NUCLEAR POWER: 1945–1985

MIAMI

RELIGION AND POLITICS

by Paul Johnson

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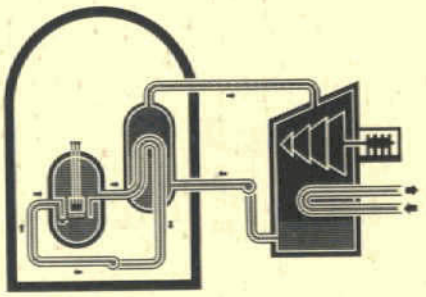
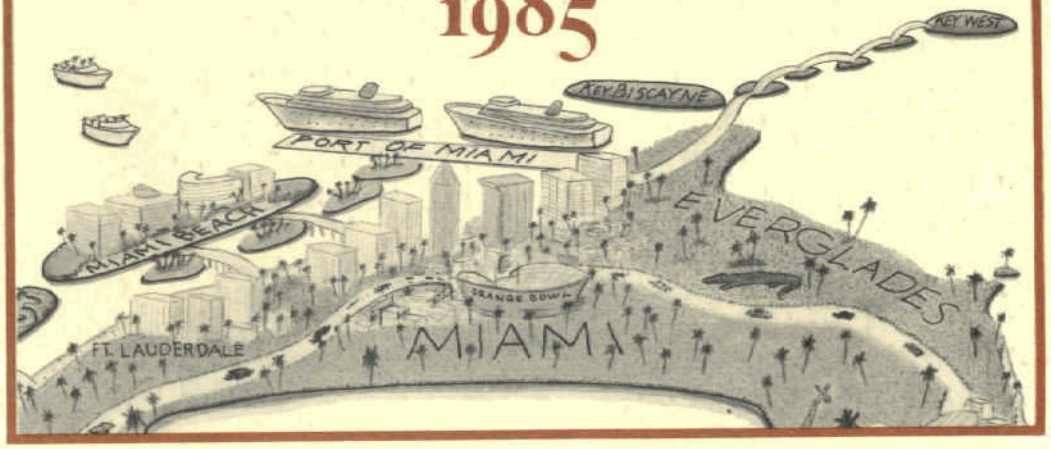


THE WILSON QUARTERLY

WINTER 1985



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Memo to editors

Subject: Oil industry taxes

Next time one of your reporters files a story about taxes and the oil industry, we hope you'll approach it as you would any other news item—making sure its contents are factual, accurate, and complete.

We make this plea because so many "facts" we've been seeing in print and on TV lately aren't facts at all. They're really inaccuracies which have been repeated so often as to become part of the "common wisdom"—things "everybody" knows which simply aren't so. Like the "facts" that frogs cause warts, and night air is bad for you.

Here, then, are some of the questions we hope you'll ask your reporters:

- Are the "tax breaks" the oil companies are supposed to enjoy really tailored just for that single industry, or does business generally get similar treatment?
- If all industries enjoy similar treatment, why hasn't that fact been mentioned prominently?
- Is it good journalism to treat the phrase "intangible drilling costs," for example, as if it described some loathsome disease, while failing to point out that the treatment of research and development and advertising expenditures in the same manner is quite honorable under the tax code? And that most businesses take such deductions, and properly so?
- Just what are "intangible drilling costs," anyhow?
- Are oil companies really undertaxed?
- Just how much do they pay in taxes to the federal government?
- How does their tax rate compare to other companies in other industries?
- What's the "windfall profit" tax?
- Are the oil companies making a windfall?
- How much money do they make?
- How do their earnings compare with industry generally?
- How does the rate of return on shareholders' equity compare? The return on capital employed? The return on assets?

We hope our suggested questions, and others you may add to the list, will prove useful in your goal to inform the public. Certainly there's no doubt that a fully informed public is in a much better position to make and accept policy decisions than a public that's been badly informed or kept in the dark.

(If you would like answers to the questions we've raised, write Box Q, Mobil, 150 East 42 Street, New York, N.Y. 10017. They may give you a fresh slant on our business.)

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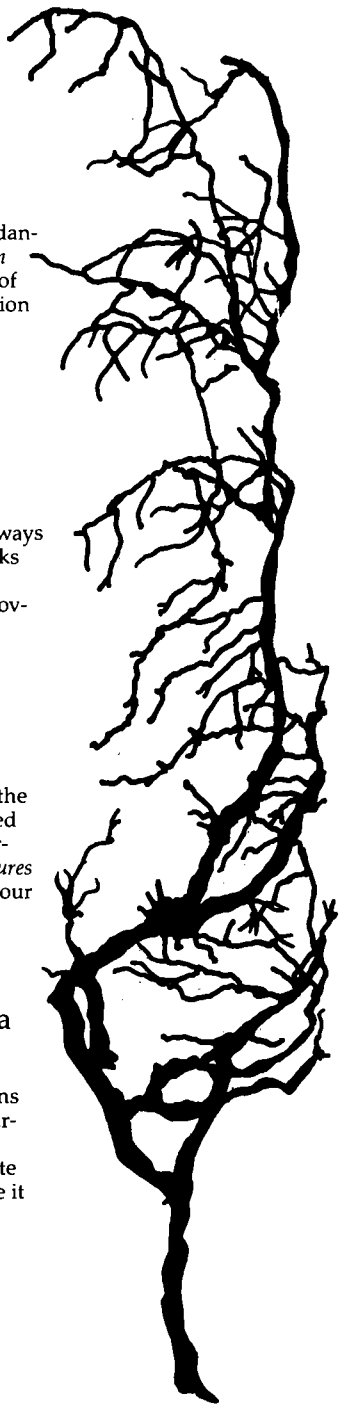

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VOLUME IX NUMBER 5

How to Become a "Black Belt" in Verbal Self-Defense

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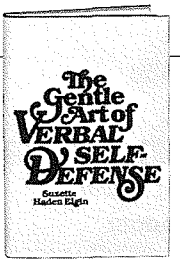
About the Author

Psycholinguist Suzette Haden Elgin has presented her innovative self-defense principles in a variety of formats. She has given workshops and seminars all over the U.S., including verbal self-defense sessions for doctors, lawyers, and other professionals. Dr. Elgin has also created a self-defense tape and a training manual for people who teach her self-defense techniques.



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Editor's Comment

Like the Wilson Center, the *Quarterly* has a strong bias—in favor of history. This bias is not widely shared by Washington policy-makers or by journalists. They, not surprisingly, focus on today and tomorrow. But good scholars find it necessary to re-examine the past in order to understand the present. Hence, history looms large in most of the *Quarterly*'s many essays dealing with contemporary matters, such as poverty (Autumn 1984), teaching in public schools (New Year's 1984), or, in this issue, the plight of nuclear power in America (pages 91–133).

As author William Lanouette makes clear, the nuclear industry's current difficulties did not begin with the widely publicized reactor mishap at Three Mile Island in 1979. Most of the problems in America have been self-inflicted—and far from universal. France, Britain, and Japan have been able to develop nuclear power in timely fashion.

Our study of nuclear power appears at an opportune moment. Not for a decade will the United States have to begin building new power plants to meet more consumer demand for electricity. This "breathing space" will allow Americans to ponder how best to reorganize and develop nuclear power so it is both safe and efficient. Mr. Lanouette describes some of the ideas that are now being discussed in Washington and elsewhere in the nation.

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PERIODICALS

Reviews of articles from periodicals and specialized journals here and abroad

POLITICS & GOVERNMENT

Whither the War Powers Act?

"War Powers Reconsidered" by Jacob Javits, in *Foreign Affairs* (Fall 1985), Council on Foreign Relations, 58 East 68th St., New York, N.Y. 10021.

In November 1973, the U.S. Congress—reacting to America's recent troubles in an undeclared war in Indochina—sought to tighten its grip on future U.S. military commitments. The legislators passed the War Powers Act. It required the president to consult with Congress before introducing armed forces "into situations where imminent involvement in hostilities is clearly indicated," to update Congress on the status of the U.S. troops involved, and to withdraw them within 60 to 90 days unless Congress votes otherwise.

Many liberals considered the act a constitutional landmark. Javits, a former Republican senator from New York and a principle author of the War Powers Act, still thinks it is. However, he notes that presidents Gerald Ford, Jimmy Carter, and Ronald Reagan all have found ways to circumvent the act at one time or another.

In 1975, Ford consulted with appropriate congressional leaders only *after* orders had been given to recover the U.S. freighter *Mayaguez* from Cambodia's Khmer Rouge, which had seized the ship while it was en route to Thailand. Carter's failed attempt to rescue the U.S. hostages from Iran in April 1980 was launched without White House consultation with Congress. Reagan, Javits contends, has repeatedly tried to "skirt" the congressional checks on his powers as Commander in Chief of the U.S. military. Javits cites as examples Reagan's redeployment of U.S. Marines in Beirut after the assassination of Lebanese president Bashir Gemayel during the summer of 1983; the staging of what Javits calls "war exercises" in Honduras beginning in February 1983; and the invasion of Grenada in October 1983.

Javits does not blame only the executive branch for the weakening of the act's impact. Congress, he says, has been reluctant to assert "its rightful obligation" to the American people. Recent moves to repeal the act, led by senators Barry Goldwater (R.-Ariz.) and Jeremiah Denton

(R.-Ala.), dishearten Javits further. But an opposing Democratic effort to strengthen the act is also under way.

"The victory on the War Powers [Act] in 1973 was hard-fought and hard-won," Javits contends. Congress "must find the will" to invoke the act, rather than let it wither away—especially at a time when the president "is under extraordinary pressure to take action . . . that will validate the effectiveness of U.S. power."

Favoritism at The Supreme Court?

"Governmental Litigants, Underdogs, and Civil Liberties in the Supreme Court: 1903–1968 Terms" by Sidney Ulmer, in *The Journal of Politics* (Aug. 1985), The University of Florida, Gainesville, Fla. 32611.

For at least 25 years, the U.S. Supreme Court has been accused of playing favorites in civil liberties cases (involving issues of free speech, religion, privacy). Many legal scholars have claimed that in those cases posing a governmental litigant against an "underdog," the government side usually wins.

Are those who wage civil liberties battles against the U.S. government, in fact, at a disadvantage? Ulmer, who teaches political science at the University of Kentucky, says they are not.

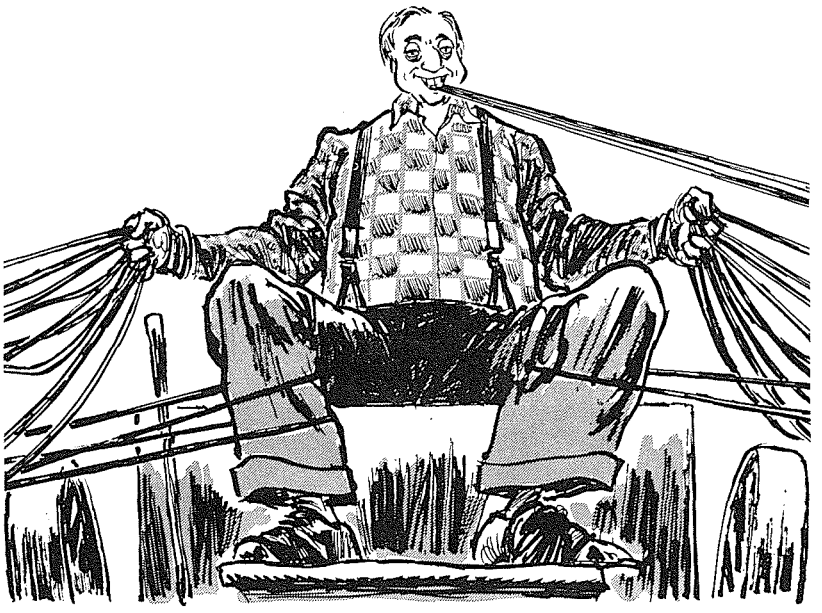
Indeed, Ulmer sees a trend in the opposite direction. After examining 1,283 civil liberties cases decided in the Court between 1903 and 1968—spanning seven court terms—he discovered a "steady and dramatic decline in the ability of state governments to win cases against underdog civil liberty claimants." To wit:

- From 1903 to 1930, led successively by chief justices Melville Fuller, Edward White, and William Howard Taft, the Court mostly ruled in favor of governmental litigants.
- During 1953–69, with Earl Warren as Chief Justice, government lawyers prevailed only 32.8 percent of the time.

Although *federal* attorneys fared better in Fuller's Court than in Warren's, Ulmer notes, the shift was even more pronounced in decisions on citizen suits against *states*. He also stresses that, overall, with one exception (during the tenure of Chief Justice Fred Vinson, 1946–53), "each succeeding Court . . . gave less support to governmental litigants than [did] its predecessor."

The greatest drop in government successes (from 77 percent to 56 percent), Ulmer adds, came under Chief Justice Charles Evans Hughes (1930–41). This dramatic shift coincided roughly with Franklin D. Roosevelt's political ascendancy, his New Deal coalition, and his attempt during the late 1930s to "pack" the Court with liberal judges.

It is too early to gauge the sympathies of the current Supreme Court, led by Chief Justice Warren Burger (since 1969). But preliminary studies, says Ulmer, suggest that decisions favoring civil liberties claimants may come less often than they did during the Warren years. So far, the "underdog" is winning fewer than half of the decisions.



In Walter Mondale's 1984 bid for the presidency, he charged that voters had to choose between a "Reagan America," characterized by greed and self-interest, and his own national community, "a family where we care for each other."

America's Small Republics

"Progressive Liberalism and American 'Community'" by William A. Schambra, in *The Public Interest* (Summer 1985), 10 East 53rd St., New York, N.Y. 10022.

When Walter Mondale went down to defeat in the 1984 election, many political pundits (and Democrats) portrayed the voters' rejection of his campaign theme—"Let us be a community . . . knit together by a band of love"—as proof that Americans now prized economic self-interest over all else.

In fact, argues Schambra, a Fellow at the American Enterprise Institute, voters rejected Mondale's message "not because of a resurgence of selfishness, but precisely because it . . . failed to provide America [with] the sense of community promised."

Mondale's concept had its origins in the Great Society of Lyndon B. Johnson, who triumphed in the 1964 presidential election with his vision of "America as a family." Johnson vastly expanded federal efforts aimed at drawing "marginal groups into the national community."

But large-scale, albeit erratic, federal intervention provoked a backlash. Intellectuals on the Left denounced the Great Society as "corpo-

rate liberalism" and an attempt to "regulate the poor." And, instead of joining the "national community," groups such as the Black Panthers called for greater *local* control of schools, welfare programs, and other social uplift efforts. Meanwhile, urban blue-collar folk resented Washington's tampering with long-established housing, schooling, and employment patterns. Not surprisingly, calls for a renewal of America's *neighborhoods* were heard during the 1968 presidential election season from candidates as diverse as Sen. Robert F. Kennedy (D.-Mass.) and Gov. George Wallace (D.-Ala.). From 1968 on, U.S. presidential hopefuls had to recognize the notion of the "renaissance of the small republic"—if only in their rhetoric.

The moral momentum of *national* community, as a concept, "is extremely difficult to sustain," Schambra notes. Reagan's 1980 campaign slogan—"family, neighborhood, work, peace, and freedom"—caught the prevailing popular sentiments, carrying him to victory then and again in 1984. Reagan's continued popularity, Schambra concludes, should not be seen as a "triumph of naked selfishness."

FOREIGN POLICY & DEFENSE

Soviet Subs In Scandinavia

"Soviet Submarines in Scandinavian Waters" by Kirsten Amundsen, in *The Washington Quarterly* (Summer 1985), 1800 K St. N.W., Washington, D.C. 20006.

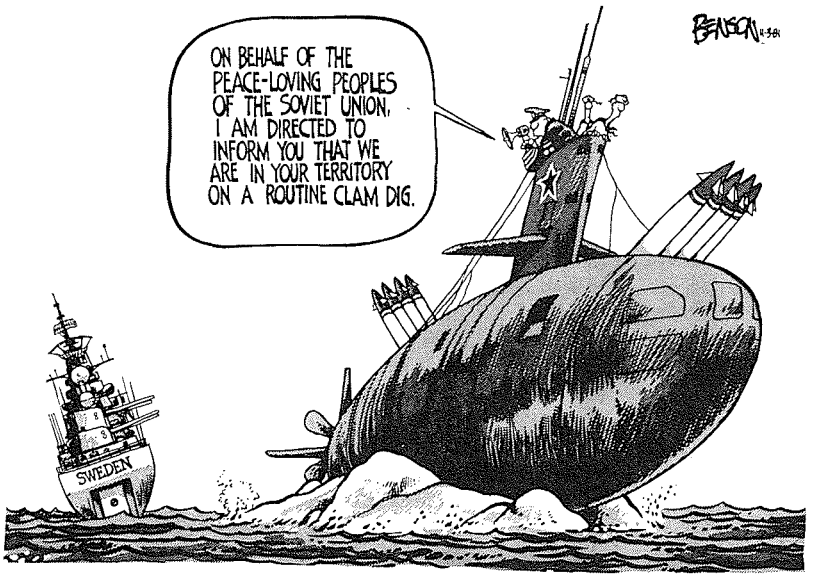
On October 27, 1981, a Soviet submarine ran aground near a Swedish naval base in the Karlskrona archipelago. The incident provided undeniable evidence of Soviet underwater incursions in the Baltic Sea—unauthorized "visits" that the Swedes had observed since the late 1960s.

Amundsen, a Norwegian journalist and Visiting Fellow at the Atlantic Council, sees a complex mix of motives behind these deliberate violations of territorial waters. She warns that they bode ill for both Scandinavia and Western Europe.

From 1969 to 1982, Norway and Sweden reported a total of 122 unauthorized underwater visitors. During the 1970s, there were fewer than 10 submarine sightings per year; by 1983, the number had risen to 50.

According to a study issued in April 1983 by the Swedish government's Submarine Defense Commission (created in October 1982, shortly after several "alien" underwater vessels penetrated the waters adjacent to Sweden's main naval base at Harsfjarden), the Soviet submarines focus their operations on the Baltic shore. Their likely mission: reconnaissance for possible future military operations that might include the landing of Soviet *Spetznaz* (Special Forces) troops and the planting or clearing of mines.

Another purpose of these regular underwater probes, Amundsen suggests, may be to wear down neutral Sweden's "will to resist," thus allowing the Soviets to operate freely in Swedish waters. This strategy is



Since the grounding of a Soviet Whiskey-class submarine in Swedish waters in 1981 (an incident dubbed "Whiskey on the Rocks" by Western journalists), Stockholm has reported some 300 incursions by "foreign" submarines.

working. The Swedes now treat such probes as "routine" and no longer openly protest to Moscow.

Norway and Sweden—with their long coastlines—are difficult to defend against invasion. Many Western strategists, Amundsen observes, regard the "Norwegian-Soviet border [as] . . . perhaps the weakest link in [the North Atlantic Treaty Organization's] defense lines in Europe." In case of war, from captured airfields and ports in Norway and Sweden, Soviet forces could cut allied Atlantic supply lanes.

"The key question," Amundsen says, is whether Soviet military strategists now envision Sweden as "a barrier for strategic defense, a sanctuary for air and maritime operations, or a springboard for offensive operations beyond Scandinavia."

The Iran-Iraq War

"Iran: Burying the Hatchet" by R. K. Ramazani, in *Foreign Policy* (Fall 1985), 11 Dupont Circle, Washington, D.C. 20036.

The border war between Iran and Iraq is now in its sixth year. Neither side is in a position to win or to dictate peace terms. Ramazani, who teaches foreign policy at the University of Virginia, argues that the time is right for Washington to step in and help negotiate a settlement.

FOREIGN POLICY & DEFENSE

Officially, the United States has remained "neutral" in the conflict between Iran's Ayatollah Khomeini and Iraq's Saddam Hussein. But Ramazani says that Washington's quiet "tilt" toward Iraq is unmistakable: the United States boycotts Iran and trades with Baghdad; U.S. military aid goes to Iran's foes in the Persian Gulf, most notably Saudi Arabia. This "tilt," he believes, is prolonging the war.

Influencing the Reagan White House, Ramazani contends, is the specter of calamity following an Iranian victory. But even if Iran were to come out on top, he argues, the Khomeini regime is not likely to cut oil production (it needs the money) or take revenge on hostile neighboring sheikdoms. Nor will the Iranians incite revolts by Shiite Moslems in other Arab states, as so many pundits have predicted. Rather, Iran will probably continue its current "open door" policy with the West, stepping up trade with Canada, West Germany, and Japan. (In 1983–84, those nations accounted for more than 50 percent of Iran's exports and 70 percent of its imports.)

Relations between the United States and Iran are not beyond repair; Khomeini "is now determined to terminate Iran's pariah status in world affairs." Recently, Iran's speaker of the Parliament, Hojatolislam Hashemi Rafsanjani, publicly raised the possibility of restoring diplomatic relations with Washington.

In short, writes Ramazani, "Iranians are fed up with the war." The conflict has already cost them more than $150 billion in war damages, $5 billion a year in military outlays, and more than 200,000 casualties. The United States should not only pressure Iran to halt all offensive operations but also encourage the United Nations to serve as mediator. Any new Iran-Iraq border agreement should probably provide for a third-party peacekeeping force. And, if peace is to last, he adds, Washington must get other Persian Gulf states to adopt a "principle of nonintervention" regarding future Iran-Iraq disputes.

No More Plutonium

"Stopping the Production of Fissile Materials for Weapons" by Frank Von Hippel, David H. Albright, and Barbara G. Levi, in *Scientific American* (Sept. 1985), 415 Madison Ave., New York, N.Y. 10017.

Attempts by the Soviets and the Americans to limit the number of nuclear warheads have, for the most part, come to nothing.

Neither the Strategic Arms Limitations Talks of 1979 (SALT II) nor the Strategic Arms Reductions Talks of 1982 (START) achieved any reduction in the number of warheads. Von Hippel, Albright, and Levi, all physicists affiliated with Princeton's Center for Energy and Environmental Studies, blame the technical difficulties associated with verifying the number of warheads in Soviet and U.S. arsenals. And, with the development on both sides of cruise missiles and small, mobile intercontinental ballistic missiles (such as the United States' proposed Midgetman), verification will become virtually impossible.

Consequently, the authors advocate a new look at one of the oldest proposals for restraining the growth of nuclear arms: halting the pro-

duction of weapons-grade "fissile" materials.

Both the United States and the Soviet Union already have enormous stockpiles of fissile explosives. Only one kilogram (2.2 pounds) each of uranium-235 and plutonium-239 were used in the U.S. bombs detonated over Hiroshima and Nagasaki in 1945. During the 1960s, at the peak of its nuclear weapons production, the United States produced 80 metric tons of weapons-grade uranium and six metric tons of plutonium a year. By 1964, the stockpile had grown so large that President Lyndon B. Johnson decided that no more newly enriched uranium was needed. Since then, new warheads have been fashioned only from recycled materials.

Between 1956 and 1969, the United States repeatedly asked Moscow to agree on limits to the production of weapons-grade material. Those proposals went nowhere. The USSR then lagged way behind the United States in nuclear weaponry. Not until 1982, when the Soviets had caught up, did Foreign Minister Andrei Gromyko agree to discuss a ban on production of fissile materials for warheads. However, no agreement was reached.

The authors argue that President Reagan's current plans for 10,000 new compact nuclear warheads (which would require stepping up plutonium production) is a move in the wrong direction. The White House should not increase U.S. production of weapons-grade materials. And, in future arms control talks, U.S. negotiators should press the Soviets to follow suit.

A "cutoff" treaty of this kind, the authors say, could be verified. Between on-site inspections by the International Atomic Energy Agency (which both superpowers have, to varying degrees, accepted) and satellite surveillance of heat emitted by weapons-making plants, clandestine violations would be unlikely.

ECONOMICS, LABOR, & BUSINESS

The Debt Crisis, Act II

"Current Illusions about the International Debt Crisis" by Lawrence J. Brainard, in *The World Economy* (Mar. 1985), 1 Gough Square, London EC4A 3DE, England.

When Mexico and Brazil ended fiscal 1984 in the black instead of the red, American bankers rejoiced that the international debt crisis had ended. But Brainard, a senior vice-president of Bankers Trust Company, argues that the financiers started celebrating too soon.

Mexico and Brazil have made impressive comebacks, Brainard says. Brazil rebounded from a $5.5 billion foreign trade deficit in 1983 to an estimated surplus of $650 million in 1984. Mexico's trade balance moved from a $13 billion deficit in 1981 to a $4.1 billion surplus in 1984. But so far such successes are exceptional. Argentina, Colombia,

and the Philippines have been unable to repay their loans on schedule. Chile and Peru need to borrow more money.

The trouble started during the early 1970s, when U.S. banks, anticipating rapid industrial expansion in Latin America, offered big loans on easy terms to Latin governments. Then came a series of oil price hikes, escalating inflation and interest rates, and recession. Suddenly, the Latin American nations could not meet their obligations.

Thanks for the current respite in the debt crisis are owed largely to the United States, the author says. Strong U.S. economic growth and a seemingly bottomless American appetite for imports have lifted the Latin American economies out of their slump. But America's prosperity is fragile, sustained by huge trade and federal budget deficits. By 1986 or '87, the red ink is likely to encourage higher interest rates, thus undermining U.S. economic growth. That would spell trouble for struggling Latin American countries.

Meanwhile, Brainard argues, bankers and politicians are deriving false comfort from the strong role that the International Monetary Fund (IMF) has played in the crisis. While the IMF has helped to arrange "stretched out" loan payments and is policing austerity measures in debtor countries, it has not sought the kind of fundamental economic reforms needed to ensure their prosperity. The fact that some Latin nations are already falling behind on their rescheduled loans, he says, may focus attention on the need to open the Latin economies to private enterprise and foreign investment. If no such shift occurs, he sees more trouble ahead.

Immigrants Climb The Ladder

"Foreign Born in the U.S. Labor Market: The Results of a Special Survey" by Ellen Sehgal, in *Monthly Labor Review* (July 1985), Bureau of Labor Statistics, Washington, D.C. 20212.

American history abounds with tales of foreigners who came to the United States with nothing, worked hard, and prospered. According to data collected early in 1983 by the U.S. Bureau of Labor Statistics (BLS), these legends are not myths.

Sehgal, a BLS economist, reports that in 1983, the bureau surveyed 11.4 million foreign-born residents in the United States. Some 6.3 million arrived between 1960 and 1979; another 900,000 from 1980 to 1981; the rest before 1960. The 1960–79 immigrant group, says Sehgal, showed patterns of education, employment, and earnings quite similar to those of their American-born peers. During 1982, for example, 11.7 percent of these foreign-born workers were unemployed, versus 10.1 percent of natives. Foreign-born workers had median annual earnings of $10,405, only six percent lower than their American-born counterparts. Employment distributions among the two groups were also comparable: about one-third of each worked in service industries, one-fifth in trade, five percent in construction. Equal proportions held professional or technical jobs.

The picture for more recent arrivals is not so bright, Sehgal observes. In 1982, one-third of those who had immigrated to the United States during the previous two years were out of work. By April 1983, only half of the jobless had found work; their median annual earnings were only $6,726. Yet, Sehgal says, "the foreign-born do not seem more likely than the U.S.-born to be recipients of government benefits." Only 13 percent of the immigrants reported receiving unemployment checks, food stamps, or other forms of federal assistance; among native Americans, the figure was 14 percent.

That recent arrivals should suffer economic hardship at first is not surprising. But Sehgal points out that, within five to 10 years, foreign-born workers tend to surpass their American-born peers professionally. One study of immigrants who came to the United States in 1970 found that by 1977, "the proportion of immigrants who were managers, proprietors, and owners exceeded the average for native-born workers." And immigrants who have lived in the United States for 25 years or more actually earn more than their American-born counterparts.

Deregulating The FCC

"Has the FCC Gone Too Far?" by John Wilke, in *Business Week* (Aug. 5, 1985), 1221 Avenue of the Americas, New York, N.Y. 10020.

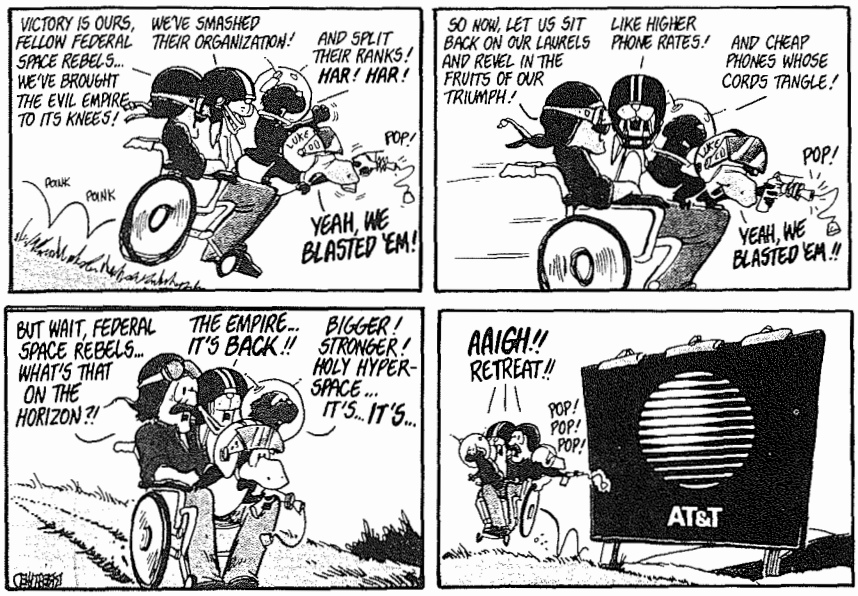
The U.S. Federal Communications Commission (FCC) began life in 1934 as an agency designed to stabilize and protect the communications and broadcasting industries. But since Chairman Mark S. Fowler took over in 1981, the FCC has moved rapidly to deregulate the two industries and open them up to free-market competition.

According to Wilke, a *Business Week* reporter, Fowler may be trying to do too much too soon. The FCC first revealed its new face during the Bell telephone system breakup. The FCC made it easier for smaller rivals to tackle Bell by allowing them, for example, to buy blocks of long-distance time from Bell and resell them to consumers. In TV broadcasting, the FCC has authorized the networks to expand the number of advertising minutes per hour and has cut federal red tape restricting the sale and licensing of TV stations. One result: The market value of some broadcasting companies has skyrocketed. Last May, the Tribune Company bought TV station KTLA in Los Angeles for $510 million, roughly double its 1982 price.

Wilke contends that deregulation "may be hindering rather than fostering competition." To begin with, it encourages the creation of media giants. In 1984, Fowler pressed Congress to raise the ceiling on the number of stations that a single broadcast company could own (from seven to 12). After negotiating with Rep. Timothy E. Wirth (D.-Colo.), chairman of the House subcommittee on telecommunications, Fowler struck a compromise: One company can own 12 stations, but only if its combined audience does not exceed 25 percent of all U.S. households with television sets.

Fowler's reforms have also made TV companies targets for hostile takeovers. Because station buyers are no longer required to keep their

ECONOMICS, LABOR, & BUSINESS



Telephone service has deteriorated and local charges have risen, critics of the Bell breakup complain. They also worry that Bell may reclaim its monopoly.

properties for three years before reselling them, there is little protection against unwanted corporate suitors. And the rapid increase in the value of TV stations has created a hot market for media properties. Many broadcast executives fear that the FCC's actions will force them to devote more time and money to thwarting corporate takeovers.

Ironically, the FCC's deregulatory stance may boomerang most severely in the case of AT&T. Many smaller companies have entered the long-distance phone market, but they still must use AT&T equipment. "To promote competition," observes Wirth, "the FCC must keep some controls on [AT&T]." Otherwise, the deregulated communications giant will simply smother its smaller rivals.

A Keynesian Recovery?

"The Recovery: Supply-side or Keynesian?" by Wallace Peterson and Paul S. Estenson, in *The Journal of Post Keynesian Economics* (Summer 1985), Rutgers University, Winants Hall, New Brunswick, N.J. 08903.

That the U.S. economy enjoyed a substantial recovery in 1983 is not in doubt. But how and why the economy rebounded have become hotly debated subjects among "supply-side" and Keynesian economists.

The Reagan administration cites the nation's economic vigor as proof that supply-side economics works. Peterson and Estenson, economists at the University of Nebraska, disagree. They assert that the recovery followed the classical Keynesian pattern: Federal deficits stimulated demand for goods and services.

The *Program for Economic Recovery* put forth by the Reagan White House in 1981 advocated cutbacks in social programs, reduced government regulation, and tax cuts for individuals and Big Business. Reagan's goal: to put more people to work and increase productivity, business investment, and personal savings. Yet, despite a 1981 tax cut that reduced the marginal tax rate on median-income families from 27.7 to 25 percent (and on upper-income families from 42.5 to 38 percent), participation in the labor force increased by only 0.6 percent. The authors also report that in 1983, industrial productivity increased by 2.7 percent, versus an average increase of 3.5 percent during all other postwar recoveries. Furthermore, the rate of personal savings actually *fell* (by more than a point, to 6.2 percent of disposable income in 1982 and to five percent in 1983). These figures, note the authors, "are hardly the results predicted by supply-side theory."

Supply-side advocates also argued that business investment would drive the recovery. However, calculations by the authors show that "only personal consumption and residential investment were significantly different statistically from their postwar averages." Such economic behavior follows the typical Keynesian recovery pattern. Another Keynesian notion—that deficit spending by the government will spur a recovery—is also borne out by current economic circumstances. The U.S. economy, they say, is precariously afloat on a sea of red ink: $195 billion in 1984, versus the $5 billion surplus predicted by the optimistic 1981 *Program*.

Although supply-side economists may not have engineered the economic recovery exactly according to their plan, the authors conclude that they may well have succeeded in discrediting Keynesian economic measures. Thanks to the massive federal deficit, "it is impossible to see how any future administration of whatever political persuasion could propose tax cuts or major spending increases . . . as a way of coping with a new recession."

SOCIETY

Infant Mortality

"Infant Mortality in the U.S." by C. Arden Miller, in *Scientific American* (July 1985), 415 Madison Ave., New York, N.Y. 10017.

Since the turn of the century, infant mortality has dropped steadily in the United States. Eleven out of every one thousand babies born in 1983 died before reaching their first birthday—down from 47 deaths

SOCIETY

per one thousand live births in 1940.

Impressive as these statistics may be, the problem of infant mortality is far from solved. Indeed, the United States has slid in rank on the worldwide infant mortality charts, dropping from seventh in 1954 to 17th in 1982. And according to Miller, professor of public health at the University of North Carolina, progress against infant mortality has slowed dramatically in the last year. The U.S. Public Health Service's goal of cutting infant deaths to nine per one thousand births by 1990 is no longer within reach. What happened?

Public health officials point to an upsurge in teen-age pregnancies (out-of-wedlock babies die at a higher rate) and cite increased tobacco, drug, and alcohol use among pregnant women. They also claim that improved medical care is merely postponing the deaths of some infants who in earlier times would have died before birth, their deaths classified as naturally aborted pregnancies.

But Miller blames cuts in federal funding of food stamps, Medicaid, Aid to Families with Dependent Children, and other programs for the poor. Hunger, contagious diseases, and poor sanitation all raise infant mortality, and, in Miller's view, all have been exacerbated by the budget cuts. Comparing the number of infant deaths during the U.S. economic recession of 1974, when spending for health services grew, and that of 1981–82, when it contracted, he discovered that infant mortality rates responded to changes in outlays.

Switzerland, France, England, and the Netherlands have continued to reduce infant mortality by providing free or subsidized health care for pregnant women. In fact, a recent Columbia University study of maternity policy in 75 countries found that only the United States has no law ensuring prenatal care for pregnant women. Under the 1978 Pregnancy Discrimination Act, pregnancy and childbearing are treated like "disabilities." The act requires employers to provide benefits "to the same limited extent as they are for illnesses."

Would federal support for pregnant women and young mothers be cost-effective? Yes, says Miller. He cites a study by the U.S. Office of Technology Assessment, which estimates that inadequate prenatal care boosts the nation's hospital bill by $360 million annually.

The Hmong In America

"Waking Up on the Moon: The Hmong in America" by Spencer Sherman, in *The APF Reporter* (Summer 1985), 655 15th St. N.W., Ste. 320, Washington, D.C. 20005.

Of the hundreds of thousands of refugees from Indochina whom the United States has welcomed, one group is faring particularly poorly. The Hmong, illiterate farmers from the mountains of Laos, are so disoriented in America that they might as well have immigrated "to the moon," reports Sherman, an Alicia Patterson Foundation Fellow.

Since 1975, the U.S. Office of Refugee Resettlement has accepted

In 1979, when some 60,000 Hmong arrived in the United States, the U.S. government resettled them in cities throughout the country. But during late 1981 and early 1982, nearly 30,000 migrated to California's Central Valley, hoping to start farms. To date, most are unemployed, though some have found minimum-wage jobs.

nearly 700,000 Indochinese refugees, 65,000 of them Hmong. During the Vietnam War, the Central Intelligence Agency—with the U.S. military barred from Laos by the 1954 Geneva accords—enlisted Hmong farmers to spy on North Vietnamese troops in Laos, disrupt communist supply lines, and rescue downed U.S. flyers. In exchange, they were given food, clothing, and gold. When Saigon fell in 1975 and the Americans pulled out of Indochina, many Hmong fled to Thailand and sought help from their former benefactors. As one Hmong refugee put it: "We consider [the U.S. government] as a mother and father."

The Hmong transition to American society has been exceptionally difficult, according to Sherman. Many of them moved, within days, from thatched huts along the Mekong River to apartments in American big cities. Most are unfamiliar with basic facets of modern life: electric lights, machinery, bill-paying. About 90 percent are unemployed; 80 to 95 percent are unskilled. They worship spirits, sacrifice animals, and practice polygamy. They have no native written language and have great difficulty learning English (unlike the Vietnamese, Cambodians, and Laotians).

Government-sponsored English language and job-training programs have not gone over well with the Hmong. They still prefer a simple, agrarian life. In search of mountains like those in their homeland, some 30,000 have migrated to California, nearly 15,000 to Fresno alone, Sherman reports. Most hoped to farm, but even that has proved difficult. Only 200 Hmong in Fresno have been able to make a living, mostly by growing specialty crops such as snow peas and bitter melons. The rest

struggle with low-paying jobs, or sit idle.

Hmong migration from other parts of the United States to California is a problem, Sherman says. But it is not foremost in the minds of Fresno county officials, who fear that the 45,000 Hmong remaining in Thai refugee camps may soon be expelled by the Bangkok government. Many of them have relatives in California's Central Valley.

The Criminal Personality

"Are Criminals Made or Born?" by Richard J. Herrnstein and James Q. Wilson, in *The New York Times Magazine* (Aug. 4, 1985), 229 West 43rd St., New York, N.Y. 10036.

When sociologists grapple with the question "What turns people into criminals?" they usually point to one of two factors: social circumstances or genetic inheritance.

Herein lies the problem, contend Herrnstein and Wilson, who teach psychology and government, respectively, at Harvard University. Scholars of crime tend to blame one factor or the other but neglect the interaction of the two. The authors argue that "the causes of crime lie in a combination of predisposing biological traits channeled by social circumstance into criminal behavior."

Until recently, social scientists virtually ignored the biological components of crime. One obvious indicator of crime's biological roots is that men, particularly young men, commit far more crimes than do women. Socialization offers, at best, only a partial explanation, the authors contend. After studying the link between sex and aggression in human beings, psychologists at Stanford University and the University of Southern California concluded in 1980 that "the average man is more aggressive than the average woman in all known societies" and that male sex hormones provoke aggressive behavior.

More biological evidence: Nearly a dozen studies of twins in the United States, Scandinavia, Europe, and Japan—all vastly different cultures—show that identical twins (same genes) are more likely to have similar criminal records than fraternal twins (half-shared genes). From 1977 to 1983, Sarnoff Mednick, psychologist at the University of Southern California, studied several thousand boys adopted in Denmark between 1927 and 1947. He found that boys whose biological parents were criminals, but whose adoptive parents were not, were still more likely to commit crimes than boys born to noncriminals but raised by criminals.

The authors warn against assuming a "crude biological determinism" or concluding that "the higher crime rate of black compared to white Americans has a genetic basis." Nor does the discovery of a genetic basis of crime mean that criminals are incurable and "should be locked up forever." Instead, these discoveries should encourage more research into the biological mechanisms that predispose humans to criminality. Alcoholics and manic-depressives are now successfully treated with psychological therapy and medication. Some day doctors may be able to offer criminals similar treatment.

PRESS & TELEVISION

India's Press

"Multitudinous Voices" by Salamat Ali, in *Far Eastern Economic Review* (July 18, 1985), G.P.O. Box 160, Hong Kong.

The press in India, among the world's largest and oldest, is also one of the most troubled. Though "free" by Third World standards, it is plagued by continual conflict with India's government.

The Indian public can turn to more than 19,000 newspapers and magazines, with a total circulation of roughly 51 million. Although no truly "national" newspaper exists, many of the nine major English-language dailies, such as the *Times of India* (circulation: 526,913), are available in most major Indian cities. But the regional "language press"—published in Hindi, Marathi, Tamil, and seven other languages—accounts for three-quarters of all publications read by Indians.

Regardless of language or location, all publications have had to contend with some degree of government censorship. In 1975, Prime Minister Indira Gandhi declared a state of emergency and gained sweeping powers over Indian society, recalls Ali, a reporter for the *Far Eastern Economic Review*. Gandhi's "Official Secrets Act" empowered her to shut down "antigovernment" publications and censor others.

When the state of emergency ended in 1978, India's parliament reacted by creating a Press Council to protect free speech. Now, Indira Gandhi's son and successor, Rajiv, has promised a new "communications policy." No one knows how repressive it will be. But Ali argues that after years of harassment by New Delhi, there is already "a great deal of self-censorship and conformity in the Indian press." Many prominent Indian journalists agree. Kuldip Nayar, a syndicated columnist, says that the press seems to accept Mrs. Gandhi's old proposition that "those who did not have a 'commitment' [to supporting the government] were acting against the interest of the country."

