "sloppy with her sources in a minuscule part of her truly extraordinary body of work a decade and a half ago." A few years later, Tribe himself was exposed as a borrower; he apologized, blaming his "well-meaning effort" to write a book for a lay audience that was free of footnotes.

In *The Little Book of Plagiarism,* Richard

Posner observes that plagiarism is not "especially heinous" but "embarrassingly second rate," which partly explains why officially first-rate writers caught copying seem to regard plagiarism as a crime that other people commit. Posner, a federal appellate court judge, lecturer at the University of Chicago Law School, and author of an impressive array of big books as well as little ones, offers an idiosyncratic primer on plagiarism and intellectual property, combining bytes of history, law, and cultural analysis in an essay of about 100 pages. The book's conclusion seems rushed and perfunctory, but this is an otherwise enjoyable "Cook's tour."

Posner locates the modern concept of plagiarism at least partly in the development of a market for "expressive works," which supplanted the private patronage of writers and other artists, and carefully distinguishes plagiarism from allusion and "creative imitation," as practiced by Shakespeare, claimed by McEwan, and increasingly limited by copyright law. (As Posner explains, copyright infringement, unlike plagiarism, can include borrowings that are openly acknowledged: If you reprinted this book review in its entirety, with attribution but without my permission, you would not be guilty of plagiarism, but you would violate my copyright.)

Posner's approach is typically dispassionate. He notes that his analysis reflects his long-standing interest in intellectual property, as a judge and an academic, conspicuously omitting any reference to his interests or experiences as a writer. (Have they had no effect on his views?) He acknowledges that victims of plagiarism sometimes suffer significant "competitive harm," and observes that "attribution is important to creators of intellectual work even when there is no direct financial benefit." But he centers his definition of plagiarism on harm to the consumer, not the creator, asserting that copying becomes plagiarism when the reader relies on the plagiarist's deceit: "The reader has to *care* about being deceived about authorial identity in order for the deceit to cross the line to fraud and thus constitute plagiarism."

This rather narrow definition of plagiarism—which some creators of intellectual property might well contest—exempts the many judges who sign their names to opinions written by law clerks. Most readers of judicial opinions, says Posner, realize that they are written by clerks, who understand that they are hired to draft opinions. Laypeople who believe falsely that judges write their own opinions do not rely on that belief and would not "change their behavior" if it were dispelled. Besides, law values predictability, not originality. So while there may be "an element of deceit" in ghostwritten legal opinions, Posner suggests that there's no real harm in them.

It's hard to argue with this proposition, unless perhaps you're Richard Posner. In his astute 1988 *New Republic* article "The Culture of Plagiarism," Ari Posner (reportedly no relation) revealed that Judge Posner, "who says he writes his own opinions, believes that overreliance on clerks is insidious. The process of writing itself, he argues, 'often brings to light mistakes, omissions, inconsistencies that in spoken language one doesn't notice' and might actually lead a judge to change his mind. And law clerks are 'young and timid writers who write in a very bureaucratic style, who downplay policy considerations and tend to rely very heavily on footnotes, citations, and appeals to authority.' "

As Posner's shifting perspective on the authorship of judicial opinions shows, plagiarism is a slippery subject, partly because it's difficult to quantify the underlying harm of appropriation. Today, thanks in part to technology, appropriation is apt to be seen as a virtue as much as a vice: In the music world, sampling is considered an art (though in court it may be deemed a copyright violation). Technology facilitates the detection of plagiarism with new software programs, Posner notes, but it also facilitates plagiarism, obviously. You can appropriate someone else's sentences without even bothering to retype them.

As plagiarism becomes easier to commit and

Creative defense: When his novel *Atonement*'s not-so-novel sentences came to light last year, Ian McEwan said he had nothing to atone for.

more common, it is likely to become more respectable, or at least less embarrassing. The mantra that information, including the individualized expression of ideas, should be free and universally accessible partly reflects the fact that so much material on the Internet *is* free and universally accessible. Appropriating it doesn't necessarily feel like stealing, especially to members of the digital generation. Posner correctly regards digitization as a threat to plagiarists, but the culture it helps shape may also prove to be their best defense. Plagiarism is still regarded as "the capital intellectual crime" by most writers, teachers, and scholars, Posner writes, but you have to wonder if plagiarism's severest critics tend to be of a certain age.

Its defenders may share an ideology, Posner suggests, characterizing "the Left" as "soft on plagiarism" because its theorists are hard on individualist notions of authorship. But the musings of the obscure postmodernists whom Posner cites don't support generalizations about the appropriative proclivities of the Left, which is hardly monolithic. Ethics are not generally functions of particular political ideologies anyway. Left and right, people lie, steal, and cheat with varying degrees of guilt or self-righteousness.

Apolitical popular culture nurtures plagiarism much more than any political theory. The marketplace often rewards imitation more than originality, as the proliferation of movie sequels attests. "The desire to be original and the desire to be successful are not wholly compatible," Posner acknowledges. High school students whose college application essays are "edited" or partly drafted by writing coaches, as well as authors who assemble rather than write their own books, might agree. But Posner also asserts, "Ours is a time and place in which market forces favor originality and in which a robust concept of plagiarism backs up the market valuation."

In other words, the market favors originality, except when it doesn't. Posner favors creativity. In his view, an original work has no inherent aesthetic value; it might simply be "unimaginative hack work." But the effort to create, or to imagine, an original work has value, regardless of the result. Creativity, imagination, and the quest for

originality are not so easily divorced. Students are apt to learn more from "D" papers they struggle to write than any "A" paper they purchase, or steal.

They might also learn to appreciate the intimate proprietary relationship between writers and their own carefully chosen words. Plagiarism is a parasitic offense, whether or not it's intentionally or even tangibly harmful. Unlike imitation (properly acknowledged), it is not a form of flattery, any more than stalking is an expression of respectful admiration. Why does plagiarism generate such hostility? It is essentially a hostile act—of impersonation, not homage.

Wendy Kaminer, a lawyer and writer, is the author most recently of *Free for All: Defending Liberty in America Today* (2002).

A Warhorse of a Different Color

Reviewed by Andrew J. Bacevich

THE UTILITY OF FORCE: The Art of War in the Modern World.

By Rupert Smith. Knopf. 448 pp. $30

Nearly two decades ago, Francis Fukuyama undertook to describe the nature of politics after "the end of history." Now British general Sir Rupert Smith has set himself a similar task: to define the role of arms and armies now that war is obsolete. According to Smith, a new military paradigm has emerged, and *The Utility of Force* is his effort to identify and distill its essence.

Though Smith served for 40 years as an officer in the British army, the biographical note appended to *The Utility of Force* carefully avoids identifying him as a soldier. Instead, it describes him as "one of the most senior international practitioners in the use of force." This nebulous characterization is a tip-off to both the virtues and the defects of the book as a whole. In his assessments of the present-day role of military officers and the complex nature of contemporary armed conflict, Smith argues with considerable effectiveness that old verities about war and warriors no longer stand up to careful scrutiny. But the new verities he offers in their place do more to obfuscate than to clarify.