In purely commercial terms, the future of India's newspapers and magazines seems bright. One study projects that total print circulation will rise to 98–127 million by the year 2001. But whether India's press will be critical or obsequious depends largely on Rajiv.

Covering Israel's War in Lebanon

"The Prestige Press at War: The New York Times and Le Monde in Lebanon, August 1–September 26, 1982" by Raymond Stock, in *The Middle East Journal* (Summer 1985), 1761 N St. N.W., Washington, D.C. 20036.

When Israeli troops invaded Lebanon during the summer of 1982 to expel members of the Palestine Liberation Organization (PLO), many Western leaders, even those not directly involved, were up in arms.

Many TV and print journalists shared their dismay. So concerned was the Israeli government over negative press coverage that it held a

conference in the summer of 1983 to denounce alleged anti-Israeli bias in the Western news media.

But how real was that bias? To find out, Stock, a former Middle Eastern news analyst at the University of Michigan, examined the coverage of two of the world's top newspapers: the Paris newspaper *Le Monde* (circulation: 550,000) and the *New York Times* (circulation: 934,000).

Stock argues that the French daily paper embarked on a "crusade to expose the brutality of Israeli actions" and to promote the views of the PLO. It ran numerous articles highlighting the sufferings of Beirut's inhabitants, as well as letters by pro-Palestinian groups protesting Israeli conduct of the war. The title of an August 5 front-page editorial even described the invasion as "An Enterprise Which Dares Not Speak Its Name." Many of *Le Monde*'s editors were "clearly outraged" by the Israeli bombings, although they made some effort to balance the news by offering background to the Arab-Israeli conflict and by paying "considerable attention to Israeli government views and the feelings of French Jews."

The *Times*, on the other hand, was "objective," Stock argues, though its coverage was occasionally flawed. It highlighted Israeli prime minister Menachem Begin's "optimism" about PLO withdrawal from Beirut early on, and some stories lacked historical context. But overall its coverage showed "no obviously consistent attempt . . . to bias the news either for or against Israel." In one incident on August 4, the *Times*'s Beirut bureau chief, Thomas L. Friedman, filed a story describing the Israeli shelling of Beirut as "indiscriminate." Editors in New York, on guard against editorializing in news stories, deleted the word.

By and large, Stock contends, each newspaper remained faithful to its own traditions: the *Times* striving to limit opinions to the editorial page, *Le Monde* taking a far more didactic approach. Readers of the *Times*, in other words, were invited to make up their own minds about Israeli actions in Lebanon.

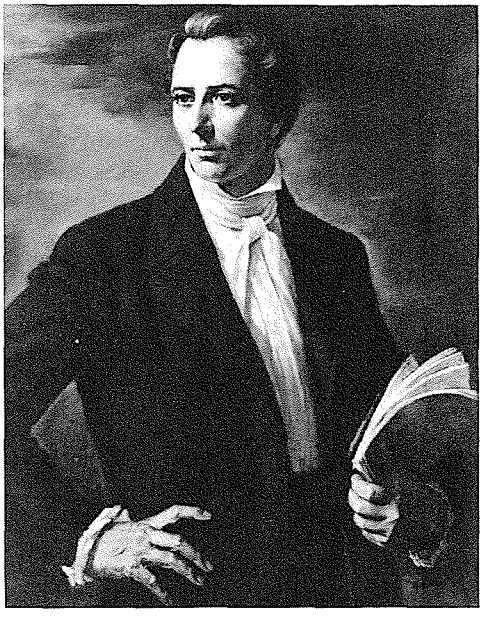
RELIGION & PHILOSOPHY

Mormon Letters

"Secrets of the Mormons" by David Brion Davis, in *The New York Review of Books* (Aug. 15, 1985), 250 West 57th St., New York, N.Y. 10107.

In April, the Mormon Church in Salt Lake City, Utah, printed a surprising letter in the official *Church News*. Dated 1830, the 637-word document was penned by Martin Harris, one of the church's "Three Witnesses" to a divine revelation by the Mormon Prophet, Joseph Smith, Jr. (1805–44).

This letter has stirred controversy because it appears to contradict the church's liturgy, reports Davis, a Yale historian. Mormon teaching, based on Smith's official account, is that God and Jesus—through an



Mormon Prophet Joseph Smith, Jr., experienced his divine revelation in 1827, at the age of 14. His "official" account first appeared in 1842, in the Times & Season, *a Mormon newspaper in Nauvoo, Ill., and was published in the Mormon scripture* The Pearl of Great Price *(1851).*

angel, Moroni—led Smith to sacred golden tablets, buried by ancient Israelites near present-day Palmyra, N.Y. From those plates, Smith translated the *Book of Mormon*, considered the holiest book (along with the Bible) of the 5.4 million members of the Church of Jesus Christ of Latter-day Saints.

The Harris letter (dated seven months after the *Book of Mormon* was first published) says that "an old spirit" told Smith to "dig up the gold." Smith told Harris that "the spirit transfigured himself from a white salamander in the bottom of the hole." Harris mentions no angel, or God, but instead talks of "money digging" and of using a "seer stone" to find buried treasure. Harris suggests that a magical stone may have helped locate the buried scriptures.

Does this historical discrepancy undermine the Mormon doctrines? Davis thinks so. He argues that all this historical muckraking has contributed to a Mormon crisis of faith and egged on skeptics. The best way to clarify the liturgy's questionable passages, he argues, is to allow independent professional scholars to examine Mormon archives.

But the Mormon Church does not want outsiders meddling with its archives in Salt Lake City, Davis writes. Leonard Arrington, the church's first official historian, from 1972 to 1982, believed that "free scholarly inquiry could only strengthen faith among Mormon intellectuals." But in 1982, Mormon elders grew tired of his "unorthodox" approach, fired him, and clamped down on research.

Where does that leave the controversy? In limbo, says Davis. Without access to crucial sources, historians cannot "write confidently about Mormon beginnings."

RELIGION & PHILOSOPHY

Homage to Sidney Hook

"Sidney Hook, Embattled Philosopher" by Nathan Glick, in *Encounter* (June 1985), 59 St. Martin's Lane, London WC2N 4JS, England.

Sidney Hook, the peppery chairman of New York University's philosophy department from 1948 to 1969, is now retired. But to Glick, former editor of *Dialogue*, he remains "America's leading polemicist."

Hook's forthcoming autobiography is called *Out of Step*, a title that Glick considers apt. A confirmed Marxist during the 1920s and 1930s, Hook was the first American to study at the Marx-Engels Institute in Moscow. But his intellectual admiration for Marx did not prevent him from vigorously denouncing the "horrendous excrescences" of life in the Soviet Union under Joseph Stalin's rule (1924–53). Hook led the intellectual attack on Stalinism during the 1950s, when other U.S. intellectuals generally abided by the rule "no enemies on the Left," and was also active in the opposition to Sen. Joseph McCarthy (R.-Wis.), because his "lies and indiscriminate accusations" were undermining rational criticism of communism.

A staunch pragmatist in the tradition of American philosopher John Dewey (1859–1952), Hook held that scientific methods (i.e., inquiry and evaluation) should be applied to questions of value and social policies. Ideas, beliefs, and moral judgments must be tested by analysis and logical inference. The 83-year-old philosopher has authored some 20 books on subjects ranging from *The Metaphysics of Pragmatism* (1927) to *Common Sense and the Fifth Amendment* (1963) and *Religion in a Free Society* (1967). Ironically, Hook's friend Irving Kristol, editor of the *Public Interest*, notes he is "sadly tone-deaf to religion."

Hook's humanist values are best summed up in his recent statement: "Those who say life is worth living at any cost have already written for themselves an epitaph of infamy, for there is no cause and no person they will not betray to stay alive. Man's vocation should be the use of the arts of intelligence in behalf of human freedom."

Anthropology Branches Out

"Waddling In" by Clifford Geertz, in *Times Literary Supplement* (June 7, 1985), Priory House, St. John's Lane, London EC1M 4BX, England.

Defining anthropology, traditionally an amalgam of social sciences, has never been easy. Geertz, an anthropologist at the Institute for Advanced Studies and dean of the discipline, says that expansion of the field has made its boundaries even more nebulous.

"People who watch baboons copulate, people who rewrite myths in algebraic formulas . . . people who work out decimal point correlations between toilet training practices and theories of disease . . . all call themselves anthropologists," remarks Geertz. Cognitive psychology (neurology joined with computer science), theoretical linguistics (the study of languages' underpinnings) and biogeography (the biological aspects of demographics) at one time all fell under the aegis of anthro-

pology. Now they are fields in their own right.

During the late 19th and early 20th centuries, anthropologists mainly studied "primitive" cultures. But now, notes Geertz, not only are such cultures—untainted by modern life—rapidly disappearing, but the anthropologists are virtually stepping on each other's toes to study those that remain. Whether in the highlands of New Guinea or Amazonia, researchers find "not just 'natives' and mud huts, but economists calculating Gini coefficients, political scientists scaling attitudes . . . sociologists counting houses."

Such changes have outmoded the old dirt-under-the-toenails approach to the study of foreign cultures that initially attracted the field's stalwarts. However, there is a good side to all this diversification. The field, Geertz says, is at the height of its "prestige." Leading 20th-century anthropologists (Claude Lévi-Strauss, Franz Boas) are now read by biologists as well as literary critics.

Geertz believes that the new anthropology of test tubes and computer printouts will lead to a more sophisticated understanding of many societies. But he still longs for the days when anthropologists could "walk barefoot" through primitive cultures.

SCIENCE & TECHNOLOGY

Nature's Geometry

"Fractal Symmetry" by Mort La Brecque, in *Mosaic* (Feb. 1985), National Science Foundation, Washington, D.C. 20550.

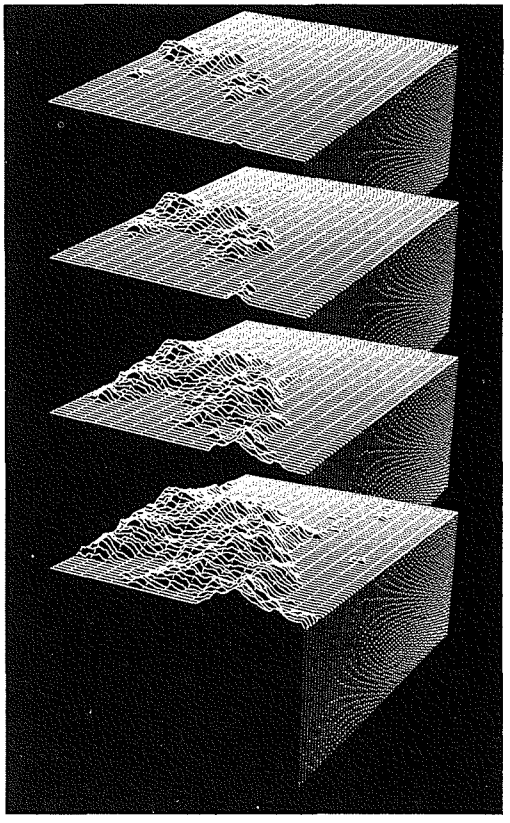
Does randomness have a pattern?

The question is strange, almost oxymoronic. And yet a question like this led Benoit Mandelbrot, a Harvard mathematician, to the remarkable discovery that many seemingly random shapes in nature (coastlines, mountains, flowers, etc.) have underlying patterns and structures that can be described mathematically. For his discovery, the National Academy of Science recently awarded him the Bernard Medal for Meritorious Service to Science.

Mandelbrot's fractal geometry (derived from the Latin word *fractus*, meaning fragmented or irregular) is a mathematics of irregularity, instead of regularity, says La Brecque, a former editor of *The Sciences*. Mandelbrot looks for simple, infinitely repeating patterns in highly convoluted objects. A beautiful cloud formation might be reduced to mushroom-like shapes growing out of similar mushroom-like shapes. Or a few jagged lines that spawn similarly shaped lines might evolve into a pattern that looks like last year's Dow Jones average. By programming fractals into computers with graphic capabilities, Mandelbrot has been able to generate startling reproductions of landscapes, vegetables, planets, and solar systems.

The key to fractals is "self-similarity," a concept exemplified in Mandelbrot's text, *The Fractal Geometry of Nature* (1982). Take, for example,

SCIENCE & TECHNOLOGY



During the 19th century, scientists noted that rocks and land masses tended to fracture in predictable patterns. In 1975, Mandelbrot reversed the process. Using computer graphics to expand three-dimensional fractals, he was able to simulate volcanoes growing, continents evolving, and islands emerging from the sea.

an equilateral triangle. Place on each side of that triangle a little triangle (half the size of the original one, for instance) with the same proportions. Place on each side of those smaller triangles an even smaller triangle of the same proportion. If this procedure continues infinitely, a snowflake image is formed.

Mandelbrot has found widespread applications for fractals. He can analyze turbulent airflows under an airplane, recreate branching blood vessels, and simulate water flowing down a fall. Previously, engineers and scientists were forced to approximate these irregular shapes with techniques based on Euclidean geometry. Developed by the Greeks circa 300 B.C., this system uses "ideal" shapes (cones, spheres, cubes) to analyze non-ideal problems. But the Euclidean model breaks down when faced with great irregularity.

Mandelbrot says that Euclidean geometry is often called "cold and dry," even limited, because its analytical methods are formal and rigid. "Then there is real chaos," he says, "which is messy and incomprehensible. In between the two classical poles there is now fractal geometry. It is neither overly smooth nor fully chaotic."

Computers for The Injured

"Helping Paraplegics Walk: Looking beyond the Media Blitz" by Howard Jay Chizeck, in *Technology Review* (July 1985), Massachusetts Institute of Technology, Bldg. 10, Cambridge, Mass. 02139.

Medical technology for victims of spinal injuries falls into two camps: what is available today, and what is on the drawing board.

Unfortunately, the media have blurred that distinction, offering information to some but false hopes to others, argues Chizeck, who teaches biomedical engineering at Case Western Reserve University. The future is bright, he says. But the relevant technology is still young.

The special problem with spinal injuries (which may affect as many as 500,000 people in the United States) is that spinal nerves do not repair themselves in the same manner that peripheral nerves in muscles and skin do. Once the spinal cord has been cut, brain signals normally routed through it go nowhere. Limbs below the injury lie paralyzed.

The most sophisticated research to date involves "neural prosthetics," or devices that can take over the damaged spine's role. The task here is to coordinate the thousands of neuromuscular signals that are necessary just to take a few steps. So far, the greatest gains have been made in "functional neuromuscular stimulation" (FNS), says Chizeck. FNS systems use minicomputers to activate paralyzed limbs with electrical signals, which are piped into major muscles through electrodes.

During the 1970s, paraplegics in California, Virginia, and Yugoslavia were able to stand and walk using FNS technology. This year, researchers at Case Western helped one paraplegic walk 700 feet, even up and down stairs. In fact, 10 quadriplegics have been able to eat, type, write, drink, and smoke in early experiments. But the equipment is still cumbersome and difficult to operate.

Chizeck believes that the FNS system's high costs (as much as $30,000) will drop, but "they will probably be at least as expensive as an automobile." Nevertheless, he adds, "by replacing some of the nursing care quadriplegics require, such devices could save millions of dollars in health-care costs . . . [and enable] some quadriplegics to regain useful employment."

Frozen Human Embryos

"Frozen Embryos: Policy Issues (Special Report)" by Clifford Grobstein, Michael Flower, and John Mendeloff, in *The New England Journal of Medicine* (June 13, 1985), 10 Shattuck St., Boston, Mass. 02115.

Since 1978, when the laboratory (in vitro) fertilization of a human embryo in England led to the birth of a healthy child, controversy over the ethics of human embryo research has grown.

In 1979, an Ethics Advisory Board within the U.S. Department of

SCIENCE & TECHNOLOGY

Health, Education, and Welfare issued a report on in vitro fertilization, but the panel never dealt with the freezing of embryos. In 1982, then Rep. Albert Gore, Jr., (D.-Tenn.) headed a House subcommittee that held hearings on frozen embryo research but came to no conclusions. Consequently, note Grobstein and his fellow researchers at the University of California, no firm federal guidelines were ever set. In addition, "a de facto ban on federal support of in vitro fertilization research has existed since then."

To date, at least five healthy infants have been born in Australia and the Netherlands from embryos that were fertilized outside the mother's body, temporarily frozen, and then reimplanted in her womb. (No such births have been recorded in the United States.) Grobstein and colleagues argue that the time has come for the "United States . . . [to] launch a comprehensive deliberative process [regarding] in vitro fertilization" and set public policy.

What are the ethical dilemmas? Consider some examples. It may soon be possible to freeze embryos for up to 30 years without harming them. If so, a couple might want to have a child now and store an embryo for the future, or adoption, or genetic testing. What happens if the parents die? (This happened in 1983, when an American couple was killed in a plane crash, leaving two frozen embryos in an infertility center in Melbourne, Australia.) Does the embryo then "belong" to the government, the parents' estate, or the storage facility? And there are related questions: Should the embryo always be subject to the will of its biological mother? Should human embryos be frozen and stored at all?

Without definitive regulations on frozen embryo research, the authors argue, the U.S. court system will soon be burdened with moral and technical disputes that it is not equipped to resolve. To prevent legal conflicts, the authors recommend temporary guidelines: the freezing of human embryos should be limited to helping infertile couples have children; embryos should be returned to the womb of the donor (unless the donor authorizes implantation in someone else); and no embryo should be stored for more than five years.

Grobstein and company contend that these restrictions should encourage controlled research while assuaging public fears of uncontrolled medical experimentation.

Darwinism Evolves

"The Evolution of Darwinism" by G. Ledyard Stebbins and Francisco J. Ayala, in *Scientific American* (July 1985), 415 Madison Ave., New York, N.Y. 10017.

Charles Darwin's theory of biological evolution has entered a new phase in its own evolution.

"The meaning of evolution at a molecular level is beginning to come clear," write Stebbins and Ayala, geneticists at the University of California, Davis. "It is now possible, for example, to give incipient answers to the question: How do new genes arise?"

Originally, Darwin (1809–82) explained evolution through natural selection, or "survival of the fittest." Animals randomly mate and pass on heritable characteristics. Those well suited to their environment survive; others die off.

But during the 1930s, a revised "synthetic" theory of evolution slowly displaced the original doctrine. Biologists affirmed Darwin's belief that current species share common ancestors but disagreed with the explanation he offered. They argued instead that mutations and the uneven distribution of genetic material in the population played a greater role in evolution than did simple natural selection.

The latest thinking, according to Stebbins and Ayala, is that new genes created through "errors" are largely responsible for evolutionary changes. In one kind of error called "tandem multiplication," a gene is repeated in sequence during meiosis (the process that forms sperm and eggs). The error multiplies as the organism grows and becomes part of the next generation. "Genetic variation" within a species, a precondition to chromosomal aberrations, is now believed to play a larger role than was once thought. Here, subtle differences in the genetic composition of two similar animals can lead to offspring whose genes differ slightly from those of their parents.

Interpreters of these latest findings split mainly into two categories, Stebbins and Ayala note. "Neutral" theorists argue that chance plays a larger role in an organism's survival and variation than does natural selection. On another front, "punctualists" (led by Harvard's Stephen Jay Gould) contend that the natural selection hypothesis fails to explain the *sporadic* pace of evolution, as seen in new fossil evidence. Both groups reject the synthetic theory.

Stebbins and Ayala, however, disagree with neutralists and punctualists. They believe that the synthetic theory, and the basic tenets of Darwin, are still sound. "The new molecular biology, by showing that the evolutionary process at the level of DNA is far more complex than had been thought, casts doubt on some old [Darwinian] certainties," they say. But it also explains "how genetic information accumulates over evolutionary history."

RESOURCES & ENVIRONMENT

Are Pollution Controls Working?

"No One Knows for Sure if Pollution Control Programs Are Really Working" by Rochelle L. Stanfield, in *National Journal* (Mar. 23, 1985), 1730 M St. N.W., Washington, D.C. 20036.

Last year, the United States spent about $45 billion to control air and water pollution. But because of difficulties in accurately measuring pollutants in the environment, observes Stanfield, a reporter for *National Journal*, even the U.S. Environmental Protection Agency (EPA)

does not know if the country is "getting its money's worth."

Although the EPA subsidizes hundreds of pollution control programs throughout the country (for drinking water, auto emissions, landfills, etc.), it has no centralized monitoring system. Some 5,000 monitors test air quality nationwide. Only now are those units in the right place, operating properly, and in compliance with EPA rules, Stanfield notes. In 1979, the General Accounting Office found that 72 percent were positioned incorrectly, 58 percent were the wrong kind, and 81 percent of the sites themselves were unsuitable. (In Burbank, Calif., one air sampler stood at the end of an airport runway, recording incredibly high pollution for the entire city.) Many of the monitors are outdated, Stanfield observes, and "too few data are collected to get an accurate reading of the air's condition."

If the EPA's picture of air pollution is foggy, Stanfield maintains, its knowledge of water pollution is worse. Under the current setup, state agencies collect and test water samples in exchange for federal pollution control aid. Their quality control is dubious. In fact, for national reports the EPA often ignores state-supplied data, relying instead on information provided by the U.S. Geological Survey. (Even these data are troublesome, since samplers for the Survey are not designed to measure pollution.) And industrial water pollution, the most dangerous, is monitored only by the polluters themselves, who must report their own violations. The National Resources Defense Council found that 90 percent of 2,200 industries studied had exceeded their pollution quotas.

Stanfield suggests that centralized pollution monitoring would be well worth the money. In the words of S. William Becker, executive secretary of the state and local air pollution control administrators organization: "There is no excuse for not establishing a nationwide air toxics monitoring system that could give the public, Congress, and federal, state, and local agencies assurance about what is out there."

No Consensus On Dioxin

"Dioxins in the Environment: No Consensus on Human Hazard" by Rebecca Rawls, in *Chemical and Engineering News* (May 27, 1985), 1155 16th St. N.W., Washington, D.C. 20036.

Last April, the American Chemical Society held a week-long symposium in Miami on the hazards of dioxin, a toxic chemical frequently used in herbicides. The participants' conclusion: It is still too early to tell exactly how dangerous dioxin is to humans. So reports Rawls, staff writer for *Chemical and Engineering News*.

"The federal government has committed hundreds of millions of dollars . . . to confirm that actual human exposure is minimal, and occurs primarily in 'hot spots,'" says Alvin L. Young of the U.S. Office of Science and Technology Policy. Young also says that the data collected so far from government-sponsored tests do not convincingly link exposure to dioxins with cancer in humans.

Other scientists disagree. Arnold Schecter, an epidemiologist at the State University of New York, argues that the government's studies lacked adequate controls and failed to quantify the amount of TCDD (the most toxic compound in dioxin) to which the subjects were exposed. The U.S. Environmental Protection Agency (EPA) classifies TCDD as a "probable human carcinogen." In addition, many cancers have 15-year latency periods; the carcinogenic effects may still turn up. Schecter and a Canadian researcher have found dioxins in the fat tissues of both Americans and Canadians. These findings, they note, are "unexpected and may be of public health significance." They speculate that humans are being exposed to TCDD through "the food chain" or the incineration of industrial wastes.

Schecter has also compared the fat samples of nine people living in North Vietnam and 15 people living in South Vietnam (where the U.S. sprayed Agent Orange, a dioxin-rich herbicide, from 1962 to 1970 during the Vietnam War). The North Vietnamese showed no exceptional contamination; but the South Vietnamese had levels of TCDD two to three times higher than those found in residents of North America.

Dioxin in the environment justifies concern, says Rawls, but not panic. S. Fachetti, who studied a 1976 dioxin accident in Seveso, Italy, found no "bioaccumulation" of the toxin in plants grown in contaminated soil near the stricken city. David Firestone, a U.S. Food and Drug Administration chemist, notes that fish sampled from Lake Huron between 1979 and 1983 indicate that TCDD contamination has declined. Moreover, the EPA is now cleaning up the remaining hot spots across the nation with mobile incineration systems.

ARTS & LETTERS

Women in Greek Myths

"Women in Greek Myth" by Mary R. Lefkowitz, in *The American Scholar* (Spring 1985), 1811 Q St. N.W., Washington, D.C. 20009.

In ancient Greece, myths often played a role in society similar to that of Old Testament parables in later years. They were tales with lessons about daily life.

Psychologists (and lately, feminists) have observed that the notion that "a woman [should be] passive and subject to control by the men in her family [is] expressed in virtually every Greek myth," notes Lefkowitz, professor of humanities at Wellesley College. Many stories about goddesses revolved around their unions with males, in which "a patriarchal order [was] established." The Greek view of celibacy, virginity, and freedom often showed women trapped in marriage with philandering, untrustworthy males.

Moreover, "since the Greek myth glorified the role of mother, it also tended to condemn to infamy those who in some way rebelled against it," says Lefkowitz. "A confirmed moral virgin who resisted the ad-

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The Greek heroine Medea, depicted here with her two sons in an 1838 painting by Eugène Delacroix. Deserted by her husband, Jason, she revenged herself by murdering both her children and her husband's mistress.

vances of a god might be punished simply by metamorphosis into a tree or flower. But women who consciously denied their femininity, like the Amazons, or ones who killed their husbands and fathers, like the women of Lemnos, were regarded as enemies and monsters."

Yet, Lefkowitz argues, to draw only that picture is to distort the Greek image of women. Not only did many female mythic figures possess "a capacity for understanding . . . initiative and intelligence" that is not found in the women of the Bible, but much of Greek mythology was devoted to "the problems of human existence from a woman's point of view." In Euripides' play *Medea*, for example, Medea herself laments that "when a man is bored with his family, he can go out and put an end to his heartache, but a woman must stay behind, inside the house, and 'look toward him alone.'"

In *The Shield of Heracles* (attributed to the author Hesiod, circa 800 B.C.), Heracles' mother, Alcmena, would yield to the great god Zeus and bear his child only when deceived into thinking she had been faithful to her husband. A clever beauty, she starred in the epic as a courageous heroine. "The moral superiority of women like Alcmena is significant," says Lefkowitz, adding that, in Greek eyes, a "race of heroes cannot exist without women of heroic caliber."

Stressing that the Greek concept of womanhood was, in fact, rather

complex, Lefkowitz gleans two lessons from the ancients. First, "as far as the Greeks were concerned, the human condition—not gender—causes problems that both men and women are bound to experience." And second, the modern notion that the ambitious career woman "can 'have it all' without divine intervention" is itself an illusion.

Modern Soviet Literature

"Out of the Drawer and Into the West" by Fernanda Eberstadt, in *Commentary* (July 1985), 165 East 56th St., New York, N.Y. 10022.

During the 1960s and '70s, several prominent Soviet novelists, fearing persecution by authorities, kept their fiction in "the desk drawer"—to be read secretly and smuggled abroad. Only recently have many of those manuscripts been published in the West.

Despite the delays, contends Eberstadt, an American novelist, Westerners now have "a more comprehensive view of the state of culture and creative life in the Soviet Union than has been available . . . since the early '60s."

Eberstadt argues that most of the recent Soviet authors fall into three categories. First, there are "communists-with-a-bad-conscience" who did not expose Soviet atrocities until after Josef Stalin's death in 1953. A pre-eminent example is Yuri Trifonov (1925–81), whose novellas (collected in *The Long Goodbye* [trans. 1978] and *Another Life/The House on the Embankment* [1983]) describe the lives of middle-aged Moscow professionals. "[They] get caught in traffic jams," notes Eberstadt, " . . . their wives nag them about getting their son into an elite school, they are snubbed in the street by a more successful colleague." In Trifonov's *The Old Man* (1984), about a Bolshevik "coming to terms with his life's service to a monstrous cause," she writes, "one sees at last the black skies of [Soviet] socialism."

The second group, Eberstadt contends, is the "hedonists," who became literary cult figures during the Khrushchev "thaw" of the early 1960s. Vassily Aksyonov, best known for his epic *The Burn* (1984), wrote of "political prisoners in Magadan in the late '40s . . . the cultural reawakening that swept the Soviet Union after Stalin's death, the subsequent crackdown on the arts . . . and the invasion of Czechoslovakia." However, Eberstadt finds the book a "lazy" distortion of the period, and filled with anti-U.S. sentiments to boot.

Finally, there are "the heroes," anti-communists who are equally disdainful of the West's materialism and moral decay. Aleksandr Solzhenitsyn's *The Gulag Archipelago* (1974) revealed atrocities in Soviet prisons. Vladimir Kornilov's *Building a Prison* (1885) tells the story of a discouraged old Russian whose children immigrate to America, and conveys, in Eberstadt's opinion, "the erosion of self-worth" experienced in totalitarian societies. And Vladimir Maximov's latest novel, *Ark for the Uncalled* (1985), is about two young Russians who serve as soldiers in the Kurile Islands after World War II, and whose lives are destroyed by Stalinist brutalities.

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What do these Soviet authors all share? "Their decision," says Eberstadt, "to address themselves to the events of Russia's recent past, to look back at the carnage and perversions of justice on which the Soviet state was founded."

Bach's Secret

"The Body of Bach" by Edward Rothstein, in *The New Republic* (June 24, 1985), 1220 19th St. N.W., Washington, D.C. 20036.

The lives of musical geniuses are supposed to be filled with drama: brilliant outbursts undermined by alcoholism, mania, and syphillis. Or so the legends go.

But Johann Sebastian Bach, whose 300th birthday the world celebrated this year, is a genuine exception, contends Rothstein, music critic for The *New Republic*. "Bach's life is considered stupefyingly ordinary," although his work is "divine."

"The private man is . . . irrelevant," maintains Rothstein. "He worked hard, married twice, and in domestic harmony fathered 20 children." But his professional career was extraordinary. Born on March 21, 1685, into a family of musicians living in Eisenbach, Thuringia (now in East Germany), Bach sang in a choir at Luneburg at age 15, was the organ-master at a Protestant church in Arnstadt at 17, and became the court organist for Wilhelm Ernst at Weimar by 23. His reputation already established, Bach was invited in 1717 to direct music in the court of Prince Leopold of Kothen. There he composed chamber and orchestral music, most notably *The Brandenburg Concertos* (1721) and *The Well-Tempered Clavier* (1722).

Life was good at Kothen, notes Rothstein, until the Prince married "a rather unmusical woman." Then Bach's status at the court plummeted. Disgruntled, Bach sought employment elsewhere. When the director of church music for the city of Leipzig suddenly died, Bach applied for the post. But he was offered the job only after it was turned down by two other composers, Georg Philipp Telemann and Christoph Graupner. "To the councilors," observes Rothstein, "Bach was a mediocrity." To Bach, Leipzig was "a compromise."

At Leipzig, he had to rise before dawn to teach school, squabble with bureaucrats who called him "incorrigible," please a rector who was his "bitter enemy"—and all for one-quarter of his former salary. (He resorted to free-lancing at weddings and funerals.) Nonetheless, between 1723 and 1746, he produced an incredible volume of work: five complete cycles of contatas (about 200), *St. John's Passion* (1724), *Mass in B Minor* (1733), and the *Goldberg Variations* (1742). In 1747, he performed for Frederick II the Great at Potsdam. By 1749, he was blind. On July 28, 1750, he died.

What was the secret behind Bach's genius? Rothstein speculates that Bach linked "the most mundane and the most spiritual." Bach's own explanation: "I was obliged to work hard. Whoever is equally industrious will succeed just as well."

OTHER NATIONS

East Germany In Africa

"The German Democratic Republic in Africa" by Woodrow J. Kuhns, in *East European Quarterly* (June 1985), 1200 University Ave., Boulder, Colo. 80309.

In the African arena, the Soviet Union has relied primarily on Cuba to further its aims with troops and advisers. Now, writes Kuhns, who taught political science at Pennsylvania State University, the German Democratic Republic (GDR) has joined Cuba as the Soviet Union's key helper in African affairs.

In 1981, according to estimates by the U.S. Department of Defense, the GDR had more than 1,500 "military and civilian" advisers spread across the African continent, with the majority in Ethiopia (550) and Angola (450). More than 200 East German education specialists work in 13 African states, including Guinea-Bissau, Algeria, the Congo, and Benin. East Germans also help to run medical services in Mozambique.

The GDR first sought African trade during the 1950s, says Kuhns, to "gain international acceptance as an independent state." Even the Soviet Union would not sign a treaty with the GDR until 1955, when West Germany entered the North Atlantic Treaty Organization (NATO). Slowly, underdeveloped countries (such as Egypt and Guinea) began to sign agreements with the East Germans to trade petroleum, raw cotton, and coffee for textile machinery, construction equipment, and agricultural supplies. East Germany was admitted to the United Nations in 1973. By 1980, the GDR had solid diplomatic relations with 46 of 49 states in the Organization of African Unity.

Economically, Kuhns points out, East Germany is not gaining much from its closer ties with Africa. While the dollar value of exports to the continent has risen (to $244.5 million in 1981), the percentage of total GDR exports to Africa has shrunk. The only potential benefit for them is greater access to petroleum from Algeria or coal from Mozambique.

Why then, with its international identity now secure, does East Germany pursue closer relations with African states? One reason, argues Kuhns, is that doing so, especially in conjunction with Soviet policy, enables the GDR to "play the part of a major actor in world affairs . . . which [it] could not hope to play by itself."

Taiwan's Future

"Taiwan: A View from Beijing" by Guocang Huan, in *Foreign Affairs* (Summer 1985), 58 East 68th St., New York, N.Y. 10021.

Since the death of Mao Zedong in 1976, the People's Republic of China (PRC) has increased pressure on Taiwan's anti-Communist Kuomintang (KMT) government in an attempt to reunify the two Chinas. Chairman Deng Xiaoping's most recent proposal: "one state, two systems."

That proposal, notes Huan, a Visiting Fellow from China at the U.S. Atlantic Council, would allow the KMT in Taipei to "maintain its social and economic system, its armed forces, and its unofficial ties with foreign countries." In return, Taipei must surrender its claim to represent all of China and agree to become a "special administrative region." Since signing a similar agreement in 1984 with Britain on Hong Kong's future, Deng has been eager to try this arrangement with Taipei; he has proposed the free exchange of mail, travel, goods, commercial investments, and natural resources (mainly oil).

But Taipei does not trust Beijing and firmly maintains its policy of "Three No's": no contacts, no negotiations, and no compromises. It is also wary of the United States, whose trade last year with Red China reached $6 billion. Hundreds of American banks and corporations now do business in the PRC. And nearly 14,000 Chinese students attend U.S. colleges and universities. Naturally, Taiwan finds this threatening—especially since Washington has refused to sell Taipei the FX fighter planes that it requested.

In response to the PRC's pressure, says Huan, Taiwan's regime has several options. It can re-emphasize its (illusory) goal of returning to the mainland and ousting the Communists, which would mean rejecting trade with Beijing, weakening U.S. ties, and risking war. It could officially claim independence, but that would jeopardize foreign trade and investment, tempt Beijing to attack, and isolate the island republic. Or, the KMT leaders could accept Beijing's reunification proposals, which would cause a domestic uproar.

Huan contends that the most prudent course of action would be for Taiwan's rulers to stop thinking about recovering the mainland, open trade, and start informal talks on peaceful coexistence with the People's Republic of China.

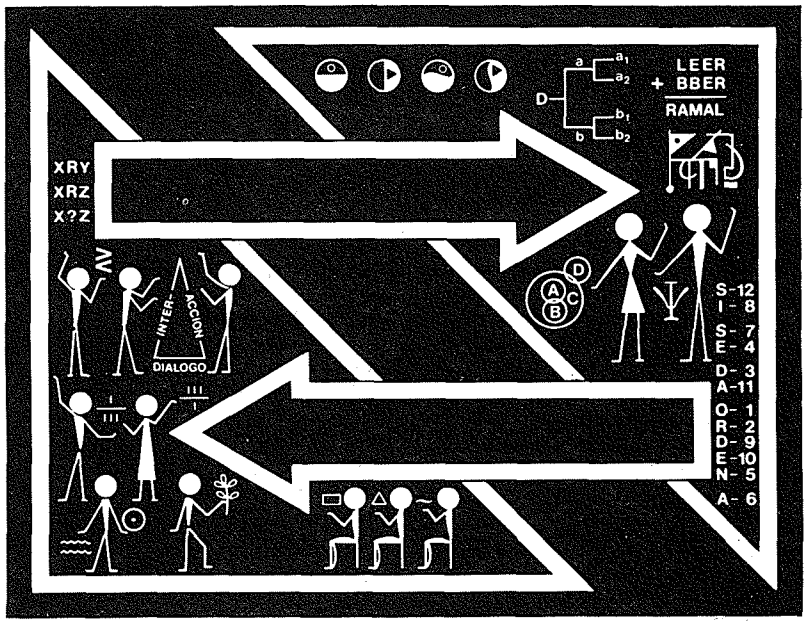
Project Intelligence In Venezuela

"A Country That's Trying To Be More Intelligent" by Marc Levinson, in *Across the Board* (June 1985), 845 Third Ave., New York, N.Y. 10022.

Intelligence—an elusive, virtually indefinable human quality—is a strange fruit for any government to try to cultivate. And yet, reports Levinson, a contributor to *Across the Board*, the Venezuelan Ministry of Education is trying to do just that.

Through academic programs and lectures in factories, the Venezuelan government has been striving, since 1979, to raise the level of intelligence in the population. This project began as a grand experiment. But now, contends Levinson, intelligence-building has become a permanent feature of the Venezuelan school curriculum.

"Project Intelligence," for example, stresses concepts. Junior high school students in five Venezuelan cities solve verbal problems ("What are the essential characteristics of a tree?") to increase their agility with abstractions. Another program called "Learn to Think" focuses on



A Project Intelligence workbook, which teaches students to reason logically using symbols and geometric figures.

methods of problem solving. Students evaluate political dilemmas, discuss options, and arrive at conclusions. Designed by British psychologist Edward De Bono (who argued that intelligence is a teachable skill rather than a genetic inheritance), Learn to Think is offered daily to 1.3 million schoolchildren, workers in government-owned steel and aluminum factories, and employees of General Motors de Venezuela.

This national project was the brainchild of Luis Alberto Machado, a Venezuelan sociologist and Cabinet member. In 1975, his book *The Revolution of Intelligence* (which supported De Bono's theories) stirred a national debate on education and caught the eye of Luis Herrera Campins, leader of the Social-Christian party (COPEI). In 1979, Campins swept into power and named Machado Minister of the Development of Intelligence. Machado then imported top cognitive psychologists to help him develop the program. His consultants believe that reasoning powers develop in stages and that proper guidance, especially with infants and schoolchildren, can affect mental progress.

No one has shown conclusively that the special classes increase "intelligence," but early studies do find that pupils completing Project Intelligence score higher on standardized tests than those without the training. Is the experiment worth continuing? Machado thinks so. In a democracy, he says, the "distribution of intelligence is the most important of distributions."

RESEARCH REPORTS

Reviews of new research by public agencies and private institutions

"The New Politics of Inequality."

W.W. Norton and Co., 500 Fifth Ave., New York, N.Y. 10110. 288 pp. $15.95.
Author: Thomas Byrne Edsall

When Ronald Reagan won election to the White House in 1980, the nation seemed to have shifted to the political Right. Edsall, a *Washington Post* reporter, argues that the shift actually occurred by the mid-1970s. By then, he contends, both the Republicans and the Democrats had largely deserted the poor and the working class, increasingly favoring Big Business and the affluent.

Seen by Democrats as "the party of the rich," the GOP, Edsall says, moved further to the Right during the 1970s. Southern conservatives increased their numbers in the party's ranks, while well-to-do Northern suburbanites bolted to the Democrats. Sunbelt entrepreneurs and New Right activists also pushed the Republican Party further away from the center.

More surprising is the transformation of the Democratic Party, which long claimed to represent the interests of the poor.

Ironically, the 1972–74 Watergate scandal was one of the key causes of change. In its wake, voters in suburban districts that had long sent Republicans to Congress began electing Democrats. In 1974, some 75 freshmen Democrats were elected to the U.S. House of Representatives; another 46 came in 1976.

"By 1975," Edsall writes, "the goal of [liberal] reformers had shifted away from enactment of substantive legislation [to aid the poor]. The new aim was to clean up government." In alliance with the public-interest lobby Common Cause, the young congressional Democrats won a host of "procedural" reforms: a $1,000 limit on individual campaign contributions to a single candidate, a congressional code of ethics, and creation of the Federal Election Commission.

Though seemingly "neutral," many procedural reforms, Edsall says, actually exacerbated political inequality. The expansion of the presidential primary system (from 17 primaries in 1968 to 31 in 1980), for example, increased the influence of the well-to-do, who turn out for those elections in great numbers. In primaries, they are overrepresented by nearly 42 percent, while blacks are underrepresented by 36 percent.

These changes, combined with congressional disenchantment with the Great Society, the declining influence of labor unions, and the rising power of corporate political action committees, left the poor with a weaker voice in Washington—a fact that was plain even before the GOP seized the White House and the Senate in 1980.

In 1978, Congress passed a sharp cut in capital gains taxes and rejected labor laws sought by the unions. The Reagan administration's cuts in taxes and social welfare benefits, enacted with the help of many Democrats in Congress, left families earning between $8,000 and $13,500 a year some $1,000 poorer during Reagan's first term; those earning more than $200,000 gained $17,000.

"As long as the balance of political power remains so heavily weighted toward those with economic power," Edsall argues, "national economic policy will remain distorted, regardless of which party is in control of the federal government."

"Injury in America."

National Research Council, 2010 Constitution Ave. N.W., Washington, D.C. 20418. 164 pp. $15.95.

Cancer, heart disease, strokes. Americans fear these killers most. But injuries—many of them preventable—are the leading cause of death among those under the age of 45.

Every year, more than 140,000 Americans die in car wrecks, fires, and other mishaps, according to the National Research Council's Committee on Trauma Research. Another 80,000 suffer permanently disabling brain or spinal cord damage. Injuries are responsible for about one-half of all deaths of Americans under age 15, and four-fifths of all fatalities among those between 15 and 24.