The Utility of Force defies easy categorization. Smith laces his account with references to personal experiences in Africa, Northern Ireland, the Balkans, and the Persian Gulf (he commanded the UK Armored Division during Operation Desert Storm), but the result is not really a memoir. Neither does the book qualify as history, though its first third recounts the evolution of war since the French Revolution. Instead, it is a lengthy—and at times repetitive—meditation on the ambiguous and shifting relationship between armed force and politics in our times.

The opening sentence makes the essential point: "War no longer exists." Conflicts and confrontations persist, but the traditional conception of war as a collision of armies in which one side emerges victorious is no longer meaningful. Of this Smith is quite certain. The old model, which he describes as "interstate industrial war," had "ceased to be a practical proposition with the invention of the atomic bomb." During the decades that followed the bombing of Hiroshima, a host of conflicts in places ranging from French Indochina to the West Bank illustrated its limits. America's defeat in Vietnam was only the most prominent example. Time and again, attempts by machine-age armies to impose their will on irregular forces supported by a sympathetic population failed. Smith himself commanded the United Nations Protection Force in Bosnia throughout 1995, and left persuaded that the old paradigm of war was

not only obsolete but even pernicious.

Nonetheless, other events during the postwar decades—above all the several Arab-Israeli wars—sustained the illusion that this old paradigm had not yet breathed its last. The exploits of Israeli generals such as Moshe Dayan, Yitzhak Rabin, and Ariel Sharon seemed to reinforce the tradition of heroic leadership that produced decisive battlefield victories, exemplified by such World War II commanders as German field marshal Erwin Rommel and U.S. general George S. Patton. As a consequence, Western soldiers, politicians, and publics clung to their belief that the best guarantee of security lay in putting the right mix of tanks and fighter-bombers into the hands of warrior-generals. But this was an illusion, as even the Israelis eventually learned at the hands of Hezbollah and Hamas.

According to Smith, the aftermath of the Cold War fully "unmasked the new paradigm that had long been lurking." In this new form of armed conflict—in Bosnia and Kosovo, Somalia and Sierra Leone, Iraq and Afghanistan—"political and military activities are constantly intermingled throughout." Whereas the hallmark of generalship had once been the orchestration of a climactic battle or campaign, it was no longer possible for "a single massive event of military decision" to produce "a conclusive political result." In one instance after another, Western armies deploying into these zones of disorder found that decision itself had become a chimera. Once begun, conflicts sputtered on indefinitely.

Old-fashioned war had been waged in the material world, with the intent of dealing death and destruction. In Smith's view, the new mode of conflict tends toward the psychological. The aim is not to defeat your enemy—that's probably impossible—but to change the way he and his supporters think. Ordnance matters less than ideas, firepower less than information, combatants less than the noncombatant population for whose allegiance both sides compete. In short, Smith argues, getting the hang of "war amongst the people" will require Western armies to abandon the outdated dogmas of interstate industrial war and embrace a radically different set of principles. The name of the game is no longer to win but to influence.

No American witnessing the way that President George W. Bush and his generals have bungled the Iraq war can deny that our leaders, civilian and military alike, will have to get a lot smarter if the U.S. armed services are to persuade the Islamic world to embrace the blessings of democracy. Oblivious to history, the civilians who conceived of Operation Iraqi Freedom launched their war in utter disregard of the realities that defined the nation they presumed to liberate. Confident of the invincibility of U.S. forces, the unimaginative generals who directed that campaign failed to anticipate that decisively toppling Saddam Hussein might mark not the end of their task, but its beginning.

The aim of war now is not to defeat your enemy—that's probably impossible—but to change the way he and his supporters think.

Clearly, fresh thinking is needed. Still, there are at least two problems with Smith's new paradigm.

First, "war amongst the people" is not especially new, as any historically literate British officer should appreciate. The American war of independence that began in April 1775 and concluded in October 1781 was nothing if not an example of "war amongst the people." Whatever the importance of battles such as Saratoga and Yorktown, the outcome of the war turned ultimately on whether the inhabitants of the 13 colonies saw themselves as British or American. Through a combination of political and military action—including methods that today would fall under the rubric of terrorism—the homegrown revolutionaries proved more effective in tipping the balance of opinion than the representatives of the Crown.

Second, the obituary that Smith writes for the old model is almost certainly premature. After all, though Operation Iraqi Freedom evolved into

a "war amongst the people," it began in 2003 as an interstate industrial war. A resumption of hostilities on the Korean peninsula or a showdown between India and Pakistan, neither of which would come as a complete surprise, would likely resemble the interstate wars of the 20th century.

Smith would have us believe that war is no longer A; it has instead become B. Yet history suggests that war is both A and B—not to mention C, D, E, and F. Carl von Clausewitz had it right: War is a chameleon. Based on circumstance, it changes its appearance, even as its essential nature remains fixed. International practitioners in the use of force should remember this. So too should soldiers.

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National Inquirers

Reviewed by Michael Kammen

THE AVERAGED AMERICAN: Surveys, Citizens, and the Making of a Mass Public.

By Sarah E. Igo. Harvard Univ. Press. 398 pp. $35

How to count Americans accurately has been a contentious question ever since the first federal census was undertaken in 1790. A century ago, foundations and commissions began to support more focused surveys, usually with an eye to policy, such as tenement housing reform in New York City. During the 1920s and '30s, with the development of quantitative methods in the social sciences, new sorts of ambitious, intensive surveys emerged. Social science was coming of age at the same time as Americans' sense of themselves as a mass public, and Sarah Igo argues that the new statistics helped shape this national identity.

Igo, who teaches history at the University of Pennsylvania, examines three influential case studies of this new social research. Robert and Helen Lynd lived for many months in Muncie, Indiana, as they scrutinized everything from attendance at women's clubs to library usage to produce their *Middletown* studies, published in 1929 and 1937. George Gallup and Elmo Roper began polling the opinions of the American public in 1935. And Alfred Kinsey and his staff conducted thousands of personal interviews with people about their sexual histories to publish reports on the sexual behavior of American men and women, in 1948 and 1953, respectively.

These landmark investigations were widely praised at the time, even as critics noted their flaws. The Lynds excluded African Americans, for example. Gallup and other pollsters wrongly predicted that Dewey would trump Truman in the presidential election of 1948. Prominent statisticians faulted Kinsey's sampling techniques, and moralists resisted certain of his findings, such as surprisingly high rates of homosexual contact for men and premarital sex for women.

As a historian, Igo is particularly attuned to the changes over time that these studies signaled. She points out, for example, that the *Middletown* volumes differed from previous case studies in that they were not designed to analyze and solve a social problem. The Lynds' objective was simply to aggregate detailed information about the lifestyles and preferences of "normal" Americans. As one enthusiastic clergyman told his congregation at the time, "For once we have had the searchlight of social science turned upon a typical American town. . . . We've had so many studies of the abnormal. We've heard so much about the defective, delinquent, and dependent."

So much for the Jukes and the Kallikaks. Tell us about people like us—the mainstream. To that end, one of Alfred Kinsey's most aggressively pursued goals was to expand Americans' sense of what qualified as "normal" sex. Whatever the defects of his research suggested by later studies and by biog-

Alfred Kinsey, shown here in 1953, and his staff worked tirelessly to make a science of sex, putting intimate questions to thousands of Americans and collecting the results in two controversial reports.

raphers who have questioned his objectivity, in many respects Kinsey succeeded in this aim, as Miriam Reumann has shown in her fine book *American Sexual Character: Sex, Gender, and National Identity in the Kinsey Reports* (2005).

Public-opinion pollsters' methods also represented a break from the past. Instead of conducting intensive community surveys like those that made the Lynds famous, Gallup and Roper developed statistical techniques that permitted a small cross-section of citizens from different regions, classes, and races "to stand in for the whole. Their scope was national rather than local, their subjects no longer rooted in a specific, if generalizable, geographic place."

By the mid-20th century, Igo says, a large portion of the American public liked and trusted what social science could tell them. Although her book does not suffer from a lack of context, one might have hoped for still more to substantiate this claim. Some of the Lynds' best-known findings, for example, weren't exactly revelations. They may have been struck by the "pecuniary civilization" in Middletown, but Americans' penchant for commercial opportunism had been a central theme of Alexis de Tocqueville's *Democracy in America* a century earlier. Nor was ethnographic research new to the public; *National Geographic* had been publishing middlebrow ethnographies for decades.

Based on a thorough reading of the voluminous fan mail the investigators received as well as extensive reviews and feature stories about them and their work, Igo makes a persuasive case that all three sorts of surveys enhanced Americans' understanding of who they were. The most striking thing during the debates about Kinsey's reports, Igo concludes, "was the fact that Americans were more eager than ever before to become research subjects—ready to conceive of themselves as case histories in an aggregate bank of survey data."

Of course, we have no idea how many of these eager subjects were exhibitionists and how many others *refused* to participate in polls or interviews of various kinds. As we learn from letters written to Gallup and Roper, while many people wanted to be "counted," numerous others mistrusted the conventional sample size of 1,500 and still others remained skeptical of the process of sampling itself. W. H. Auden's admonition to the 1946 graduating class at Harvard was symptomatic of widespread doubts in the country: "Thou shalt not sit/ With statisticians nor commit/ A social science."

One of Igo's major conclusions is that "modern survey methods helped to forge a mass public." Americans could now learn what Mary and John Q. Public liked and disliked, and consequently gain an enlarged sense of the diverse views held by a rapidly expanding populace. I am inclined toward a different interpretation. A great deal of scholarship has been produced that suggests that coming to terms with and interpreting an increasingly vast and impersonal public *required* modern survey methods—whether the exhaustive analysis of a community or the labor-intensive process of conducting interviews with thousands of people from all walks of life.

The Lynds may very well have been hoping to identify the mores of average (white) Americans,

but the point of polls by Gallup and Roper and interviews by Kinsey and his staff was to delineate a range of *differences* in beliefs and practices. What comes across in *The Averaged American* is not a series of medians and means but patterns of segmentation and divergence. The diversity of 1960s and '70s America that Igo notes in her epilogue was not new—it was only more pronounced and visible than it had been a generation earlier.

That is not to say that Igo's notion of "averaged" Americans isn't valid, but perhaps it applies to a different body of literature than the important but particular works she cites. Especially during the 1950s, survey-based books and articles appeared that defined the average American family as a nuclear unit with 2.5 children, or told readers that persons of a certain height should weigh between 115 and 125 pounds. Americans who did not match the newly revealed norms (or averages) for cars and television sets per family may very well have felt anxiety about their aberrations. But the work of Gallup, Roper, and, especially, Kinsey argues *against* the grain of "averaged Americans." However one feels about multiculturalism as an American mantra, diversity has been with us for quite some while.

Michael Kammen, a professor of history and American culture at Cornell University, is the author, most recently, of *Visual Shock: A History of Art Controversies in American Culture* (2006).

IN BRIEF

HISTORY

Separate and Unequal

A CLASS OF THEIR OWN: Black Teachers in the Segregated South.

By Adam Fairclough. Harvard Univ. Press. 533 pp. $29.95

The U.S. Supreme Court's 1954 decision in *Brown v. Board of Education* marked the beginning of the end for legally mandated racial segregation in public schools. But from the time public education developed in the American South following the Civil War until well after *Brown*, southern blacks struggled to obtain quality schooling. Before Reconstruction ended in 1877, equal education for students of both races was an imaginable possibility, but once white "redeemers" seized political control, gross inequities took hold.

In *A Class of Their Own,* historian Adam Fairclough, of Leiden University, in the Netherlands, masterfully recounts black southerners' efforts to build schools that could offer their children some hope of educational uplift. By the 1870s every state had a public school system, but actually enrolling black youngsters in a functioning school "depended upon black initiative," usually through recruitment of willing individual teachers who would "first set up a school, then ask the county to pay their salary." Across the largely rural South, "black farmers depended upon family labor," and agricultural demands often resulted in very short school terms. Exploitative share cropping practices forced many black families to move almost yearly, so sustained schooling was often impossible.

These conditions made the lot of black teachers a hard one. They were generally poorly paid part-time workers lacking adequate training and experience. Circumstances did not improve as the decades went by. Fairclough writes that once the disfranchisement of black voters peaked, at the turn of the century, "southern states began to spend much less on black schools relative to white schools." A 1930 survey showed that "more than half of all black rural teachers had failed to

complete high school," and Fairclough reports that "the condition of most rural schools was about the same in 1940 as it had been in 1870."

What improvements did occur across the South were concentrated in a relatively elite group of black-run private schools funded primarily by northern white contributors, such as the school for black girls that pioneering black educator Mary McLeod Bethune founded in 1904 in Daytona Beach, Florida (now Bethune-Cookman College). Little remembered today, those schools initiated a good number of the relatively few upper-level academic programs available to blacks in the South. Many black public high schools and many of the nascent black state colleges originated as private institutions before attaining grudging public support and hybrid financing.

Only in the 1940s, as anti-segregation lawsuits began to point the way toward *Brown,* did southern states start to give more than lip service to the long-standing "separate but equal" doctrine. In many black communities, including the two in South Carolina and Virginia whose legal complaints became part of *Brown,* better school services, not racial integration, was the topmost goal.

***Mary McLeod Bethune*, c. 1925, by Winold Reiss**

Once *Brown* established desegregration as a constitutional requirement, black teachers realized that integration into white-dominated school systems could threaten both their jobs and black schools' existence. When schools began to merge, the number of black principals declined precipitously. In North Carolina, for instance, there were 226 high schools with black principals in 1963. Nine years later, there were 15.