Not surprisingly, automobile accidents account for the majority of the fatalities—about 50,000 every year. Partly because they are involved in more car accidents than women, men are more than twice as likely to die of injuries. Asphyxiation (drowning, suffocation, hanging) causes some 13,000 deaths, chemical poisoning about 10,000, and burns roughly 6,000.

Contrary to the popular impression that unavoidable mishaps are the cause of most injuries, the panel maintains that many accidents have "definable and curable causes." For example, researchers found that Utah suffered an above-average auto accident rate partly because the state paved roads with a material that became slippery in wet weather.

Despite the number of serious injuries that occur every year, the federal government does little to prevent them. Injuries add about $100 billion to the nation's health-care bill, but only two cents of every federal health research dollar go to injury studies. Neither the U.S. Consumer Product Safety Commission nor the U.S. Occupational Safety and Health Administration publicly single out consumer products or industrial machines that are frequently involved in accidents.

The panel argues that establishing a federal research and information-gathering unit, within the Centers for Disease Control in Atlanta, would be a first good step in fighting injuries.

"Spain's Emergence as a Middle Industrial Power."

American Enterprise Institute, 1150 17th St. N.W., Washington, D.C. 20036. 60 pp. $4.00.
Author: Eric N. Baklanoff

When Spain joins the Common Market on January 1, 1986, its induction will be more than ceremonial. Thanks to high rates of economic growth over the last 30 years, reports Baklanoff, a University of Alabama economist, "Spain has become the most recent country to join the First World."

Indeed, in 1980, Spain's gross national product (GNP) hit $207 billion—eighth among the 24 industrialized nations that belong to the Organization for Economic Cooperation and Development (OECD).

Spain's economic boom began during the late 1950s, after it joined the OECD and the International Monetary Fund in 1958. (Western nations had long shunned Spain's dictator, Gen. Francisco Franco, because of his ties to Hitler's Germany and Mussolini's Italy.) Both organizations helped Ma-

drid stabilize the currency, promote trade, attract foreign capital, and increase investment.

The strategy worked: Over the next 13 years, Spain's GNP grew by an average of 7.3 percent annually. Its industrial production increased fourfold, and its yearly volume of trade skyrocketed, from $1.3 billion to $13.7 billion. Suddenly, Spain was being compared with West Germany during its "economic miracle" years after World War II.

The Spanish miracle faded during the 1970s. Jarred by worldwide recessions, and by the 1975 transition to a constitutional monarchy under King Juan Carlos I following Franco's death, the country suffered a long bout of stagflation.

Nevertheless, Spain emerged as a strong economic power. The country became a major exporter to Latin America; the annual volume of trade reached $5.7 billion by 1981. Spain sells manufactured goods to the region, such as iron and steel products, and imports commodities, such as sugar, coffee, tobacco, and corn.

While the *madre patria*, Baklanoff notes, has been able to "make good on its quest for a special relationship with Latin America," the link may not last. When Spain joins the Common Market, it will have to do more of its trade with the Old World.

WILSON CENTER PAPERS

Summaries of key reports given at recent Wilson Center meetings

"Economic Relations between Nicaragua and the Socialist Countries."

A paper presented by Ruben Berrios at a seminar sponsored by the Wilson Center's Latin American Program on March 8, 1985.

In 1980, the total value of Nicaraguan trade with countries behind the Iron Curtain stood at $14 million. Four years later, Nicaraguan trade with those same nations—Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Rumania, and the USSR—had jumped to $189 million.

Berrios, a New York University economist, asserts that Nicaragua has cultivated economic ties with the communist countries because of "pragmatic concerns" rather than "ideological principles."

When the Sandinista National Liberation Front (FSLN) first took control of Nicaragua on July 19, 1979, Nicaragua's major trading partners were the members of the European Economic Community (Common Market) and the United States—with whom Nicaragua exchanged roughly $406 million in imports and exports in 1980.

Since then, trade with the West in general and the United States in particular has declined, primarily for two reasons. Worried about becoming economically dependent on one nation, the Sandinista regime, says Berrios, has been "seeking ties with a wider and more diversified range of trading partners," especially among the developing countries.

A souring of relations with the United States has also added urgency to Nicaragua's search for new economic allies. President Jimmy Carter, responding to Sandinista support for leftist rebels in neighboring El Salvador and the arrival of Cuban and Soviet military advisers in Nicaragua, suspended economic aid to Managua

in 1980. Four years later, Ronald Reagan first cut Nicaragua's share of sugar exports to the United States by 90 percent, then announced an embargo on U.S.–Nicaraguan trade.

The communist countries have moved in to pick up the slack. In exchange for coffee, sugar, and other exports, for example, the USSR supplies one-quarter of Nicaragua's petroleum. Between 1979 and 1983, the Soviet bloc countries contributed some $1.2 billion in donations, trade credits, and technical assistance.

Berrios believes, however, that communist support for Nicaragua is limited—by the Soviet bloc's own economic difficulties, its distance from Central America, and by "U.S. geopolitical primacy in the area."

"East Asian Lobbies in Washington: Comparative Strategies."

A paper presented by Youngnok Koo at a colloquium sponsored by the Wilson Center's East Asian Program on May 14, 1985.

"Lobbying, as a form of open participation in the political process, is a concept alien to East Asians," notes Koo, a political scientist at Seoul National University.

Yet there are nearly 300 registered lobbyists from Japan, South Korea, and Taiwan in the U.S. capital, as well as representatives from American law and public relations firms, that look after the interests of these countries. The Japanese alone, Koo estimates, spend between $40 and $50 million to maintain a Washington presence, which includes not only 182 registered lobbyists but also 80 embassy staffers and emissaries from more than 65 companies and trade associations.

The East Asian lobbies share a primary goal: to keep the American market open to Asian goods. Last year, the combined Japanese, Korean, and Taiwanese trade surplus with the United States was $47 billion—about one-third of the U.S. trade deficit.

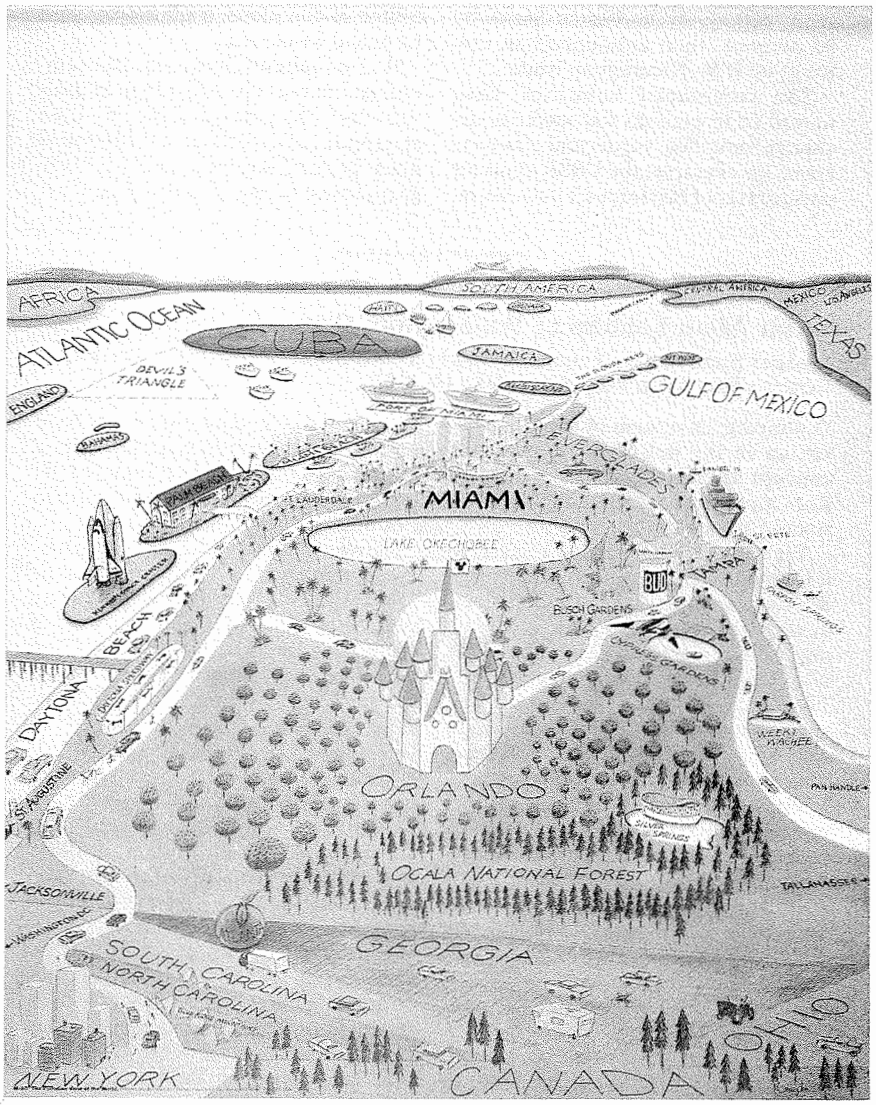
Each nation, Koo says, has its own lobbying style. Japanese firms like to hire "big gun" American lobbyists to make their case in government agencies and on Capitol Hill (where 20 House and 16 Senate committees deal, in some way, with foreign relations). In recent years, their pitchmen have included President Reagan's former national security adviser Richard Allen (representing Nissan) and former CIA director William E. Colby.

Taiwan takes a different approach. To win friends, it sponsors touring "Buy America" trade missions that cultivate political and corporate friends in American states and cities by purchasing local products. Over the past seven years, nine such missions have bought $7 billion worth of U.S. goods.

While strong, the East Asian lobbies have not been invincible. Japan, for example, was unable to prevent the United States' establishment, in 1983, of a 200-mile offshore "exclusive economic zone," from which Japan's fishing vessels would be barred.

Hindering the efforts of all three countries is a lack of what Koo calls "ethnic indigenous support"—substantial numbers of immigrants in the United States who provide grassroots political support for the old country.

In the absence of such support, a large lobby is all the more important. With the largest lobby in Washington, Japan, Koo says, "gets most of what there is to get in Washington."



Miami is the largest city in one of the Sunbelt's fastest growing states, and, as this popular poster indicates, its special Latin connections have oriented Florida toward the south. In many ways, Florida's big cities complement one another: Miami is a financial hub; Jacksonville, an industrial center and seaport; Orlando, a magnet for tourists—Walt Disney World attracts some 21 million visitors annually.

Miami

In America's Sunbelt cities, alarm over the influx of immigrant Mexicans, Salvadorans, and other Hispanics is sharp and growing. The dismay was even greater in Miami 25 years ago, as tens of thousands of refugees began flocking there from Fidel Castro's Cuba. Today, the city fathers regard that "crisis" as a blessing in disguise. Not only did the Cubans pull themselves up from poverty, they turned their adopted city around. They helped make the honky-tonk tourist town, kin to Las Vegas and Atlantic City, into a cultural and commercial hub of the Americas: port of entry into the United States for Latin goods and people, and gateway to the south for U.S. banks and corporations seeking business in the vast markets of Latin America and the Caribbean. Here, Florida International University's Barry B. Levine describes his city's transformation during the last 25 years. And George Gilder, the author of *Wealth and Poverty* (1981), profiles some of the people who made it all happen.

THE CAPITAL OF LATIN AMERICA

by Barry B. Levine

Earlier in this century, Miami was the place that Northerners thought of when, in the depths of winter, they yearned desperately to "get away from it all." With its beaches and palm trees, it was a combination of resort and placid harbor for retirees and widows—and, less obviously, the not-so-placid haunt of assorted gamblers and mobsters. Of course, tourists still come to Miami, but most of them now speak Spanish and fly *north* to get there. And far from fleeing the hurly-burly, the new visitors are plunging into the middle of it.

Miami has transformed itself into a major commercial entrepôt, the economic crossroads of the lands to its south. In

1979, then President Jaime Roldos of Ecuador dubbed the city "the capital of Latin America." The exaggeration was only slight. Miami today serves the West Indies and Latin America much as Singapore serves the East Indies and Asia, facilitating the transnational movement of people, goods, and money. On a peninsula jutting 400 miles into the Atlantic and the Gulf of Mexico, Miami is closer to Mexico City than to New York, closer to Caracas than to Chicago. It offers direct access by sea and air to the markets of Europe, by truck and train and plane to all of North America.

If Miami were an independent nation, its gross national product (excluding the extensive drug traffic) would total some $23.5 billion, about the same as that of Chile. Hispanic in atmosphere and Yankee in efficiency, Spanish-speaking and Anglo-connected, Miami has, since 1970, become the focal point of a region that never before really had one.

Stepping Out

But the city has become something more than a place to do business. Miami has acquired the status of a vast, international plaza. In their distant colonies in the New World, as at home, the Spaniards always built cities around a central square. Spanish city planning acknowledged what Hegel considered basic to human nature: the need to "recognize and be recognized." Today, as Latin cities in the Americas have grown, as the world in general has "shrunk," the traditional plaza has declined in local importance. But the basic human desire to see and be seen remains as strong as ever.

During the 1970s, abetted by mass communications and air travel, Miami emerged as the place to *pasear*, to strut and promenade, to proclaim one's social status. And like the Plaza de Bolivar used to be in Bogotá and the Plaza Tapatio still is in Guadalajara, Miami was not just for the rich but for the growing middle and upper-middle classes as well. It became a place not only to visit, but—for numerous Latin businessmen, intellectuals, TV personalities, writers, and political exiles—a place to live and put down roots.

Barry B. Levine, 44, is professor of sociology at Miami's Florida International University and the editor of Caribbean Review. *Born in New York City, he received his B.A. from the University of Pennsylvania (1961) and his Ph.D. from the New School for Social Research (1973). He is the author of* Benjy Lopez: A Picaresque Tale of Emigration and Return *(1980) and the editor of* The New Cuban Presence in the Caribbean *(1983). A study of capitalism and poverty in Puerto Rico is forthcoming.*

Pictures that shaped Miami's image: bathing beauties of the 1920s, a postcard from the 1940s. Tourism is still strong—Miami is the nation's leading port for cruise ships—but has been eclipsed by new industries.

Nor has it become simply an enclave for Hispanics. Yes, the Cubans are predominant. There are distinct communities of Venezuelans (in the condominiums on Brickell Avenue) and of Puerto Ricans (in Wynwood). The Colombian presence is growing. But Miami is also home to many thousands of Creole-speaking Haitians (in Little Haiti), and English-speaking Jamaicans and other West Indians. More than one-half of the central city's inhabitants are foreign-born, a proportion that dwarfs that of San Antonio, Albuquerque, or Los Angeles. "The city is, at a rapid pace, becoming an international megalopolis," observed Frank Soler, former editor of *El Miami Herald* (circulation: 73,400), the Spanish-language edition of the *Miami Herald.* "Miami is Noah's Ark; it's as simple as that."

"Miami" is not a very precise term. To most visitors from the North, the name connotes Miami Beach. To most residents, it refers to the whole of metropolitan Dade County—Greater Miami, in other words, which encompasses 27 distinct municipalities and claims some 1.7 million inhabitants.

Miami Beach, North Miami, and North Miami Beach are populated largely by senior citizens, many of them Jewish, who have exchanged the discomforts of the cold, urban North for a balmy retirement with Atlantic breezes. The City of Miami embraces predominantly black neighborhoods (such as Overtown) and the large, 800-square-block Cuban settlement known as Little Havana, centered on Calle Ocho (Eighth Street). Kendall is white middle-class, Hialeah is largely Cuban, Opa-Locka is predominantly black. The City of Coral Gables is an affluent "bedroom" community that also hosts many of the multinational corporations that lately have moved to town, while Coconut Grove is home to artists, chic restaurants, and the trendy urban rich.

In each of these neighborhoods linger vestiges of a very different past—a synagogue, say, on the fringes of a black neighborhood, a Little Havana doughnut shop still frequented by white "redneck" truckers. And in each of these enclaves there intrude portents of a different future: a new Nicaraguan restaurant on Calle Ocho, a Haitian restaurant in Overtown. (One local joke has it that two new restaurants open in Miami for every revolution that occurs in Latin America.) In Miami Beach, the seven hot-meal centers operated by the Jewish Vocational Services now serve some 200 indigent Hispanics, who complain about having to eat kosher food.

It is difficult to call these changes harbingers of a "new" Miami because the city is barely old enough to have a recorded past. It is, for all practical purposes, a 20th-century city. And throughout its brief, checkered history, it has swung repeatedly between boom and bust. The weather—warm and sunny for the most part, savage at times during the hurricane season—has contributed to both conditions.

After Juan Ponce de León discovered Florida in 1513, Spanish soldiers and missionaries established several short-lived outposts in the area. The United States acquired Florida from Spain in 1819 but seemed to take no more interest in it than had the previous landlord. A lighthouse and a fort, infrequently occupied, were the federal government's only contributions to Mi-

ami. As late as 1890, Dade County claimed only 861 inhabitants, most of them fishermen or small farmers.

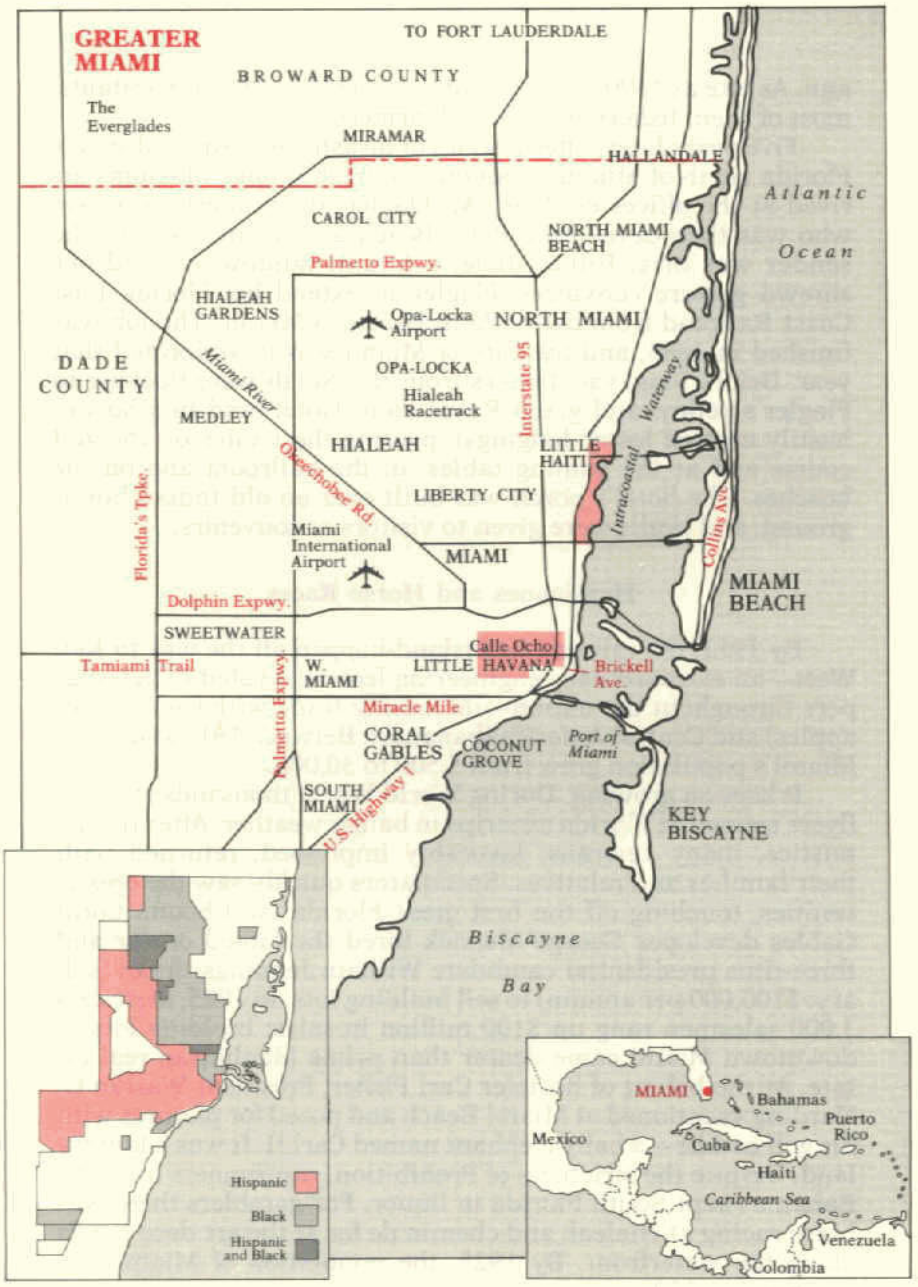
Five years later, after a series of disastrous frosts had struck Florida north of Miami, a bouquet of fresh orange blossoms arrived at the offices of Henry M. Flagler, the real-estate tycoon who was then developing Palm Beach as a winter resort. The sender was Mrs. Julia Tuttle, a Miami landowner, and her shrewd gesture convinced Flagler to extend his Florida East Coast Railroad from chilly Palm Beach to Miami. The job was finished in 1896, and the City of Miami was incorporated that year. Before long, vacationers from the North were flocking to Flagler's yellow and green Royal Palm Hotel (and to a host of hastily erected lesser lodgings), passing the winter on the golf course and at the gaming tables, in the ballroom and on the beaches. The hotel's porch was built over an old Indian burial ground, and skulls were given to visitors as souvenirs.

Hurricanes and Horse Races

By 1912, the railroad had island-hopped all the way to Key West—an extraordinary engineering feat celebrated in newspapers throughout the nation—increasing trade with Cuba (pineapples) and Central America (bananas). Between 1910 and 1920, Miami's population grew from 5,500 to 30,000.

It kept on growing. During World War I, thousands of Army flyers trained at Florida airstrips in balmy weather. After the Armistice, many veterans, favorably impressed, returned with their families and relatives. Speculators quickly saw the opportunities, touching off the first great Florida land boom. Coral Gables developer George Merrick hired the famed orator and three-time presidential candidate William Jennings Bryan (salary: $100,000 per annum) to sell building lots. In 1925, Merrick's 3,000 salesmen rang up $100 million in sales; building lots in downtown Miami came dearer than prime Manhattan real estate. At the behest of hosteler Carl Fisher, President Warren G. Harding vacationed at Miami Beach and posed for pictures with his golf caddie—a baby elephant named Carl II. It was a fantasy land. Despite the strictures of Prohibition, rumrunners from the Bahamas kept South Florida in liquor. For gamblers there was horse racing at Hialeah and chemin de fer at the art deco hotels along the waterfront. By 1925, the population of Miami had reached 111,000.

Then, in September 1926, a devastating hurricane lashed the Florida coast, killing 320 people, injuring another 6,300, and damaging 10,000 homes. Property values plummeted overnight.



Greater Miami is a "big flattened fan" squeezed between the sea and the Florida swamps. Except for Miami Beach and the business district near Brickell Avenue, it is a collage of heterogeneous neighborhoods.

A second killer storm in 1928 and the Wall Street stock market crash a year later made matters worse. By 1930, some of the transplanted Northerners were going home; Miami experienced its first drop in population.

The city made a slow comeback during the 1930s. As the nation edged toward World War II, tourists and winter residents were displaced by men in uniform. As had happened before, servicemen returned after the war with wives and children. By 1950, Dade County's population was close to half a million, and an Army Corps of Engineers flood control program had opened up thousands of acres to new development. Tract housing spread farther into the Everglades. Some 50,000 new people put down roots in Miami every year during the 1950s. The construction industry profited and nurtured a few related businesses, such as the manufacture of rattan furniture and aluminum window frames.

In Miami Beach, ostentatious new high-rise hotels—the Fountainebleau, Eden Roc, Sans Souci—rose beside older, art deco palaces from the 1930s. The hotel count grew to 382 by 1955. Arthur Godfrey broadcast the TV show that bore his name from the Kenilworth Hotel, where Jackie Gleason also staged his TV variety shows. The city later named streets after both stars. Feeding, lodging, and entertaining tourists generated most of Miami's jobs, and tourists came by the millions. A fledgling garment industry even sprang up to provide resort wear.

Enter Fidel

There was, of course, a darker side to all of this. Thanks to Miami's strategic location in the Caribbean, smuggling was becoming big business. There had long been a sizable number of Cubans in Miami; some were engaged in gunrunning, channeling arms to rebels in Cuba who hoped to topple the regime of dictator Fulgencio Batista. (The leader of those rebels, Fidel Castro, had lived in exile in Miami for a short time in 1956.) Miami's hotel casinos were firmly in the grip of organized crime. Sen. Estes Kefauver (D.-Tenn.) called tolerant Miami the "plunderground as well as the playground for America's most vicious criminals." When his Senate Crime Investigating Committee began looking into the matter in 1950, the casino managers promptly shut their doors and moved to the relative safety of Cuba, less than 200 miles away. Few suspected that the days of freewheeling Havana were numbered.

On January 1, 1959, the Cuban rebels triumphed, Batista fled to the Dominican Republic, and Fidel Castro took control,

soon describing himself as *el líder máximo*. In fits and starts during his first two years in power, Castro transformed Cuba into a communist state, a Cold War ally of the Soviet Union.

The Cuban revolution was as much a pivotal event in Miami's modern history as it was in Cuba's. As Castro consolidated his victory, nationalizing industry and confiscating private property, tens of thousands of Cubans fled their homeland. In January 1961, the Eisenhower administration severed diplomatic relations with Havana. The first refugees included disproportionate numbers of those who had the most to lose: doctors, lawyers, teachers, engineers, judges, bureaucrats, merchants, skilled workers. These were the "golden exiles." (However, nearly one-third of the early immigrants were clerical workers and salesmen; 20 percent were blue-collar workers.) At the time, CBS News' Eric Sevareid characterized the Cuban exodus as "the biggest brain drain the Western hemisphere has known."

The refugees arrived penniless in the midst of a U.S. economic recession compounded by unusually bad weather—the autumn of 1959 brought Miami 60 straight days of rain. As 100,000 Cuban exiles crowded into Dade County, job opportuni-

Saguercera *(1981), a view of Calle Ocho by Haydee Scull, a popular Cuban-born artist who now lives in Miami.*

ties grew scarcer and scarcer. Few of the new arrivals spoke English. But their plight was made easier by the belief that exile would be short. They stayed in South Florida—close to home—where the climate was familiar and where the various Cuban exile groups, several dozen of them, maintained their various headquarters and plotted Castro's overthrow.*

A New Havana

But Castro held on to power, and the Cuban influx continued. Air links between Cuba and the United States were cut after the Missile Crisis in October 1962, but three years later Castro agreed to an intermittent U.S.–sponsored airlift that, by 1973, reunited nearly 300,000 Cubans with their families on the U.S. mainland. Despite Washington's efforts to settle the immigrants elsewhere, Miami's Latin population continued to swell—to 299,000 in 1970, and to 580,000 a decade later. Then came the 1980 El Mariel–Key West sealift, which brought 125,000 more Cubans to the United States.† Most of them settled in Miami. Today, about 40 percent of the city's inhabitants are Hispanic. (Since 1980, new restrictions imposed by both Washington and Havana have slowed the human traffic from Cuba to a trickle.)

As they adjusted to life in a new land, the Cubans struggled to climb into the American middle class. It took no more than a decade. With aid from Washington, thousands of Cuban doctors were certified to practice in the United States. Lawyers, often after a stint as parking lot attendants or dishwashers, eventually found white-collar work once more in insurance, journalism, engineering. Entrepreneurs opened numerous car dealerships, construction firms, and low-wage textile and leather goods factories. Miami's Cuban population, meanwhile, was big enough to sustain a sizable class of Cuban grocers, clothiers, barbers, and other tradesmen. All told, Cubans now own and operate some 18,000 businesses in Dade County.

In the process of putting their lives back together, the Cuban émigrés made Miami a bicultural, bilingual city. In Little Havana, Cubans tried to re-create life back home, down to the

*In April 1961, an invasion force of 1,200 Cuban exiles sponsored by the U.S. Central Intelligence Agency (CIA) landed at Cuba's Bay of Pigs and met with defeat within three days. The survivors were later returned by Castro to the United States in exchange for $53 million in food and medical supplies.

†Fidel Castro used the exodus as an occasion to expel "undesirables"—criminals, mental patients, political prisoners. Under a 1984 exchange pact with Havana, nearly 2,700 Marielitos were scheduled to be returned to Cuba, but Havana suspended the agreement after the U.S. government's Radio Marti began broadcasting to Cuba in May 1985. Most of the undesirables remain in federal, state, and local prisons, awaiting deportation.

cigar-chewing elders in the parks who huddle over games of dominoes. On radio and television, in newspapers and magazines, on the stage and in the streets, the Spanish language flows freely and vigorously. The city boasts two Spanish-language daily newspapers, *El Herald* and *Diario Las Américas* (circulation: 63,500), two (UHF) television stations, six radio stations, the weekly magazine *Réplica*, and numerous other publications. At Miami-area supermarkets, the produce aisles display *boniatos* (a kind of sweet potato), *yucas* (yucca), *malangas* (casava), and plantains. In some neighborhoods, victualers are pleased to offer a Hispanic cut of beef: sliced parallel to, rather than across, the bone. Hawkers, most of them drawn from the ranks of the Marielitos, thread their way among cars stalled in traffic selling flowers, fish, and limes.

In addition to salsa music, syrupy *café cubano*, and other sensual reminders of life back home, the Cubans brought their culture and institutions. Of pre-Castro Cuba's 126 townships, for example, 114 are represented by *municipios* in Miami—groups that sponsor dances and dinners, aid new arrivals from the old hometown, but mostly devote themselves to fund-raising for anti-Castro activities. Then there are numerous social clubs, church groups, and even country clubs. Cuban businessmen mingle freely with their Anglo counterparts at such downtown establishments as the Miami, City, and Bankers clubs, but few have been invited to join the area's upper-crust country clubs.

Aerosol Voodoo

Cuban tradition and American affluence are combined in many a Fiesta de Quince Años—lavish 15th-birthday parties for Cuban girls. Sometimes, a *quince* loan is needed to pay for the banquet hall, food, party dress, perhaps even a limousine. One Cuban custom that has not translated well in America is the practice of chaperoning young couples. "Requiring a chaperone is by no means an extinct practice," notes sociologist Lisandro Pérez of Florida International University, in the *Harvard Encyclopedia of American Ethnic Groups* (1980), "but many, if not most, young women are allowed to go out on unchaperoned dates or, more frequently, on double dates. Abstaining from premarital physical intimacy continues to be the norm for women."

Family ties among Cubans remain, in some ways, even stronger than those of other Latin immigrants. About nine percent of all Cubans live in families where an *abuela* (grandmother) or other relative is present, compared to six percent of other Hispanics and four percent of all Americans. In other

WORKING THINGS OUT IN THE SCHOOLS

Recently, a young Cuban-American from out of town accepted a job in Miami. Worried about the local schools, like parents everywhere, he called a friend at the Dade County School Board for advice.

In Miami's Anglo suburbs, he was told, his two children would be eligible for special programs for the gifted and a wide array of extracurricular activities. In the city's older neighborhoods, the friend said, they would be educated in a bilingual environment that celebrated Miami's "wonderful diversity." He recommended buying or renting a house near Miami's Fairchild Elementary School, which was run by a "gringo" principal who respected bilingual education and Latin culture.

In many American communities, local public schools are the focus of racial and ethnic tension. The Dade County school system, with 224,280 students and a $1 billion budget, is plagued by the same problems as other big city systems—low academic achievement among the children of the poor, crime, a dropout rate close to 30 percent. (Sixty percent of its graduates go on to college.) Its student body is 41 percent Hispanic, 33 percent black, 26 percent Anglo. Dade County's school system seems ripe for trouble. Yet somehow it has avoided wrenching racial conflict.

Dade County spared itself the pains of court-imposed school busing by beginning voluntary racial desegregation in 1960; today, only 6,000 children ride school buses to achieve integration. However, many blacks argue, Dade County also escaped real desegregation. Of its 252 schools, 25 are nearly all black and 84, mostly in the suburbs, are nearly all white. According to a 1983 *Miami Herald* poll, 42 percent of the city's blacks felt that schools were a "big problem," as did 41 percent of its non-Latin whites. Less than one-third of Miami's Cubans agreed.

One reason for the Cubans' relative satisfaction is that, after years of controversy, bilingual education now seems to be firmly entrenched in Miami. In July 1985, for example, the Dade County School Board, with only one Cuban member, rejected the superintendent of schools' proposed cutbacks in the $20 million bilingual education budget by a surprisingly unanimous vote of 7 to 0.

There is a touch of irony in all of this. Many Cubans prefer to send their children to private schools: More than 12,000 Cuban youngsters attend Miami's parochial institutions. Yet the Catholic schools do *not* offer bilingual instruction. Many Latins clearly value the official recognition of Hispanic culture that bilingual education represents, but how much they actually rely on it to transmit their traditions is unclear.

Remember our young Cuban professional on his way to Miami? He moved his family to an Anglo suburb, where he felt his children would get the best public education available.

—*B.L.*

ways, Cuban assimilation is proceeding rapidly. Nationwide, about half of all Cuban women marry non-Hispanic men (though the proportion is lower in Little Havana); the divorce rate among Cubans virtually matches the U.S. national average (five divorces per 1,000 Americans annually).

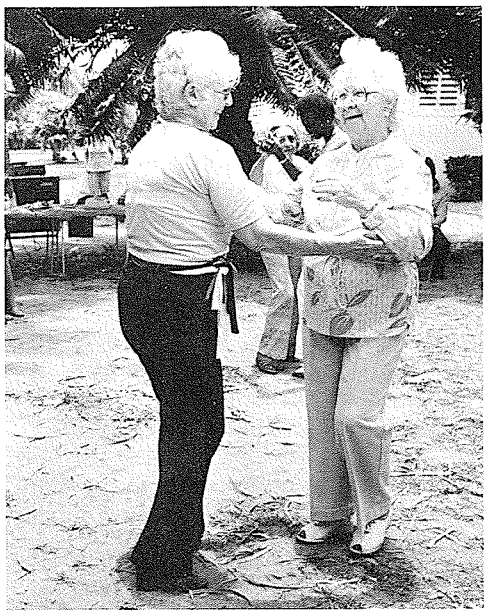
The Cubans may divorce like Americans, but they worship like Latins. The Catholic Church, to which about 90 percent belong, retains a strong influence. In Little Havana, front-yard religious shrines are a common sight. January 6 is Los Tres Reyes Magos (Three Kings Day), the day when children receive their Christmas gifts and the occasion for a grand parade down Calle Ocho. A small number of Cubans practice Santería (worship of the saints), a faith that blends Cuban Catholicism and African cultism. More than two dozen stores in the Miami area sell Santería paraphernalia: herbs, beads, oils, and even magic potions in aerosol cans.

An Ethnic Cauldron

All of this can be a bit unsettling to older residents who remember a very different Miami. How deep their resentment sometimes goes may be gauged by the easy success of a 1980 Dade County referendum which bans the translation of county documents into Spanish. Large numbers of non-Hispanic whites have fled to Fort Lauderdale, Davie, and other rapidly growing areas of Broward County just to the north of Dade. ("Will the Last American to Leave Miami Please Bring the Flag"—so read a bumper sticker that appeared on many automobiles during the 1980 sealift.)

Maurice A. Ferre, the Puerto Rican-born mayor of the City of Miami since 1973 (and former businessman) who has emerged as Greater Miami's spokesman, aptly calls his city not a melting pot but a "boiling pot." On occasion, the pot boils over. Relations between blacks and Hispanics in Miami have long been especially antagonistic. Blacks feel, among other things, increasingly frozen out of a local labor market where bilingualism is often a job requirement.* Recent Hispanic immigrants also compete with blacks for unskilled jobs. Some 17 percent of Dade County's residents are black, clustered mostly in ghetto communities such as Overtown and Opa-Locka. In some neighborhoods, unemployment runs as high as 30 percent among adults, 50 percent among teen-agers.

*At least implicitly and often explicitly. Such requirements are being challenged. In 1984, for example, two Miami women were denied jobs as cleaning women in a downtown office building because they were unable to speak Spanish. They appealed to the Dade County Fair Housing and Employment Appeals Board, which ruled that the women had been discriminated against on the basis of national origin.



Greater Miami's senior citizens, some 255,000 strong, comprise nearly one-sixth of the city's population. Of late, well-to-do Hispanics have joined the Jews and other Northerners who made Miami a retirement haven.

The worst rioting in any of the nation's cities since the upheaval in Detroit in 1967 shook a black slum neighborhood of Miami—Liberty City—in 1980. The proximate cause was the acquittal by a white jury of five white Dade County police officers in the shooting death of a black insurance salesman and former Marine, Arthur McDuffie. (An added factor: the new lawlessness created by the Marielito influx.) Eighteen people were killed during the Liberty City riots. Violence came again in 1983 after a Hispanic police officer, Luis Alvarez, shot a black youth, Nevell Johnson, Jr., in an Overtown video arcade. By the time the rampage ended, another person was dead, 25 had been injured, and 45 had been arrested for looting.

Black-Hispanic friction surfaces repeatedly in Miami politics. Blacks voted overwhelmingly against the use of Spanish on the Dade County referendum. More recently, they were outraged when an alliance of Hispanic City of Miami commissioners, including Mayor Ferre, ousted Howard V. Gary, a popular black, from his job as city manager. The commissioners cited "a lack of communication" between Gary and his elected superiors. Black leaders immediately organized a drive to recall the mayor but failed to gain enough signatures.

Cuban mayors govern Hialeah, Sweetwater, and West Miami, and three Cubans are members of the state legislature in Tallahassee, but the Cuban influence in Miami politics is not yet

as great as might be expected. Only one Cuban sits on the eight-member Metro Dade County Commission and one on the seven-member Dade County Board of Education. The fact that Hispanics, many of whom are not U.S. citizens, constitute only about 24 percent of Dade County's electorate is one reason; divisions within the Cuban community are another. Nor have the Cubans been very successful so far in forging alliances with other groups. Mayor Ferre, a Puerto Rican, has repeatedly beat Cuban challengers with black votes.

On national political issues, the Cubans are relatively united. They are, by and large, conservative and staunchly anti-communist. During the summer of 1984, the city of West Miami severed ties with its "sister" city of León, in Sandinista-controlled Nicaragua. In 1980, about 90 percent of Dade County's Cubans voted for Ronald Reagan. Yet Miamians also tend to be realistic—and unpatronizing—about conditions south of the border. They view Latins without romantic notions; they see them not as humble peasants, noble savages, or mighty revolutionaries but as relatives or business associates or neighbors. In Miami, discussions of Latin affairs are about as concrete as they get.

Undeniably, the Cuban influx has made Miami a less attractive city in the eyes of many of its older, non-Hispanic residents. But it has made Miami far *more* attractive in the eyes of tens of millions of other Americans—Latin Americans outside the United States. By the end of the 1960s, the Cubans had achieved a kind of critical mass, imparting an authentic Hispanic flavor to Miami's economic and civic life. And that, it turned out, was all the city needed to flourish.

Pre-Castro Miami, as Florida International University president Gregory B. Wolfe has noted, "was essentially a deteriorating city—the Cuban displaced person, not the Protestant ethic, marked the beginning of the new tradition." Joaquin Blaya, a Chilean who is general manager of Channel 23, one of Miami's Spanish-language television stations, saw the transformation this way: "The world the Cubans created made it comfortable for other Latins. Many here think Miami is the best city in all of Latin America, the status capital of South America. If you're a Venezuelan or Colombian and you have not been to Miami, you're not 'in,' you don't belong."

During the 1970s, Greater Miami looked increasingly to the

south for its livelihood rather than to the north. It relied less and less on traveler's checks and Social Security checks, more and more on financial services and foreign investment, on freight handling and shipping. Nothing better tells the tale of Miami's transformation from a vacation resort to a unique Sunbelt metropolis than the fact that tourism now generates only about 10 percent of the city's jobs.

Commuting from Rio

Attracted by the Hispanic flavor of the city, Latin investors—as businessmen, as individuals—began pouring billions of dollars annually into Miami. Many bought second homes, or first condominiums, in the city, typically forgoing mortgages and paying cash. At one point, in 1980, nearly one-half of all property sold in the Miami area was being purchased by foreigners. Today, Miami claims some 100,000 non-Cuban Hispanic residents.

Atmosphere, of course, was not the only reason why Miami became the capital of Latin America during the 1970s. The telephone links between Miami and Latin America's major cities are better than those between any two Latin capitals. Air connections to all parts of the hemisphere are plentiful. There is poverty, but one does not have to see it; the plight of the poor does not assault the eyes almost everywhere one turns, as it does in Mexico City or Caracas. There is no threat of kidnapping or political violence. The government is friendly to businessmen; the threat of expropriation is nil. To entrepreneurs in Lima or Rio or Bogotá looking for a hospitable place to cache their wealth, Miami is attractive indeed.

Between 1978 and 1983, six local banks were taken over by foreign nationals—some of them with shady histories.* Miami is also home to 40 "Edge-Act" banks, out-of-state American banks restricted to conducting international business. It has more Edge-Act banks than any other city in the nation save New York (which has 42). The Miami institutions have prospered chiefly by collecting "flight capital"—deposits by nervous Latins seeking a safe haven for their wealth.

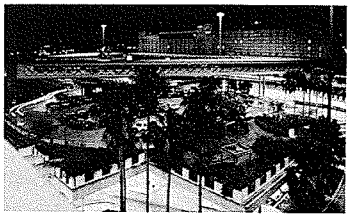
Miami's assets proved attractive to North Americans as well. By 1980, it was playing host to Ralston Purina International, Exxon Inter-America, G. D. Searle, and 100 other multi-

*While Florida requires bank owners to be "qualified by character, experience, and financial responsibility" for the job, screening by state regulators has at times been less than fastidious. For example, J. J. Gonzalez Gorrondona, owner of Miami's Caribank, became involved in a bitter legal battle with the government back home in Caracas over the lending practices of his Banco Comercial de Descuento, which has since been liquidated.