"To many black southerners," Fairclough explains, "the closure of black high schools represented the symbolic decapitation of their communities." Growing black ambivalence about the benefits of integration generated "a belated recognition that many segregated black schools of the pre-*Brown* era had been successful institutions." By the 1990s, Fairclough notes, more and more institutional histories of black schools expressly challenged the earlier integrationist view that black education in the segregated South had more than merited *Brown*'s devastating upheaval.

Only in the 1940s, as anti-segregation lawsuits began to point the way toward *Brown*, did southern states start to give more than lip service to the long-standing "separate but equal" doctrine.

Fairclough's own verdict is measured and sagacious. On the one hand, he writes, "the central assertion of the *Brown* decision—that segregated schools generated feelings of inferiority in the black children who attended them—has never been proven. In fact, the more we learn about those segregated schools, the more dubious that assertion seems."

Yet he firmly refuses to adopt a sanguine view of the South's pre-*Brown* days as "a golden era of community stability and educational progress" for black southerners. Indeed, he rightly warns, too much "uncritical celebration" of black courage and achievements during this period would only obscure "the extent to which white supremacy blighted black education" from the

end of slavery to the present day. *A Class of Their Own* is scholarly history at its very best: A richly textured and nuanced book, it tells an important American story that should not be forgotten.

—David J. Garrow

Vintage Founder

THOMAS JEFFERSON ON WINE.

By John Hailman. Univ. Press of Mississippi. 457 pp. $38

Thomas Jefferson is thought of as the father of American wine. He was also an advocate of rural yeomanry that would forever keep the country whole, decent, and egalitarian, and presumably vineyardists were part of this idealistic vision. Jefferson paid a lot of money to import the good stuff, and served it often to grease the skids of civil discourse. He also tried valiantly to grow grapes at Monticello that would make a palatable drink, despite Virginia's extremes of temperature and humidity. A Chateau Monticello wasn't in the cards at the time, but wine thoroughly informed Jefferson's life, in public and in private.

Until now, no one has attempted to view the author of the Declaration of Independence and his times solely through his stemmed glass, but John Hailman does just that. A former wine critic clearly enamored of his subject, he doesn't shy away from the most incidental mention of anything vinous in the letters and conversation not just of Jefferson but of anyone with whom he had the most minimal contact. The result is a compendium of occurrences and facts sometimes only tenuously related to wine that together offer a backstairs view of a great man. War, presidential elections, and other big events are mere backdrops to the really important business of choosing the right claret and getting it from Europe to Monticello without its being watered down or imbibed by what Jefferson called the rascally Tidewater bargemen.

In an attempt to make our third president more palatable to contemporary oenophiles, Hailman says that Jefferson's letters about wine "read remarkably like a Robert Parker newsletter or *Wine Spectator* article," conjuring a Jefferson who talks about oodles of blackberry on the nose, cigar box overtones, and the relative toastiness of plush cabernets. Jefferson was not, in fact, rhapsodic about wine, but merely appreciative, and more concerned with procuring it than describing it. For instance, of Meursault, one of his favorite wines, he wrote simply that he "found it so good that I will take three feuillettes," which were casks of 114 American gallons.

Jefferson championed wine more by drinking it than by doing anything else, as an emissary sent to Paris in 1784 and later as secretary of state, president, and statesman emeritus. Because of the breadth of Jefferson's acquaintanceship, we get the incidental views of other dignitaries and demi-mondains on a wide range of subjects, from Benjamin Franklin's cure for flatulence (dried rhubarb and attar of roses dissolved in—what else?—wine) to John Adams's opinion of Jefferson's entertaining (extravagant and tiring).

In addition to the important events in Jefferson's life, we witness others that are no less interesting: his wine tour of France in 1787, with visits to "Chateau de la Fite" and many other prime vineyards that still attract peripatetic elites; his early orders of wine (Jefferson was a Bordeaux man, and to a lesser extent a Burgundy one, but no snob, finding merit in everything from plonk to Pommery); his list of favorite Bordeaux wines, remarkably similar to the top tier of the official French classification established much later; and the Marquis de Lafayette's visit to Monticello in Jefferson's declining years, during which the Frenchman drank much of what remained in a cellar once stocked with the best of France as well as wines from Germany, Italy, Hungary, Spain, and Portugal.

Thomas Jefferson on Wine has a gently didactic flavor, with old-fashioned subchapter labels (e.g., "The Mysteries of Jefferson's Bordeaux") and a modulated enthusiasm that suits the sub-

ject. The most interesting president the Republic has yet produced is revealed here as a man who knew both the subtleties and the seductions of an ancient drink, and was afraid of neither.

—James Conaway

Wading Into Trouble

CONTESTED WATERS: A Social History of Swimming Pools in America.

By Jeff Wiltse. Univ. of North Carolina Press. 276 pp. $29.95

At public swimming pools, we're naked but for whatever patches of fabric we select to do the job of fig leaves. Stripped of the usual social cues—cars, McMansions, Manolo Blahniks or scuffed Nikes—we're less likely to make the same nice distinctions about one another that we would at the pizza parlor or shopping mall. This potential for fluid intimacy is one attraction of public pools. And as University of Montana historian Jeff Wiltse shows in *Contested Waters,* it's also the reason they've been social battlegrounds in America for the past century and a half.

Initially, swimming pools were bathtubs for the great unwashed. In 1868, Boston opened the first municipal pool in the United States, an "austere wooden structure" in working-class Roxbury. Though Americans soon realized that disease-bearing germs were easily transmitted through shared waters, a national fitness craze kept cities building pools—with showers and explicit instructions about foot washing. During the late 19th and early 20th centuries, disputes about admission fees and where to locate pools revealed class tensions, but throughout the northern United States—to which Wiltse largely confines his examination—classes and races mingled at municipal pools. But men and women, and, in far greater numbers, boys and girls, took to the water at different hours or at separate facilities altogether.

In 1913, St. Louis opened a large circular pool in Fairgrounds Park replete with a sandy beach, and promoted it as a resort destination. It was the first pool in the northern United States where men and women splashed together, ushering in an era of stares and leers. Aside from women's very presence, their swimsuit styles helped redefine pools as eroticized zones. As late as the 1910s, women waded into the water in a puffy skirt, a high-neck blouse, and stockings, but suits shrank during the next couple of decades. (It was the one-piece that was scandalous then; the fashion police couldn't imagine the sartorially diminutive bikini to come.)

Though a pool that had opened earlier in St. Louis admitted blacks, they were not invited to the Fairgrounds Park facility. That policy of exclusion proliferated as the genders integrated at pools nationwide. During the 1920s and '30s, whole families swam together as Americans basked in leisure. But the widely held yet rarely articulated feeling among whites, Wiltse contends, was that they didn't want black men near white women in this intimate setting. Blacks who attempted to swim where segregation policies weren't stated outright often endured threats and physical violence. A 1949 effort to integrate St. Louis's pools caused a riot. In upholding the segregation of Baltimore's city pools a month after the 1954 *Brown v. Board of Education* ruling, a judge observed that swimming pools were "more sensitive than schools."

The tide turned soon after, and when it did, many middle-class whites stopped swimming altogether, or else retreated to private swim clubs or their own pools. At the same time, residential swimming pools became a new sign of suburban social arrival. George Vanderbilt commissioned what was perhaps the first residential pool in 1895, but as late as 1950 only 2,500 of America's richest families owned private in-ground pools. Fifty years later, four million homes had a blue patch in the backyard.

Despite his subject, Wiltse's dutiful history has some dry stretches. Nonetheless, the struggle to desegregate public pools, recounted in the latter half of the book, makes for compelling reading. The stakes in integrating America's classrooms may have been higher, but it is something to behold the moral contortions of city officials as they fought to keep black children from cannonballing into the water on a blistering summer day.

—Sarah L. Courteau

ARTS & LETTERS

Rice Balls in Wonder Bread Land

BENTO BOX IN THE HEARTLAND: My Japanese Girlhood in Whitebread America.

By Linda Furiya. Seal Press. 307 pp. $15.95

Fish shavings, dried wood ear mushrooms, and seaweed gelatin weren't sold at the local grocery store in Versailles, Indiana, when Linda Furiya was growing up there during the 1970s. She often accompanied her Japanese parents on trips to ethnic markets in big cities in search of such ingredients, which were utterly exotic to most Midwesterners but essential to dishes such as her mother's sukiyaki. So began Furiya's own lifelong obsession with food.

Growing up in the Midwest, where her parents settled because of her father's job in the poultry industry as a chick sexer (someone who determines the sex of newly hatched chickens), Furiya straddled the world of her family's traditions and her own desire to fit into their small community. Now a *San Francisco Chronicle* food columnist, Furiya reveals the world of Japanese cuisine and tradition through the meals and recipes of her childhood in *Bento Box in the Heartland.* But food is also the means by which she reconstructs history and memory in order to understand her family and her own identity.

Early in the book, she recalls that in elementary school she pleaded with her mother to pack American-style bologna sandwiches for her lunch. Instead, she was sent to school with *onigiri,* the rice balls her mother knew she loved. Even as she hid in the bathroom during lunch hour to eat in secret, she could not resist this Japanese treat: "My teeth ripped through the crunchy seaweed wrapping, through the salty rice, to the surprise center, a buttery chunk of salmon placed precisely in the middle of the rice and seaweed ball." Food connects Furiya irresistibly to her heritage.

Furiya's struggle to fuse these parts of her identity was mirrored in the duality her parents exhibited. At home, where her father was the voracious eater and her mother the steadfast cook, her parents sternly communicated their expectations for their children and for how the household was to be run. But they were deeply reticent in other settings. On one occasion, Furiya watched as they silently endured the degrading outbursts of a meat counter clerk who misunderstood her father's English. "I hated them for always bowing down," she writes, "for letting the other person be right."

After years dreaming of escape from Versailles and her own household, Furiya left to attend Purdue University. Though she continued to resent her parents' formality, she gradually realized that through food, they showed their love. "When I left for college Mom didn't tell me she would miss me with tears," she writes. "Instead she packed a box of rice balls into my pile of belongings."

Furiya's writing on the artistry of Japanese cuisine reflects a passion for food to rival a chef's, as when she describes "simple poached mushrooms topped with herbs stacked to resemble a shrub, and small lightly seared scallops arranged to look like a stony hill." Other parts of the book are not served up so carefully. Later chapters lack the tenderness of her earlier stories, and at the book's conclusion Furiya deserts her evocative prose for neatly explained lessons. Her observations about the surprising ways identity presents itself may be valid, but, like a bite that's too big, they are not easy to digest.

—Angela Balcita

Solitary Genius

THE CASE FOR LITERATURE.

By Gao Xingjian. Translated by Mabel Lee. Yale Univ. Press. 181 pp. $25

When the Nobel Prize for Literature was awarded in 2000 to Gao Xingjian, the first Chinese writer to receive this honor, not everyone in

China was pleased. Gao had lived in exile in Paris since 1987, precariously surviving on sales of his paintings, and many Chinese literary and political figures could neither recognize Gao's genius nor accept the Swedish Academy's elevation of someone who had turned his back on his homeland.

Moreover, the novel singled out for special attention, *Soul Mountain,* challenged prevailing literary and political norms. A fictional record of Gao's 1983 journey to China's interior, *Soul Mountain* was first published in 1990 in Taiwan and appeared in English translation in 2000. A health crisis and the threat of imprisonment had prompted Gao to set off, at the age of 43, on a five-month voyage from Beijing to the mountains of Sichuan in southwest China and back to the east coast, fleeing the conformity—literary and social—enforced by the Communist government. Out of the depths of his solitude, in a sweeping panorama of stories and descriptions of China's seemingly infinite variety of landscapes, *Soul Mountain* celebrates the power of the imagination to discover meaning in the world—even if it turns out that there is no meaning at all.

Gao does not mince words about the disastrous decisions taken by his countrymen in the name of revolution. In his Nobel lecture, included in *The Case for Literature,* he charges that Communist cultural policies have posed "enormous difficulties" for Chinese-language writers. "Chinese literature in the 20th century was worn out time and again, and indeed almost suffocated, because it was manipulated by politics," he said. "The revolution in literature and revolutionary literature alike passed death sentences on literature and the individual. The attack on China's traditional culture in the name of revolution led to the public prohibition and burning of books. Countless writers have been shot, imprisoned, exiled, or punished with hard labor over the past hundred years."

This is not history that an authoritarian government—and a rising superpower—likes to be reminded of. But literature cannot be subservient to anything except the truth, a constant refrain in the dozen wide-ranging essays, talks, and speeches collected here. In addition to meditating on his own fiction and plays, Gao discusses literature as testimony, the relationship between writing and metaphysics, the role of loneliness in creativity, and the importance of the individual. "I am highly suspicious whenever the name of a collective is invoked," he writes. "I actually become afraid that this collective name will strangle me before I have a chance to say anything." What is remarkable is that Gao carved out a space—physical, spiritual, aesthetic—in which to say what had to be said.

Gao Xingjian in New York City last fall

Two phrases—"without isms" and "cold literature"—recur like musical motifs, the first denoting the necessity of writing without subscribing to any political or literary ideology, the second describing writing as "a luxury, a form of pure spiritual pleasure." A luxury, one hastens to add, that to serious readers feels like a necessity. Gao's prose is dense, but his thought is far-reaching, his range of reference wide, his commitment to freedom absolute. This is required reading for those who want to see how a brave spirit overcame seemingly intractable political forces to create an enduring body of work.

Translator Mabel Lee provides a useful introduction to Gao's life and work, placing him in the context of modern Chinese literature, and she adds a bibliography. *Soul Mountain* is, of course, the place to start reading Gao Xingjian. But after you have experienced the play of his mind, the clarity of his vision, and the heartbreaking scope of his subject—the fate of the individual in a mass society—*The Case for Literature* will reveal the foundation upon which he builds his utterly original house of fiction.