COMINGS AND GOINGS AT THE AIRPORT

The flat, grassy, 3,232-acre parcel of land at latitude 25°47'39" and longitude 80°17'16" was once an orange grove owned by the Seminole Fruit and Land Company.

Today the Seminole Company's land is the site of Miami International Airport (MIA), the 10th busiest passenger facility in the world. In the United States, only New York's John F. Kennedy International Airport handles more international travelers and cargo. Worldwide, only Kennedy and London's Heathrow Airport are served by more airlines than is MIA (79), and Miami offers more international flights than either of them.



For the United States, Miami International is the chief gateway to the 50 countries and dependencies of Latin America and the Caribbean. It serves the same function for Latin tourists, shoppers, and businessmen traveling to the United States.

Every week, 144 passenger flights leave for Mexico and Central America, 158 for South America, 430 for the Bahamas and the Caribbean. An equal number arrive from 74 cities south of the border, connecting with 1,983 flights to cities in Canada and the United States, 39 to European destinations. In 1983, some 7.1 million international travelers passed through MIA, nearly 19,000 every day. Three-

national corporations, each establishing a regional headquarters to direct marketing operations in Latin America and the Caribbean. They employed perhaps 3,000 managers, salesmen, and support personnel.

But one of the biggest games in town is financing trade with Latin America. Twenty-five local banks have now established international departments. Some 46 foreign banks—among them the Bank of Tokyo, the Banco de Londres y Sudamérica, and Lloyds Bank International, Ltd.—have opened Miami branches. Eight years ago, there were no foreign banks in the city. Now, Citicorp, Chase Manhattan, and other big American banks are also on the scene.

Luring these big fish to Miami is the city's vast international trade. Some 70,000 people, 10 percent of Miami's work force, are employed in this commerce. Through the Port of Miami, Miami International Airport, and other area terminals flow $7.5 billion worth of Latin exports and imports—about 10 percent of all U.S. trade with the region. Most of Miami's "exports" are actually transshipped goods—turbines from West

quarters of these people hailed from South or Central America or the Caribbean islands.

Stand downstairs at the baggage claim areas for Varig, Avianca, or AeroMexico, and it will not be long before you see incoming passengers lifting suitcases—some so effortlessly that the bags seem empty—off the conveyor belt. Wait beside the ticket counters of Aviateca, Ecuatoriana, or Bahamasair, and you will see departing passengers shuffling forward in long lines, nudging forward with their feet cardboard cartons held together by strained sinews of packing tape. At the head of the line, someone will explain to an exasperated clerk that his carton, which may contain a home computer, a pneumatic drill, radiology equipment, is "personal" baggage and should not be shipped home as cargo.

But in many cases it will be. Follow the drill to Building 2200, the new international cargo clearinghouse, and witness the round-the-clock activity. Out goes the computer. Out to Latin America go $2.1 billion worth of TV sets, pharmaceuticals, auto parts, machinery. In from the south come $850 million worth of textiles, meat, fruits. Hundreds of millions of cut flowers—roses, carnations, pompoms—are flown into Miami every year from Colombia, Peru, Honduras, Guatemala. Then there are goods from Europe, Africa, and the Middle East.

All told, foreign trade flowing through MIA totaled $3.79 billion in 1983, nearly equaling the entire gross national product of Panama. Add in the contributions of domestic airline traffic, airport payrolls, and the like, and MIA is a $6 billion operation.

—*B.L.*

Germany, industrial chemicals from New Jersey, machine tools from Japan.

The Cubans are largely responsible for creating this booming business. Many refugees from Castro's Cuba wound up not in Florida but in Venezuela, Mexico, Puerto Rico, and Central America—creating an instant network of far-flung émigré traders. They specialized first in familiar commodities, primarily sugar, tobacco, and lumber. Today, they trade in all manner of goods; the Greater Miami Yellow Pages contains 62 pages listing import and export firms. The Cubans have come to play the same middleman role in Latin America that the Chinese émigrés play in Southeast Asia, the same role that the Phoenecians played in the ancient Mediterranean. And like the Jews and Chinese and other groups specializing in commerce, the émigré Cubans have suffered their share of epithets. The Puerto Ricans call them *listo* (roughly, too clever by half); in Mexico, businessmen guard against *la jugada cubana* (Cuban tricks).

Latin tourism arrived with Latin business, and the two complemented one another from the outset. Beginning in the

Thousands of Haitians have journeyed the 700 perilous miles by sea to Florida. But, unlike refugees from Cuba, the Haitians have been denied political asylum. Of the 50,000 now in Miami, many are illegal aliens.

early 1970s, an influx of visiting foreigners helped pull Miami's hotel business out of a slump (brought on by the opening of Disney World in Orlando, far to the north, and by growing competition from tropical resorts in the Caribbean).

The well-to-do Latin American families did not come just for sun and fun. Instead, husbands might deposit money, buy real estate, or otherwise tend to business. Wives would shop for appliances, clothes, and toys, assisted in the better shops by bilingual attendants. Often a nanny was brought along to mind the children. In 1983, some 2.2 million foreign visitors entered Dade County, of whom 1.1 million hailed from Central or South America, 780,000 from the Caribbean islands. During their sojourns, according to the Miami Office of Tourism, the Latin Americans spent an average of $1,000 apiece on merchandise—videocassette recorders, cameras, clothes—that they could not get or, because of high tariffs, could not afford at home.

Retailers from throughout Latin America began opening small branch stores in Miami to cater to their compatriots. Some merchants simply moved, lock, stock, and barrel, to Flor-

ida. By the late 1970s there were some 850 such *tiendas*, usually located on the second floor of downtown office buildings. Shoppers could now deal in a context, language, and even accent with which they felt familiar. Colombians recognized the shop logos of their friendly merchants from Bogotá. Argentine shopkeepers would sell to their neighbors from Buenos Aires—sometimes commuting 5,000 miles to their Miami branch stores. At these stores, the price of a calculator or color television would be arrived at after arduous haggling. Payment for the Canon AE-1 or the Fisher T-4010 had to be in cash, enabling the "upstairs entrepreneur" to keep taxes to a minimum.

Cocaine Cowboys

Inevitably, one of the biggest selling items in Miami has turned out to be the suitcase, for carrying extra booty. (Local lore had it that Venezuelans arrived with one empty suitcase to begin with; a second was filled with cash.) To finesse monetary restrictions or avoid customs levies back home, tourists would remove price tags on new purchases, soil clothes, scuff shoes, rewrite invoices.

Medical care is another story; it is duty-free. A 1976 Florida International University study estimated that nonresident foreigners accounted for between seven and 10 percent of all services rendered by Dade County health care facilities. Mount Sinai Hospital, Cedars of Lebanon, the Bascom Palmer Eye Institute—all enjoyed the favor of wealthy Latin Americans eager to obtain specialized medical care unavailable at home. Such people used to go to New York. Today, ailing Mexicans go to Houston. Everyone else who can afford it goes to Miami. In September 1984, health officials from 19 member nations of the Pan American Health Organization met in Miami to discuss the possibility of somehow "formalizing" the city's de facto role as Latin America's premier medical center.

But tourism and trade are not the first things that come to most Americans' minds when they think of Miami's "Latin connection." Narcotics are. And not without reason, for drug trafficking is probably Dade County's number one industry. Even Mayor Ferre concedes that much of Miami's prosperity is due to the free-floating cash of the area's drug wholesalers.

Miami's crime, like its big business, has an international flavor. In 1983, some 38 percent of Customs Bureau marijuana seizures and 45 percent of its cocaine seizures occurred in Miami. The street value of these drugs was estimated at roughly $2.4 billion. If, as the U.S. Drug Enforcement Administration be-

lieves, only one-tenth of all incoming drugs are seized, then Miami's drug industry grosses about $24 billion annually.

So many drug-trade dollars funnel through the Miami branch of the Federal Reserve System that it does not need to issue any *new* currency and, in fact, exports bills to other Federal Reserve districts. It is not unheard of for a customer to walk into his bank with shopping bags or cardboard boxes filled with small bills. Rather than wait for tellers to count the cash by hand, he may settle for having the money weighed (one pound of one-dollar bills equals $600). Some $10 billion is "laundered" in Florida every year.

The narcotics traffic has had ugly consequences, of the sort chronicled in gruesome detail in the film *Scarface* or the TV series *Miami Vice*. Images of submachine gun toting "cocaine cowboys" from Colombia shooting it out in the streets of Miami are by now a cliché. Miami's already high rates of crime were increased when Fidel Castro emptied his jails and allowed many former convicts to join the exodus of Marielitos. Miami's murder rate in 1980 (32.7 per 100,000 population) and 1981 was the highest in the nation, and at one point the Dade County coroner had to rent a refrigeration truck to increase his morgue's capacity. Since the early 1980s, as many of the felons among the Marielitos have been weeded out, some semblance of normalcy has returned. The murder rate is still high, but by 1983 the *Herald* could note with wry satisfaction that "We're No. 3"—happily lagging behind Detroit and Gary in the homicide standings. In 1984, however, the city topped the list again.

A capital lives off its provinces. Miami depends on the economic health of Latin America and the Caribbean. When those 50 countries and dependencies thrive, so will Miami; when they do not, Miami will not either.

During the 1981–82 recession, from which many Latin nations have yet to extricate themselves, the number of foreign-owned second homes in Miami declined. Tourism fell. The Venezuelans, to whom retailers in Miami had once accorded the epithet *dame dos* (give me two), eventually squandered their nation's oil wealth. The bolivar is now worth one-third of what it was against the dollar a few years ago, and many sales representatives in Miami, paid in Venezuelan currency, have had to return to Caracas. The abrupt change in fortune was captured in

Miami's downtown business district. At left is Brickell Avenue, the city's Wall Street. Miami is now enjoying a major downtown building boom, with $1 billion in new office space under construction.

the popular 1984 Venezuelan film *Adiós Miami*, a riches-to-rags comedy directed by Antonio Llerandi.

The region's economic future remains clouded by the huge debts that the Latin American nations incurred during the prosperous 1970s. Since the recession, many loans have been rescheduled. But stretching out the payments also means prolonging the economic pain. Many Latin governments have already cut spending and raised taxes substantially, thereby reducing their citizens' standard of living. Miami is feeling the pinch in the form of a slump in banking and trade, reduced tourism, and a less frenetic real-estate market. For the moment, its economy is in a holding pattern.

And yet the mood today among Miami businessmen is less one of gloom than of caution. The hurricane of 1926 ruined Miami by devastating its chief economic assets: its beaches, its summer homes, its reputation as an idyllic resort where one could escape life's cares. Although it swept away a few *tiendas* and several corporate offices, the recession of the early 1980s left Miami's modern assets virtually intact. The city's geographic locale, its financial markets and service industries, its bicultural ambience, its lively cadre of Cuban traders—all of these remain.

Moreover, a few tentative signs of economic renewal have appeared. Latin tourists have begun to return to the city's hotels and shops. In September 1984, the National Institute on Aging estimated that, during the coming decade, one out of four retired Americans would relocate to Florida, most of them to the Miami area.* By October 1984, Venezuela, South Florida's largest trading partner, had worked out a deal with creditor banks on repayment of its enormous national debt. Aided by the strong dollar, Latin exporters are increasing their sales. During 1984, Latin America's economy as a whole registered modest expansion (2.6 percent) after two years of recession.

Fast-Forward Assimilation

Entrepreneurs continue to recognize the "Miami advantage." The dominant figure in Latin American magazine publishing, Venezuelan Armando De Armas of the De Armas *bloque*, has moved his printing operations to Mexico but still keeps his main editorial offices in Miami. Some 15 of his magazines are edited here, including *Vanidades*, *GeoMundo*, and *Harper's en español*. SIN, the Mexican-owned, Spanish-language TV network, coordinates its 51-city U.S. network from Miami's WLTV, Channel 23. Crooner José Luis Rodríguez (El Puma), a Venezuelan, runs his vast merchandising empire from Miami—one of many Latin singers now based in the city. "They come here," El Puma's press spokesman told the *Herald*, "mainly because they have a telephone they can use to communicate with anywhere in Latin America immediately."

It is still to Miami that the deposed and disaffected of Latin America repair, the ousted potentates and their retinues, the would-be revolutionaries. The first anti-Sandinista guerrillas, the so-called *contras*, were reportedly recruited in Miami. Scores of anti-Castro groups, such as Omega 7, still actively seek to overthrow *el líder máximo*. The Federal Bureau of Investigation and the CIA maintain substantial field offices in what is now called "the new Casablanca." But Latin politics of a gentler sort is also played in Miami—as when Belisario Betancur, in his successful 1982 bid for the presidency of Colombia, made an important campaign stop in the city to woo rich *compadres*.

Still unchanged is the complex, often unacknowledged cultural and linguistic negotiations that routinely take place between individuals of all kinds in Miami. In a city where many

*Among the elderly moving to Florida are increasing numbers of elderly Hispanics, primarily from New York and New Jersey—some 14,000 in all between 1975 and 1980. In those same years, almost 24,000 senior citizens from Latin America also took up residence in Florida. Today, Social Security checks alone inject $1.3 billion annually into Miami's economy.

Latins look like they shop at Brooks Brothers and many Anglos sport *guayaberas*, where physical appearance is often an unreliable cue, and where many people are bilingual, it is often difficult to decide in what language to address a stranger. Motives may complicate the matter: For example, does one wish to display pride in one's own tongue or pride in one's ability to speak another? All of this can make saying "Hello" rather laborious.

If bilingualism is for some Americans as much of a problem as monolingualism is for others, the fact remains that a new type of culture, and perhaps more than one new kind, is being created in Miami. It used to be said that there were two cultures in Miami, the Hispanic and the Anglo. That ignores not only Miami's 280,000 blacks but also the emergence of a culture of the hyphenates. In Miami there are Cuban-Americans as well as Cubans, Colombian-Americans as well as Colombians, Latinized-Anglos as well as plain old Anglos. Here, "Americanization" is not so much a process of "melting" as it is one of accommodating many pressures. Consider the contrary influences on the "Latin and American" teen-ager who needs to wear designer jeans to win her classmates' approval and skirts to satisfy her grandmother, who wants to meet the somatic weight requirements of both her *Tío* Pepe and her boyfriend Bob.

What is happening in Miami—does it represent anything qualitatively *new*? My own impression is that, in one sense, it does not. Rather, it is best understood as a "fast-forward" version of what has happened in the United States many times before, indeed has never ceased happening. It is the classic immigration experience, albeit telescoped in time and space. It is the opening of a kind of frontier.

Yet in another respect the Miami story heralds something new: a fundamental economic shift. Much has been made of the movement of capital and people from the North American "frostbelt" to the newer industries of California and the Southwest. Much has also been made of the shift of capitalism's fulcrum from the Atlantic Basin to the Pacific. Both points are well taken. But there has also been a shift to the markets of the south—of the Third World. Despite the setbacks of the past five years, these nations are sure to regain eventually their economic momentum. For a large part of the U.S. economy, the future lies not in Asia or Europe but in the Western hemisphere south of the Rio Grande and the Gulf of Mexico. Thanks to an accident of history—the Cuban Revolution—Miami has emerged as the capital of that world.

MAKING IT

The achievements of Cuban immigrants in the United States, like those of South Koreans, Vietnamese, and other relatively recent arrivals, are often celebrated by Americans who cheer the entrepreneurial spirit. Here, George Gilder tells how four Cubans climbed the economic ladder in Miami.

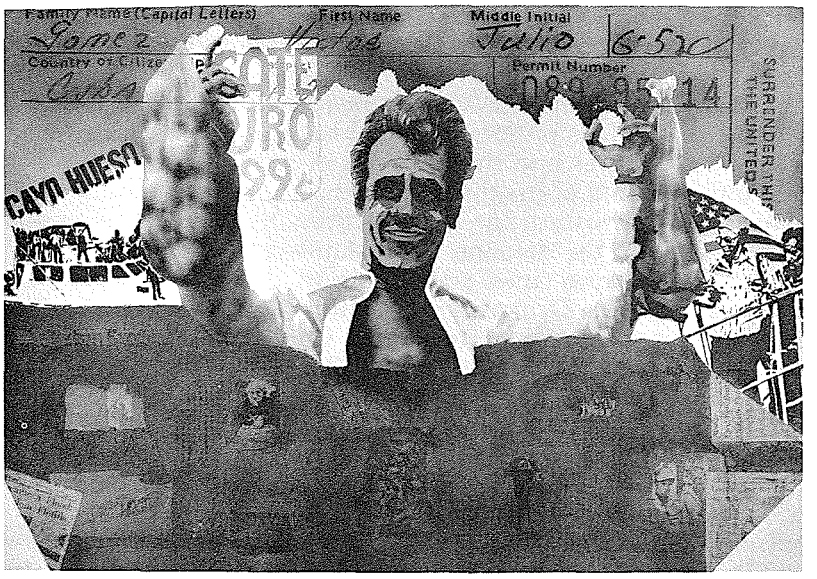
by George Gilder

As more and more Cubans crowded into Miami during the early 1960s, all statistical projections were dismal. Experts foresaw a prolonged siege of medical crises, economic stresses, and ethnic frictions; a teeming burden of "social disorders," needs for housing, welfare, and simple hygiene, an impossible load for the already afflicted social services of Miami.

Poring through the press coverage and political comment of the day, it is difficult to find any observers who saw this human flood as anything but a tribulation for southern Florida or a problem to be solved by saviors at the U.S. Department of Health, Education, and Welfare and the Immigration and Naturalization Service.

The Cubans' saviors, however, were already at hand. They would be saved by themselves: not chiefly by a trickle-down of grants from the government but by the upsurge of their own productive efforts. They would be saved by people like José Pinero, penniless on Eighth Street, having invested his last dollars in some secondhand records to peddle door to door; by Felipe Valls, washing dishes in a restaurant, living in a house with his pregnant wife, two children, and 12 other Cubans; by Amaury Betancourt—with a wife, six children, a mother-in-law, money running low—an unemployed lending officer looking for months for some clerical billet in a bank; by Ramon Oyarzun, once a doctor in Cuba, now hunched over a desk, processing paper in Mercy Hospital, living in a three-bedroom bungalow in Miami Beach with 15 other Cubans; by thousands of other men and women.

They were then unemployed, unpromising, and unsettled, living in accommodations comprehensively in violation of code, but they were already at work, seething with the spirit of enterprise, figuring out how to transfigure Southwest Eighth Street into Calle Ocho, the main drag of a new Little Havana. It would



The 1980 Mariel refugees are blamed for spreading lawlessness in Miami, but most lead productive lives. Among them is artist Victor Julio Gomez, whose paintings have been widely exhibited abroad.

soon become more effervescently thriving than its crushed prototype, soon would percolate with the forbidden commerce of the dying island to the south: the Cafe Bustano, the Refrescos Cawy, the Competidora and El Cuño cigarettes, the *guayaberas*, the Latin music pulsing from the storefronts, the pyramids of mangoes and tubers, gourds and plantains, the iced coconuts served with a straw, the new theaters showing the latest anti-Castro comedies.

José Pinero began creating new work within weeks after he began peddling the secondhand records on Eighth Street. For 30 days or so he saved up his profits from the album sales. Eventually he accumulated enough to rent and refurbish a small shop near the popular Tower Cinema for $100 per month. He named his store Ultra, after the leading department store in downtown Havana, and began selling favorite Latin imports to the movie crowds and others on the street. In mid-1961, Amaury Betancourt, the elegant unemployed banker with six children, had found a job as a clerk at the Coconut Grove Bank. He noticed that although the bank was one of the three oldest in Miami, it lacked an international department. Within six months he became assistant vice-president, was allowed to stop punching a

time clock, and was assigned the challenge of forming an international division, in part to deal with a rising commerce with Latin America.

Meanwhile Felipe Valls's wife gave birth to a baby girl, adding to the burdens on Miami social services and lowering her family still deeper into the statistics of poverty per capita. Felipe quickly tired of his dishwasher work and found a job as a salesman in a restaurant supply company that was encountering a rise in the demand for restaurant goods in Little Havana. At the same time, still living in crowded quarters on Miami Beach, Dr. Oyarzun began studying to pass the Foreign Medical Board examinations, which would allow him to practice, in a limited way, in the United States.

Kissing the Mailman

This group of immigrants was making clear progress. But with their large families and mostly nonworking wives, their halting English and questionable skills, their congested housing and low-paying jobs—and with what the press called "shockingly low benefits" and small enlistments in Florida's welfare system—they constituted a further increment to the poverty problem that was then preoccupying Washington.

By 1964, however, some three years after their arrival, the immigrant families of our story were beginning to make significant contributions to the Miami economy. Ultra Records was thriving on Calle Ocho, and Pinero was planning to open another store in a new shopping center. Valls was growing restive as a salesman of restaurant equipment and was trying to persuade his boss to begin importing espresso machines from Spain, in order to accommodate the coffee thirst of the rapidly growing Cuban community. His boss, however, saw these devices as a troublesome specialty item. Valls thereupon borrowed some money from a friend ("at high interest," he says) and began importing the espresso machines himself. He knew his market. Paying $300 apiece and selling them for $1,200, he soon was able to pay back his loan, hire a mechanic named Gomez to install and service the equipment, and rent a shop on North Miami Avenue for his new International Equipment Corporation.

George Gilder, 45, is Director of Research at the Manhattan Institute for Policy Research. Born in Tyringham, Massachusetts, he received a B.A. in government from Harvard University (1962). His books include Wealth and Poverty *(1981). This essay is adapted from* The Spirit of Enterprise *by George Gilder.*

PROSPERITY . . . AND POVERTY

Cubans have made their mark in all walks of life in America—Desi Arnaz in Hollywood, Roberto C. Goizueta as head of the Coca-Cola Company, Alberto Salazar as a top marathon runner, Charles (Bebe) Rebozo as "first friend" to President Richard M. Nixon. Many others have achieved a more modest prosperity. But not all of the nearly one million Cubans in the United States have been so fortunate.

The 1980 U.S. Census (completed before the influx of impoverished Mariel refugees) showed that 11.7 percent of Cuban families in this country lived below the poverty line. The national poverty rate was then 9.6 percent. Some 16.8 percent of Cuban households were receiving public assistance, more than twice the national average. Among the poor were many high school dropouts and elderly Cubans who fled to the United States too late in life to build up sizable retirement nest eggs.

Overall, however, the new arrivals have come far. In 1980, Cuban households earned an average of $19,487, only $800 less than the national average. A few immigrant groups have fared better (notably Asian-Americans), but the Cubans' performance compares favorably to that of Mexican-Americans ($16,182), blacks ($14,070), and Puerto Ricans ($12,774).

Their relative affluence is explained in part by age. The median age of Cubans in America was nearly 38 in 1980, which meant that many were approaching their peak earning years. Among Puerto Ricans, by contrast, the median age was 22.

Yet hard work and persistence account for much of the Cubans' success: They enter the job market in proportions greater than the national average, yet suffer relatively low unemployment. A majority of Cuban women (55.4 percent) hold jobs. Partly as a result, the birthrate among Cubans (16 per 1,000 population) falls just below the U.S. national average.

As a group, the Cubans are relatively well educated: 16 percent of those over 25 hold college degrees, and 21 percent are employed as doctors, lawyers, managers, or administrators. Yet assimilation is far from complete. Nearly half of the over-25 group lack high school diplomas; a 1980 survey showed that one-third of Miami Cubans spoke only Spanish at work. Outside the Cuban strongholds in Miami and the Union City–West New York area of New Jersey, where some 100,000 live, the story is different. Cubans in Illinois, Texas, and California are generally better educated, more fluent in English—and more prosperous.

The children of Miami and Union City seem destined to follow in the footsteps of their far-flung relatives in the United States—and of the Jews, Italians, and other successful immigrant groups that preceded them. Already, Florida Cubans between the ages of 25 and 34 enjoy a median family income of $19,519, nearly $850 more than their non-Hispanic white peers. And many young Cubans are abandoning their ethnic enclaves in search of economic opportunity.

With other loans and a low down payment, he also managed to move his family into the $17,500 house in southwest Miami that they occupied until 1982.

At the same time, Dr. Oyarzun had managed to improve his English enough to pass his medical boards, though at first he assumed he had failed and was doomed to another year of paperwork and penury as a clerk at Mercy Hospital—another period of dependency in the crowded homes of friends and relatives. Although the other students already had been informed of their test scores, the mail truck had failed to stop at Oyarzun's place that morning and plunged the household into despair. When the postman returned later with the large brown envelope, he was ambushed with hugs and kisses from Mrs. Oyarzun.

A Half-Ton of Pan Cubano

José Pinero had yet to learn English, but his record business was expanding rapidly, and he opened new Ultra stores in two new shopping malls and began to import records from Latin America and the Caribbean. Amaury Betancourt had risen to the position of vice-president in charge of the rapidly growing international division of Coconut Grove, and Felipe Valls, after several years of supplying restaurants, had become a contractor and consultant, designing and building them. Following a long period of work in hospitals, Dr. Oyarzun had established himself in practice and was considering the possibility of buying out his American colleague.

During the 1970s, each of the immigrants in this story made important contributions to the triumph of the Cubans in Miami, one became a significant national business figure, and their children were moving rapidly into productive jobs in Dade County and across the country. Amaury Betancourt became president and chairman of one of Miami's 15 Cuban-owned banks, Totalbank. Under the name Americas Bank, it had begun in 1974 in a mobile bank trailer at the corner of Southwest 27th Avenue and Coral Way. Located between Little Havana and Coral Gables, the new trailer was well situated to accommodate the increasing movement of Cubans into the plusher parts of Miami, then unserved by Cuban institutions. Totalbank surged with the upsurge of its clientele. As of June 30, 1975, the deposits of Totalbank amounted to $8,485,008, and the bank's staff numbered 17. By 1982, when Betancourt retired, the bank's assets were some $120 million and growing at a pace of 12 percent a year, and it did business in branches throughout the city. It eschewed only the large cash deposits from "Colombia cowboys" that enriched

less scrupulous local institutions and that journalists hastily identify as the source of Miami's success.

José Pinero opened branches of Ultra Records in Central Shopping Plaza, Westchester Mall, Midway Mall, and Downtown Capital Mall to go with his original outlet on Calle Ocho. From a warehouse at 38th Place in Hialeah, moreover, Ultra imports records from throughout the Caribbean and Latin America and distributes them throughout the country. Dr. Oyarzun became one of the most prominent doctors in the city, the head of the League Against Cancer, and the owner of the medical building in which he first went into practice. In the early 1970s, Felipe Valls decided to plunge more deeply and directly into the restaurant and real estate fields. His restaurants were small sidewalk cafeterias, open 24 hours a day, serving small cups of *café cubano* and Cuban sandwiches. He would open one of these establishments, make it thrive, and then sell it to get a down payment on a more commodious place.

Valls's breakthrough came in 1971, when he purchased a large flower shop on Calle Ocho and turned it into Versailles, a large L-shaped gallery of mirrors and chandeliers, now the most popular Cuban restaurant in Miami. Valls estimates that the restaurant serves some 500 to 600 customers daily, and in a week consumes some 300 pounds of coffee, 500 pounds of rice, 400 pounds of beans, and more than half a ton of *pan cubano*.

Since 1971, Versailles has been joined in the neighborhood by four other ambitious Cuban restaurants, including La Carreta (The Sugar Cart) across the street, an equally large and successful, though somewhat cheaper and less comely, competitor for Versailles, specializing in Creole food. Valls is indulgent toward La Carreta, which flaunts its huge neon cartwheel sign across Calle Ocho. He knows that resourceful competition expands the market. And who could be a more resourceful competitor than the founder of Versailles? It is Valls himself who opened La Carreta and the other Versailles rivals nearby, and the market still grows to meet the rising supplies of good Cuban and Spanish-American food.

BACKGROUND BOOKS

MIAMI

For a city roughly the size of Phoenix or Cleveland, Miami seems to get an unusual amount of media attention.

Novelist Joan Didion and journalist T. D. Allman are at work on books dealing with North America's premier subtropical city; a weekly cops-and-robbers television series, *Miami Vice*, brings fleeting, vivid images of the city's yachts, lush palm trees, and splashy pastel architecture, as well as exotic mayhem, to some 12 million American households.

One useful antidote to all the money-and-glitter talk about Miami is the **Places Rated Almanac** (Rand McNally, 1981, cloth & paper; 1985, cloth & paper) by Richard Boyer and David Savageau, which ranks Miami's urban charms a mediocre 52nd among 329 U.S. cities. Another is Helen Muir's breezy **Miami, U.S.A.** (Holt, 1953; Banyan Tree, 1963).

Muir, a former newswoman, peppers her comprehensive, albeit partly outdated, history of the city with warnings to readers. The mosquitoes are outsized and voracious, she says, and the cockroaches have wings. The hot, sticky summers extend well into October.

How thousands of acres of South Florida muck and mangrove trees were transformed into valuable urban real estate is the subject of **Fifty Feet in Paradise** (Harcourt, 1984) by David Nolan. Miami owes its early blossoming to a colorful cast of con men, tycoons, dreamers, and thieves.

Yet, as Will Rogers once said of Carl Fisher, who bought a large chunk of Miami Beach for $200,000 in 1912, "Had there been no Carl Fisher, Florida would be known today as the Turpentine State." (Turpentine is distilled from resins of the state's plentiful scrub pines.)

Novelist Gloria Jahoda's readable survey, **Florida: A History** (Norton, 1976), provides a statewide backdrop to Miami's growth. Fisher and his colleagues, she observes, had little help from the state government in Tallahassee. Until the court-ordered legislative reapportionment of 1972, the "pork choppers" of rural North Florida kept a firm grip on the state government.

The pork choppers controlled the pork barrel: During the 1930s, Jahoda says, "capacious roads were constructed from swamp to swamp" in northern Florida while Dade County had to settle for a few narrow thoroughfares.

Meanwhile, gangsters such as Samuel P. Cohen and Jules Levitt were moving into Miami, taking over legitimate gambling casinos. As Miami schoolteacher Arva Moore Parks recalls in her lavishly illustrated look at **'The Magic City,' Miami** (Continental Heritage, 1981), the new owners quickly branched out into illicit activities. Cohen and Levitt's S&G Syndicate controlled 200 illegal bookmakers in the city, not to mention a number of policemen and local elected officials.

The gambling and official corruption came to an abrupt end after Sen. Estes Kefauver (D.-Tenn.) held widely publicized hearings in 1950, but Miami's prosperity continued.

In 1953, some 200 miles away, a young Cuban lawyer named Fidel Castro led a tiny band of rebels in an attack on a military garrison at Santiago de Cuba. Castro hoped to strike a blow against the regime of dictator Fulgencio Batista.

Castro and his men were routed and took refuge in the Sierra Maestra mountains. A few years later, some

1,000 Fidelistas emerged from the hills and ousted Batista, taking power on New Year's Day 1959. In the aftermath of the revolution, writes Oxford historian Hugh Thomas in **Cuba: The Pursuit of Freedom** (Harper, 1971), at least 5,000 Cubans, some of them Castro's former allies, were executed and another 40,000 imprisoned.

The imposition of communist rule ultimately drove hundreds of thousands of Cubans from their native land. The life they made for themselves in the United States is the subject of **The Cuban-American Experience: Culture, Images, and Perspectives** (Rowman & Allanheld, 1983) by geographers Thomas D. Boswell and James R. Curtis, of the University of Miami.

Their lively survey, touching on everything from Cuban cuisine to data on churchgoing and earnings, shows that the Cubans are not a homogenous group. Those who arrived in the United States earlier in the 20th century looked down upon the "Golden Exiles" who came during the early 1960s, who were in turn dismayed by the post-1965 Freedom Flight newcomers. Initially, all three groups looked askance at the Mariel refugees of 1980.

As a measure of the Cubans' assimilation, the authors note that Cuban youths generally speak Spanish at home, banter in "Spanglish" with their friends, and watch English-language movies and television.

Adaptation to American life is one of the subjects of **Cuban Americans: Masters of Survival** (Abt, 1982), José Llanes's evocative mixture of narrative history and the recollections of his fellow Cubans. Luis Lo-sada, a university professor, hails television as "the immigrant's acculturation encyclopedia"; Omar Betancourt, a former social worker, worries about the young *Americocubanos*, the Cuban-American youths who, he fears, have adopted the worst of both cultures.

Of course, the Cubans are not the only ethnic group in Miami. In Miami Beach, Yiddish is heard almost as frequently as Spanish. **Dying in the Sun** (Charterhouse, 1974) by novelist Donn Pearce is a grim portrait of Florida's retirees. Many of Miami Beach's 87,000 permanent residents are elderly Jews, scraping by on Social Security and living in run-down rooming houses and hotels.

In **The Miami Riot of 1980: Crossing the Bounds** (Lexington, 1984), Bruce Porter and Marvin Dunn, of Brooklyn College and Florida International University, respectively, offer a bleak sketch of Miami's black community. Miami's black middle class is smaller than those of comparable Southern cities, they say, partly because the city's energetic Hispanics garner a large share of federal small business loans and other aid. Five years after the riot, they warn, black discontent still simmers.

Yet Miami has a history of snapping back from misfortune. Raymond A. Mohl, of Florida Atlantic University, likens its growing pains to those of other **Sunbelt Cities** (Univ. of Tex., 1983; edited by Richard M. Bernard and Bradley R. Rice). In Miami, the optimism is palpable, recalling the boosterism of the old West. Miami "boils and bubbles," one local newsman says, "making history faster than even South Florida ever saw before."

Religion

THE ALMOST-CHOSEN PEOPLE

America's first English settlers were religious dissidents driven to the New World by religious intolerance. As today's debates over prayer in the public schools and government support for parochial education suggest, the new Americans did not leave the conflict over church-state relations behind them. At first, the colonists tried to create their own theocratic communities. But the sectarian violence of the Old World convinced most Americans of the evils of an established church. At the same time, they never doubted that a core of religious belief was essential to a healthy democracy. Here, historian Paul Johnson describes how, despite occasional crises, the United States struck a unique balance, incorporating religious faith into its political life without wedding the state to religious institutions.

by Paul Johnson

When Abraham Lincoln called Americans "the almost-chosen people," he used an apt phrase, as valid now as when he coined it 120 years ago. It perfectly expresses the close but at the same time slightly uneasy relationship between the American Republic and the religious spirit.

That Americans are exceptional in their attitude toward religion is obvious to all, and never more so than today. But visitors from old Europe, such as Aleksandr Solzhenitsyn and Pope John Paul II, are struck by the way in which high church attendance rates and an often blatant religiosity coexist with the passionate pursuit of materialism. They are inclined to agree with Cotton Mather, who made the point as long ago as 1702 while documenting what he termed "Christ's great deeds in America." It seemed, he concluded, that "*Religion* brought forth prosper-

Pilgrims Going to Church, *by George Henry Boughton (1833–1905). As it happened, profit-seeking investors financed the New World settlements of the Pilgrims and other English religious dissidents.*

ity, and the *daughter* destroyed the *mother*. . . . There is danger lest the *enchantments* of this world make them forget *their errand into the wilderness*."

The first settlers on the Atlantic Seaboard were undoubtedly animated by a sense of divine mission. The work most widely read by them, after the Bible, was John Foxe's *Book of Martyrs* (1563), which vigorously broadcast the dynamic myth that the English constituted the Elect Nation. During the 16th and 17th centuries, most English people believed that their country had received Christianity directly from Christ's disciple Joseph of Arimathea; that the Emperor Constantine was British (his mother Helena having been daughter of the British King Coilus); and that he had Christianized the whole civilized world, as Foxe put it, "by the help of the British army."

The myth was held most tenaciously among the Protestant sectarians, especially those who went to the New World. The explorer and navigator John Davis said: "There is no doubt but that we of England are this saved people, by the eternal and infallible presence of the Lord predestined to be sent into these Gentiles in the sea, to those Isles, and famous kingdoms, there to preach the peace of the Lord." In a sermon to the Virginia Com-

pany in 1622, the poet John Donne, dean of St. Paul's, told the subscribers: "God taught us to make ships, not to transport ourselves, but to transport Him. You shall have made this island, which is but the suburbs of the old world, a bridge, a gallery to the new; to join all to that world that shall never grow old, the kingdom of heaven." The first governor of the Massachusetts Bay Colony, John Winthrop, crossing the Atlantic aboard the *Arbella* in the spring of 1630, wrote: "We shall be as a city upon a hill, the eyes of all people are upon us."

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It was inevitable that such devout nation-builders should place their government in a religious frame. So in a sense did all Christian societies. But in the Old World, state authority drew its divine sanction from traditional sacral kingship; in America, it took the form of conscious dedication by democratic assemblies expressed in formal documents. Those sailing on the *Mayflower* in 1620, "for the Glory of God and the advancement of the Christian faith," stated their desire "solemnly and mutually in the presence of God" to "covenant and combine ourselves together in a civil body politic."

No one who studies the key constitutional documents in American history can doubt the central and organic part played by religion in the origins and development of American republican government. The Fundamental Orders of Connecticut (1639), the first written constitution in the modern sense of the term, puts forth in its introduction that the state owes its origin to "the wise disposition of the divine providence" and that "the word of God" requires "an orderly and decent Government established according to God" to "maintain and preserve the liberty and purity of the Gospel."

Where specific provision was not laid down, magistrates were to administer justice "according to the rule of the word of God," and both governor and magistrates swore to act "according to the rule of God's word." It did not seem possible to these founders to distinguish between government, on the one hand,

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and religion (by which they generally meant Protestant Christianity) on the other. As William Penn put it in his *Preface to the Frame of Government of Pennsylvania* (1682): "Government seems to me a part of religion itself, a thing sacred in its institution and end . . . an emanation of the same divine power that is both author and object of pure religon."

Such quasi-religious societies could easily have become theocracies on the Christian medieval model, tolerating no dissent from established creeds and exercising the right to persecute on Saint Augustine's principle: "Compel them to come in." They did not do so for two reasons. First, even the churches were often run democratically, by the congregation, not by the clergy. So they stressed morals and behavior rather than theology and doctrine. Second, they moved away from the Augustinian tradition of close and detailed definition of dogma and toward the alternative proposed by the early 16th-century humanist Erasmus, that religion should define as little as possible and concentrate on propagating the spirit of Christian fellowship.

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Because Protestant religious establishments were popular, not hierarchical, a distinctive American religious tradition began to emerge. There was never any sense of division in law between laymen and cleric, between those with spiritual or social privileges and those without. America was born Protestant and did not have to become so through revolt and struggle against a Catholic Church or an ecclesiastical establishment. In all these respects it differed profoundly from the Old World. America's common national creed was to grow out of a set of Protestant assumptions.

In any case, in a frontier society it was impossible to preserve sectarian discipline and uniformity: Dissenters, such as the Disciples of Christ, or later the Mormons, simply moved on. Breaking away from strict New England Calvinism, Roger Williams founded Providence, Rhode Island, calling it "a shelter for persons distressed for conscience." His patent (1644) declared that "the form of government established in Providence Plantations is DEMOCRATICAL, that is to say a government held by the free and voluntary consent of all, or the greater part, of the free inhabitants." This was the first commonwealth in modern history to make religious freedom, as opposed to an element of toleration, the principle of its existence and a reason for separating church and state. As its royal charter (1663) stated: "No person within the said colony, at any time hereafter, shall be in any wise

molested, punished, disquieted or called in question, for any differences in opinion in matters of religion, and who do not actually disturb the civil peace of our said colony; but that all . . . may from time to time, and at all times hereafter, freely and fully have and enjoy his and their own judgments and consciences, in matters of religious concernments."

It is important to grasp that as American society embraced the principles of voluntarism and tolerance in faith, it did so in a spirit not of secularism but of piety.

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Almost unconsciously the consensus grew that voluntary adherence to one faith, and tolerance of all others, was the foundation of true religion. In this respect English and American society separated as early as the 1650s. While England was debating whether to have an official Presbyterian or a Congregationalist religion, and then in practice getting an Anglican one, the former Governor of Massachusetts Sir Henry Vane expounded on the principles of civil and religious liberty in *A Healing Question* (1656). He argued that they were inseparable and that freedom of religious belief was essential to the maintenance of a Christian society: "By virtue then of this supreme law, sealed and confirmed in the blood of Christ unto all men . . . all magistrates are to fear and forebear intermeddling with giving rule or imposing in those matters." This document and the sentiments that it articulated were more instrumental in determining the spirit of the U.S. Constitution in religious matters than were the writings of the Enlightenment.

The coming American Revolution was in essence the political and military expression of a religious movement, the Great Awakening (ca. 1720–50). Certainly those who inspired it and carried it through believed that they were doing God's will. The man who first preached the Revolution, Jonathan Edwards (1703–58), believed strongly that there was no real difference between a political and a religious emotion, both of which were God-directed. The right kind of politics, for him, was no more than realized eschatology. The disciplined community of souls could work toward a better world even now. Edwards, a Connecticut preacher, saw no reason that God should not "establish a constitution" whereby human creatures would cooperate with Him; so men should know that the hour was coming when God "shall take the kingdom"; and he looked for "the dawn of that glorious day."

Edwards saw religion as the essential unifying force in

American society, and the force was personified by his evangelical successor, George Whitefield (1714–70), an Anglican turned Methodist. Until the 1730s, America had been a collection of very different societies, engaging in little contact with one other and often possessing stronger links to Europe than to their neighbors. Religious evangelism was the first continental phenomenon, transcending differences between the colonies and dissolving state boundaries. And Whitefield was the first American public celebrity, as well known in New Hampshire as in Georgia. His form of religious ecumenicalism preceded and shaped political unity. It popularized the real ethic of the American Revolution, which was not so much political as social and religious—the beliefs and standards and attitudes that the great majority of the American people had in common. It was a Christian, to a great extent a Protestant, ethic infinitely more important than the purely dogmatic variations of the sects.