—Christopher Merrill

All About 'I'

LYRIC POETRY:
The Pain and the Pleasure of Words.

By Mutlu Konuk Blasing. Princeton Univ. Press. 216 pp. $35

In 1804, William Wordsworth wrote a poem that begins, "I wandered lonely as a cloud," and tells a brief tale. A man sees some daffodils "dancing in the breeze/ Continuous as the stars that shine," and later takes pleasure in the memory. Simple and elegant, the poem is a quintessential lyric—a personal experience narrated in heightened language by an individual voice. This, at least, is a common definition of a lyric poem, but in *Lyric Poetry,* Brown University English professor Mutlu Konuk Blasing challenges our conception of that individual and, thus, of poetry itself.

She reminds us that the "I" in any poem is not necessarily the poet. "The speaker exists," she writes, "in our reading/speaking his words." Perhaps it's not Wordsworth watching those daffodils, but a voice speaking from our collective cultural consciousness, that lyric "I" which, according to Blasing, "makes the communal personality of a people audible." In this sense, all of us are the "I" in Wordsworth's poem. We have all seen something that gave us pleasure and that, when recalled, gave us pleasure again. Wordsworth's poem helps us remember this shared experience.

Blasing bases this notion of communal experience not on what poems mean, but in great part on the sounds they make. Poetry operates differently from regular, discursive language by "stylizing the distinguishing sonic and rhythmic qualities of a language" with, say, rhyme or meter. Consider the repeated "DA" in the final lines of T. S. Eliot's *The Waste Land.* To English readers, "da" is simply a phoneme, but to a Russian it is an affirmation; to an aesthete it evokes Dadaism; and so on.

Whether Eliot intended to suggest none (or all) of these meanings, readers' responses, Blasing argues, will be determined by their "mother tongue," the sounds and rhythms they came to know in infancy. It is in the way we readers hear "DA" that we become part of the "I" of the poem. This is not to say that poems are just baby talk; the stakes are far higher. According to Blasing, "Communities cohere around linguistic experience, and poetry is the ritualized confirmation of that coherence."

How, then, do we receive poems written in another language? Despite having translated a number of books by Turkish poet Nâzim Hikmet, Blasing makes the surprising claim that poetry "does not translate without a loss of its emotional charge." Yet her broader argument suggests that translations—even at their lower voltage—may hold the promise of a deep, compassionate connection with other cultures, a promise well worth exploring.

To realize the tantalizing possibilities of Blasing's argument that "we" are indeed the "I" who speaks in a lyric poem, we must seek out instances of lyric language that matter to us. For some, these will be found in the poetry of Wallace Stevens, Ezra Pound, and Anne Sexton—all of whose work Blasing examines closely. Others may connect to the rhymes of rapper Snoop Dogg. Wherever we find it, this poetic language—at once "alien" and "unspeakably intimate"—helps us discover the culture and memory that define us.

—Nicholas Hengen

RELIGION & PHILOSOPHY

The Lord's Day, and the NFL's

SUNDAY:
A History of the First Day From Babylonia to the Super Bowl.

By Craig Harline. Doubleday. 464 pp. $26

Sunday was nothing more special than the first day of the week for second-century Romans. They marked time according to a calendar originated by the Babylonians and organized by the Hellenistic Greeks into seven days named after the sun, the moon, and the five planets closest to the earth. For early Christians, however, Sunday was the Lord's Day—the day Christ was resurrected. When the Roman emperor Constantine proclaimed Sunday a public holiday in

AD 321, Christians faced a question that was debated for the next 2,000 years: Should they observe it in Sabbatarian fashion, as the Jews did their holy day, in keeping with the Fourth Commandment: "Remember the Sabbath day, and keep it holy"? Or should Sunday be observed less strictly—as a holiday as well as a holy day?

For roughly a millennium after Constantine's reign, as Brigham Young University historian Craig Harline recounts in this well-written and informative study, the Church of Rome took a moderate view of Sunday. Church officials often disagreed about the details of Sunday observance—especially about how much to tolerate pagan customs—but they all condemned work (with some exceptions for agricultural laborers).

With the onset of the Reformation, the Sabbatarian question became more important than ever—especially in England, where hundreds of pamphlets were written about Sunday observance. Puritans, who espoused a rigid form of Sabbatarianism, were so angered by King Charles I's non-Sabbatarian views—and by the monarchy's presumption to dictate Sunday observance—that many broke with the Anglican Church and left for Holland or the New World.

Sabbatarianism in England waned in the 18th century, but it returned during the Victorian era, owing to the evangelical revival. Continental Europeans (both Protestant and Catholic) complained that an English Sunday was dull and gloomy. A Scottish Sunday was even more severe, Harline writes. "It was supposedly marked by little conversation, much study of the Bible, not a single trifling word, the locking up of swings, sharp rebukes for whistling, and especially long sermons."

Harline focuses on Sunday observance in five countries during six different periods: 14th-century England, 17th-century Holland, late-19th-century France (mainly Paris), early-20th-century Belgium before and during World War I, England in the interwar years, and mid-20th-century America. He shapes an immense amount of material into a coherent and readable narrative, and his scholarship is impressive: The 53-page bibliography includes books and articles in German, French, Dutch, and Flemish. We learn how people prayed, what they ate for dinner, and especially what they did for recreation. In 17th-century Holland, for instance, ice skating and dancing were popular; Belgian men and boys before World War I enjoyed dove racing.

In his concluding chapter, Harline argues that most Americans now see no conflict between worshiping on Sunday and playing or watching sports. As the notion took hold that sports, as well as religion, promote good character, Harline says, sports underwent a sacralization. Professional football, which has always been played on Sunday, developed in midwestern cities "where Catholics and more liberal Protestants dominated the population." Sabbatarianism retained its hold longest in the South; Sunday sports were not legalized there until well into the 20th century.

A Scottish Sunday "was supposedly marked by . . . the locking up of swings, sharp rebukes for whistling, and especially long sermons."

By then, Sunday baseball and football games were popular everywhere. So too was Sunday stock car racing. And by the end of the century, Sunday was the second most popular shopping day of the week, a sharp change from the era of Closed on Sunday store signs. Harline himself doesn't regret the decline of Sabbatarianism. The Sunday of his childhood was a "rather sterile day, characterized partly by long hours in church but mostly by a constant, low-grade anxiety over what should be done—or more precisely *not* done." Yet Sunday is likely to "retain its extraordinary character," he concludes, if only because of its long history as a day apart.

—Stephen Miller

Mommy Nearest

YOU NEVER CALL! YOU NEVER WRITE!
A History of the Jewish Mother.

By Joyce Antler. Oxford Univ. Press. 321 pp. $24.95

How many Jewish mothers does it take to change a light bulb? "None—I'll just sit here in the dark." How does a Jewish mother call for help in an emergency? "Help—my son the doctor is drowning!" These kinds of jokes are so familiar that it's easy to overlook how odd it is that this particular ethnic stereotype continues to hold sway in American culture. Is the Jewish mother really more inclined to guiltmongering, more relentless in her ambitions for her children, than other mothers? And if not, why do the jokes seem so funny?

In *You Never Call! You Never Write!* gags and punch lines form part of a much-needed fuller portrait of the real Jewish mother and of the social and cultural pressures—above all, those related to immigration—that produced a century's worth of shifting comic stereotypes. In the new country, fathers' earning power was often markedly diminished, while mothers' authority, which increased at home, also grew more important to family success in the larger society. Rigid, ineffectual fathers contrasted with supportive, better-adapted mothers who bolstered their sons' transition to American life in such early depictions as the Al Jolson film *The Jazz Singer* (1927). But the intensity of the mother-son bond provoked vicious portrayals, too, such as Clifford Odets's Bessie in his 1935 play *Awake and Sing!*

Soon, Jewish comics addressing Jewish audiences at Catskills resorts were getting endless mileage out of jokes about doting, nagging, overbearing mothers. These jokes, Antler suggests, tapped into persistent communal anxieties over assimilation versus tradition and family solidarity versus American-style autonomy. From the Catskills, a training ground for comics generally, the caricature spread to the culture at large.

Antler, a professor of history and culture at Brandeis University, is particularly good on the disconnect between actual Jewish mothers and the popular parody. In 1959, the American Mothers Committee picked as "American Mother of the Year" Jewish jurist and mother Jennie Loitman Barron, who had just become the first female justice of the Massachusetts Superior Court. Yet in the decade that followed, Antler points out, American fiction was cementing the image of the Jewish mother through characters such as the monstrous, overprotective Sophie Portnoy of *Portnoy's Complaint* (1969).

Antler herself is the Jewish mother of two grown daughters, and cannot resist interrupting her scholarly narrative now and then with good-humored self-justifications. When, for example, her husband teases her for handing their high school–age daughter a bag lunch, toast, and orange juice every morning as she walks out the door, Antler protests, "Providing adequate nutrition is a dietary mandate, essential to our children's vitality and a protection from lurking dangers." It's a little incongruous to hear the stock figure speak for itself.

Near the end of the book, however, Antler's own experience merges seamlessly with her analysis. She notes that many young feminist comic performers, among them her own daughter, still fall back upon jokes about their mothers during their routines. Why? Maybe, Antler speculates, young feminists, like Jews in the mid-20th century, still find protection in self-mockery, or maybe "mothers *are* inherently laughable."

Though Antler worries about such jokes' continuing corrosive effect on Jewish female self-images, she sees progress. The stereotype changes as women take it up, and even those still in its grip can freshen it with a dash of modernity. She quotes Wendy Wasserstein, the playwright and humorist who died last year, on her admonition to her own young daughter when the two gazed on the Hope Diamond in Washington, D.C. Wasserstein initially found herself speaking to the child in her own mother's voice: "Darling, when you grow up you meet somebody nice to get you something like that." But she recovered quickly, adding, "Or, you can buy it for yourself."

—Amy E. Schwartz

SCIENCE & TECHNOLOGY

Ants Are Us

SIX LEGS BETTER: A Cultural History of Myrmecology.

By Charlotte Sleigh. Johns Hopkins Univ. Press. 302 pp. $55

My favorite 1950s horror film is *Them!*, the one in which giant ants come out of the atomic desert to terrorize Los Angeles. The premise is scientifically untenable, but it seems convincing enough for 94 minutes: Ants have our organizational skills, but none of our mercy. In any fair competition, they could beat us and, as is vividly depicted in the film, strip the meat from our bones. The movie's subtext about females with too much power somehow adds to its creepy appeal even as it offends my politics.

An entertainment like *Them!* feels rich in meaning because we think we see truths about human nature in ant societies. Ants' social lives are so similar to ours that we fall into comparison and analogy. In *Six Legs Better,* cultural critic and science historian Charlotte Sleigh reveals just how irresistible this metaphor making has been even for those who, theoretically, should know better. That myrmecology, the study of ants, has never enjoyed the status of a distinct discipline has much to do with scientists' own obsessions.

One of Sleigh's central characters, the Swiss psychiatrist and early myrmecologist Auguste Forel (1848–1931), saw in ants' cooperative colonies affirmation of his own beliefs about the virtues of socialism. Then there's Harvard entomologist W. M. Wheeler (1865–1937), who, like Freud, saw unhealthy mothering as a corrupting influence. Perhaps that's why he homed in on trophallaxis—the mutual feeding of larvae and their caretakers by regurgitation—as the sort of behavior that is both the basis of society and a symptom of neurosis.

More recently, sociobiologist Edward O. Wilson has stressed simple cues such as pheromones as the media of communication—in ants and humans. His model of organisms building

In the 1954 horror flick *Them!* mutant ants take on larger-than-life roles, but it's their organized raids that are truly terrifying.

complicated behavior out of simple cues, which he propounded beginning in the 1950s, owed something to Cold War thinking. The U.S. military funded a key 1953 conference on animal behavior, encouraging myrmecologists to seek the practical applications of ants. This is just one instance in which myrmecology influenced broader currents of thought. The seemingly minor discipline cast a long shadow, particularly through cybernetics, the study of communication principles common to machines and living things.

At every turn, Sleigh's inquiry leads back to intelligence and instinct, the opposing underlying principles often invoked to explain complex ant behavior. Those terms, used in bewilderingly contradictory ways by scientists in different disciplines, often obscure more than they explain. Some, for example, saw "instinct" as a compilation of learned behaviors that could be inherited; others used it as a synonym for "drive."

Six Legs Better is full of far-flung connections. Sleigh looks into such surprising matters as the poetry of Ezra Pound and T. S. Eliot, the criticism of I. A. Richards, movements for international languages such as Basic English, popular science writing, disciplinary boundaries in academe, and the dystopias of George Orwell and Aldous Huxley. Her digressions are not, as is too often the case in the work of lesser scholars, random samples of her latest reading, but necessary stops on a rich and rewarding journey.

—Gordon Grice

Truth Be Told

THE LIE DETECTORS: The History of an American Obsession.

By Ken Alder. Free Press. 334 pp. $27

Imagine investigating a homicide. As you assess the situation, a shifty-looking character who was seen fleeing is dragged in, but he protests, "I found him dead and ran away!" Lacking other evidence, what do you do?

If you live in prehistoric times, you make the runner swear he's telling the truth and hand him a red-hot iron. The gods will protect a truth teller from harm. If you're investigating the crime in Europe in the 1100s, the higher power invoked is Almighty God, and the Ordeal, as it's now called, may also require immersion in cold hallowed water (liars float) or retrieval of a ring from boiling water. The new insight is that everyone who touches hot things is harmed, but the wounds of truth tellers heal cleanly.