Pennsylvania, the key state in the formation of the union, was a microcosm of this ethos. Most diverse in religion, it was a Presbyterian stronghold, the headquarters of the Baptists, a state where Anglicanism was strong and Catholicism flourished. It also was home to a variety of Mennonites, Moravians, and German pietists, as well as Quakers and other sects. The Declaration of Independence and the Constitution were thus framed in an appropriate setting. The institution of religious freedom and of a government that did not distinguish among faiths was the work not so much of millenarian sects revolting against magisterial churchmen as of the denominational leaders and statesmen themselves, who saw that pluralism was the only form consonant with the ideals and necessities of their new country.

Even those most strongly influenced by the secular spirit of the Enlightenment acknowledged the centrality of the religious spirit in giving birth to America. As John Adams put it in 1818: "The Revolution was effected before the war commenced. [It] was in the minds and hearts of the people; a change in their religious sentiments of their duties and obligations." He saw religion, indeed, as the foundation of the American civic spirit:

> One great advantage of the Christian religion is that it brings the great principle of the law of nature and nations, love your neighbour as yourself, and do to others as you would that others do to you, to the knowledge, belief and veneration of the whole people. . . . The duties and rights of the man and the citizen are thus taught from early infancy.

The United States of America was not therefore a secular state. It might more accurately be described as a moral and ethical society without a state religion. Clearly, those who created it saw it as an entity, to use Lincoln's later phrase, "under God." The Declaration of Independence in its first paragraph invokes "the Laws of Nature and of Nature's God" as the entitlement of the American people to choose separation from Britain. It insists that men have the right to "Life, Liberty and the pursuit of Happiness" because they are so "endowed by their Creator." The men who wrote it appeal, in their conclusion, to "the Supreme Judge of the world" and express their confidence in "the Protection of Divine Providence."

Equally, the men called to govern the new state saw a political society within a religious framework. George Washington began his first inaugural address (1789) with a prayer to "that Almighty Being, who rules over the universe, who presides in the councils of nations," asking Him to bless a government consecrated "to the liberties and happiness of the people." He was certain that his prayer expressed the sentiments of Congress as well as his own, for "no people can be bound to acknowledge and adore the invisible hand which conducts the affairs of men more than the people of the United States. Every step by which they have advanced to the character of an independent nation seems to have been distinguished by some token of providential agency."

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When relinquishing office in 1796, Washington again expressed the wish that "Heaven may continue to you the choicest tokens of its beneficence." In a memorable passage, he pointed out that "religion and morality are indispensible supports" of "political prosperity" and that the "mere politician" ought to "respect and cherish them." Nor, he added, was a purely secular morality enough in itself: "Reason and experience both forbid us to expect that national morality can prevail in exclusion of religious principle." Virtue and morality were "the necessary spring of popular government," and no supporter of it could "look with indifference upon attempts to shake the foundations of the fabric." In Washington's eyes at least, America was in no sense a secular state.

What is still more remarkable is that, during the 19th century, the cold, secularizing wind that in Europe progressively denuded government of its religious foliage left America virtually untouched. The Civil War, like the Revolution, was the political and military expression of a religious event, the product of the

Second Great Awakening (ca. 1795–1835), just as the Revolution had been the product of the first. Lincoln, like Washington, saw the Deity as the final arbiter of public policy, but in addition he articulated what I would call an element most characteristic of American political philosophy—the belief that the providential plan and the workings of democracy are organically linked. As he made clear at his first inauguration (1861), the dispute between North and South, and its resolution, would illustrate the way in which the democratic process was divinely inspired:

> Why should there not be a patient confidence in the ultimate justice of the people? . . . If the Almighty Ruler of Nations, with his eternal truth and justice, be on your side of the North, or yours of the South, that truth and that justice will surely prevail by the judgment of this great tribunal of the American people.

When Lincoln issued the Emancipation Proclamation in 1863, he appealed both to world opinion and God for approval. Lincoln confided to his Cabinet that the timing was determined by divine intervention in the Battle of Antietam. Secretary of the Navy Gideon Welles noted in his diary:

> He remarked that he had made a vow—a covenant—that if God gave us the victory in the approaching battle, he would consider it an indication of the Divine will, and that it was his duty to move forward in the cause of the slaves. He was satisfied it was right—and confirmed and strengthened in his action by the vow and its results.

No one ever reflected more deeply on the relationship between religion and politics than Lincoln, the archetypal American statesman. To clarify his own thought, he wrote:

> The will of God prevails. In great contests each party claims to act in accordance with the will of God. Both may be, and one must be, wrong. God cannot be for and against the same thing at the same time. In the present Civil War it is quite possible that God's purpose is something different from the purpose of either party; . . . By his mere great power on the minds of the now contestants, he could have either saved or destroyed the Union without a human contest. Yet the contest began. And, having begun, he could give the final victory to either side any day. Yet the contest proceeds.

It is impossible to imagine Lincoln's European contemporaries, Napoleon III, Bismarck, Marx, or Disraeli, thinking in these terms. Lincoln did so in the certainty that most of his fellow Americans could and did think along similar lines.

Just as religion was a determining factor in the two decisive events of American history, the Revolution and the Civil War, it has continued to hold a special place in the American political process, at the popular level and at the highest levels. In 1898, at the time of the Spanish-American War and the annexation of the Philippines, President William McKinley said he was "not ashamed" to admit to a gathering of his fellow Methodists:

> I went down on my knees and prayed Almighty God for light and guidance more than one night. And one night late it came to me this way. . . . There was nothing left for us to do but to take them all and to educate the Philippinos and uplift and civilise and Christianise them, and by God's grace do the very best we could by them, as our fellow men for whom Christ also died.

McKinley's ignorance of centuries of Catholic worship in the Philippines seems shocking now. But in any case, no European imperialist, whether a Joseph Chamberlain or a King Leopold, would have dared to justify himself in such a manner. He would have been accused of humbug. McKinley was patently sincere; many Americans thought the same.

No wonder, then, that President Woodrow Wilson, the first American head of state to operate on the European scene, seemed so strange a figure to European politicians. Observing him at the Paris Peace Conference in 1919, the economist John Maynard Keynes did not see a politician at all: "The president was like a Nonconformist minister, perhaps a Presbyterian." He "thundered commandments from the White House." And when he came to Europe, "He could have preached a sermon on any of them or have addressed a stately prayer to the Almighty for their fulfillment, but he could not frame their concrete application to the actual state of Europe."

Keynes's reaction was typical of Europeans. Even today a European asked to single out the most pervasive trait of American public men in this century might point to the quasi-religious character of their rhetoric. This applies whether they are puritan like Calvin Coolidge, or Catholic like John F. Kennedy; men of strong faith like Herbert Hoover and Ronald Reagan, or less devout, like Franklin D. Roosevelt and Lyndon B. Johnson.

For the truth is, the political culture of the United States is

strongly religious, and the reason that it is religious, unlike that of Europe, is that the political process and the religious establishment have never been perceived to be in conflict.

The harmony of religion and liberty in the United States was the first thing that struck Alexis de Tocqueville. "In France," he wrote in *Democracy in America* (1835), "I had almost always seen the spirit of religion and the spirit of freedom pursuing courses diametrically opposed to each other; but in America I found that they were intimately united, and that they reigned in common over the same country." He thought religion was "the foremost of the political institutions" of America, since republican democracy, with its minimal use of authority and the power of government, could not survive without religious sanctions, voluntarily accepted.

The point was reiterated 120 years later by President Dwight D. Eisenhower, probably as typical of American mid–20th-century attitudes as Lincoln was of those prevailing in the mid-19th century. In 1954, Eisenhower told the *Christian Century* magazine: "Our government makes no sense unless it is founded on a deeply felt religious faith." He added, still more characteristically, "And I don't care what it is."

Eisenhower's indifference to doctrinal distinctions reflected faithfully the Erasmian nature of religious America. It was and is concerned with moral conduct rather than dogma; American religious groups were judged not by their theology but by the behavior of their adherents. Thus the very diversity of the sects constituted the national religious strength, since all operated within a broad common code of morals.

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The merits of American religious pluralism explain why, for example, the growth of the state education system was not, as in Europe, a source of conflict. It was nonsectarian without being nonreligious. Its moving spirit, Horace Mann (1769–1859), thought religious instruction should be taken "to the extremest verge to which it can be carried without invading those rights of conscience which are established by the laws of God, and guaranteed by the constitution of the state." In the early stages, the public schools taught a kind of generalized Protestantism as a form of "character building." Later, as the make-up of American society broadened to include millions of Catholics and Jews, the specifically religious element was further diluted until it disappeared altogether and was succeeded by what might be called the spirituality of the Republic, itself based upon the Protestant

ethical and moral consensus.

Jews and Catholics were able to accept the public school system, and the broader national ethic it reflected, because the concept of libertarian plurality in religion coincided with their interests. During the 1850s, the Irish, nearly all of them Catholics, constituted 35.2 percent of all immigrants. Up to 1930, over 3.5 million of them came to America to escape Protestant government and Protestant landlords. In 1884, for the first time in history, a leading Catholic prelate was able to endorse a state that did not accord a special status to his church: "There is no conflict between the Catholic Church and America," said Archbishop John Ireland of St. Paul, Minnesota, " . . . and when I assert, as I now solemnly do, that the principles of the church are in thorough harmony with the interests of the Republic, I know in the depths of my soul that I speak the truth."

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For immigrant Jews, the motive of religious freedom was still stronger. From 1881 to 1914, over two million of them came to the United States, equaling 10 percent of all immigrants in the early years of the 20th century. The overwhelming majority of them came from Russia, Rumania, and Galicia, and their primary motive was to escape systematic discrimination and active persecution on religious grounds. What attracted them to America, above all, was not its secularity, but its religiosity. America was not just neutral regarding religions; it was benevolently neutral. For Catholics and Jews alike, America had a unique appeal: Their religious practices were not merely tolerated—they were respected. Had America's open door policy been maintained in the 1930s and '40s, there is little doubt that most of the victims of the Holocaust would have found refuge here. Now, as in the days of the *Mayflower*, the United States is the first and obvious choice of anyone, anywhere in the world, dislocated in the cause of religious freedom. America's continuing role as the primary refuge of the persecuted underlines its religious exceptionalism.

But if religion is a unifying force in American culture, underpinning republicanism and democracy, it can also be a divisive one. It is often both at the same time. The first Great Awakening inspired the Revolution and so created America. But the Revolution also divided colonial society: One-quarter of the nation remained neutral; one-quarter was loyalist—thousands of them migrated to Canada. The Second Great Awakening helped to launch the Civil War and to prompt the abolition of slavery; but

in the process it tested the Union almost to destruction and left wounds that did not heal for a century. The third "great awakening" (ca. 1875–1914) produced that unsuccessful experiment in social engineering, Prohibition, which set town against country, Catholic against Protestant, native against immigrant, and Middle West against the rest.

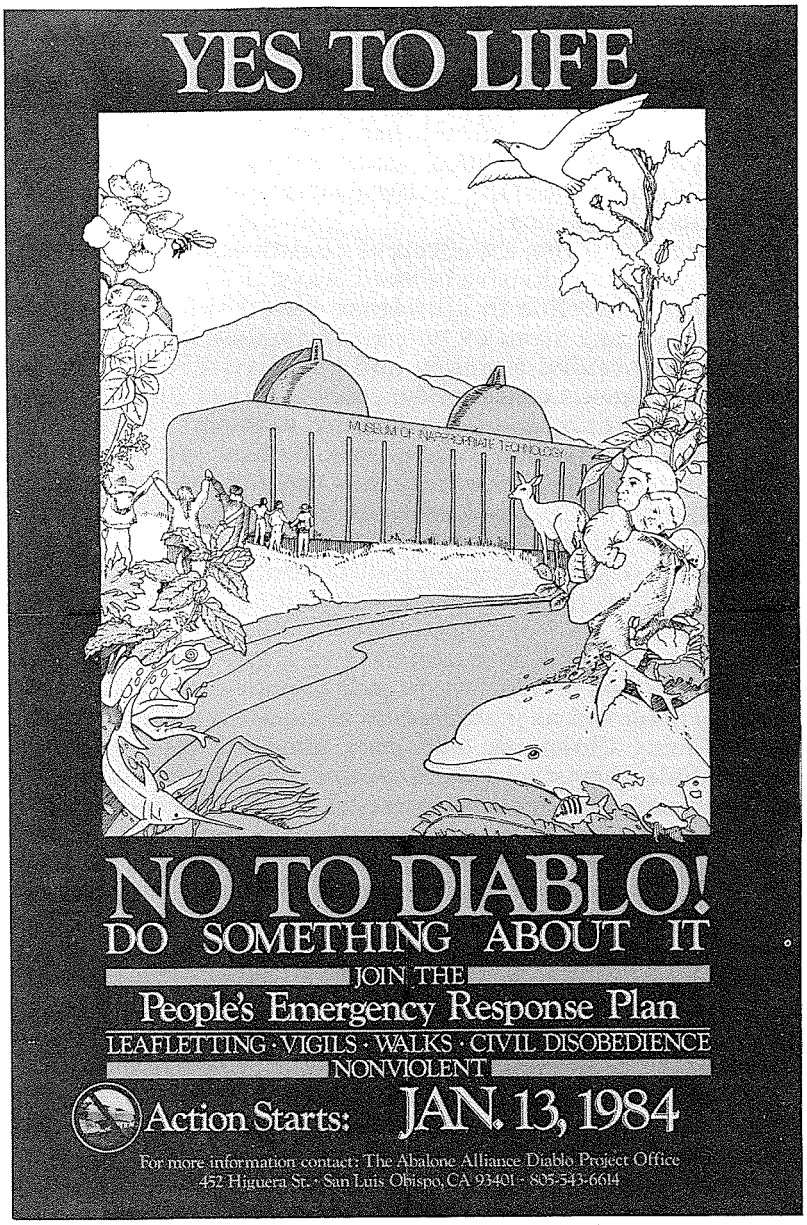
We are now seeing the effects of a fourth "great awakening" that also is proving divisive in many ways.

A relative decline in affiliation with mainline churches among Americans (from 69 percent in 1960 to 49.7 percent in 1980) has concealed a steady and cumulatively formidable growth in religious conservatism, most marked in the Protestant churches but by no means confined to them.

As the mainline churches began to decline, they sought the mutual protection of ecumenicalism—through the National and World Council of Churches and common political platforms of ever more liberal hue. These events, in turn, provoked an angry, conservative response from their disenfranchised rank and file. This protest took the form of a new de facto unity that stretches across the sects and even into Catholicism. This popular ecumenicalism is based on a common reassertion of traditional moral values and of belief in the salient articles of Christianity not as symbols but as plain historical facts. It appeals to many nonpracticing Christians, and even non-Christians, who feel that the Judeo-Christian system of ethics and morals that underlies American republican democracy is in peril and in need of reestablishment. The phenomenon has no counterpart in Europe.

Like its predecessors, this ferment is having political consequences, the first being the phenomenon of Reaganism and popular revulsion from the liberal consensus of the 1960s and '70s. And in communities across the country, fervent debates are taking place on issues such as texts and prayer in schools, crime, feminism, and abortion. These differences remind us that religion and politics are organically linked in America, movements in one echoing and reinforcing movements in the other.

Just as the strength of religion in America sustains and nurtures democracy, so the vigorous spirit of American democracy continually reinforces popular religion. As long as America remains the world's most powerful and enthusiastic champion of democracy, it is likely to preserve its exceptional role as the citadel of voluntary religion.



In the United States today, the atom produces as much electricity as the entire country used 25 years ago. Reactors supply about one-third of the power in New England and the Chicago area, and large amounts elsewhere. Yet opposition persists. The target of this 1984 poster: California's Diablo Canyon plant, first planned to start up in 1973.

Nuclear Power In America

It was just 40 years ago this season, soon after Hiroshima and the end of World War II, that the U.S. Congress began debating the future of the extraordinary new technology developed by the Army's secret Manhattan Project. Atomic power has since been widely tapped as a key source of energy. At last count, there were 342 nuclear power plants in 26 countries, among them such unrich states as South Korea, India, Pakistan, Yugoslavia, and Spain. Some 146 more are being built, and others are contemplated: China is planning a dozen plants. Reactors supply about one-half of the electricity in France and Belgium, more than 40 percent in Finland and Sweden, more than 20 percent in Switzerland, Taiwan, West Germany, Japan, and Bulgaria. Yet, in the United States, where the atomic age began, the news has been about high costs, court fights, cancellations. Just in the last year, plants have been abandoned in Indiana, Ohio, Texas, and Washington state. What passes for success is the completion recently of New York's Shoreham plant (after 12 years and $4.2 billion) and of California's Diablo Canyon (17 years, $5.6 billion). Here, William Lanouette examines what clouded the promise of the atom in America, and what might redeem it.

ATOMIC ENERGY, 1945–1985

by William Lanouette

At 4:00 A.M. on Wednesday, March 28, 1979, just 12 weeks after it had been put on line, a nuclear power plant on Three Mile Island (TMI) in Pennsylvania's broad Susquehanna River began to misbehave.

The plant was Metropolitan Edison's Unit 2, a Babcock & Wilcox pressurized-water reactor supplying steam to a generator producing 880 megawatts of electricity for the area around Harrisburg, the state capital, 10 miles away. Suddenly, several pumps stopped; they were needed to circulate the cooling water

that keeps the 100-ton radioactive core at its normal 582-degree temperature.

Alarm bells sounded.

Scanning their instruments, the control room operators saw that back-up pumps had switched on automatically. They did not notice that two valves had been shut two days before, blocking the vital flow of water. In minutes the plant overheated, triggering an automatic reactor shutdown and the start of the Emergency Core Cooling System; it dumped tons of water onto the core. But, misreading the signals, operators shut down vital emergency cooling pumps.

Now more than 100 alarms were blaring, and warning lights turned the room-long control panels into a technicolor light show. It was clear that the plant's troubles were multiplying: By 5:30 A.M., more than one-third of the cooling water, 32,000 gallons, had gushed through a faulty valve, releasing radioactive gas over surrounding buildings and pastures.

A public alarm was first sounded more than four hours after the accident began—not by officials but by "Captain Dave," the roving traffic reporter for pop-music station WKBO in Harrisburg. He wondered why volunteer firemen had mustered near the plant and called his station; the staff checked and reported the accident at 8:25 A.M. Soon the nation, and the world, knew of America's costliest commercial nuclear accident.

Most American pundits now date the country's ambivalence toward nuclear power to the ensuing week-long drama at TMI. The public found the words of the "experts" and "officials" as alarming as the malfunctions of the rogue reactor.

Pennsylvania governor Richard Thornburgh urged pregnant women and children to leave the area. Federal authorities flew in anticancer drugs, in case the sporadic radioactive leaks became worse. For days federal and utility spokesmen warned (mistakenly) that a hydrogen "bubble" trapped in the reactor's steel-sheathed, four-foot-thick concrete containment dome—designed to withstand the crash of a Boeing 747—might explode and spew fallout far and wide. During one of his newscasts, CBS's Walter Cronkite solemnly declared that "the danger faced

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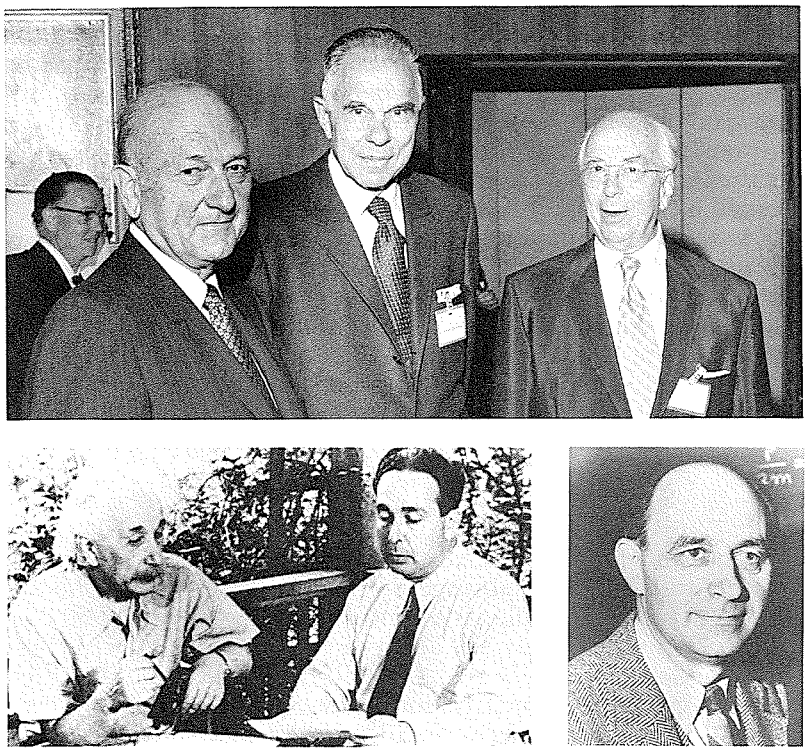


Some founding fathers (top to bottom): Three early chairmen of the Atomic Energy Commission, David Lilienthal, Glenn Seaborg, and Lewis Strauss, at a 1971 gathering; physicists Albert Einstein and Leo Szilard in 1939, as they wrote the letter that led to the Manhattan Project; Enrico Fermi.

by man for tampering with natural forces, a theme familiar from the myths of Prometheus to the story of Frankenstein, moved closer to fact from fancy."

But the officials played down the chances of a core "meltdown," although perhaps one-third of the core, with its 37,000 pencil-thin rods of nuclear fuel, *did* melt. Later, investigators found that the Emergency Core Cooling System, though shut down by confused operators, had cooled the core within half an hour before it reached the 5,000 degree temperature at which it might have begun to destroy the plant.

Joseph Hendrie, then head of the federal Nuclear Regulatory Commission (NRC), said later that he and his colleagues "were like blind men stumbling around in the dark." (Hendrie

subsequently apologized to the blind, noting that in the dark they do *better* than others.) President Jimmy Carter, visiting the site to show that it was safe, grimaced a lot and wore yellow plastic booties that appeared to belie his faith. TMI was, in nuclear jargon, a LOCA, a "loss of coolant accident." To the public, millions of whom had seen the new Jane Fonda film *The China Syndrome*, about a near-meltdown at a California plant, it also seemed a LOCA—a "loss of confidence accident."

Later probes supported the claims of both foes and advocates of nuclear power. The LOCA was compounded by staffers who were inexcusably ill-trained and poorly supervised, as critics noted. But then the safeguards built into the system did limit the damage to the plant itself.* Yet while Carter urged Americans to view the accident "with care and reason," antinuclear spokesmen were quick to assert that, as Ralph Nader put it, TMI was "the beginning of the end of nuclear power in this country."

101 Scratches

The support that nuclear power long enjoyed had eroded. Just before TMI, a Cambridge poll showed that those who approved more nuclear plants outnumbered opponents by 53 percent to 29 percent; after, the antis rose to a majority for the first time. (Today, ambiguity reigns: Cambridge finds that about 60 percent oppose the construction of new plants, but 54 percent believe that nuclear energy should still be used and 73 percent consider atomic power "important" to the nation.)

Actually, the U.S. nuclear energy program had stalled well before TMI. Forty reactor orders were cancelled during the four years before the accident. Another 61 have been scratched since. At mid-year, 86 nuclear plants were supplying some 14 percent of the nation's electricity, or about three percent of total energy consumption. Thanks to design difficulties, cost overruns, weakening consumer demand, and other once unforeseen problems, fewer than one-half of the 36 plants still being built are likely ever to operate. Barring a national emergency and a renewed federal commitment to nuclear power, that may be it.

In the words of the Edison Electric Institute, representing the 175 investor-owned utilities that generate 76 percent of America's electricity, "The costs and risks of nuclear development have become unacceptably high."

*Though authorities have held that TMI posed no public hazard, as of last summer the number of damage suits had climbed well above 1,300. The filings surged this year following news that the plant's insurers had settled more than 250 early claims out of court for at least $3.9 million and that $1 million was paid to a child with Down's syndrome. The insurers now promise "vigorous" defense against the suits, which blame TMI for such ills as tumors, gallstones, vertigo, and acquired immune deficiency syndrome (AIDS).

I

IN THE BEGINNING

What happened?

With the benefit of hindsight, and of newly available documentation, it is now clear that the U.S. nuclear power program was fated for trouble even before President Dwight D. Eisenhower's December 1953 Atoms for Peace speech at the United Nations, which pledged America's "entire heart and mind" to the development of the new technology for civilian purposes. The U.S. effort would be afflicted by its sponsors' overoptimism, fights between the public and private sectors, personal and ideological struggles, and decisions postponed or, worse, never made on issues of safety, technology, and economics.

The saga of nuclear power is usually said to have begun at the University of Chicago's Stagg Field on December 2, 1942, a year after America entered World War II. In a squash court under the stands, scientists working on the Army's Manhattan Project, led by Enrico Fermi, created the first self-sustaining nuclear chain reaction.

It was a stunning feat. All matter is composed of tiny "building blocks" called atoms. Each atom has a core, or "nucleus," of positively charged particles called protons and neutral particles called neutrons. Around the nucleus fly as many electrons as there are protons. In a few large atoms containing more than 230 protons, such as uranium-235 and plutonium-239, it is possible for a stray neutron to bombard the nucleus and split, or "fission," it into two or more parts. More neutrons can then fly off to split other atoms in a chain reaction. In milliseconds, millions of atoms are burst, releasing the "binding energy" giving them (and all matter) structure. Thus matter becomes energy, released as heat and radiation.

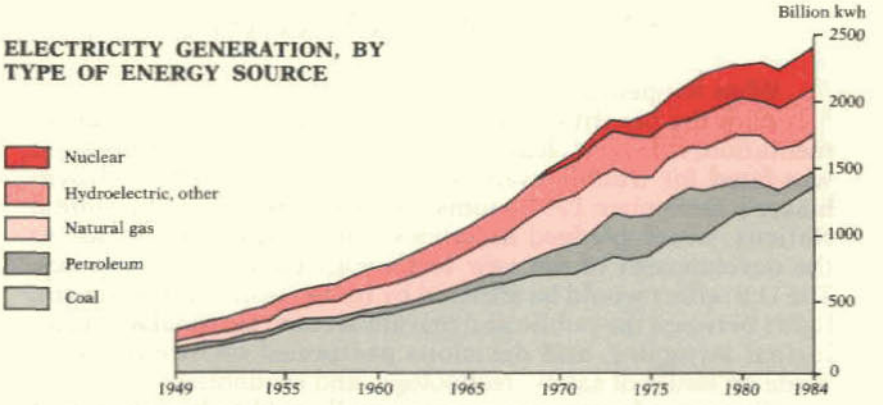
The 19-foot-high "pile" of dirty graphite blocks and uranium spheres at Stagg Field was the first reactor. It proved that atoms could be fissioned continuously to release energy. Knowing this, scientists could go on to design bombs. As Fermi remembered it, the 1942 test "was not spectacular. No fuses burned, no lights flashed. But to us it meant that release of atomic energy on a large scale would only be a matter of time."

Actually, the atomic power story begins in September 1933, on a London street corner. There, as he was watching a traffic light change, Leo Szilard, a Hungarian physicist who had become a refugee from Hitler, first conceived that the chain reaction would be the basic process for freeing the atom's energy.

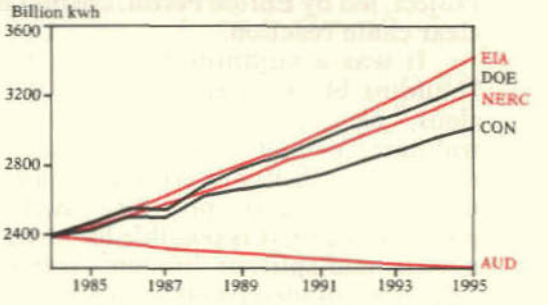
Szilard's teacher in Germany, Albert Einstein, regarded

THE U.S. POWER PICTURE: PAST, PRESENT, AND FUTURE

ELECTRICITY GENERATION, BY TYPE OF ENERGY SOURCE

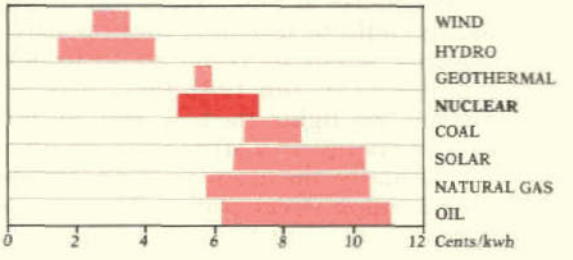


PROJECTING DEMAND. *The need for new power plants, nuclear or otherwise, will depend on many hard-to-predict factors, from the overall strength of the economy to Americans' desire to continue installing electric heating, now in half of new homes, and air conditioning, now in 70 percent. So forecasts of electricity vary widely, as these examples show.*



EIA: U.S. Energy Information Administration
DOE: U.S. Department of Energy
NERC: North American Electric Reliability Council
CON: Conoco, Inc.
AUD: National Audubon Society

COMPARING COSTS. *This chart projects electricity costs by energy type in California. Generally, nuclear plants completed by the mid-1970s have produced power considerably more economically than coal facilities. But rising construction bills have eroded the atomic advantage. A study done for Congress's Office of Technology Assessment concluded that nuclear can be cheaper—but not when the price tags on coal plants are lower by more than 20 to 40 percent.*



Sources: Energy Information Administration; California Energy Commission.

atomic energy as not "obtainable." The British physicist Lord Ernest Rutherford saw it as "moonshine." Yet by 1934, Szilard worked his chain reaction idea into a patent. He secretly assigned it to the British Admiralty, so as not to alert the Nazis.

All this is familiar to the A-bomb's historians. What is less well known is that five days after Szilard filed his patent, he began to promote atomic energy for peaceful uses.

Szilard first wrote to Sir Hugo Hirst, founder of the General Electric Company Ltd. (U.K.), about new "industrial applications" of modern physics. Meeting in London with G.E. researchers, he gave them a paper on "methods" that might be used for "liberating atomic energy." Through them, he said, power might be produced "on such a large scale" that coal and oil production would collapse in "a couple of years."

Eclipsing the Sun

Though dismissed as a crackpot, Szilard did not give up.

In 1936, he tried to interest Fermi, again unsuccessfully; the Italian physicist would not realize for another three years that anomalies in uranium experiments that he had conducted in 1934 were actually caused by nuclear fission. Then, in 1938, Szilard met American financier Lewis L. Strauss, a partner at the Kuhn, Loeb investment banking house in New York. Strauss had invested in research on radioactive isotopes. But with him, as with G.E. and Fermi, Szilard failed; he seemed both too visionary and too secretive. Few scientists, *Fortune* observed that year, saw a "serious or practical use for atomic energy."

Who needed it? King Coal, having reigned since the 19th century, was being challenged by an adaptable new fuel, oil. It was abundant in the United States and had been found in quantity in the Middle East. By 1929, oil already supplied about one-third of America's energy needs; its share would reach 60 percent by the mid-1940s, when the country first became a net importer of oil. With such cheap alternatives (even during the early 1970s Middle East crude would be *produced* for 10 cents a barrel), who needed another power source?

Szilard and Fermi first met at Columbia University in New York in January 1939, a month after the uranium atom had been fissioned for the first time, by scientists in Berlin. This fissioning offered what Szilard had sought for almost five years: a mechanism for his chain reaction concept.

Fermi considered nuclear explosives far-fetched and focused on fundamental questions of atomic physics. When he briefed U.S. Navy officials about atomic fission in March 1939,

he inspired a young engineer, Ross Gunn, to propose research not on weapons but on nuclear propulsion for warships.

That summer, with war in Europe imminent, Szilard proposed the concept for the first reactor, which Fermi agreed to study, and which became the device used at Stagg Field. Szilard also told Einstein, who had fled from the Nazis to the United States, about chain reactions. Einstein, now a believer, was captivated by an implication: Fission could be the first energy source that did not come directly or indirectly from the sun.

Szilard proposed and drafted the August 1939 letter from Einstein to President Franklin D. Roosevelt that led to the Manhattan Project, the six-year, $2 billion effort to beat Germany to the A-bomb. Though the Army imposed strict secrecy, some hints of what was afoot appeared. A 1941 article about uranium-235 in the picture magazine *PIC* warned that "*this war will be won or lost in the laboratory.*" But the weapon *PIC* envisioned was not a bomb but radioactive "death dust."

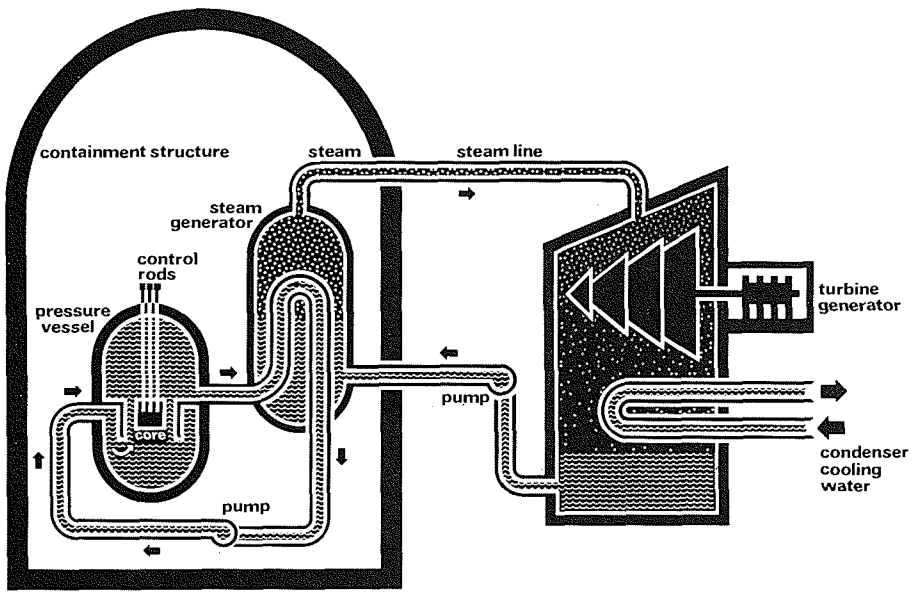
The Alchemist's Dream

After the United States entered World War II, Szilard became chief physicist at the Manhattan Project's "Metallurgical Lab" in Chicago, charged with finding ways to make fissionable materials for bombs. He not only joined Fermi in designing the first reactor (their U.S. patent was issued publicly in 1955) but conceived and named the "breeder," a reactor intended to make more nuclear fuel than it consumes.

By 1944, more than a year before the A-bomb was first tested in New Mexico, fissionable materials were being produced at two secret sites: an Oak Ridge, Tennessee, facility processed uranium, while a Hanford, Washington, plant turned out plutonium, a man-made element developed in 1941 by Berkeley chemist Glenn Seaborg. It became the core of the first A-bomb.

With all this underway, the Stagg Field scientists explored other uses for the atom. At weekly seminars in the University of Chicago's Eckhart Hall, they dreamed up different reactors and ways of handling radioactive fuel and waste. Indeed, what became the grand design for the U.S. nuclear power program was first outlined at an April 1944 session attended by Fermi, Szilard, Eugene Wigner, Alvin Weinberg, and other pioneers.

Because uranium was scarce—raw ore for the first A-bombs had to be brought from the Belgian Congo—they thought that atomic power had a future only if another fuel could be found. So they focused on the breeder; it was supposed to turn nonfissionable isotopes of thorium and uranium into fissionable



In a pressurized-water plant, water flows in a "loop" between the reactor core (left), where it assists the nuclear reaction and is heated, and a heat exchanger; there it produces steam to drive generators (right). About 90 percent of the world's reactors are of this or similar "light-water" designs.

uranium-233 and plutonium-239. The breeder—an "alchemist's dream" that would enthrall scientists and Washington policymakers long after uranium became plentiful during the 1950s—would both generate power and make plutonium for smaller plants. The result: "endless" energy.

For some of the Manhattan Project scientists, work on peaceful uses of the atom would become a form of atonement for their roles in creating The Bomb. "We all hoped that with the end of the war," Fermi later recalled, "power plants would become the paramount objective." Seaborg, as chairman of the Atomic Energy Commission, would champion not just atomic energy but the creation of a "plutonium economy" to succeed the eras of coal and oil.

Others would forsake the atom entirely; Szilard plunged into microbiology and arms control. Though it was not widely noted at the time, after World War II, when nuclear power first won wide attention, many researchers had already decided that its problems—high cost, the radiation hazard—outweighed its

promises. Wigner lamented in 1949 that reactor development had "suffered" from a lack of attention of "first-rate scientists." Still, for a variety of reasons, Washington would strive to make atomic power a commercial reality.

II

GETTING ORGANIZED

During the autumn of 1945, following Hiroshima and the end of World War II, Congress debated how the government's nuclear technology should be managed. Nuclear power was being hailed in books, magazines, even pop music. In *Atomic Energy in the Coming Era*, Pulitzer Prize winner David Dietz forecast autos that would run for a year on a nuclear pellet "the size of a vitamin pill"; there would be "perpetual peace," because nations would have no need to fight over oil and coal.

A September 1945 National Opinion Research Center poll found that 56 percent of Americans thought atomic power "the greatest invention in over 1,000 years."

But who should manage the marvel? The nuclear genie, a creation of government with peacetime commercial possibilities, was unlike anything U.S. policy-makers had confronted before. Some military men wanted the Army to keep control of the atom, but President Harry S Truman would not hear of it. Thus the debate focused on a bill sponsored by Sen. Brien McMahon (D.-Conn.), under which the atom would remain a government monopoly but managed by a five-member civilian Atomic Energy Commission (AEC). This stirred ideological passions in Washington like nothing since the Tennessee Valley Authority (TVA), the burgeoning federal venture in the power business.*

While Democrats embraced a continued federal monopoly of the atom, Republicans railed about "socialism." McMahon's bill, said Rep. Clare Boothe Luce (R.-Conn.), "might have been written by the most ardent Soviet Commissar." The National Association of Manufacturers asked Congress to prevent "the atomic revolution from swamping the free-enterprise system." Detroit Edison chief James W. Parker urged development by "a plurality of producers." But then, a big firm might monopolize the technology no less than Uncle Sam. Could the nation afford,

*TVA was chartered in 1933, during Roosevelt's Hundred Days, to harness the Tennessee River for flood control and hydroelectric power. By the postwar era it was a major producer of electricity—most of it from coal-fired plants. Conservatives resented not just TVA's push into a free-enterprise realm but its privileges: Supported by Congress, it had no need to borrow funds and paid no taxes. During the 1960s and '70s, TVA began building 17 reactors in three states; as of last summer, the five that were completed were shut down.

the AEC's historian asked in his summary of the hearings, to put the atom "in the hands of a single individual or company"?

In a way, the bill that Truman signed into law as the Atomic Energy Act in August 1946 did just that.

Congress trusted the keeping of all of the nation's nuclear secrets to the AEC, whose first chairman was to be David Lilienthal, the 1933–36 head of the TVA. Indeed, the lawmakers held matters atomic in such awe that they sealed off their own oversight body, the Joint Committee on Atomic Energy (JCAE), from the pressures (public, presidential, and otherwise) that normally affect government. The JCAE, first chaired by Brien McMahon, held sole jurisdiction over nuclear research and development; it quartered itself in hard-to-find Capitol offices guarded by armed police.

Declaring weapons and power to be "two sides of the same coin," Lilienthal imposed a tight lid on all atomic technology and gave priority to making bombs. The only two in existence in 1945 had been dropped on Japan. The stockpile, according to the *Nuclear Weapons Databook* (1983), grew to nine in 1946; 13 in 1947; 50 in 1948—when Communists took power in Czechoslovakia, securing its uranium mines for the Soviets. Then, in August 1949, the Soviets tested a nuclear device. The brief U.S. monopoly was broken, and security grew even tighter. Overshadowed by the arms race, the power program languished.

Blue Sky Years

Even so, private industry was intrigued. Echoing the Manhattan Project scientists' ideas, Fermi in a 1946 speech declared that in 20 or 30 years "there will be large central installations" producing power and plutonium for smaller plants around the country. In 1947, a *Business Week* writer insisted that commercial power from "atomic engines" may be "five years away." Cost? The official estimate was about eight mills per kilowatt-hour, one-third higher than coal-generated power in areas where coal was plentiful. But many specialists still believed atom power could compete right from the start.

Lilienthal appointed the Industrial Advisory Group, headed by Detroit Edison's Parker, and began a power research program. But instead of defining a bold development agenda, the AEC became mostly occupied in refereeing competition among the federal laboratories at Oak Ridge, Los Alamos, and Argonne (Illinois). Each wanted test reactors, and the AEC obliged—usually to further arms production, not power. Congress also stressed the military side, moving in No-

THE ATOM ABROAD: "TOUTE NUCLEAIRE!"

After the 1979 accident at Three Mile Island, one nation pointedly *affirmed* plans to build nine new atomic plants over the next five years. "France has no choice," said André Giraud, a high Paris official. "It's either nuclear energy or economic recession."

That nuclear plants have spread from Finland to Australia to Taiwan is chiefly because they widely proved their worth as providers of relatively cheap power. During 1973, for example, the 10 European Community nations got 62 percent of their energy from imported oil. They halved that in a decade, mostly through a commitment to nuclear power that now has brought 120 reactors into service (due to rise to about 150 by 1990). The Community, which obtains one-fourth of its electricity from the atom, finds *coal* generation to be 30 to 88 percent more costly, depending on the country.

To be sure, while 23 reactors went on line abroad last year, overcapacity looms and orders for new plants have declined. Antinuclear agitation persists: The Austrians built a plant, then voted never to use it; Sweden (12 reactors) has imposed a moratorium on new facilities. Still, most nuclear programs continue. The major ones:

- FRANCE (42 reactors, 19 being built) has the most ambitious program of all. The country derives 23 percent of its energy (58 percent of its electricity) from the atom and aims for 30 percent by the year 2000. The state-owned utility Electricité de France began promoting "*toute nucléaire!*" (all nuclear!) power a decade ago. Bypassing French gas-graphite reactors as uneconomical, the utility obtained licenses to build Westinghouse light-water designs in standard 800 and 1,300 megawatt models. Citizen "intervention" in the approval process is not allowed, and plants are built in half the time (about six years) and at one-third the cost of the typical U.S. facility.

Seeking independence from foreign fuel suppliers,* the French have one commercial breeder plant and will soon open a larger one, called Super-Phénix. In Normandy, they also plan to open in 1989 the first fully commercial plant for reprocessing spent reactor fuel. Financed by utilities in Japan and five West European countries, this facility will "close the nuclear fuel cycle." That is, France will realize the 40-year-old vision, all but discarded in the United States,

*Once dominant, America now sells less than one-half of the Free World's nuclear fuel.

vember 1947 to authorize the development of a submarine and an aircraft powered by nuclear reactors.

Only the submarine project, guided by then Capt. Hyman G. Rickover, succeeded.* Alvin Weinberg and Eugene Wigner, both now at Oak Ridge, devised a pressurized-water reactor (PWR) to

*The airplane idea was finally dropped in 1961. Engineers could not solve the problem of the heavy shielding needed to protect the crew from radiation. In a last attempt to save the project, Air Force and AEC planners suggested that shielding could be decreased if veteran pilots were used: They would die of old age before the radiation they absorbed became lethal.

of dealing with both spent reactor rods and the need for new fuel through recycling. (Britain and Japan are building similar plants.)

- WEST GERMANY (20 reactors, seven on the way) produces six percent of its energy from the atom. Its plants, mostly powered by light-water reactors made by Siemens AG, are notably efficient. Yet citizen opposition grew during the 1970s, bogging down new projects in a complex federal and regional approval process that only recently has been streamlined. Meanwhile, the West Germans have focused on sales to (so far) Spain, the Netherlands, Austria, Switzerland, Argentina, Brazil, and Iran. Indeed, Siemens has become the U.S. manufacturers' chief rival abroad.
- BRITAIN (38 reactors, four under construction) is pushing ahead with nuclear power to conserve its North Sea oil and to help tame its strike-prone coal miners' unions. But the British gas-cooled reactor has proved costly; the government-run Central Electricity Generating Board may next buy a Westinghouse reactor.
- JAPAN (32 reactors, eight on the way), which must import nearly all of its conventional fuel, launched its nuclear power program in 1966. With government encouragement, two private utilities have bought Westinghouse and General Electric reactors; they produce 21 percent of the nation's electricity. Japanese firms are working with the two U.S. manufacturers on improved light-water plant designs. But no Japanese nuclear exports are in sight, as yet.
- THE SOVIET UNION (perhaps 46 reactors, nine under construction) has much uranium—and large nuclear-power ambitions. The country's light-water plants now supply around 6.5 percent of its electricity, although the current Five Year Plan calls for 12 percent. The Atomenergoexport sales agency has shipped 30 reactors to six East Bloc nations, and two to Finland. (The Finns call those reactors, which contain some Western components, their "Eastinghouse" plants.)

By Western standards, the Soviets have been cavalier about safety. They did not adopt emergency core cooling until recently, for example, and they locate their reactors without fear of public reaction. (Moscow has two plants *within* the city limits.) The state permits no citizen protest and, hence, no antinuclear movement. As a Soviet nuclear engineer once boasted to a group of touring U.S. journalists in Moscow, "We have no Jane Fonda here."

power the first nuclear sub, USS *Nautilus*, launched in January 1954. The PWR consumed much uranium but was compact and simple; it used "light water," ordinary H_2O, under high pressure, both as a "moderator," to slow the neutrons flying about the core and thus enhance a chain reaction, and as a coolant to control temperatures. This and another light-water reactor (LWR) type developed for the Navy, called a boiling-water reactor (BWR), would play large roles in the U.S. power program.

Congress's awe of the AEC would turn to jealousy of its pow-

ers, leading to fissures between the commission and its congressional overseer. Still, the JCAE's legislative monopoly, along with the AEC's dual mandate both to promote and regulate atomic energy, foreclosed outside scrutiny of the federal management of the atom. There was scant press or public questioning of AEC pronouncements about atomic power, which were little more than blue-sky promises.

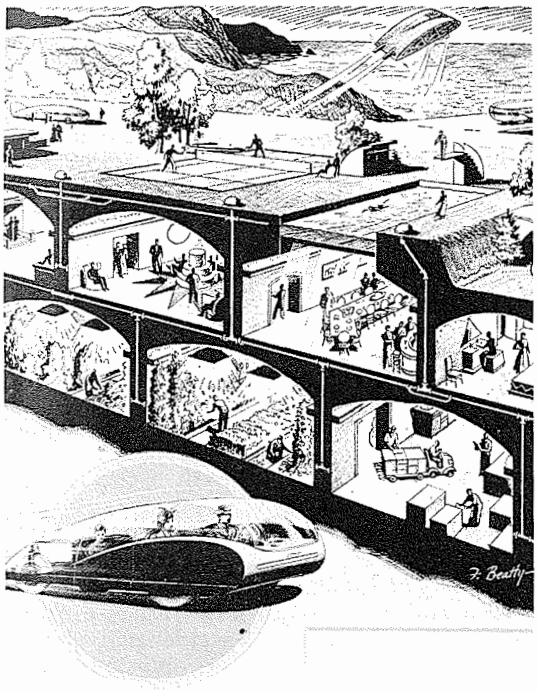
During 1947, for example, J. Robert Oppenheimer, the physicist from the University of California and the California Institute of Technology who had overseen the building of the first A-bombs in New Mexico and now headed the AEC General Advisory Committee, drafted a statement saying that the technical problems of commercial nuclear power would take "decades" to solve. Szilard's old acquaintance Lewis Strauss, by now an AEC commissioner and strong nuclear power booster, thought such candor might discourage Congress from funding research. The commission's final statement to the Congress said merely that it could be 20 years before the atom provided "any considerable portion" of the world's electricity.

III

THE ATOM GOES COMMERCIAL

The industrial firms that first entered the field of atomic power, such as Westinghouse, General Electric, Monsanto, and Union Carbide, were no less secretive than the officials in Washington; their initial endeavors supported defense projects, such as processing uranium and designing reactors. Their only potential customers for nonmilitary hardware were the utilities, which were themselves shielded by law from many political and economic pressures. As monopolies regulated by appointed state commissions, the utilities earned guaranteed returns on their investments and could pass most costs on to their customers. Although no risk-takers, their executives would be drawn to atomic power by a combination of unrealistic promises and enticing subsidies, from both the AEC and reactor suppliers.

The stage for this evolution was set when the public-private issue entered the 1948 presidential campaign. New York's governor Thomas E. Dewey, the GOP challenger, argued that the atom would benefit the nation only if the technology were transferred to private hands. After Harry Truman's upset victory, the AEC's Republican-dominated Industrial Advisory Group urged that the federal know-how be shared with business.



"The uranium age," as envisioned by Popular Mechanics *in 1941. With cheap power, the author wrote, "most activities" could be moved underground, even farming. The surface world could be devoted to recreation and such joys as "the U-235 automobile."*

At this point, the only firm designing a commercial nuclear plant—a breeder—was General Electric. And of the dozen research reactors being built at federal facilities, only one, a breeder in Idaho, was intended to generate power. More than five years would pass before ground was broken at a new commercial plant site.

The delay did not stem only from a lack of urgent need for nuclear power. Washington had other nuclear priorities. After the 1949 Soviet A-bomb test, the AEC assigned G.E.'s power reactor to the Navy's submarine program.* And soon, following a bitter debate among scientists and politicians over the need for "The Super," the hydrogen bomb was under development.

Rising military demand for plutonium sparked a three-year wrangle among manufacturers and utility officials over what kind of reactors should be built. "Single-purpose" plants that only generated power? Or "dual-purpose" reactors that would also turn out weapons-grade plutonium? Monsanto touted the

*This reactor eventually powered the second nuclear sub, USS *Seawolf*, commissioned in 1957. It was soon nicknamed "Twenty Thousand Leaks under the Sea" by sailors because of problems with its liquid sodium reactor coolant.

THE ATOM AND THE U.S. PRESS

For one important segment of the U.S. news business, Three Mile Island (TMI) was pivotal: It finally made nuclear power a "story."

Television had long all but ignored the subject. During the decade before TMI, a Media Institute study found, the networks devoted just one-quarter of one percent of their evening news time to atomic energy. With the 1979 accident, coverage rose sharply for a while and changed in tone from largely neutral to mostly negative. Critics got more exposure than advocates, and TV's big guns seemed to echo them. ABC's Howard K. Smith once declared himself "convinced" that nuclear generation was "better" than coal; now he put himself among "those who fear" atomic plants.

After analyzing several years of TV coverage, psychiatrist Robert L. DuPont found the "motif" of nuclear reporting to be "fear." A 1975 NBC special was titled *The Nuclear Threat to You*; a 1977 ABC report intoned that each reactor creates "wastes equivalent to 300 Hiroshima bombs each year." *The Fire Unleashed*, a "comprehensive" look at nuclear issues aired by ABC last June, spoke luridly of the "lethal legacy" of wastes and of the "hulks of the nuclear promise" (i.e., unfinished plants) now "scattered across the country."

Yet print editors, too, have found the "threat" theme compelling. A study conducted by University of Pittsburgh physicist Bernard Cohen of the *New York Times* and other major newspapers during 1974–78 found an average of 200 items a year on accidents involving radiation, though no deaths resulted; but there were only 25 items a year on industrial mishaps (which kill 4,500 annually) and 120 on vehicular accidents (50,000 deaths).

dual-purpose idea as a way finally to marry private enterprise to the federal atomic technology.

Eventually Lilienthal called for amending the Atomic Energy Act to ensure commercial development "in accord with the American system." Military secrecy could be maintained, he said in *Collier's* in 1950, while we "free the atom for America's industrial genius." The AEC began talks with eight firms about dual-purpose reactors. Still, there would be no *public* debate on commercial nuclear power until 1952, when Congress's JCAE held open hearings on the AEC's private-company talks.

One question on the JCAE's agenda was "Is it desirable to start a new industry dependent upon government for the purchase of plutonium?" Many equipment builders and utility men thought it was; they could gain experience with reactors that could "pay their own way" from plutonium sales even if the power they produced was uneconomical.

But how to begin commercialization? Various ideas emerged. Monsanto and Union Electric wanted government to

Early on, "mainstream" journalism, both broadcast and print, was mostly positive about nuclear power. In 1947, soon after airing *Hiroshima*, John Hersey's radio reprise of the first A-bomb attack, CBS ran a documentary titled *The Sunny Side of the Atom*. A *New York Times* piece that year hailed ways in which "nuclear energy is already at work for *good*." Later, especially as ecology issues and antinuclear groups gained force, many print editors took sides. While far-left periodicals (e.g., the *Guardian*, *Ramparts*) had long been anti-atom, liberal journals began showing concern. The *Nation* wrote in 1968 that reactor sales were spreading "too far, too fast" for safety; the *New Republic* warned in 1970 about the plants' "vast potential for destroying the environment." On the proindustry side, *Time* worried in a 1978 essay, "The Irrational Fight against Nuclear Power," that the anti-nuke movement "reflects a doubt that growth, once the watchword of the can-do American philosophy, is good."

Newspaper reporting on atomic energy has been uneven. Nuclear advocate Samuel McCracken argues that the U.S. debate over the atom has been "extraordinarily parochial" in part because the press slights foreign developments: One does "not often find coverage of the thriving British and French nuclear programs, or even the troubled Soviet breeder program." At the same time, few U.S. papers have come out against nuclear power. Early in 1984, for example, when Byron 1, Marble Hill, and other failures were news, most editorials took the long view. In New Orleans, close to the heart of oil and gas country, the *Times-Picayune* concluded that atomic energy was still "important." And the "pause" in its growth, the *Boston Globe* decided, was better seen as a chance to deal "with some of its problems than as the foreboding of its end."

build a pilot plant that industry could scale up. Dow Chemical and Detroit Edison wanted industry to build a dual-purpose plant on its own (which Edison later did). Lawrence Hafstad, director of the AEC's Division of Reactor Development, sought "all-government" financing of nuclear generation. Commonwealth Edison proposed a compromise—federal reactors coupled with commercial generators. Walker Cisler, president of the Detroit Edison Company, suggested building plants in "friendly foreign countries" where power was costly; this might combat "Communistic influence."

Most firms expected the federal laboratories to continue to do the main research. The economics was no secret. Commonwealth Edison reckoned that while coal-fired capacity cost about $77 per kilowatt to install, the cost of nuclear would be $277. But to the new Eisenhower administration, such numbers would be no deterrent. It believed that, as a National Security Council memo said, a strong nuclear industry was "a prerequisite to maintaining [the U.S.] lead in the atomic field."

IV

ENTER FREE ENTERPRISE

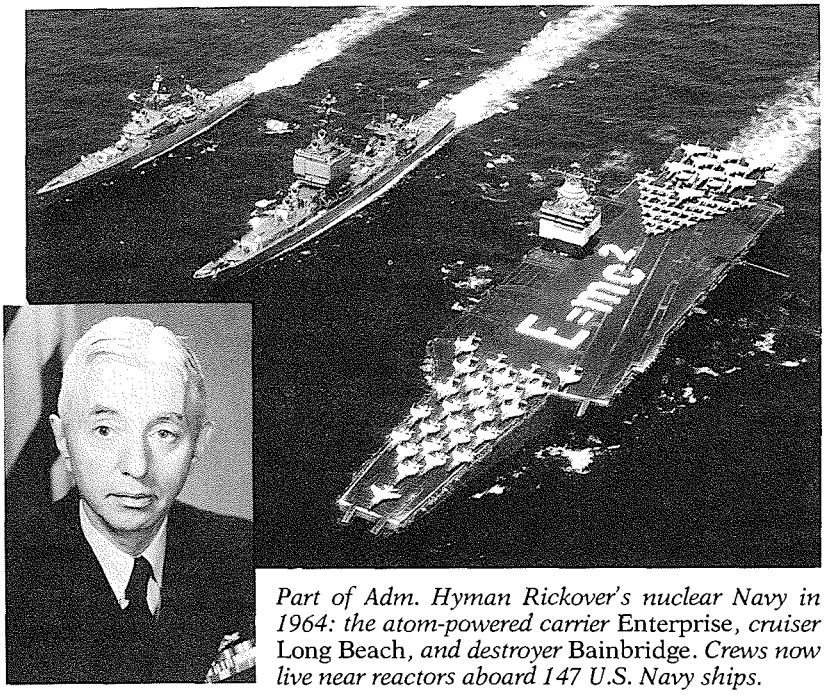
As his AEC chief, Eisenhower in 1953 named Lewis Strauss, the financier who as a charter commission member (1946–50) had championed the commercialization of atomic energy. Now backed by the first Republican administration in 20 years and a GOP majority in both houses of Congress, Strauss promised "an era of vigorous progress" for "this great natural force."

No one knew what the best power reactor might be, the light-water type or something else. But the Cold War was blowing hot. Mao Zedong had triumphed in China in 1949; the Communist takeover of Czechoslovakia had been followed by the Berlin blockade (1948) and the Korean War (1950–53). Strauss, wrote his biographer Richard Pfau, saw the East-West conflict "as a struggle between good and evil." And almost as threatening as the Red Menace abroad was Big Government at home. Strauss heated up the old struggle between those who—like senators Clinton Anderson (D.-N.M.) and Albert Gore (D.-Tenn.) on the JCAE and other New Deal Democrats—thought atomic energy should remain a federal monopoly and those who sought to make it private. Strauss's goal was to plug atomic plants into the existing national power grid, and he was eager to start.

Strauss urged that a Westinghouse PWR being built to power a prototype nuclear aircraft carrier be directly adapted for civilian use. To consider another contractor, as some urged, would waste "much time and momentum." He played matchmaker between Westinghouse and the Duquesne Light Company, which agreed to build a small (60 megawatts) nuclear plant at Shippingport on the Ohio River northwest of Pittsburgh—with the government paying most of the cost. Thus in July 1953, the AEC received its first atom plant application.

Some study of various competing reactor designs had to be done, however. Early in 1954, two months after Eisenhower announced the Atoms for Peace plan, which promised that the United States would share its nuclear know-how with countries that pledged to use it only for nonmilitary purposes, Strauss's AEC announced a program under which reactor-makers would build five experimental plants; as with Shippingport, the government would pay most of the cost. (A second round of proposals for "demonstration" plants was announced the next year.)

The GOP-controlled Congress then revised the Atomic Energy Act to let utilities finance, build, and own their reactors to produce power for consumers; they would receive fuel for up to seven years from the AEC, which would still control nuclear



Part of Adm. Hyman Rickover's nuclear Navy in 1964: the atom-powered carrier Enterprise, *cruiser* Long Beach, *and destroyer* Bainbridge. *Crews now live near reactors aboard 147 U.S. Navy ships.*

technology and all fissionable material. This was a defeat for Democrats on the JCAE who wanted federal development and operation of reactors, and it came at the hands of coal industry representatives. They saw federal atomic plants as rivals and lobbied Congress to include in the act a ban on the sale of power generated at government research or military facilities. The private sector had its way.

Eisenhower officiated at the September 1954 groundbreaking for Shippingport from a Denver television studio, where he waved a "radioactive wand" that (as *Life* reported) turned the "bright hope of atomic power" into a "solid certainty." Duquesne Light still expected to lose money on the plant, although the AEC would pay 85 percent of the cost. But Strauss predicted that as other utilities went nuclear, competition would cut the price of atomic power to the level of coal, oil, and perhaps even hydropower. Possibly, he said, "our children" will enjoy electricity "too cheap to meter."

Pronuclear utilities and makers of nuclear equipment formed a promotional group, the Atomic Industrial Forum (AIF). General Electric's president, Ralph Cordiner, predicted that half the nation's power stations would be nuclear by 1976.

Nonetheless, hints of future trouble appeared. Radiation first emerged as a public concern during 1953, after AEC weapons tests in Nevada. While the Soviets were pressing a campaign to abolish nuclear arms, intended to snatch the propaganda initiative from Atoms for Peace, foes of the AEC testing made "fallout" an issue, one that would be fanned by "Ban the Bomb" protests in Europe and the United States and by such works as Nevil Shute's 1957 nuclear war novel, *On the Beach.*

A Capitol Idea

At the AIF'S 1954 meeting, physicist George Weil raised the safety issue. He noted the danger of an overheating core, a particular problem with water-cooled reactors, which had many pumps, pipes, and valves that could malfunction. Weil cited the worry of Edward Teller, his Manhattan Project colleague and the first head of the AEC's Advisory Committee on Reactor Safeguards, that no matter what might be devised to prevent a release of radiation, "There is still no foolproof system that couldn't be made to work wrongly by a great enough fool."

Safety questions prompted the JCAE to order an accident-probability study. The result, published early in 1957, emphasized the "remote" chance of a serious accident but also estimated that a "worst-case" disaster might cause 3,400 deaths, 43,000 injuries, and $7 billion in property damage.

The AEC continued research. In fact, the nation's first power reactor accident occurred in 1955 at the Idaho National Reactor Testing Station: The EBR 1, a small breeder being used to test the consequences of a rise in heat, suffered a partial meltdown. At this point, however, the AEC's main drive was to nudge commercial nuclear power into being.

At the time of the first UN conference on Peaceful Uses of Atomic Energy, held in Geneva in 1955, America's program was lagging. The Soviets had begun operating the first civilian nuclear station, a five-megawatt plant south of Moscow, during 1954; the British would soon start up a 100-megawatt plant at Calder Hall. Strauss dismissed these as *government* projects; the first truly civilian station would be Shippingport. When the Soviets at Geneva announced plans for a power-generating breeder, Strauss got Detroit Edison's Walker Cisler, a member of the U.S. delegation, to fly home to apply for an AEC license for what would be the 61-megawatt Fermi 1 plant on Lake Erie at Monroe, Michigan, 29 miles from Detroit and 30 miles from Toledo. Strauss hailed that as the first *commercial* breeder.

The AEC wanted to keep most of the privately run test plants

small, in the five- to 40-megawatt range. With safety and other questions still unresolved, the commission was wary of "scaling up" the technology too quickly. Yet by this time utility men and reactor manufacturers were persuaded that only large plants affording "economies of scale" could pay their way, and the AEC did not argue. Thus in February 1955, when the only U.S. plant actually being built was the 60-megawatt Shippingport facility, New York's Consolidated Edison ordered a 265-megawatt Babcock & Wilcox pressurized-water reactor for Indian Point, 24 miles from New York City.

In July 1955, Commonwealth Edison applied to the AEC for a license to build Dresden 1, a 200-megawatt G.E. boiling-water reactor in central Illinois—the first plant built without direct federal assistance. Then a group of New England utilities ordered a 175-megawatt Westinghouse PWR for a Massachusetts site. Few warnings about design difficulties or cost were heard. Indeed, back in Washington, D.C., two JCAE members proposed a $200,000 feasibility study of a reactor under the U.S. Capitol to supply heat and power. Everyone, said Rep. W. Sterling Cole (R.-N.Y.), is "confident that the idea is not only feasible and practicable," but also economical. (Wags quipped that the plant should be *in* the Capitol, which already had a handsome containment dome.)

Freezing the Future

Despite the strong start, more utility projects were slow in coming, and toward the end of Eisenhower's first term the public-private struggle flared anew—with important results.

Democrats, who had regained their Capitol Hill majorities, charged that America was losing the nuclear energy "race." Clinton Anderson, now the JCAE chairman, said that Strauss had made it easier for "a camel to pass through the eye of a needle" than for a utility executive to get data from the AEC. In 1956 he moved to step up research on plant design via the so-called Gore-Holifield Amendment, named after sponsors Albert Gore and Rep. Chet Holifield (D.-Calif.); it would have the AEC—not private firms—spend $400 million on six different prototype reactors, one in each region. To Strauss, this was a start toward a restoration of the federal monopoly of nuclear power that he had long fought.

Gore-Holifield passed the Senate but was defeated in the House, thanks to lobbying by coal companies, reactor suppliers, and utilities—all of whom feared federal control of the atom. This, as Strauss biographer Pfau would write, "saved" commer-

AMID THE LOSERS, SOME WINNERS

The woes of the U.S. nuclear power program, said *Forbes* this year, reflect "the largest managerial disaster in business history." While that is debatable, the U.S. failures *have* been numerous.

By the mid-1980s, for instance, a half-dozen major utilities with nuclear projects were skirting with bankruptcy, and poor planning and/or execution had scarred a number of projects. During 1984 alone: the Nuclear Regulatory Commission found it had "no confidence" in the construction quality at Byron 1 in Illinois and made that $3 billion facility the first new plant ever to be denied an operating license; work was stopped on Marble Hill, a half-finished, two-reactor Indiana plant that stood to be distinguished by the highest ever completion cost, $7.5 billion; and the builder of the nearly finished William H. Zimmer plant near Cincinnati moved to convert it to *coal.* Meanwhile, other undertakings established grim records:

- Biggest bust: The Washington Public Power Supply System. WPPSS, formed by a group of utilities led by the government-chartered Bonneville Power Authority, skipped payments on $2.25 billion in bonds—the largest default in U.S. history—after scrapping a five-plant program whose cost had risen to $23.9 billion. The WPPSS debacle was challenged in size only by that of the government-chartered Tennessee Valley Authority, which was forced by safety questions to shut down all five of its operating reactors this year.
- Longest drama: Diablo Canyon, a two-reactor California plant planned in 1969 to cost $350 million. It produced its first commercial power in 1985, after a 17-year struggle enlivened by the discovery of a nearby earthquake fault, multiple sieges and suits by opponents, and building errors that delayed licensing for 10 years. Final cost: $5.6 billion, a record—so far.
- Poorest performer: Beaver Valley 1 in Pennsylvania. Partly due to safety problems, the plant has produced just 34 percent of its potential power since 1977. That is the lowest "capacity factor" among veteran U.S. plants and one of the worst anywhere.

Yet despite such embarrassments, the U.S. nuclear program has its standouts. Among operators, North Carolina's Duke Power Com-

cial nuclear power. But ultimately it would be a setback. In effect, Gore-Holifield's defeat removed the government from research on new atomic power technology, which would now be left to industry. Yet "industry" basically meant the emerging leaders, Westinghouse and G.E., who were *already* committed to the light-water reactor designs developed for the Navy.

For all the money poured into prototype programs, only four non-LWR models were ever tried: A sodium-cooled, graphite-moderated reactor ordered by a Nebraska utility; a gas-cooled, graphite-moderated plant built by Philadelphia

pany, which currently runs five reactors (along with eight coal plants), has consistently built the country's cheapest, most efficient nukes. A rare utility that does its own engineering and construction, Duke put its latest atomic plant, McGuire 2, on line last year for just $878 per kilowatt—well under the average for coal-fired capacity and on a par with the costs of the efficient French nuclear program. Adept also at dropping dubious projects, Duke has cancelled six nuclear units since 1978.

Among the 86 operating U.S. nuclear power plants, there have been a number of stars, old and new. As of this fall, for example, the Yankee Atomic Electric Company's small, 175-megawatt plant at Rowe, Massachusetts, has produced power reliably for a quarter-century. Over the years, the Wisconsin Electric Power Company's 15-year-old Point Beach 2 facility, one of two 485-megawatt units on Lake Michigan, 25 miles from Green Bay, has quietly achieved the nation's highest lifetime capacity factor, 80.4 percent. (The current U.S. average: 58 percent.) Point Beach also boasts the lowest rate of forced shutdowns (Unit 1 operated for all but one day during 1984); despite the modifications ordered after the Three Mile Island (TMI) accident, the cost of Point Beach's installed capacity is just $253 per kilowatt—one-twentieth that of the Shoreham plant in New York. Wisconsin Electric customers last year paid only 1.4 cents per kilowatt-hour (the U.S. average for residential power: 7.23 cents). The utility has *cut* its rates three times since January 1984.

Another such success is Florida Power & Light's St. Lucie plant north of Palm Beach. Despite a hurricane and post-TMI design changes, the 810-megawatt St. Lucie 2 unit was completed in the planned six years and went on line in 1983 at a well-below-average cost of $1,753 per kilowatt. St. Lucie 2 and its twin, completed in 1976, produce power for 0.8 cents per kilowatt-hour, about one-sixth of what the electricity from the company's oil-fired plants costs.

St. Lucie's success, argue Florida Power & Light officials, derives from the high competence of the plant's 550 staffers (who are organized under Japanese-style "quality circle" principles) and a simple corporate goal. The company, they say, wants "to become recognized as the best managed utility in the U.S."

Electric; an Ohio plant cooled and moderated by a liquid hydrocarbon called terphenyl; and a South Carolina reactor using "heavy water" (deuterium) as a moderator. These plants were never refined and scaled up to commercial size. For all practical purposes, U.S. reactor development was now frozen in a basic design that would require costly safety systems and especially careful operation. Except for two gas-cooled reactors in Pennsylvania and Colorado, all U.S. orders placed after 1959 were for light-water reactors; two-thirds of these would be of the particularly sensitive pressurized-water type.

Other 1950s wrangles would also affect the course of U.S. nuclear power development.

JCAE members were furious to learn that Strauss's AEC approved construction of the Fermi 1 after the AEC's own Advisory Committee on Reactor Safeguards warned that the breeder might pose a "public hazard" in the Detroit and Toledo area. In response, Congress made the safeguards group a statutory body whose reports on individual plants had to be made public. The lawmakers also opened decisions on plant-licensing, which had involved only AEC and utility officials, to intervention by citizens. The public could now take their objections to court, paving the way for the legal license-blocking tactics that would become perhaps the nuclear utilities' greatest single headache in getting plants started, completed, and put on line.

Nuclear power advocates also had victories to cheer, however. Suing on behalf of members in the Fermi 1 area, the United Auto Workers challenged the AEC's right to permit plant construction before safety issues were resolved. Ultimately the U.S. Supreme Court, in its first big decision on a nuclear issue, backed the AEC; the court ruled 7 to 2 that the law gave the AEC wide discretion to regulate atomic power as it saw fit.

Earlier, in 1957, Congress awarded a key concession to commercial nuclear power, the Price-Anderson Act. This provided for limited damage liability and federal no-fault insurance for the atomic utilities and their contractors: No one could take claims for nuclear accident injuries to court; awards would be set by insurance company pools and passed out on a first-come, first-served basis until they reached the limit, a relatively low $560 million. Thus today insurance policies on homes and autos exclude claims for radiological damage.

In effect, the law freed the utilities and their suppliers from what seemed their greatest deterrent to using the atom. But the measure was also one more government "assist" that would encourage many utilities to order nuclear plants without looking hard at the real costs and benefits of owning them.

V

THE BANDWAGON SIXTIES

With the Price-Anderson protections in place, the stage was set for a rise in plant construction. The 1960s would be dubbed—wryly, by utility men who remained skeptical about the atom—as "The Great Bandwagon Years."

Going into the decade, the atom had lost some of its luster. For all the agonizing over nuclear power, by the end of 1960 the nation had only Shippingport and one commercial plant operating, and 10 under construction. Costs were still high on utility executives' worry lists. When Shippingport began operating in 1957, its reactor's cost had risen to $110 million, more than double the original estimate, and it turned out power for 6.4 cents per kilowatt-hour, about 10 times the average for coal. (When reporters questioned all this, Admiral Rickover airily told them, "You people are asking for conception without sex.")

A 400-Foot Solution

Glenn Seaborg, named AEC chief by President John F. Kennedy in 1961—and still an ardent believer in breeder reactors and a "plutonium economy"—was determined to light a fire under the nuclear energy programs. But new problems surfaced.

After Sputnik carried the U.S.-Soviet competition into space in 1957, the AEC began to lose its pre-eminence in federal scientific research to the National Aeronautics and Space Administration. And now, JFK's vow to put an astronaut on the moon would allow the rocket men to command public attention in a way that the laboratory physicists and engineers working on atomic energy never could. Moreover, Kennedy's science adviser, Jerome K. Wiesner, later president of the Massachusetts Institute of Technology, would be the first White House official to question AEC forecasts of nuclear power needs.

Undaunted, Seaborg argued in 1962 that atomic power was not only "on the threshold" of competitiveness but becoming vital to the nation's well-being. Extrapolating from the seven percent annual rise in electricity use that the nation had experienced since World War II, he saw a rapidly expanding need for nuclear generating capacity: By century's end, the atom should be supplying one-half of America's electricity. How Kennedy, had he not been assassinated, would have handled Seaborg's call for aggressive breeder development is unknown.

Direct federal subsidies would end with Shippingport, Fermi 1, and the 11 prototype plants nursed along by Strauss's AEC during the 1950s. What finally started the bandwagon was a combination of promises. The sweeteners offered by Washington were all indirect—the Price-Anderson cap on liability; assurances that government would take care of the costly matters of safety research and reactor-waste disposal and that fuel would be in ample supply. (The AEC plants that enriched uranium for weapons and Navy reactors could turn out the far less

Polls show a steady erosion of public acceptance of nuclear power, but key support remains. A 1980 survey conducted for the Connecticut Mutual Life Insurance Company found that leaders in religion, business, the military, government, science, education, and the law thought the benefits greater than the risks. In a 1982 poll of Congress, 76 percent of the members favored greater use of atomic power.

potent fuel used by power plants with ease.)

For their part, G.E. and Westinghouse stirred up orders by offering utilities "turn-key" plants that would be built and made ready to run for a fixed price that was well below their cost. By the end of 1966, 10 utilities had bought 21 such loss-leaders from the firms, which thereafter would sell plants only on a cost-plus-fee basis. The companies also offered 20-year contracts to supply cheap fuel, which they thought would eventually be produced in abundance by breeder reactors.

Meantime, the great scale-up had begun. Bigger plants, insisted the manufacturers, meant lower costs all around. In December 1962, a Connecticut utility ordered a 582-megawatt plant. The next year brought four orders from 436 to 850 megawatts. The first proposal for a 1,000-megawatt plant, made in December 1963 by New York's Consolidated Edison, was less remarkable for its size than its site—in Queens, across the East River from Manhattan. Edward Teller wryly assured the public that the site would be safe, if the plant were buried 400 feet underground. Con Ed was persuaded to drop the idea.

As plants were growing in size, Congress took another fateful step. By 1964, the coal industry had decided that *commercial* nuclear power was a threat, so the Atomic Energy Act was amended once again. This time, most of the research funds that

remained in the AEC budget after the defeat of the Gore-Holifield plan in 1956 were shifted away from support for light-water reactors to two types whose commercial promise was remote, breeders and plants using the "fusion" technology employed in H-bombs. Now, contrary to prior federal promises to the utilities, research on the safety of commercial reactors was almost entirely in the hands of the diverse firms which made, sold, and bought the reactors. As problems appeared, the AEC would order "engineered safeguards" to deal with them; a strategy of often costly multiple systems (containment structures, emergency core cooling devices, etc.) evolved that eventually became known as "defense in depth."

Bigger and Bigger

Still another government promise to the utilities was withdrawn. The AEC was making enough plutonium for weapons on its own by the early 1960s, so it cancelled its standing offer to buy plutonium made during the operation of both LWR and breeder plants. The AEC's new plan, later discarded, was that nuclear utilities would send their spent fuel to "reprocessing" plants to recover uranium and plutonium for their own use. In any case, the breeder concept showed some flaws. In 1966, three months after Fermi 1 went on line at Monroe, Michigan, it suffered a core-melt. Fermi 1 would not fulfill its promise. It produced neither salable plutonium nor reliable power. Yet Seaborg's faith in breeders remained strong.

While President Lyndon B. Johnson focused on other concerns—Vietnam, Great Society legislation, the peace movement, Watts, Detroit, and Vietnam again—Seaborg continued to promote nuclear power. By 1967, he was arguing that the atom would account for almost one-fifth of U.S. generating capacity in 1980, requiring around 100 plants. Without them, the nation would not meet its demand for electricity, which Seaborg thought would continue to increase by over four percent annually until the year 2000. Domestic uranium supplies might not last long; breeders would be essential.

With the war in Indochina and the War on Poverty commanding federal resources, Washington was not yet ready to fund new breeder projects. But private forecasts echoed Seaborg's view of the future. The Edison Electric Institute predicted about 117 investor-owned nuclear plants by 1980; G.E. saw some 125 plants; Westinghouse 150. Indeed, seven were ordered in 1965, the largest 873 megawatts. The first firm order in the 1,000-megawatt range came in 1966, for the TVA's three-reactor

site at Browns Ferry, Alabama. Six of the 20 plants ordered in 1966 exceeded 1,000 megawatts, as did eight of the 29 booked in 1967. After 1968, when more than half of the 14 orders placed were for these big plants, they became standard. There was talk of 2,000-megawatt giants, and G.E. executives considered 8,000 megawatts possible, but in 1972 the AEC set a limit of 1,300.

VI
THE SOBERING SEVENTIES

Reactors were being scaled up faster than experience gained from smaller ones could be applied. By 1968, manufacturers were taking orders for plants six times larger than the biggest one then operating.

Construction times grew—from an average of six years during the 1960s to 12 years for plants begun during the 1970s. The same was true of costs. By 1971, when the nation's first 21 commercial plants were completed, their capital costs were roughly twice the original estimates. The utilities absorbed much of the pain, but G.E. and Westinghouse, who lost as much as $800 million on their turn-key deals, also suffered.

The economics was daunting. Almost everywhere, under existing regulations, utilities could not begin recovering their costs from their customers until the plants started running. Whenever a plant's operating date was delayed—by construction mistakes, government-ordered safety changes, citizen protests, and litigation—the utility's expenses would rise enormously.* Thus while the utility industry as a whole prospered during the 1960s, many companies that had undertaken to build nuclear plants would soon be sorely strapped for cash.

The big plants required so much capital (and produced so much power) that utilities often had to combine forces to purchase them. For example, in New England, where dependence on foreign oil was high and the air pollution from coal-fired plants was seen as a blight, 16 utilities joined during 1972 to buy two 1,150-megawatt reactors for a site at Seabrook, New Hampshire. A herd of 115 utilities in eight states grouped together with the Bonneville Power Administration to form the Washington Public Power Supply System (WPPSS), which was to build five atomic plants. As the later troubles of such consortia would show, group

*For example, even at today's moderate rates of inflation and interest, a growth in building time from eight to 12 years can add 40 percent to a plant's cost; price rises and debt service would account for more than 60 percent of the final bill.

THE NON-PROLIFERATION PUZZLE

The Nuclear Club remains just the superpowers, Britain, France, and China. It has been more than 20 years since a new country has declared itself nuclear-armed, more than 10 since any has set off a first atomic test. Yet "proliferation" is a problem.

There are nonclub nations with an undeclared or "veiled" weapons-making capability. Israel reached this point as early as 1968. India, South Africa, and perhaps Pakistan have followed. Brazil, Argentina, Libya, and Iraq (whose "research" reactor was bombed by Israel in 1981) are known to want to catch up.

The 1968 Non-Proliferation Treaty (NPT) permits the transfer of atomic technology only to countries that forgo nuclear weapons and allow inspection by the International Atomic Energy Agency (IAEA). But the treaty's 128 signatories do not include Israel, India, Pakistan, South Africa, Brazil, and Argentina, which have pursued their nuclear goals nonetheless. President Jimmy Carter sought to tighten the loose NPT "safeguards" with the 1978 U.S. Nuclear Non-Proliferation Act; it requires *any* country making nuclear purchases from the United States to accept IAEA inspection of *all* of its facilities. But among nuclear exporters, only Canada, Australia, and Sweden have followed suit. And America, critics say, has lost sales and influence in many nations with atomic power programs; they can turn to European or other suppliers that insist on safeguards only for the items being sold.

In any case, the nuclear nations' arms-curbing zeal has been uneven. During the 1970s, notes Leonard Spector, author of *Nuclear Proliferation Today* (1984), Washington fought to stop South Korea and Taiwan from announcing plans to make atomic weapons; it was less forceful with such undeclared nuclear states as Israel and Pakistan. The moral, he writes: If a state does not "openly" flaunt its aim, "it may approach and actually cross the nuclear weapons threshold with virtual impunity."

ownership complicated matters for management (not always strong in the utility industry). It became clear that big plants had poor operating records; complex safety systems made maintenance difficult, and when "downtime" was needed for repair or refueling, much replacement power had to be bought.

As these realities were becoming clear to utility executives, the old vision of steadily rising demand for electricity became a bit cloudy. What Seaborg and other planners had not seen was that in the past, electricity use had risen because, for four decades, its cost had declined—the result of softening prices for fuel *and* the efficiency of new coal- and oil-powered plants. (They, too, were scaling up.) When costs rose again during the early 1970s, propelled partly by Vietnam era inflation, demand leveled off.

And so did the need for new plants, though this reality sank in slowly. The 1973 AEC estimate was that by the year 2000 America would still get half its power from perhaps 400 breeders and 600 other nuclear plants. With lead times growing, many utility men felt pressed to move fast—and did, to their later regret.

Thus in 1973, the Long Island Lighting Company (Lilco) would break ground in Shoreham, New York, for an 820-megawatt plant expected to cost $300 million; soaring interest, construction difficulties, safety modifications, and assorted legal wrangles would push the price to $4.2 billion by the time the plant was finished in 1985. If and when commercial operation is allowed and Lilco can begin passing Shoreham's costs on to its rate-payers, the customers could in theory see a 38 percent rise in their monthly bills. This is called "rate shock."

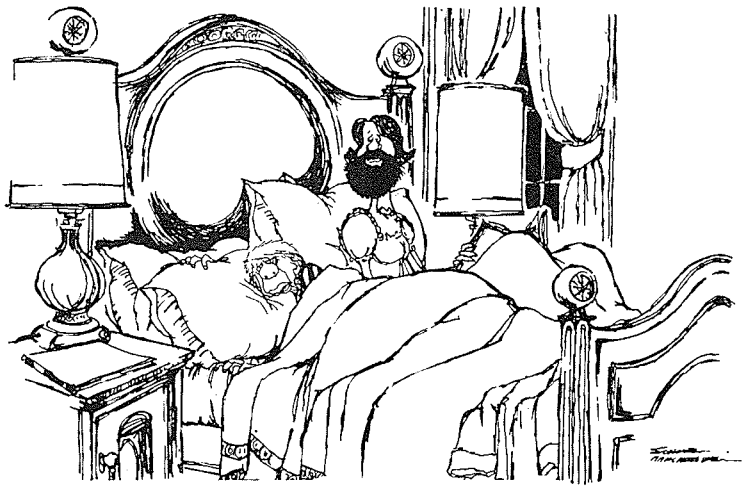
Even worse was what befell the WPPSS and its customers. It had been allowed to pass some of its work-in-progress costs on to its rate-payers. By 1983, when slack demand, debt, and other problems forced cancellation of the ill-advised plants, the state's residential rates had risen by about 80 percent.

While the new realities of soaring costs and softening demand worked their way through utility balance sheets, other developments would sour the prospects for nuclear power.

Arabian Nightmare

At first, concern about the environment had been a plus for the atom: Nuclear plants do not foul the air. Then, spurred in part by a 1969 *Sports Illustrated* piece ("The Nukes Are in Hot Water"), "thermal pollution" became an issue. The polluter was reactor cooling water, which can be 11 to 25 degrees hotter than the lakes and rivers into which it is pumped, and thus affect nearby fish and flora. Though the hazard was often exaggerated, the rumpus led to the tall cooling towers which have become a symbol of atomic power.

By the time of the Earth Day demonstrations of 1970, the atom's clean energy halo was gone. NO NUKES was a rallying cry, and the ralliers were handed a weapon. In a case concerning Calvert Cliffs, a proposed nuclear plant in Maryland on the Chesapeake Bay, a federal court ruled in 1971 that the 1969 National Environmental Policy Act's call for "environmental impact statements" on all large construction projects applied to nuclear plants. The AEC could no longer award licenses solely with regard to "public health and safety." The utilities' vulnerability to antinuclear protestors increased.