Skip several centuries, in which confession under torture is considered a guarantee of honesty, to 1940s America. The suspect is wired to a machine that graphs blood pressure, pulse and respiration rates, and galvanic skin response, and you ask, "Did you . . . ?" If he falsely denies it, the stress of lying registers as a spike. Case solved. Or maybe not. As this informative and entertaining history of the polygraph's invention makes clear, Americans are every bit as eager as the superstitious folk of earlier ages to embrace simplistic solutions to the complex problem of how to arrive at the truth.

Ken Alder, a Northwestern University historian, focuses on the two main players in the development of the polygraph. There is John Larson, a young Berkeley, California, cop with a Ph.D. in physiology who hoped to introduce scientific methods to police work. After Larson saw an article on blood pressure and deception by lawyer and psychologist William Marston, he developed the first operational polygraph in 1921 and, over a dozen years, refined it and the methods for using it. And there is Leonarde Keeler, a one-time colleague of Larson's who saw in this amazing machine the opportunity to make his mark on the world. Tireless marketer of the "Keeler Polygraph" and owner of a lucrative polygraph firm, he teamed up with his wife to solve headline-making crimes, the two of them becoming a real-life Nick and Nora Charles.

The introduction of the polygraph into 1920s and '30s America, where political corruption and police brutality were common-

place, had some predictable repercussions. Police and politicians quickly rejected the device, realizing it could be used against them. And the technology pitted Larson, who had envisioned it as a humane alternative to institutionalized abuse, against Keeler, who used any means to flack the machine to the news media and readily told suspects that the "lie detector" was showing them to be lying—even when it wasn't. Larson would come to call his invention "a Frankenstein's monster," and fight its use to the end of his life. But it was Keeler who triumphed.

It's hardly surprising that a populace hooked on true-crime stories became enthralled by a machine alleged to wrest the truth from criminals, or that business and the federal government enthusiastically employed the polygraph to expose such un-American traits as dishonesty or disloyalty, communist or homosexual leanings, and other threats to the Republic. Lie detection became a thriving industry that denied or cost people jobs and ruined lives. In 1988 Congress forbade most businesses to use lie detectors, but Alder traces the U.S. government's dismaying persistence. Until last year, some 20,000 employees of the Department of Energy were required to submit to polygraph exams; though the practice has been scaled back, it continues at many federal agencies.

Americans are as eager as the superstitious folk of earlier ages to embrace simplistic methods of arriving at the truth.

Psychologists have argued from the start that the brain is too complicated to yield its secrets to a mere stress detector; since 1923, judges have objected to the polygraph's lack of scientific credentials, and many states ban the use of polygraph evidence in court. All to little avail. In the American psyche, the myth endures that truth is within the reach of a machine that senses the outward manifestations of a living brain.

—Evelin Sullivan

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Children of War

CHILD SOLDIERS: From Violence to Protection.

By Michael Wessells. Harvard Univ. Press. 284 pp. $45

Though nearly all nations agree that children should not serve as soldiers, today some 300,000 do. The 1989 United Nations Convention on the Rights of the Child, which set the minimum age for recruitment into the military and other armed groups at 15 years, is the most widely subscribed human rights instrument in international law, ratified by 193 states. (The United States and Somalia signed, but have not ratified, the accord.) A protocol appended in 2000 and ratified by 110 countries established the minimum age as 18. Yet all this agreement doesn't prevent children's participation in roughly two-thirds of the world's conflicts.

In Liberia and Sierra Leone, the devastating civil wars of the 1990s, whose effects continue to reverberate through West Africa, were perhaps most infamous for the "small-boy units" of children under 12 who committed unspeakable crimes. In northern Uganda, until a recent tenuous truce, the Lord's Resistance Army did more than put guns into the hands of preteens: By sexually enslaving young girls and "marrying" them to his fighters, rebel leader Joseph Kony saw to it that children were literally born into the conflict. A recent study by the United Nations Children's Fund puts the average age of recruitment for child soldiers in six Asian countries at 13 years; more than a third of all child soldiers are under 12.

The Liberian boy standing guard beside a comrade in arms is one of more than 300,000 child soldiers who participate in violent conflicts around the world.

In the past few years, the body of literature devoted to the use of child soldiers—political and security analyses, sociological explorations, case studies of specific conflicts—has been growing. But largely unheard in these books are the voices of the child soldiers themselves, who more often than not are the object of mere voyeuristic attention, when they are not dismissed entirely as an irredeemable lost generation. Michael Wessells, a professor of psychology at Randolph-Macon College and Columbia University and a senior adviser on child protection issues with the Christian Chil-

dren's Fund, now fills that gap in the literature with an admirable work based not just on his own extensive research but on interviews with hundreds of former child soldiers.

The stories of young Sierra Leoneans who were ensnared in civil war illustrate the scope of human devastation. Twelve-year-old girls were "married" to the men who burned their villages, then were forced to carry heavy supplies. Rebels sought to sever young conscripts from their families. One boy, 16 at the time Wessells interviewed him, described being given a rifle and told to kill his aunt: "She was my relative and I didn't want to hurt her. They told me to shoot her or I would be shot. So I shot her." When the fighting stopped, former child soldiers' troubles weren't over. "I haven't been in my village since I was a little boy," said one young man, a veteran fighter at the age of 20. "My parents saw me last as a child. I have no job, and people look at me like maybe I am a troublemaker."

In later chapters, Wessells focuses on the still largely unexamined question of how to reintegrate these former soldiers into their societies. He contends that postconflict reintegration efforts ought to link former child soldiers' deep yearning for normalcy and acceptance with society's need for reconciliation and peace, as the Christian Children's Fund did when it established community infrastructure projects in Sierra Leone that employed former child soldiers alongside other youths, some of whom had been victims of their attacks. So often, former combatants are depicted as predators beyond rehabilitation. Wessells's optimism about their resilience and the restorative power of community offers cause for hope.

Wessells's concluding chapter, in which he recommends more stringent legal standards, war crimes prosecution, and conflict prevention, lapses into somewhat conventional discourse, but the book as a whole is perhaps the best general introduction published to date on the role of children in modern warfare. It serves as a salutary reminder of what must—and can—be done to end this tragedy.

—J. Peter Pham

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Ye Olde Cheshire Cheese Pub, London

Ye Joke's on Us

Nothing says olde English charm like the "ye" word, and it's been said so often that most people now use it with a nod and a wink, like the proprietors of Ye Olde Computer Shoppe in South Berwick, Maine. But the joke goes a little deeper. "Ye" is a descendant of the ancient runic symbol called a thorn (ᚦ), which expressed the sound *th*. As the English language evolved following the Norman invasion of England in 1066, scribes began to render the ᚦ in a form identical to the letter *y*. So patrons of Ye Olde Cheshire Cheese Pub several centuries ago probably spoke of it as *the* Olde Cheshire Cheese. Today's *ye* pronunciation is not much more antique than Cheez Whiz.

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