"Relax Rosalynn . . . The Nuclear Regulatory Commission said it was safe to go into that plant. . . ." *This cartoon ran after the Carters toured Three Mile Island in 1979. Only about 16 curies of iodine-131 radiation were released at TMI; a 1957 accident in England released 20,000 curies.*

President Richard M. Nixon was at least nominally pronuclear; in part to gain congressional support for other White House goals, he backed the 1971 funding of Clinch River, a federal project in Tennessee near Oak Ridge that was to be a prototype for big breeder plants. But Nixon's blunt AEC chief, James M. Schlesinger, warned that in the new national climate the commission could no longer be expected to solve the nuclear industry's "commercial" problems. These had to be settled with "Congress and the public." Atomic power was on its own.*

Other jolts followed. During 1972, a cartel led by Canadian and Australian producers raised the price of uranium ore. (It went from about $8 a pound to above $20 in 1975.) The manufacturers who had made long-term uranium deals were caught off guard. Westinghouse, whose pressurized-water reactor plants now commanded two-thirds of U.S. reactor sales, managed to renegotiate pacts and take cartel members to court to avoid default on 20 contracts. The uranium hold-up had no great effect on nuclear utilities; even today fuel accounts for only about 20 percent of their operating costs, versus 52 percent

*In 1974, Congress abolished the AEC, largely because it seemed to do more to promote nuclear power than to regulate it. The new, five-member Nuclear Regulatory Commission became the industry watchdog, while a new Energy Research and Development Administration took over weapons programs and the modest remaining efforts at improving nuclear power technology.

for coal-fired plants. But the episode did not help the argument that cheap fuel might easily offset nuclear's steep capital costs.

The year 1974, which brought the culmination of Watergate and Nixon's resignation, was also significant for nuclear power. It was the first year that *none* of the new plants ordered—28 were contracted for that year—would be completed. Orders then fell sharply, to four in 1975; three in 1976; four in 1977. The last U.S. order, later cancelled, was placed late in 1978, three months before TMI.

It is now clear that this stunning reversal was brought about partly by the crisis that was supposed to save nuclear energy: the 1973 Arab oil embargo and the four-fold rise in petroleum prices that followed. At the time, 17 percent of America's power was generated in oil-fired plants, at costs competitive in some areas with both coal and nuclear power. So builders of reactors and those who had bought them had reason to cheer as worries about cost and supply drove utilities away from petroleum. (No new plants using oil, or natural gas for that matter, were to be ordered after 1975.) They had further cause to smile in October 1973, when Nixon announced "Project Independence," a $22 billion energy development scheme designed to make the breeder reactor the dominant U.S. power source.

But the Nixon administration had expected half the research and development (R&D) money to come from private industry, which traditionally had spent little for such purposes. Industry did not break with tradition. Inflation, spurred by rising oil prices, further raised the cost of capital while the "oil shock" sparked a recession that cut demand for all energy. After 1972, electricity use grew by only 2.5 percent a year, mocking prior projections.

Enter the No Nukes

While orders were collapsing, an episode occurred that saddled the utilities with new expenses: An accident at TVA's Browns Ferry complex, the worst U.S. mishap prior to TMI.

This showed that even trivial events could threaten "defense in depth." A fire started by careless workers—testing for air leaks with a candle—raged for seven hours. It burned key power cables. Operators lost control of the core coolant; only by sending men into the reactor building to turn valves by hand was a meltdown averted. The NRC ordered rewiring at most plants, a job some utilities have still not completed. Retrofits, redesigns, and corrections have been common for more than a decade, partly because the AEC scaled back its work on developing and testing safety advances for commercial light-water reactors after the de-

feat of Gore-Holifield during the 1950s.

After Browns Ferry, the diverse antinuclear forces began to coalesce and devise new tactics. Proposals to curb atomic plants went on the ballots in seven states during 1976; though all were defeated, environmentalist Barry Commoner, author of *Poverty of Power*, a hymn to solar energy, declared "victory." During his brief White House sojourn, President Gerald R. Ford supported private development of nuclear power (while further cutting federal research). But he wound up suspending the commercial reprocessing of spent fuel as a way to attack "proliferation," the spread of nuclear materials and techniques that might enable more countries to obtain atomic weapons.

The $5,202 Kilowatt

Ford's motive was largely political. His Democratic challenger in 1976 had made an issue of proliferation and happened to be the nation's first presidential candidate who had hands-on experience with the atom. Jimmy Carter, the Annapolis graduate who had served in Rickover's nuclear Navy as a submarine officer, was sensitive to both the proliferation problem and environmental issues. As President, in his April 1977 energy message to Congress, he turned established U.S. policy upside down by declaring the atom to be a "last resort" energy source. He also reaffirmed the Ford ban on reprocessing and tried to cancel the Clinch River breeder project (thus spurring Congress to keep it going another few years).

While polls still showed majority support for atomic power, Carter seemed in tune with the antinuclear movement—though the movement's tactics were about to change from ballot initiatives to civil disobedience. In April 1977, some 5,000 protesters held the first mass demonstration against an atomic plant: a siege of Seabrook, New Hampshire, where 1,400 were arrested. Then came more Seabrook protests and the 1979 drama at TMI—to which the new NRC reacted by issuing a river of new regulations* and accelerating its two-year-old plan to post inspectors at all U.S. nuclear plants. In May 1979, some 100,000 antinuclear protesters gathered in Washington to chant slogans ("Two, four, six, eight, we don't want to radiate") and commune with rocker Jackson Browne, Ralph Nader, Dr. Benjamin Spock, and Jane Fonda. To a *New York Times* reporter, the crowd seemed like "graduates of an earlier [Vietnam protest] era re-

*By the Edison Institute's count, the total of various NRC directives reached nearly 2,000 as of the early 1980s. Post-TMI orders for new safety equipment are reckoned to have added some $3.5 billion to the nuclear utilities' capital costs.

TRYING TO BURY THE WASTE PROBLEM

A 1,000-megawatt coal-fired plant burns about 2.5 million tons of coal a year. Much of the residue goes into the atmosphere; the rest is carted away as ash, up to 500,000 tons of it. The fuel wastes from a comparable nuclear plant are piddling—30 tons or so annually. And if it could be compacted, the very radioactive "high-level" detritus involved would fit into a couple of steamer trunks.

Then, too, the high-level waste generated by the military—in making warheads and powering the nuclear Navy—is much greater in volume (though less radioactive) than that produced by atomic power generation. Yet the plant wastes are what concern the public most about nuclear power. Seventeen states have placed restrictions on how much or what kinds of spent fuel or other nuclear trash they will accept, and three will permit no such wastes at all; 12 states, moreover, have banned reactor construction pending a permanent solution to the waste problem.

The thousands of rods of mildly enriched uranium that make up a 100-ton reactor core are virtually harmless when delivered to a plant. After a year in the core, however, they generate much heat and are irradiated with cesium-137, strontium-90, plutonium-239, and other fission products, some of which remain dangerous for hundreds of years. Each year, one-third of the rods are removed and replaced. Because no final repository for such high-level wastes yet exists, spent rods are kept at the plants, left to cool slowly in large pools of water. By now some 7,000 metric tons of rods are thus stored, and space is running out. The waste problem will intensify as the plants themselves reach the end of their useful life.

The commercialization of atomic power began with the assumption that government would solve the waste problem. For a while, the answer seemed to be spent-fuel "reprocessing." In theory, 97 percent of some fission products can be turned into forms of uranium and plutonium that can be used again, as reactor fuel or for weapons. A commercial plant for this purpose did open, at West Valley, New York, in 1966. But the recycling effort died during the 1970s, a

turning for a 10-year reunion."

Later, the realities of the U.S. energy situation softened Carter's antinuclear stance. With imports now accounting for about one-half of America's oil consumption, Carter in his post-TMI energy message called for decontrol of domestic crude prices ("Use less oil and pay more for it") and conservation steps. By then, he had decided that the "last resort" atom should be used not just *if* other sources failed but *until* alternatives arrived. Said a Carter aide: "There's no way to turn our back on it now."

But by then the decisions, nondecisions, and random events of the previous 30 years had had their effect. The policy-makers had rushed to develop nuclear power—quickly settling on an

victim of problems at West Valley and of the Ford-Carter ban on commercial reprocessing as a way to limit nuclear proliferation. Though this ban has been lifted, commercial recycling is uneconomical: There is scant nonmilitary demand for plutonium, and the cost of reprocessed uranium (more than $400 a pound) is prohibitive.

Thus the focus is on disposal. In theory, this is manageable. Suggestions have been made that all the high-level waste be fired toward the sun aboard rockets or buried 20,000 feet down in "superdeep" holes; but these solutions would be costly and would rule out the possibility of retrieving the spent fuel for reprocessing in the future. The French are pioneering a promising disposal method in which wastes are "vitrified," fused into glass and then sealed in stainless steel canisters for burial one-third of a mile underground.

In the United States, *where* to deposit high-level wastes has been as much of an issue as *how*. An abandoned salt mine in Kansas was considered during the 1960s, but it was later dropped when scores of drilling holes were discovered and doubts about the mine's "integrity" surfaced. The federal high-level waste site (for weapons material) at Hanford, Washington, was ruled out for spent fuel when the Nuclear Regulatory Commission, the Yakima Indians, and other groups raised objections involving uncertainties about the movement of underground water. With the Nuclear Waste Policy Act of 1982, Congress told the president to choose two new high-level dumps and ordered nuclear utilities to start contributing funds (now totaling $300 million a year) toward their support. But while government geologists have narrowed their choices to nine locations in Arizona, New Mexico, Utah, Texas, Mississippi, and Louisiana, the Department of Energy has asked for a delay in making its recommendations.

It now seems that no White House decision will be made before 1990, and even then the issue may not be settled. Congress has given the states the opportunity to veto the site selections—an offer that many state officials will find hard to ignore.



early military spin-off, the light-water reactor, that may or may not have been appropriate. The building and operation of nuclear plants were left to overoptimistic commercial suppliers and utilities—who increased reactor size too quickly. Pushed by Congress, the government pulled out of nuclear power R&D—which ended research on other designs and led to the piecemeal retrofits that helped drive costs to the skies. In tune with the neoprogressive ethos of the 1970s, Congress and the courts opened up licensing procedures—making the utilities easy game for all sorts of opponents just as their managers were struggling to get on top of the most demanding and costly projects they had ever undertaken.

And then came the "Reagan Recession" of 1980–81, which mocked all the demand forecasts once again. (Only two new *coal*-fired facilities have been ordered since 1982.) By 1985, various utilities had stopped several large nuclear works-in-progress (Marble Hill, Midland, Zimmer, the WPPSS plants) and were straining to finish others (Perry, South Texas, Seabrook 2, Grand Gulf 2). The final bills of some projects that did struggle to completion were awesome. When Shoreham was finished, the cost of its generating capacity turned out to be a record $5,202 per kilowatt; almost a dozen other projects still under construction stood to come in at well above the nuclear average of about $3,000 per kilowatt, not to mention the estimated $1,200 of a comparable coal plant.

VII

A NEW NUCLEAR FORMULA

What now?

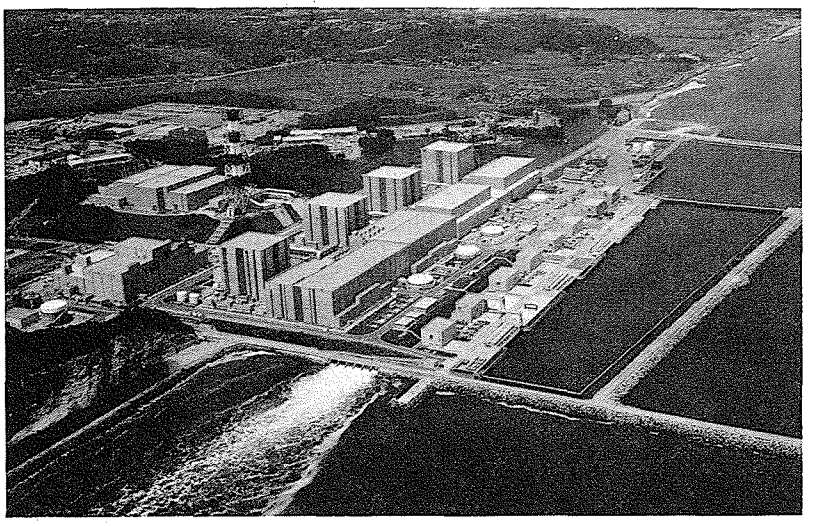
As Jimmy Carter eventually conceded, there is a clear need for nuclear power. Even at the present low level of demand growth, America will need to add new generating capacity—perhaps the equivalent of 100 large plants—by the end of this century. But oil and gas are uneconomical, and in any case federal law has barred their use in new plants since 1978. Coal, abundant as it is, presents environmental problems (smog, acid rain,* the physical ravages of strip-mining). Substantial help from solar power and other sources is still remote.

Fortunately, the need for new plants is not yet urgent. Power is short in the Northeast, but help is at hand. Canada, whose utilities are run by the provincial governments (they operate 16 nuclear plants), has made it policy to sell excess electricity to the United States; New Brunswick has one nuclear station primarily devoted to export and is planning another. All in all, U.S. generating companies may enjoy a breather lasting into the 1990s before they must build new capacity.

This interim period constitutes a time of opportunity, and a debate is underway in industry, academe, and government on how it might be used to revive the U.S. nuclear power "option."

Would a "technical fix" help? A Massachusetts Institute of Technology (MIT) study team led by nuclear engineer Richard

*A product of the sulfur dioxide released into the air by coal-burning plants. A 1980 study by the National Academy of Sciences estimated that the effluent of one large plant may cause as many as 60,000 cases of respiratory illness a year.



The Fukushima I plant of the Tokyo Electric Power Company, the world's largest private utility, has six General Electric reactors. Forgoing nuclear weapons, Japan has welcomed nuclear power.

K. Lester has concluded that the commonly used light-water reactor could be improved—but that even so, it may never "regain commercial acceptance." The MIT group, while endorsing further LWR refinement, also urges the development by the mid-1990s of two "fundamentally different" reactor types that might be smaller, cheaper, and pose fewer safety concerns.

One type might be the high-temperature gas-cooled reactor (HTGR), on which research has been done in Britain, West Germany and (to a limited extent) the United States. The HTGR is designed not only to produce nearly as much fuel as it uses (a mix of uranium and the plentiful element thorium) but also to close down safely even if it loses its helium coolant. Another possibility is the so-called PIUS, an "inherently safe" light-water reactor of Swedish design; its core, held in a pool of pressurized cold water that is itself contained in a pressure vessel, is supposed to shut down automatically upon encountering any problem, from human error to an earthquake. But federal help would be needed for new-reactor research. "Left to itself," says the MIT group, "industry will almost certainly fall short."

Do utilities need a redesign? Publicly, spokesmen for generating companies say that the U.S. nuclear power industry can flourish in its present configuration—once demand for electric-

ity picks up again. They want costs to be reduced through standardized plants* and less onerous federal regulation: fewer change orders, streamlined plant approval. (Utilities now must obtain a construction permit *and* an operating license.)

Yet a new look for nuclear utilities is also under wide discussion. At present, nearly 60 utilities, from Maine and Florida to California and Washington, are involved in atomic projects, and about 40 of them operate only one or two plants. Many utilities are small: Two-thirds of the private companies now building atomic plants have more than 30 percent of their assets tied up in construction. The Edison Institute wants more plants run by syndicates and even "separate nuclear companies."

Bad Blend

Alvin Weinberg, who believes that the present light-water reactor can be retained in its essentials (though work should proceed on "inherently safe" alternatives), argues that worries over cost and safety would diminish if new plants were grouped in remote "energy parks" and run by well-paid, highly trained specialists. A 1984 study by Congress's Office of Technology Assessment, commissioned by a pronuclear House subcommittee, also urged the concentration of plant ownership and operation, à la Weinberg, in fewer, more skilled hands.

Should reactor manufacturing be reorganized? Eric R. Zausner, a former deputy administrator of the Federal Energy Administration, urges nuclear equipment suppliers and engineering firms to form a combine like the Texas-based Microelectronic & Computer Technology Corporation, chartered in 1982 by Control Data, Honeywell, RCA, and 10 other firms to pool the cost of developing supercomputers. Such an undertaking, says Zausner, might yield new designs that would compete with other countries' advancing nuclear technology.

The interest in concentration, standardization, and streamlined regulation reflects the envy of utility executives and others for the programs of nations such as France and Britain. But these countries operate their nuclear plants as *state* enterprises, with a single national manufacturer, utility, and regulatory agency. This is the model that Congress rejected, for the last time, with the defeat of the Gore-Holifield amendment in 1956.

During the 1940s, an aide on the staff of Congress's JCAE

*Nearly all U.S. facilities are custom designed, which complicates both regulation and operation. An egregious example is Millstone in Connecticut, where a consortium of six utilities runs three reactors; each was designed by a different manufacturer, each powers a plant built by a different architect-engineer, and each requires different operator training and supplies of spare parts.

wrote a study predicting that for nuclear power to thrive in America, it would need to be "a socialist island" in a sea of free enterprise. The technology and safety factors were so demanding, he reasoned, that no business would or could invest in the necessary research or manage staff training and the protection of radioactive material with the required military rigor. Utility executives have rejected this notion ever since the battles over the original Atomic Energy Act. But today, while the utilities are at the center of most nuclear power issues—they alone are the "customers" who choose what reactors to buy and how to run them—policy seems to be set in agencies, commissions, the courts, almost everywhere *but* in the utility board rooms.

All utilities are regulated state monopolies, but without the redeeming value of unified national authority. Lacking competition, utilities run state-sanctioned monopolies at rates (and for rates-of-return) set by state commissioners, not by the marketplace. In terms of advancing nuclear power technology, this is the worst possible blend of state and private enterprise; it makes utility executives responsible to stockholders, whose first concern is quarterly dividends, but with added homage to their customers and to more state and federal regulators than any other industry endures.

It thus may be that what the U.S. nuclear enterprise needs is not deregulation, as the Edison Institute argues, but a fundamental "re-regulation"—one that would require a scrapping of the Atomic Energy Act and a new beginning.

Like the Navy

Under one such approach, the government might become the operator of last resort of any nuclear plant a utility wishes to abandon, and no new nuclear plants would be built or designed under private auspices. Public and private utilities could continue to transmit and sell power to their customers, but eventually the operation of all *reactors* would become a federal responsibility. With this might come the simplicity that foreign nuclear regimes now have. (A small step in this direction came this year, in the form of a Senate bill that would make the five-member NRC a federal executive agency with one head.)

New statutes could set priorities; they might state that "national security" *requires* the atom's use as an energy source of "last resort," just as a strategic oil reserve might be, or a subsidized gasohol or synthetic fuel industry. Federal supervision would allow a chain of command that would be direct and efficient, embracing research, development, construction, and opera-

tion, as it is in the expensive but efficient nuclear Navy program.

Some regulators and industry officials believe that all nuclear plants must be turned over to specialized operators that would be created and chartered by Washington, along the lines of the TVA and the Bonneville Power Administration. Others who favor large nuclear operating entities of some sort have doubts; Alvin Weinberg has suggested that public authorities might be "harder to regulate than private ones." There is serious (if still off-the-record) discussion among utility executives about regional *private* utilities that would manage nuclear plants and sell power wholesale to existing companies; bureaucratic oversight could be shifted from the 50 state utility commissions to the Federal Energy Regulatory Commission, which already deals with bulk and international electricity sales.

Buying the Dream

Looking back, a top Wall Street utility analyst, Goldman, Sachs vice-president Ernest S. Liu, has noted that nuclear industry leaders did not just overestimate power needs and fail to foresee inflation, new regulations, and cost run-ups. They also saw too late "that nuclear power is an unforgiving technology, and plants have to be built right regardless of the cost." They "did not invest enough management in their programs early on."

Management preoccupied the Kemeny Commission, the presidential panel that studied TMI. It noted that Met Edison equated safe operations with meeting NRC rules, not with mastering nuclear operations on its own. After the accident, Met Edison sued the NRC for $4 billion, charging that the agency had not supervised it closely enough. Several pronuclear studies have concluded that utilities generally have not treated the atom with the respect it deserves. Fission is not "just another way to boil water," as some utility men were heard to say prior to TMI.

This attitude has affected basic efficiency. One way to rate a plant is by its "capacity factor," the power it produces as a percentage of its potential. In a 1983 survey by the Atomic Industrial Forum, 18 non–East Bloc foreign countries operated 149 reactors with an average capacity of 63.4 percent, compared with 57.5 percent for the 72 U.S. reactors running at the time. The foreign averages ranged from Switzerland's 84.2 percent to Pakistan's seven percent. The U.S. numbers for that year ran from 94.8 percent, for Florida Power & Light's St. Lucie 1, to 13.5 percent, for Pacific Gas and Electric's San Onofre 1 in California.

If nuclear energy had been developed solely as a commer-

cial enterprise during the early years, rather than as a secret defense project, several companies would have built dozens of experimental reactors. Most would have failed. That is the nature of R&D. But the survivors would have been tested thoroughly, then scaled up only gradually to meet the demands of utilities and other users of high-energy heat. Only designs that met the test of market interest would have flourished.

This never happened, however, thanks to the exigencies of wartime. The government developed nuclear fission for weapons and only later sponsored research for the Navy equipment that became the model for most of today's power reactors. And the generalized boosterism that accompanied the power program made honest appraisal of what research there was impossible. Manufacturers who were themselves struggling to make money with their two basic light-water reactors had little incentive to see benefits in the development of new designs. The driving commercial pressure behind nuclear power became one of finding new ways to keep the basic reactors selling and running.

Indeed, that pressure is one reason that the TMI accident occurred. Investigators now believe that the plant's safety systems were compromised by the utility's rush to start operating on December 31, 1978, to qualify for the year's state and federal tax benefits.

There was an unhappy echo of TMI last June: Another Babcock & Wilcox reactor, Davis-Besse in Ohio, suffered 14 successive equipment failures that paralleled the early hours of the TMI accident. This time operators knew they should check the faulty valve that let water escape unnoticed at TMI, and they found it stuck open. Good. But this event also dismayed the industry and its regulators because Davis-Besse had a similar unpublicized accident in 1977—a direct precursor to TMI.

Such lapses underline the moral of the U.S. nuclear saga that NRC commissioner Peter Bradford drew in a 1982 speech. Assured by the AEC and the suppliers of reactors that the future lay with safe, reliable, and cheap atomic power, many utilities (and public officials) bought into the dream without studying the details. "It is precisely this sort of societal failure to face reality that our system of checks and balances is designed to avoid," Bradford observed. But that system, he added, "has never been applied very effectively to nuclear energy." Until now, that is.

BACKGROUND BOOKS

NUCLEAR POWER IN AMERICA

Around the world, power reactors and those aboard naval ships have logged more than 4,000 years of operation since World War II. By now, most *specialists* are satisfied with the safety record of nuclear power.

So argues University of Pittsburgh physicist Bernard L. Cohen in **Before It's Too Late: A Scientist's Case for Nuclear Energy** (Plenum, 1983). He cites polls showing that 89 percent of scientists (and 95 percent of those in energy-related fields) favor atomic power. Yet many laymen still rank the atom as a worse hazard than auto accidents and cigarette smoking. They are, Cohen says, "misinformed."

A study directed by Norman Rasmussen of the Massachusetts Institute of Technology and released by the Atomic Energy Commission (AEC) in 1975 reported that a loss of coolant accident (LOCA) might occur once in 2,000 years of reactor use (i.e., once every 20 years in a country with 100 reactors). A core-melt might happen once in 20,000 reactor-years.

Critics (including the American Physical Society) held that those projections were too optimistic; an independent panel found the study flawed, and in 1979 the Nuclear Regulatory Commission virtually repudiated it. But so far, Cohen notes, the forecasts are roughly on track.

As yet there have been no full meltdowns, and just one LOCA (Three Mile Island). Indeed, other power sources pose substantial hazards. The worst "energy-related incident" to date involved a fossil fuel. In London in 1952, a thick smog fed by smoke from coal-burning furnaces caused 3,500 deaths in a few days.

There *are* dispassionate dissections of atomic energy issues, such as **Nuclear Power: Both Sides** (Norton, 1982), edited by Michio Kaku and Jennifer Trainer. But much of the literature is polarized.

After Sheldon Novick's **The Careless Atom** (Houghton, 1964), a mild critique of nuclear energy, the opposition grew more impassioned, as suggested by titles such as John W. Gofman and Arthur Tamplin's **Poisoned Power: The Case against Nuclear Power Plants** (Rodale, 1971; Committee for Nuclear Responsibility, rev. ed., 1979) and **The Cult of the Atom: The Secret Papers of the Atomic Energy Commission** (Simon & Schuster, 1982) by Daniel Ford, a former leader of the antinuclear Union of Concerned Scientists.

Such works have both shaped and mirrored a social phenomenon in the West that America's early champions of atomic power never foresaw: the antinuclear movement.

Richard S. Lewis traces **The Nuclear Power Rebellion** (Viking, 1972) to local protests, such as the one that led to the 1964 demise of a plan for a plant north of San Francisco at Bodega Head, near the San Andreas Fault. Such "intervention" in site selection became "the citizen's weapon against the Establishment."

In Samuel McCracken's view, **The War against the Atom** (Basic, 1982) was launched by veterans of the civil rights struggle who found new causes: Vietnam, then the environment. Nuclear power was "the perfect demon. Kick it and you kick large corporations, the government, and technology, all with one blow."

The movement drew people with practical concerns (e.g., fishermen) and middle- and upper-income advocates of both no-growth policies and the back-to-nature ways hailed in the "Split Wood, Not Atoms" bumper

sticker. And there were those, as David Lilienthal, the first AEC chairman, notes in **Atomic Energy: A New Start** (Harper, 1980), who feared "industrial and technological forces" and saw atomic energy as the most "mystical" of them all.

Soon, William Sweet writes in **The Nuclear Age** (Congressional Quarterly, 1984), advocacy groups appeared, many combining dues-paying citizens with "scientists and economists, lawyers and lobbyists, organizers and fund-raisers, writers and public relations experts."

The movement went transatlantic, as Bertrand Goldschmidt details in **The Atomic Complex** (American Nuclear Society, 1982). West European ecologists had favored the atom over river-choking hydro dams. But by the early 1970s they were marching against nuclear projects.

In 1975, as Peter Pringle and James Spigelman relate in **The Nuclear Barons** (Holt, 1981, cloth; Avon, 1983, paper), residents of Whyl, West Germany, occupied a plant site, saying that mist from the cooling towers would hurt vineyards. The project was canceled, and later a New Hampshire group, the Clamshell Alliance, made its first attempt to occupy the Seabrook plant site.

Similar alliances—Crabshell, Oystershell, Abalone—took on other nuclear projects. While these groups were composed mostly of young people and the issues were local, by the late 1970s their much publicized activities sparked an intermittent national debate about atomic power.

The debate was a bit confused. As orders for new plants fell after the mid-1970s, the movement focused on waste and proliferation. Some activists, such as Australian-born pediatrician Helen Caldicott, author of **Nuclear Madness** (Autumn, 1979) and a leader of the drive to "freeze" nuclear arms, tended to depict atomic weapons and atomic energy as interchangeable evils.

Lilienthal argues that while antinuclear groups have included "arrogant, ignorant, and self-seeking" people, they have stirred a field in which official "complacency" has reigned too long. But in the end, University of Missouri historians Gerard H. Clarfield and William M. Wiecek conclude in **Nuclear America** (Harper, 1984), what brought atomic power "to its knees" was the economic factor.

What now? In his book, Bertrand Goldschmidt, a former board chairman of the International Atomic Energy Agency, notes that public opposition to earlier innovations, such as railroads during the 19th century, soon faded. Not so with atomic power, despite the remarkable "absence [in the West] of any nuclear accident" resulting in casualties outside a plant. Yet the need for such power will persist. Globally, energy use quadrupled between 1950 and 1980, and the lowest forecast projects another 50 percent rise by the end of the century. Sheer demand, Goldschmidt predicts, "will force a relaunching of nuclear programs throughout the Western World," including the United States.

EDITOR'S NOTE: *Interested readers are invited to consult* WQ*'s Background Books essays on Salvaging the Atomic Age (Summer 1979) and Energy: 1945–1980 (Spring 1981).*

CURRENT BOOKS

SCHOLARS' CHOICE

Recent titles selected and reviewed by Fellows and staff of the Wilson Center

THE GRAIN OF THE VOICE: Interviews 1962–1980
by Roland Barthes
translated by Linda Coverdale
Hill & Wang, 1985
368 pp. $24.95

THE RESPONSIBILITY OF FORMS: Critical Essays on Music, Art, and Representation
by Roland Barthes
translated by Richard Howard
Hill & Wang, 1985
312 pp. $22.95

The artist composes a work, the critic explains it. Must criticism, then, always play second fiddle to works of art, supporting or setting them straight but never competing? Many recent critics, including Harold Bloom and Geoffrey Hartman, have argued otherwise. Their texts are just as creative and just as original, they insist, as the artists'. It is wrong to divide writers into authors and interpreters. There is only the effort to make the world intelligible, an endless project in which all writers participate.

Whatever one thinks of this notion, the texts of Roland Barthes are an excellent point in its favor. During the two decades before his death in 1980, Barthes had come to be regarded by a large public as the most interesting living French writer. Not only did he argue for the equality of the critic with the "creative writer," he embodied it.

Barthes's writing is not easy to categorize. He dealt with subjects as various as Greta Garbo's face and Einstein's brain, Japan, the language used in fashion magazines ("it's meaning that sells"), the Eiffel Tower, photography, a lover's discourse (the title of his best-seller), or even himself. One of his many books of literary criticism compares the notorious erotic novels of the Marquis de Sade to the utopian socialist writings of Charles Fourier and the spiritual exercises of Saint Ignatius Loyola. Another book is devoted entirely, and exhaustively, to one short story by Honoré de Balzac. Barthes was prolific, protean, and unpredictable. He seldom if ever repeated himself.

But two threads run through almost all his work. The first is a fascination with signs. (At the end of his life, Barthes held an academic chair of literary semiology, or "the science of signs.") The second is a challenge to orthodoxy or conventional ways of seeing. The two threads are closely interwoven. Wherever Barthes looked, he perceived the dominion of signs over nature. We see things not "as they are" (whatever that might be) but in terms of systems of meaning constructed by human beings. Thus he read the world as if it were a cryptogram whose code he had to crack or as a foreign language whose grammar he needed to construe. When he visited Japan, without knowing any Japanese, he was delighted by the frank

artificiality of its customs, and by careful observation he interpreted the whole society as an "Empire of Signs."

Barthes was a master reader. But the object of his reading was not only to understand signs but to demystify them. By exposing the codes and languages that determine meaning, he makes us conscious of the arbitrary schemes and orthodoxies that govern our lives. If we did not choose to wear this year's fashions or think this year's thoughts, Barthes suggests, we might find something better. The proof is Barthes's own writing—sometimes perverse but always brilliant and fresh. Like a new pair of glasses, he makes the world look sharp and strange again.

The two books here are wonderful for browsing. *The Grain* provides a sample of the critic's thought in action: reviewing his career, arguing with the interviewers, trying out ideas, changing his mind. *The Responsibility* collects a variety of late essays, at their best when they catch Barthes's enthusiasm for art that has taught him new ways to respond: Sergey Eisenstein's films, the theater of Berthold Brecht, drawings by Erté or Cy Twombly, the piano music of Robert Schumann. These are not books to read through at a sitting, nor do they present the essential Barthes, if there is such a thing. (The best one-volume introduction remains *A Barthes Reader*, published in 1982, with a good preface by Susan Sontag.) But they crackle with a unique play of mind—that of a critic who really does create his own world.

—Lawrence Lipking '85

THE HEAVENS AND THE EARTH: A Political History of the Space Age
by Walter A. McDougall
Basic, 1985
555 pp. $25.95

Now that the space age is nearly two generations old, scholars are beginning to chronicle its development. In his superbly written history, Walter McDougall, a historian at the University of California, Berkeley, considers both the foreign and domestic politics of space exploration and research in the United States and the Soviet Union. In the process, McDougall also delves into the moral dimensions of space technology.

Fundamental to the author's approach is his view of Soviet and American attitudes toward "technocracy"—a social-political order shaped, if not directly governed, by scientists and technicians. In the Soviet Union, state-controlled technological change has been viewed as "a partner of ideology in the building of socialism." Americans, by contrast, long deemed government patronage in science and technology to be incompatible with the nation's ideals. Both judgments require qualification: State-sponsored science existed in Russia long before the revolutionary movement arose. And the U.S. Department of Agriculture and other federal agencies provided important stimuli to American science long before

anyone had heard of the term technocracy. Nonetheless, the generalization is useful because it explains the eagerness with which Soviet authorities supported their scientists' pioneering research in rocketry, a story that McDougall recounts. It also explains why the United States lagged so far behind until the 1950s.

During the 1950s, the tables turned. In fact, as McDougall reminds us, the Soviets' undeniable advantage in the theory of rocketry had dwindled even before the launching of Sputnik in 1957. Realizing this, Nikita Khrushchev gave priority to a series of space "spectaculars" that were intended to divert attention from the limitations—especially military—of the famed *Semyorka* rocket, backbone of the Soviet effort. This "missile bluff" failed. President Dwight D. Eisenhower and then NASA head James Webb called for an increased American investment in space, and Sputnik proved, in the end, to be what John Foster Dulles called "Mr. Khrushchev's boomerang."

The politics behind this dramatic flip-flop are the subject of McDougall's fascinating book. There are heroes aplenty, notably Eisenhower and the durable aviation engineer Sergei Korolev, a leader of Soviet rocketry from the 1930s until his death in 1966. Ike stands out because of his measured but effective advocacy; Korolev because of his ability to endure some 35 years of harassment (including a stint in the gulag) by the very Soviet officials whose space program he so brilliantly masterminded.

McDougall's engrossing narrative is enriched by his sensitivity to the moral dimension of his subject. Technocracy, he argues, has spawned pride in man's *works*, but at the price of contempt for mankind itself. The wise person, McDougall suggests, realizes that while science and technology are feeble at controlling nature, they can at least reveal the limits of human knowledge. On this basis, the arrogance that characterizes the age of technocracy can lead eventually to a new modesty about mankind's achievements. And, at the same time, it may foster a deeper regard for the Promethean aspirations that caused human beings to reach beyond their globe in the first place.

—S. Frederick Starr
Former Secretary, Kennan Institute

NEW TITLES

History

SWEETNESS AND POWER: The Place of Sugar in Modern History
by Sydney W. Mintz
Viking, 1985
274 pp. $20

Sugar is not just sweet. According to Mintz, a Johns Hopkins anthropologist, it "has been one of the massive demographic forces in world history." Its cultivation brought millions of enslaved Africans to the New World and uprooted East Indians, Javanese, Chinese, and at least a dozen other ethnic groups. Mintz, long a student of the sugar-producing societies of the Caribbean, here focuses on sugar consumption in Europe, particularly Britain. A rare commodity that served mainly as a spice during the Middle Ages, sugar took on a new role during the 16th and 17th centuries as a preservative and as a sweetener in coffee and tea, candies and puddings—available only to the well-to-do. By the 18th and 19th centuries, however, it had become a major source of carbohydrates for working people in the growing industrial cities. Mintz explores the factors behind the sucrose surge as well as the changes wrought by the dietary revolution. Increased sugar consumption partly resulted from the desire of the poor to be like the wealthy. But more pressing was the need for quick and filling meals, particularly as women and children entered the industrial work force. Served with tea or bread, sugar substituted for regular meals, boosting the worker's caloric intake "without increasing proportionately the quantities of meat, fish, poultry, and dairy products." (By the end of the 19th century, it supplied about 14 percent of the average Briton's calories.) In addition to creating the first "fast-food" diet, high sugar consumption gave rise to the first large-scale agro-industry—growing and processing a basic commodity. And debates about sugar imports between London's free-traders and protectionists produced a wealth of economic theory, much of it valuable to the development of capitalist economies. Mintz may overstate matters when he claims that "the first sweetened cup of hot tea to be drunk by an English worker . . . prefigured the transformation of an entire society"—but not by much.

CAVOUR
by Denis Mack Smith
Knopf, 1985
294 pp. $18.95

Of the three great architects of Italy's 1860 unification—Giuseppe Garibaldi, Giuseppe Mazzini, and Camille de Cavour—Cavour was perhaps the most unlikely. A cautious liberal who believed economic unity should precede political nationhood, he rarely left his native Piedmont (the northern Italian state that belonged to the Kingdom of Sardinia) and spoke better French than Italian. Mack Smith, an Oxford historian, chronicles the life of this unlikely national hero. Born into an aristocratic family in 1810, Cavour received a military education ill-suited to his boisterous, arrogant nature. At 14, he secured a coveted position as page to a prince, only to lose it by rejecting the page's uniform as "livery." After spending his youth among gamblers and suspected socialists, he became the mayor of a small Piedmontese village in 1832. He also began to write on economic matters, espousing the views of 17th- and 18th-century English liberals. In the wake of the 1848 revolutions he took over chief editorship of the progressive newspaper *Il Risorgimento*. And in 1852, after serving four years in Piedmont's parliament, he succeeded the right-wing Massimo d'Azeglio as prime minister. Balancing conservative and liberal factions, Cavour pushed through such "radical" measures as free-market reforms and the building of railroads. To reduce foreign meddling in Italy, he plotted with France's Napoleon III to provoke a secret European war against Austria, an obtrusive neighbor. The plot failed. Cavour fell into a deep depression and was caught off guard when Garibaldi's army (the "Thousand") conquered Sicily in May 1860. Swallowing his disdain for Garibaldi's revolutionary rhetoric, Cavour promptly sent an army across the papal states to help him unite Italy. Cavour succumbed to gout and malaria in 1861 shortly after the creation of the Kingdom of Italy, but he left his mark on the new nation. Parliamentary government, separation of church and state, and even the location of the capital in Rome were all largely the work of the man whom England's *Economist* described at his death as the "foremost statesman in Europe."

FDR'S SPLENDID DECEPTION
by Hugh Gregory Gallagher
Dodd, 1985
250 pp. $16.95

A victim of polio at age 39, Franklin Delano Roosevelt went through the rest of his life paralyzed from the waist down. Yet very few Americans knew the extent of their President's disability. Gallagher, a Washington writer and a paraplegic himself, argues that getting polio was the central event of FDR's life: It turned a frivolous patrician who grew up in a world "of nannies and governesses, ponies and sailboats" into a man genuinely concerned about the sufferings of others. After Roosevelt contracted the disease in 1921—having served as a New York state senator and assistant secretary of the Navy—his political future looked grim. He quickly devised ways to hide his disability. Limiting public appearances, he entered halls through rear entrances and campaigned from the back seat of his car. The press helped to sustain Roosevelt's "splendid deception" by honoring his wish never to be photographed while being lifted or carried. (Of the 35,000 photographs at the FDR Library in Hyde Park, N.Y., only two show the 32nd president in a wheelchair.) The psychic price of maintaining the front was isolation and depression, particularly during the last years of his life. Even his wife, Eleanor, interpreted FDR's low spirits in 1944 as a sign that he had given in to "invalidism." The opposite, Gallagher believes, was true: Roosevelt had never fully acknowledged his condition. Gallagher also maintains that the deception ultimately created a "barrier" between FDR and the public. Even so, Americans sent Roosevelt an unprecedented four times (1932, '36, '40, and '44) to the White House.

Contemporary Affairs

THE LAST TWO YEARS OF SALVADOR ALLENDE
by Nathaniel Davis
Cornell, 1985
480 pp. $24.95

Can the virtues of an "insider's" account —depth, urgency, immediacy—offset the inevitable distortions of personal bias? Davis, U.S. ambassador to Chile during the rise and fall of its only Marxist president, Salvador Allende, gives life to the possibility. His comprehensive account of events in Chile be-

tween 1970 and 1972 squarely addresses the question of U.S. involvement in the death of Allende (by suicide, Davis believes) and the toppling of his Unidad Popular (UP) regime by the Chilean military. Suspicions of such involvement are justified. President Richard Nixon and Henry Kissinger called Allende's 1970 victory at the polls a "serious threat"; accordingly, the Central Intelligence Agency (CIA) concocted two plans for removing the Marxist leader. U.S. firms, including International Telephone and Telegraph, felt threatened by Allende's nationalization proposals. But Allende had plenty of enemies at home, Davis reminds us. Nationalization frightened the Chilean middle class, particularly the liberal Christian Democrats. Truckers and shopkeepers felt threatened, too: In response, they went on strike in October 1972, further damaging Chile's sagging economy. And both the Left and the Right were outraged when Allende began to eliminate opposition parties and their media outlets, thus betraying his earlier pledge to the Chilean Congress to preserve civil rights and political freedoms. Davis acknowledges U.S. interference, including CIA funding of the extreme rightist group, Patria y Libertad. But he maintains that U.S. measures at worst only matched Soviet and Cuban meddling with Chile's constitutional democracy. "The choice facing U.S. policy-makers," Davis writes, " . . . was between covert action and abstention in a skewed political struggle."

AN INDIAN DYNASTY: The Story of the Nehru-Gandhi Family
by Tariq Ali
Putnam's, 1985
318 pp. $17.95

Ali, an Indian-born author, recounts a paradoxical story: Since gaining independence from Britain in 1947, India, the world's largest democracy, has acquired a dynastic leadership. The story begins with the political education of Jawaharlal Nehru (born 1889). As a young member of the Indian National Congress, he disturbed his father, a wealthy politician, with his radicalism. He also upset Mahatma Gandhi, the widely venerated leader of nonviolent resistance, with his militancy. Yet Nehru's stature as a national

leader, his "mystique," developed largely because of his close association with the Mahatma. As India's first prime minister, Nehru often behaved like a raj of old, receiving visitors of every caste during his morning hours. He also acquired international prestige and wide media visibility as a leading spokesman of Third World nonalignment. Meanwhile, his Oxford-educated daughter, Indira, became his close confidante, serving as a semi-official hostess at state functions. After her father's death in 1964 and the brief prime ministership of Lal Bahadur Shastri, Congress Party leaders sought a puppet. They mistakenly picked Indira, thus signing their political death warrants, says Ali. She displayed her absolutist tendencies most ruthlessly during the Emergency (1975–77), when she suspended many civil liberties. Ali shows how Indira groomed her successor. Her first choice was her younger son, Sanjay, a playboy whose scandal-filled life was cut short in 1980 by a plane crash. She then turned to Rajiv, the self-effacing airline pilot who surprised the world with his confident assumption of power after Indira's assassination in 1984. Ali takes a dim view of the family dynasty, particularly of Indira, whose accomplishments, including the maintenance of Indian unity, he unfairly neglects. Nevertheless, his fear that dynasty and democracy will not coexist indefinitely is legitimate.

Arts & Letters

HANDEL: The Man and His Music
by Jonathan Keates
St. Martin's, 1985
346 pp. $19.95

Writing in the tricentennial year of the baroque composer's birth, biographer Keates complains "that too much has sometimes been made of Handel the populist, the poor man's Bach, the glib melody-maker for the vulgar enthusiast." True, Georg Friederich Handel (1685–1759) "democratized" music with his oratorios, popular songs, and instrumental music; but, contends Keates, his best efforts, such as the famous *Messiah* (1742), were supported by a "powerful architecture" of balanced openings and closings and of

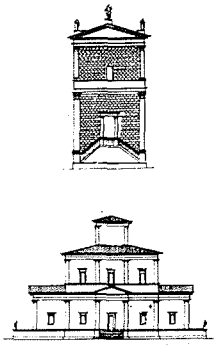
carefully interwoven themes. Handel had his roots in the burgher culture of his native Halle. His father, a surgeon-barber, wanted him to study law, but a local nobleman, hearing the 11-year-old boy play the organ, encouraged him to develop his talent. He did. Keates follows the course of Handel's peripatetic career: early successes in Hamburg, where he befriended the gregarious Georg Philipp Telemann; a sojourn in Italy, where, as touring composer and violinist, he mastered the operatic form; his move to England in 1710; and his legal adoption of that country in 1727. England proved to be a fine platform for the ambitious composer. There he not only wrote his famous *Water Music* (1717) but also completed many of his 40 operas. When opera went out of favor, Handel began producing works (including the *Messiah*) that bridged the gap between upper- and middle-class tastes. Keates has not solved all the mysteries of Handel's life (e.g., his reason for never marrying). But he has painted a zestful portrait of a "daring freelance in the notoriously unpredictable world of musical London," an artist whose aggressive self-promotion foreshadowed the behavior of later composers, "a Wagner or a Berlioz."

SENSATIONAL DESIGNS: The Cultural Work of American Fiction, 1790–1860
by Jane Tompkins
Oxford, 1985
236 pp. $22.95

What makes a great work of literature? Most 20th-century critics would say that those works which transcend their own times are, ipso facto, classics. Tompkins, a professor of English at Temple University, argues that timeliness—a work's involvement with the social and political issues of its day—should matter more. Her focus is early 19th-century American fiction. Her intent is to restore to the first rank many of those books normally relegated to the second or third. Thus Harriet Beecher Stowe's *Uncle Tom's Cabin* (1852), routinely belittled as "sentimental," would be more fairly judged if critics appreciated its function "as a political enterprise . . . [which] both codifies and attempts to mold the values of its times." Similarly, Charles Brockden Brown's heavily allegorical *Wieland* (1798)

was "not designed as a well-made novel, but as a political tract." Brown hoped to make readers aware of the dangers facing the newly independent nation, namely political chaos and economic disarray. Tompkins does not deny the psychological and stylistic complexity of novels by Herman Melville and Nathaniel Hawthorne. But making touchstones of such works rules out other notions of literary excellence and perpetuates a privileged class of authors, critics, and publishers. Critical debates, Tompkins holds, are ultimately political. She sees her own book as an effort to reopen those past struggles "among contending factions for the right to be represented in the picture America draws of itself."

A HISTORY OF ARCHITECTURE: Settings and Rituals
by Spiro Kostof
Oxford, 1985
788 pp. $45



This "broad story" of architecture and urbanism opens with the democratic premise that "everything built is worth studying." Indeed, Kostof, a professor of architectural history at the University of California, talks about igloos and automobile plants, sewers and Viking camps as well as the more obvious cathedrals, palaces, and grand estates. Kostof's cross-cultural approach brings questions of style and function into sharp focus. Comparing medieval Europe's Gothic cathedrals with the Hindu temples in Cambodia's Angkor Wat, he notes points of kinship ("fragmentation of matter, the bewildering riot of turn and counter turn") and of difference ("Gothic buildings trap space in a glass house. The Hindu temple bulges out from what appears to be a tremendous, massive core"). Resisting the view that buildings are either "primarily structural frames" or "envelopes of form," Kostof shows how they are, above all, reflections of ideas, aspirations, economic systems, and geography. Thus, in treating funerary architecture in ancient Egypt between 3000 and 2150 B.C., he dips into such matters as Egyptian attitudes toward life and death, religion and politics, technological advances, the availability of masonry, the Nile (Egypt's "liquid spine"), and international trade. By the end of the dis-

cussion, the reader understands how the pyramids at Saqqara and Giza are "monuments of hope . . . not abstract curiosities." The same might be said of all those structures that Kostof locates in their physical and human environments.

Science & Technology

PERFECT SYMMETRY: The Search for the Beginning of Time
by Heinz R. Pagels
Simon & Schuster, 1985
390 pp. $18.95

THE HIDDEN UNIVERSE
by Michael Disney
Macmillan, 1985
257 pp. $17.95

In our beginning *may* be our end—or so suggest these two books about the workings of the universe. Pagels, a physicist and executive director of the New York Academy of Sciences, finds an awesome unity at the heart of modern astronomy and cosmology. The laws that govern infinitesimal subatomic particles (quarks, leptons, gluons) also govern the design and movements of the largest features of the universe, molecular cloud clusters. Pagels believes the "Big Bang" explanation of the origin of the cosmos to be the most consistent with observation and reason. According to this theory, some 11 billion years ago a gas of quantum particles exploded, creating nuclei and the lightest elements (hydrogen, helium, and lithium) from which all others are constructed. Thus were born over a 100 billion galaxies, their stars, planets, and more curious features—black holes, neutron stars, and quasars. The holy grail of today's physicists is a grand unified theory (GUT) describing the universe in the first nanosecond after the bang. Pagels himself is confident that scientists are close to discovering a single physical law from which gravity, electromagnetism, and other forces that rule micro- and macrocosmic events derive.

Physicists have not yet been able to fit gravity into a GUT, but Disney, an astronomer at the University of Cardiff, Wales, thinks that gravity may provide the key to the fate of the universe. The study of the attraction between heavenly bodies has led scientists to posit a "missing mass"—invisible material (possibly neutrinos, black holes, or intergalactic gas) that may constitute as much as 90 percent of the universe's total mass. Determining the

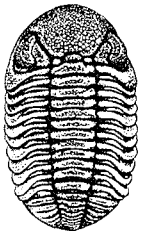
density of this mass is crucial, because such knowledge will allow scientists to calculate the average mass density (Omega) of the universe. If it turns out that Omega is greater than one hydrogen atom per cubic meter of all matter, then, explains Disney, the universe is finite (or closed); if it is less than or equal to one (the average density of all *visible* material is about .01), then the universe is infinite (or open). According to known laws, a closed universe will, billions of years from now, stop expanding and begin to collapse back into itself, either bursting into a fiery inferno or perhaps returning to the primordial gaseous state of pre-bang days. An open cosmos, however, will expand indefinitely, becoming colder and darker, though life may continue in altered forms. Disney explains various approaches to studying the missing mass: Measuring relative galactic speeds or establishing the amount of deuterium in space are two. None is without flaws. Nevertheless, Disney believes that the best current calculations put Omega somewhere just short of one—in which case we humans have ice, not fire, to look forward to.

INTO THE HEART OF BORNEO
by Redmond O'Hanlon
Random, 1985
192 pp. $16.95

Located in the South China Sea southeast of the Malay peninsula, Borneo is the world's third largest island. It is also a naturalist's paradise, home to more than 800 kinds of trees, 25,000 species of flowering plants (compared to Europe's 6,000), the orang-utan (the "great man-like ape" whose presence on the island led many 19th-century scientists to believe that Borneo was the birthplace of mankind), and assorted fish, flesh, and fowl. Among the great scientists who have trudged through its forests are Alfred Wallace and Charles Darwin. Indeed, this account of the author's 1983 journey into the island's center often reads like a running commentary on the works of earlier travelers. (Fittingly, O'Hanlon is the natural science reviewer of the [London] *Times Literary Supplement*.) But the author also tells a good story, beginning with his account of a British Special Operations

veteran lecturing on the hazards of jungle life: "Don't shave in the jungle, because the slightest nick turns septic at once." O'Hanlon and his companion, the poet James Fenton, were fortunate to find three Iban tribesmen to guide them up the rivers and through the woods; at one point, they rescue Fenton from one river's fierce undercurrents—and later ceremonially beg the river's forgiveness for depriving it of a meal. The travelers survive ticks, snakes, sweltering heat, and festive nights in native longhouses before reaching their destination—the central Tiban massif, unvisited by Westerners since 1926. Though O'Hanlon fails to achieve a secondary goal—to spot the legendary Borneo rhinoceros—he meets a wily old man who claims to have killed eight of the creatures in his youth. The tale would be suspect in any place but Borneo.

TIME FRAMES: The Rethinking of Darwinian Evolution and the Theory of Punctuated Equilibria
by Niles Eldredge
Simon & Schuster, 1985
240 pp. $16.95



In a 1972 essay included in the appendix of this book, paleontologists Stephen Jay Gould and Niles Eldredge challenged one of the tenets of Charles Darwin's theory of evolution. Darwin had held that species evolve gradually, incrementally. Gould and Eldredge argued that species remain unchanged for relatively long periods—up to as many as 10 million years. When new species emerge, budding off from older ones (possibly as a result of geographical separation), they do so with relative speed, within a few thousand years or so. Natural selection determines which ones will survive. Gould and Eldredge's belief in the relative stability of species over time has troubled many biologists (and enraged some). Their theory—called "punctuated equilibria"—holds that selection occurs within rather than among various species; the emergence of new species, therefore, is "the trigger—not the result—of adaptive change." Eldredge, now a curator at the American Museum of Natural History, recalls his and Gould's efforts to reconcile the fossil record, which provides no evidence of gradual transformation, with evolutionary theory. The resulting book is a pleasing mixture of anecdote and science history.

PAPERBOUNDS

A HISTORY OF THE JEWISH PEOPLE. By A. Malamat, H. Tadmor, M. Stern, S. Safrai, H. H. Ben-Sasson, S. Ettinger. Harvard, 1985. 1,170 pp. $18.95

In the last quarter of the second millenium B.C., "with the collapse of the Hittite Empire to the north and the decline of Egyptian power to the south," conditions were ripe for the peoples of Syria and Palestine to rise up and establish themselves as nations. The Arameans did so in the north; in Palestine, the Israelites emerged victorious, taking over all lands "from Dan to Beersheba." The story of how the Israelites came to this land, founded a nation only to lose and regain it repeatedly, is just part of the tale told by six Hebrew University scholars in this massive, one-volume chronicle. They also hold forth on Jewish religion, laws, social ideals, the diasporas that forced Jews abroad (and how they fared in various countries at different times), and the creation of the modern state of Israel in 1948. Histories are never definitive, but this is the history that future scholars of the subject will have to match.

WAR, PRESIDENTS, AND PUBLIC OPINION. By John E. Mueller. Univ. Press of America, 1985. 300 pp. $12.75

When Mueller's careful study first appeared in 1973, as America was withdrawing from Indochina, it drew little attention. For one thing, the University of Rochester political scientist challenged a number of widespread notions—that, for instance, TV coverage of combat undermined domestic support for the Vietnam War. His book is now a minor classic. Examining public opinion poll data for World War II, Korea, and Vietnam, he comes up with some surprises: the conflicts in Korea and Vietnam produced roughly the same decline in domestic support over time; both wars were more popular with the young and the educated than with the old or unschooled; Korea hurt Harry Truman's popularity more than Vietnam hurt Lyndon Johnson's (LBJ was also blamed for racial turmoil and other ills). Mueller makes clear that public opinion is volatile. Two years after allied victory in World War II, 24 percent of the respondents in one Gallup poll thought it had been a mistake for America to enter the war.

LECTURES IN AMERICA. By Gertrude Stein. Beacon, 1985. 246 pp. $10.95

Scholars will forever argue about whether she was a genius or a charlatan, but Gertrude Stein (1874–1946) unquestionably helped to chart the course of 20th-century literature, influencing writers as dissimilar as Ernest Hemingway and the contemporary poet John Ashbery. Her legacy is complex. Just as the late 19th- and early 20th-century French painters (whose works Stein studied and collected) drew attention to the formal elements of their pictures—light, color, texture—so Stein made the elements of the literary medium—paragraphs, sentences, periods—a focus of her books. Forging an aesthetic of repetition ("A rose is a rose is a rose . . ."), she wrote an incantatory, borderline-nonsensical prose that repeatedly circled its subject, teasing it the way a cat teases a ball of yarn. To the extent that Stein ever explained herself, her opinions about literature, painting, her own techniques, and her own writing, she did so in these six lectures, delivered to American audiences in 1934 on one of her rare visits to her native land.

The Scene of the Crime: Detective Fiction Discovers America

"Who Cares Who Killed Roger Ackroyd?" Edmund Wilson asked in the title of a famous 1945 essay attacking detective fiction. The answer, then as now: millions of Americans. Last year, they tuned in to television's weekly *Mike Hammer* series (based on Mickey Spillane's novels), lined up at movie theaters to see sleuths in action in films such as *City Heat* and *Blood Simple*, and bought several million copies of mystery and detective novels. The art form is changing. For one thing, Los Angeles, Florida, and New York are no longer the only locales of detective stories; the heroes and villains increasingly are denizens of America's hinterland cities. In this essay, Yale University's Robin Winks surveys the latest developments and cites some of the new regional sights, sounds, and flavors.

by Robin Winks

Detective and mystery fiction have changed enormously since the Golden Age of the 1920s and '30s, when Dashiell Hammett, Raymond Chandler, and Agatha Christie reigned supreme.

No longer do the best murders occur in the homes of the best people. Every now and then, a corpse is still found in the locked drawing room of a fine old mansion; a genteel successor to Hercule Poirot still sometimes gets to demonstrate awesome powers of deduction.

But much of the fiction today is on the move, so violent, so swift, that neither the reader nor the detective has much leisure to practice the gentle old art of ratiocination.

The growing band of academics who study detective fiction has pretty well dissected most of the post–World War II changes in the genre. Some shifts stem from new sensibilities. While racism was common in much of the early hard-boiled fiction, some of today's detectives are black, and there are a few Chica-

Stephen Greenleaf's fictional detective, John Marshall Tanner, as depicted on the cover of Death Bed *(1980). Finding San Francisco's scenery crowded with competing private eyes, Greenleaf has dispatched Tanner on missions to nearby Berkeley and even to Iowa.*

nos and Native Americans (notably Tony Hillerman's Joe Leaphorn), not to mention homosexuals, dwarfs, blind men, and paraplegics.

Women have been in the detective business since the days of Nancy Drew, but in the wake of P. D. James's *An Unsuitable Job for a Woman* (1972), a much larger number of female sleuths have hung out shingles.

There has also been a shift to moral ambiguity. In the days of Nick and Nora Charles (the elegant protagonists of Hammett's *The Thin Man*), it was certain that good would triumph over evil in the end, that the malefactors would be brought to justice and society returned to normal.

Many Americans will not swallow such assumptions any more, and detective fiction reflects that fact. Most readers now anticipate a good deal of soul-searching over the nature of crime and punishment—on the hero's part if not on their own—when they settle down for a read.

And no longer are marriage and death banished from the careers of series heroes. Wedlock is still rare. But today it is not unknown for a hero with whom the reader has become comfortably acquainted after several books—Nicholas Freeling's Inspector Van der Valk, for example—to be cut off in mid-novel, struck down by a sociopath while on his way to lunch at his neighborhood McDonald's.

Finally, explicit sex scenes and strong language are now standard—much to the dismay of the murder-in-the-drawing-room group of mystery readers. In the hands of skillful writers such as K. C. Constantine, if not in the hands of Mickey Spillane, this new freedom has allowed a further expansion of the craft of detec-

tive storytelling.

Anyone who follows detective fiction is aware of these trends. But there seems to me to be one trend that is little noted: the regionalization of American detective fiction.

Many of today's novels are set in cities that, two decades ago, could have been called places that crime forgot. This, too, reflects American reality. Hideous and inexplicable killings now seem to occur in South Bend or Fayetteville or Boise nearly as frequently as they do in Brooklyn. These locales are now plausible backdrops for mystery fiction.

Atlantic City's Glitz

Believability is not the only explanation for what is going on. The detective novelists seem to be filling a vacuum left by America's writers of conventional fiction, who have largely deserted the "provinces" for the East and West coasts.

The Big Three traditional American locales for mayhem are New York City and its suburbs (especially the seedier parts of New Jersey and the wealthier parts of Connecticut), California (chiefly Los Angeles and Santa Barbara), and Florida.* Chicago is a close fourth.

With a mental map of these four locations at hand, most readers of classic American detective fiction could recognize the signposts on the way to Dénouement.

No longer. Today, you have to know all about Commonwealth Avenue and Larimer Street and Ezzard Charles Drive and downtown Hamtramck.

Elmore Leonard reached both the best-seller lists and the cover of *Newsweek* this year with *Glitz*. Most of Leonard's fine earlier books were set in Detroit; ironically, *Glitz* deals mostly with Atlantic City. Norman Mailer, not known as a crime writer (for good reason), contributed *Tough Guys Don't Dance*, a 1984 best-seller. Its action occurs in Provincetown, on Cape Cod.

Boston is the new capital of crime. There has always been crime in Boston (103 pre-1980 novels were set there), but up until recently it did not seem a good market for private eyes. The change is due in good measure to the works of Robert B. Parker, who taught English for years at Boston's Northeastern University.

Boston's Ritz

His burly, fortyish protagonist, Spenser—no first name, just Spenser—is clearly derived from Spenserian romance. Parker believes that fighting evil offers people the opportunity of moral regeneration; violence, Spenser declares, "is one of those places [where] you can be honorable." Every now and then Parker exposes Spenser's vulnerability, his obsession with an almost medieval code of honor, and the soft spot of sentimentality at the core of Spenser's being. Indeed, in his more recent novels, Parker has grown so in-

*Resorts always breed crime, at least in fiction, being full of seekers after pleasure and those who batten on them. Florida has produced so many sun-and-sand murder mysteries that a list would require pages. Indeed, Allen J. Hubin, in his exemplary bibliography of crime fiction, *Crime Fiction, 1749–1980: A Comprehensive Bibliography* (1984), lists 367 Florida-based crime novels.

Robin Winks, 54, is Randolph W. Townsend, Jr., Professor of History at Yale University. Born in West Lafayette, Indiana, he received a B.A. from the University of Colorado (1952) and a Ph.D. from Johns Hopkins University (1957). He is the author of Modus Operandi: An Excursion into Detective Fiction *(1981) and* Secrecy, Silence, Cunning *(forthcoming).*

DETROIT AT DUSK

From Loren D. Estleman's The Midnight Man *(1982), a view of Detroit as a painter of the Ashcan School might see it:*

It was 8:30 and still light out, although the sun was below the skyline, sucking red and purple streamers down with it. West of the city you could read a newspaper by natural light until 10, one of the advantages—if you could call it that—of living on the extreme western edge of the Eastern Time Zone, with a little help from Uncle Sam turning back the hands on the clock like a small boy trying to finagle an extra hour before bedtime. On the horizon the cylindrical towers of the Renaissance Center were lit up like a whorehouse on Saturday night. . . .

Most of the street lamps on the lower east side were broken, which was a blessing aesthetically. Warehouses and tenements wallowed in the mulch of decades, their windows boarded up as if in an effort to shut out the world around them. Yellow mortar oozed out of brick walls covered with obscenities sprayed in black and candy-apple green; . . . heaps of stale laundry shaped vaguely like human beings snored in doorways with their heads leaning against the jambs and their open mouths scooping black, toothless holes out of their stubbed faces. As I swung onto McDougall the beam from my headlamps transfixed a bloated rat perched atop a mound of shredded plastic garbage bags, twin beads of red phosphorescence glowing from its eyes. Entering my intended block, I realized suddenly that I'd been breathing through my mouth for the past five minutes and closed it.

terested in exploring Spenser's very modern relationship with his girlfriend, Susan Silverman, Ph.D., that the mystery has taken a backseat.

Nevertheless, Parker writes in the hard-boiled tradition. Dropping by Boston's chic Ritz Hotel for a drink with a client, the detective notes, "They'd put up a second tower beside the hotel and filled it with condominium apartments that sold for a lot. . . . It didn't improve anything, but it didn't look like a bad case of mange either."

Jumped by two thugs, he tells them: "Look, you guys, I'm trying to get clammy with fear, and I can't."

Some readers find Spenser unbearably macho. (Others think that he is a food slob, though he claims to be a gourmet, and Parker's full-course descriptions of the meals Spenser prepares subtly make a case for both views.) Yet there is a lot more to Parker's books than killings and bodybuilding sessions in the gym. All this comes together best in *Looking for Rachel Wallace* (1980), in which Spenser's job is to protect a famous radical lesbian feminist from kidnappers. Keeping company with his client, he learns that most people do not listen to the answers when they ask gays "Why?"

In 12 novels, from *The Godwulf Manuscript* (1973) to *The Catskill Eagle* (1985), Parker has proved that he is the true heir to the classic West-of-the-Mississippi gang: Hammett, Chandler, and Ross Macdonald. They established the literary conventions of private eye fiction, and despite dozens of good and hundreds of bad imitators, only now has their equal emerged.

But Parker cannot take all the

credit for the renaissance of crime in Boston. There are a dozen Beantown detective novelists, and at least three of them are very good.

Rick Boyer has created an interesting and adventurous dentist (now *there* is a departure) named Doc Adams who lives on Cape Cod and frequently roams Greater Boston. Apparently he has few patients.

Murder at Harvard

In *Billingsgate Shoal* (1982), Boyer brings the Cape to life. Of a cottage set on a bluff overlooking fictional Billingsgate Sound, he writes: "At low tide, it is a place of frightening vastness, haunting noises, and optical tricks. . . . Occasionally, the wind will bring the sound of laughter, or a mother calling a child, from miles away. And it is weird, even unsettling, to hear the voices and laughter clearly, coming from these tiny dots that move slowly to and fro on the shimmering sand far, far away."

In his latest book, *The Penny Ferry* (1984), Adams gets involved in a case that takes him all the way back to the 1920s and the Sacco and Vanzetti murder trial—and gives Boyer an excuse to delve into contemporary life in the Italian-American community of Boston's North End. Indeed, he becomes so fascinated with local color that his exploration of Boston threatens to obscure his plot.

Fascination with locale also tends to get in the way of Jane Langton's detective, Homer Kelly. At their best, however, Langton's books, illustrated with her own sketches, can make readers feel as if they are sitting in the middle of a New England village green.

Kelly is a distinguished Thoreau scholar who also happens to be a retired police lieutenant. A mild-mannered and somewhat absent-minded man, he happens on murders in various New England outposts of academe.

Langton pins Harvard ears to the wall in *The Memorial Hall Murder* (1978), in which the university's ugliest building is blown up. The mystery: Was the blast meant to kill the chorus master or was it a bizarre aesthetic protest? In *Natural Enemy* (1982), the author's portraits of the quiet byways of Concord (and her impressive knowledge of spiders) vividly bring the rural spaces just outside Boston to life.

Best of all, in *Emily Dickinson Is Dead* (1984) Langton captures with comic precision the petty rivalries and intrigues of a group of academics gathered for the Emily Dickinson Centennial Symposium in Amherst, Massachusetts.

Mayhem in Pennsylvania

One academic delivers a paper on patterns of capitalization in Dickinson's poems while another fantasizes that his disquisition will win him a spot on the front page of the *New York Times*—and it does, though not in the way he had imagined. Meanwhile, an insanely jealous (and obese) graduate student named Winifred Gaw clumsily eliminates the beautiful coed (as well as two innocent bystanders) whom she imagines to be her rival for the attentions of Professor Owen Kraznik. No secret here—Langton's readers are in on the killer's identity from the beginning. The fun is in Langton's descriptions and deft sense of humor.

Further inland, Rocksburg, Pennsylvania, has arrived with a bang. Rocksburg is Mario Balzic's turf, created by the pseudonymous K. C. Constantine. Balzic is the town's chief of police, a stout family man who spends a little too much time

sampling the good red wine at Muscotti's Bar and Grill.

Each Constantine book—there are seven so far—is a sharp, yet affectionate, study in the language and customs of a decaying small town somewhere near Pittsburgh, populated by Italians, Greeks, and blacks.

Sex in Cincinnati

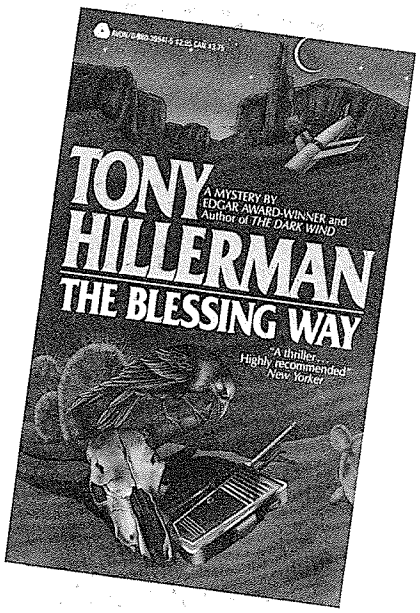
Describing an outlying neighborhood built and then abandoned during the 1950s by a big coal mining company, he writes: "If a miner managed by some luck to gain title to the house he occupied . . . that miner cared for it as though it were his second mother. . . . He painted her, puttied her, shingled her roof, caulked her crevices, and manicured her grounds. He doted on her, and pity the ignorant fool who approached her indifferent to the labor she required or the esteem in which both she and the labor were held."

After he wrote his favorite, *A Fix Like This*, in 1975, Constantine went silent, returning in 1982 with *The Man Who Liked Slow Tomatoes*, an angry but compassionate story about how small town life corrupts, how men can sink into loneliness and violence. Having recovered his voice, Constantine is moving from strength to strength, establishing himself as a master of demotic American prose.

Consider this monologue by a jailed drug dealer setting Balzic straight on the facts of life: "It's this way. I'm a heavyweight pot dealer. Good week, I clear five hundred a week. Coke dealers, man, clear five thousand! When you're talking those kind of numbers, you got to have a bunch of up front money—or a bunch of ✲✲✲—or the brains. Just wanting to go the big leagues, man, that don't make it. Unless, unless you fall into something. You luck into a happy scene."

Not every city brings forth a detective novelist. St. Louis, for example, lacks one. Why should Cincinnati, Indianapolis, Detroit, and Seattle have suddenly exposed themselves to us?

Perhaps one answer can be found in the novels of Jonathan Valin and Michael Z. Lewin. Valin's Harry Stoner drives the rain-slick streets of Cincinnati, seeming to find sexual depravity everywhere. From *Final Notice* (1980)—someone is slashing library books and may be about to try his hand at librarians—to *The Lime Pit* (1980) to *Day of Wrath* (1982), Valin has put Ezzard Charles Drive on the crime map. The street, where once "plaster Negro jockeys" set out on front lawns in greeting, has been renamed in honor of a black boxer. Valin understands his city, its conservative values, its symbiotic relationship with the fleshpots of Covington, Kentucky, across the river,



its hidden virtues. Cincinnati is, in fact, a fine city, but not enough Americans know that.

O, Indianapolis

Valin brings it to us solid, a little boring, very real. As he drives down one suburban street of "storied framed houses and spindle railed verandas," with the "householders propped sternly in their lawn chairs," Stoner reflects that "like a bar or a graveyard, this [is] not a place for the young."

Valin is so good that one wonders why he never wrote about St. Louis, which was, after all, his home when he started the Stoner series.

Some writers seem to need distance to find precisely the right ironic tone. Michael Lewin has captured Indianapolis, yet he lives in England. Some reviewers—those who share Chandler's crude dictum that the way out of a plot impasse is to have a man come through a door with a gun—have said that Lewin's books are dull. They are, in the sense that a day in Indianapolis might be dull to someone who cannot live without having croissants and the *New York Times* at breakfast. Lewin knows that Midwestern tastes are different, and he likes them.

His protagonist, Albert Samson, is truly seedy: Unlike today's California gumshoes, Samson has no hot tub in his back yard. His car is perpetually encrusted with the kind of grime that only slushy black Midwestern city snow can produce. In *The Silent Salesman* (1978), he is so down on his luck that he is reduced to advertising a "Gigantic August Detective Sale" (20 percent off on divorce cases). His $2,000 "Never Touch" fund contains $938.

By the contemporary standards of the genre, the cases that Lewin has Samson undertake are minor, of purely local significance. Samson has yet to find that the murder of an Indianapolis elevator attendant is tied to a plot to bomb the White House. He plugs along, a little stupidly at times, coming at things from the outside in. But Lewin knows how to *Ask the Right Question* (1971), understands *The Way We Die Now* (1973), and can make an exceedingly routine inquiry into a *Missing Woman* (1981) from Bloomington seem as authentically Hoosier as a high school basketball tournament.

The Motor City

That crime-ridden Detroit should have an equally down-at-the-heels gumshoe is not surprising. Loren D. Estleman has created Amos Walker, put in his mouth an updated version of the language we associate with Philip Marlowe—"I could greet the clients in a caftan," he shoots back at a woman who suggests that he redecorate his shabby office, "play bongo music and read their palms and sock them 10 bucks a finger"—and set him loose to prey on the corporate corruption of *Motor City Blue* (1980).

In Denver, Mexican-American police detective Gabe Wager, chafing under the knowledge that enforcing the law does not always mean achieving justice, acts as a private avenger within—just barely—the law. Rex Burns, Wager's creator, envelops his books in a bleakness that owes less to Larimer Street's winos, the "brown haze that settle[s] over early-morning Denver" every day, or the topless bars out along East Colfax Avenue, than to Wager's inner vision. In Wager's world, the bad guys meet justice.

"Muggers, rapists, killers—they struck like any other animal, at the weak, the crippled, the defenseless,"

Wager broods in *The Avenging Angel* (1983). "They came out of dark crevices between buildings and went after the sure thing as a fish lunged after a wobbling minnow."

Soft-boiled in Seattle

In six novels, beginning with *The Alvarez Journal* in 1975, Burns, who teaches English at the University of Colorado, Denver, has been examining the peculiar mores of a city that, in his view, somewhere took the wrong track, succumbing to smog and congestion and crime.

Burns says it this way: "More office buildings, more commuter space, fewer homes to fill the evening streets with the glow of living-room lights. The city [is] becoming as functional as a draftsman's sketch. The starkly efficient plans of engineers, backed by the irresistible pressure of oil money, [are] creating a new city of smooth plastic facades."

If Denver was once the city of the future, Seattle is today. Richard Hoyt describes the beauty of Chinook salmon swimming in the Pacific Northwest waters—and how they wind up "planked" on backyard suburban charcoal grills. In John Denson he has created a smart, persistent detective—perhaps the first self-proclaimed "soft-boiled" one—who was once (like Hoyt) a newspaper reporter in Hawaii. Denson likes rumpled shirts and table wine in screw-top bottles, and he does not carry a gun. In *Decoys* (1980) and *The Siskiyou Two-Step* (1983), Denson wanders through Seattle and Portland (Oregon) yet always ends up out in the forests and mountains, where the complex ethics of the big city meet the simpler survival code of the wild. Hoyt clearly prefers the latter.

American detective writers have always created their own special places. But in earlier years there was a pseudonymity, if not anonymity, to them: A. B. Cunningham's Deer Lick, or Erle Stanley Gardner's Madison City, or Hillary Waugh's Stockford, Connecticut. Today, most writers put their crimes on real maps, making the stories and the cities come to life on the page.

Why has so much detective fiction gone regional? Apart from the fact that violent crime itself is now more common (and thus plausibly fictionalized) throughout the country, there is the fact that more and more people are trying their hand at writing detective stories. Many of them are academicians whose jobs take them to Boulder, Eugene, East Lansing, or Albuquerque, and they write about what is close at hand.

These writers are not getting rich—all but a few of those described here depend upon university teaching jobs for regular income. An average detective story sells about 2,000 copies; successful authors such as Constantine claim hardcover sales of 10,000 or more. With sales 10 times the size of Constantine's and the première this year of *Spenser for Hire*, a new television series based on his books, Parker is the standout commercial success of the group.

The readers of crime fiction, like its authors, are also on the move. In a land where more and more people seem to come from "someplace else," reading localized detective novels is an easy way to revisit one's old hometown. It is also just plain fun.

We welcome timely letters from readers, especially those who wish to amplify or correct information published in the Quarterly *and/or react to the views expressed in our essays. The writer's telephone number and address should be included. For reasons of space, letters are usually edited for publication. Some of those printed below were received in response to the editors' requests for comment.*

Working Status

The *Wilson Quarterly* has performed a public service by publishing the two articles by William Alonso and Paul Starr and by William Petersen ("Statistics," *WQ*, Summer 1985) that point out the weaknesses of official statistics. There are, of course, many other examples. In recent years, the political and economic climates have been much affected by the monthly reports of the vagaries of the unemployment rate, which is reported to the thousandth, e.g., 7.2 percent as of July. If it goes up or down one-tenth of one percent, this is considered a significant indicator. But these data are the results of sample surveys, albeit very large ones. No shift of a few tenths of a percent, let alone one-tenth, can be considered meaningful. Yet we react as if it is.

The very definition of unemployment varies. Currently in the United States, to be unemployed, a would-be employee must report to an interviewer that he or she is looking for a job. So-called "discouraged workers," those who say they have not looked in the past month, are eliminated from the labor force (statistically) and are not counted as unemployed. Seasonal workers who are not interested in a job during their annual layoff periods are included among the U.S. unemployed. To be eligible for unemployment insurance, they must report that they are looking for work even if they are not.

Rates or coefficients purporting to estimate inequality, which are used for comparative analysis, furnish another example of the ways numbers may foil us. Income inequality estimates are usually based on family income, i.e., all those living in the same household. Hence, for a large family that includes children who live at home, though they have unskilled jobs, the household income will appear higher than that of a single breadwinner with considerable individual earnings.

Countries where extended families live under one roof may show up in the international statistics as more egalitarian than those where children leave the parental roof as soon as they are employed.

It is unfortunate that journalists and scholars often use and report numbers for cross-national or trend analysis without examining the way data are collected or classified.

Seymour Martin Lipset
Caroline S. G. Munro Professor
of Political Science
Stanford University

Asking a Better Question

William Petersen's fascinating article on the difficulty of counting the "subnations" or "ethnic groups" or "minorities" in American society stops before making suggestions for 1990. Admitting the enormous political pressures, yet accepting the reality of national and racial diversity in American society and the virtue of having some sense of how the American population is formed and changed, what should be done? Some statistical inquiries are fairly reliable, such as "what is the country of your birth?" Possibly less reliable is "what was the language spoken in your home when you were growing up?" Of lesser reliability, but useful, would be "in what country were your parents born?" and "what language did they speak when they were growing up?" I would add "do you consider yourself (1) black, (2) white, or (3) other?" Would this simultaneously satisfy ethnic and group advocates, social scientists, and all those who want to understand our society better?

Indians are defined legally. While we could not expect those making a self-identification to give their proper legal status, we could ask "are you defined as an Indian in law?" Since Indians are listed on tribal rolls, it should be possible to compare the numbers on such rolls with the number that claim Indian identity.

We would thus eliminate the special question on "Hispanics." Varied groups would emerge from questions about birth, parental birth, and language. We would also eliminate such ridiculous elements of the present Census as the listing of all Asian groups (Chinese, Japanese, Filipinos, Koreans, etc.) as separate races!

Nathan Glazer
Professor of Education and Sociology
Harvard University

Counting in Good Conscience

Remember the wire snake that exploded when you opened the can? No matter how hard you tried to stuff it into the can, it just would not go. Statistics came out of the can years ago, and there is no stuffing them back now (re: *WQ*'s "Statistics").

Given that reality, we must deal with the resulting problems. People attribute false accuracy and objectivity to statistics and use them to describe variables that cannot be quantified. They demand more precision in impossible circumstances. They promote or inhibit statistical programs on the basis of political benefits.

Nevertheless, statistics lend a degree of order and objectivity to decision-making that is absent in random observation and subjective opinion. Because of this value, the Census Bureau strives continually to make statistics as accurate, timely, and relevant as possible. Plans for statistical programs generally include a testing phase in which the Census Bureau compares wording, data collection procedures, processing, and publication options. We also conduct open meetings with state and local officials, advocacy groups, academicians, marketing professionals, and a wide variety of other users throughout the country. Federal agencies and Congress also contribute to the decision-making process. Advisory committees to the Census Bureau provide technical advice on a continuing basis.

The public's constant vigil, representing divergent viewpoints, keeps the Census Bureau headed in the right direction. Further, it adds a sense of balance and perspective to the statistical programs. As long as statistics are out of the can and in the public domain, I believe we have little to fear.

John G. Keane, Director
U.S. Bureau of the Census

Jackson: Man of the Era

Harry Watson nicely captures the spirit of American society bursting its seams while trying to preserve its virtue, liberty, and stability in the 1820s and 1830s ("The Age of Jackson," *WQ*, Autumn 1985). His focus on the political economy and on the nature of republicanism as the central defining issues of the age, and the role Andrew Jackson played, provokes reflections about other equally important points.

First, the common convention: "The Age of Jackson" suggests Old Hickory's centrality, a point reiterated in Robert Remini's recent biography. Yet, some historians prefer "The Age of Egalitarian-

ism," or even "The Age of Van Buren," after the innovative creator of the new political party system. The patterns of development, democratization and social change, they argue, would have occurred with or without Jackson. Indeed, there is evidence that Jackson and his colleagues often opposed the fresh currents blowing through society—proof that one must look elsewhere for the sources of much that has been labeled Jacksonian Democracy.

At the same time, a very particular sociopolitical cleavage shaped much of the 19th-century political universe. Persistent hatreds between different ethnic and religious groups erupted in a rapidly changing society. New immigrants and natives, Catholics and Protestants, Lutherans, Baptists and Methodists, Anglo-Saxons, Celts and Germans, rarely lived happily side by side. Political parties enshrined that intense hostility manifested as each group sought to impose its notion of proper behavior on the others. Far from being a minor aspect of politics largely shaped by questions of political economy, such conflicts tended to define political choices, attitudes toward government power, and even one's approach to economic matters. Such divisions did much, in short, to color and direct an age so forcefully represented by the Scots-Irish outsider, Andrew Jackson.

Joel H. Silbey
Professor of American History
Cornell University

Popular Politics

Harry Watson has gotten Jackson's views on liberty and democracy exactly right. Yet, the author is a bit niggardly in his comments about Jackson's efforts at reform. What he misses is the importance of the talk about reform that produced throughout the country a desire for change and for democratic achievement. Also, he might have emphasized the importance of men such as Amos Kendall, Frank Blair, and Roger B. Taney—rather than David Henshaw and Isaac Hill—in shaping the course of Jacksonian America. Finally, I noted one small error in the piece. It is stated that Jackson "hanged two British agents" (see page 115). Actually, he hanged one and shot another. The distinction was important to Jackson.

Robert V. Remini
Professor of History
University of Illinois at Chicago

Fighting Irish

Your recent article "Irish America" (*WQ*, Spring 1985) incorrectly implies that the Battle of Antietam occurred on October 6, 1862 (see page 82). The battle for Sharpsburg, Maryland, took place on the farms and woodlots near Antietam Creek on September 17, 1862.

The Irish Brigade was not exclusively Irish but was made up of the 63rd, 69th, and 88th New York Regiments, all recruited in New York City, and of the 29th Massachusetts Regiment, assigned to it during the Peninsula Campaign of 1862. Soldiers of the 29th came from original colonial stock. The four regiments fought together in the campaign without mishap.

Mike Fink
Irwin, Pennsylvania

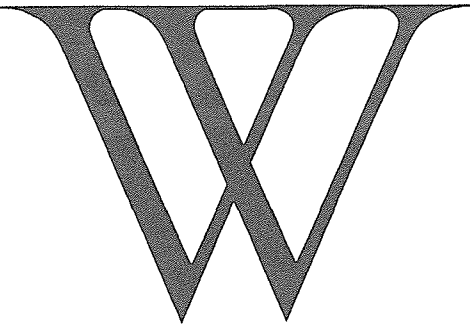
Word Games

As one who has derived much pleasure and mental profit from learning new words for the past 80 years, I was interested in Robert Sternberg's exercise in learning new words by the context in which they appear ["Reinventing Psychology," *WQ*, Winter 1984]. The example appears faulty to me, however.

I had no difficulty in identifying *oam* as steam from a bubbling stew, but I was astonished that the author's synonym for *ceilidh* was reunion. The two clues were: "since his last *ceilidh*" and "their brief *ceilidh* over." I deduced (with what process of cognitive psychology it is hard to say) that the proper synonym for *ceilidh* was "visit." "His visit" and "their visit" are compatible, but "his last reunion" is incomprehensible—one does not reunite with oneself.

Please understand that I am not actually *oam*ed up about this.

William T. St. Clair
Naples, Florida



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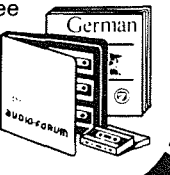

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