THE WHITE HOUSE
WASHINGTON

(1) AGE OF GEORGE P. 13 yrs old

(2) Where ~~they~~ went fishing? When? Jackson Lake
June 12

(3) What equipment ~~did they~~ use to catch what kind of fish? ~~fly rods gear~~ spinning ~~tackle~~ gear fishing
~~cut throat trouts~~ 2500 - 3500 reduction program

(4) Are ~~there~~ elk, ~~or big horn sheep~~, in park? *rare back country.

16 ft 21 ft boston whaler 22 thompson
mackanow trout

Asst. Chief Ranger
Ed Christain
328 4205

fishing guide from Signal mountain

carbels long set of spinners & ~~flash~~
20 ft at 1120
3 fish cleaned fish

slacks + blue
baseball cap

Jackson Lake

snow-capped
Grand Tetons

in boats for
an evening of
fishing

"One of my greatest
pleasures in life
is going fishing with
my grandchildren"

"P"

6 o'clock

June 6, 1989

MEMORANDUM FOR ED McNALLY

FROM: BOB SIMON

SUBJECT: THE PRESIDENT AND GEORGE P. AT JACKSON LAKE

The President, Mrs. Bush and George P. spent three nights at Jackson Lake on June 5-8, 1987. Jeb Bush did not go.

George P. didn't catch any fish while with the President, but he did catch three when he went fishing with Mrs. Bush.

The President caught two or three fish. They let all the fish go.

The President let George P. drive the power boat. Later, they went out together in a row boat.

June 14th

12

John Doherty

301-733-2880

Park Historian

Ann Boren

TO: CHRISTINE GEAR
COMMUNICATIONS

FROM: ANN BOREN
EARTH DAY COORDINATOR
SPECIAL ASS'T TO THE ADMINISTRATOR

RE: DRAFT OF PRESIDENT'S ARTICLE FOR EPA JOURNAL.

DATE: 10/23/89

AUTHOR: BYRON KENNARD - PHONE - 328-8140 IF YOU HAVE QUESTIONS.

THIS IS FOR THE EARTH DAY ISSUE OF THE EPA JOURNAL WHICH WILL INCLUDE ARTICLES BY RUSS TRAIN, BILL RUCKELSHAUS, ED MUSKIE, DENNIS HAYES & ED FURIA - AMONG OTHERS - LOOKING BACK & FORWARD.

THE JOURNAL IS A SOPHISTICATED MAGAZINE & THIS EARTH DAY ISSUE WILL BE SENT TO SCIENCE TEACHERS IN ALL JR. & SR. HIGH SCHOOLS IN THE COUNTRY. I'LL MAIL YOU A COPY OF A RECENT ISSUE. -

Draft/BKennard/10/23/89

A PRESIDENTIAL LOOK AT EARTH DAY 1990

(EPA Journal article for the President)

From the dawn of human history onward, our species forged its livelihood largely by using -- and abusing -- the Earth's natural resources. So, it's not surprising that humans today find it extremely difficult to modify and improve this ancient, deep-seated practice. But the difficulty, however great, provides no excuse whatsoever for our failing to protect what is now threatened, which is nature's very heart.

We must remember that most people in the past didn't know any better: they assumed that nature's extraordinary abundance and resiliency enabled it to withstand and repair all mankind's predations. Today, we know better, and knowing better, we must -- as an ethical proposition -- act better.

Though we've got a long way to go, and much work to do, I believe that our human family will meet this challenge, that we'll make the fundamental corrections needed to protect the environment. Moreover, I'm certain we possess the ingenuity and skill to achieve this protection while continuing economic growth and technological progress.

The ledgers of the past which record the dreary litany of human abuse and exploitation also contain frequent and reassuring evidence of human capacity to learn and to change for the better. This capacity is especially evident in the functioning of a free and open society, such as ~~that~~ we have in ~~Americans are blessed with.~~

Look at recent American history in terms of environmental protection. ~~As I said we've got a long way to go, but~~ Over the past twenty years or so this record provides an interesting and valuable case study in how the American federal system addresses a tough, challenging problem.

This is a record of achievement characterized by a high order both of bipartisanship, and of cooperation between the executive and legislative branches of government.

~~Back~~ In the late sixties when the environmental cause was first winning adherents, it quickly found warm support on Capitol Hill where Democrats such as Senators Edmund Muskie, Gaylord Nelson and Henry Jackson, and Republicans such as Senators John Sherman Cooper, J. Caleb Boggs, and Howard Baker provided leadership now judged to be of historic importance.

At the White House, this new environmental cause was also ~~greeted warmly~~ supported. On January 1, 1970, as his first official act of the new decade, President Richard M. Nixon signed the National Environmental Policy Act into law. He then predicted that the Seventies would be "the decade of the environment," as indeed it turned out to be with the passage of much landmark legislation, such as the Clean Air and Clean Water Acts.

Then in December of 1970, President Nixon established the U.S. Environmental Protection Agency, appointing William D. Ruckelshaus, a superb administrator and dedicated environmentalist to direct it.

But Federal action covers only part of this story. At the same time, evironmental protection at the State and local level was growing by leaps and bounds. The new commitment,

to a clean, safe environment wasn't just confined to top national officials in Washington, D.C. It was widespread in America, even pervasive. And it grew from the bottom up.

Nothing, of course, displayed the appeal of the environmental cause more powerfully and persuasively than did the first Earth Day on April 22, 1970. This citizen-based event was not only a magnificant exercise of the our old American tradition of volunteerism, but it was a singularly successful example of citizen education.

"Earth Day was a watershed in citizen understanding of environmental issues," declared President Jimmy Carter on January 1, 1980 when issuing a proclamation calling for observance of Earth Day's tenth anniversary on April 22 of that year. In this proclamation -- his first official act in the new decade of the Eighties -- President Carter also called for a recommitment to the goals of the National Environmental Policy Act.

Following in the footsteps of my distinguished predecessors, I was pleased on January 1 of this year to inaugurate yet another new decade by proclaiming Earth Day 1990 to be held on this April 22. In my first executive order of 1990 In so doing, it occurred to me that this

now traditional association of the Presidency with advocacy of the ecological worldview is entirely fitting.

In the White House one soon learns that a President's perspective must be as clear and broad as possible while taking into account an incredible amount of ~~diverse~~ complexity. Urban and housing policy must be related to transportation policy; transportation policy must be related to energy policy; energy policy must be related to agricultural policy and so on.

It so happens this point of view is exactly what's needed to analyze and address environmental problems, whether of the nation or the planet. Applying this perspective today, one cannot fail to see that the threats posed by deforestation, ozone depletion, acid rain, ocean pollution and global warming have made environmental protection a global priority.

There's no question but that the nations of the world must make common cause in defense of our environment. In this effort, I'm determined that the United States of America will assume great responsibility and provide strong leadership.

We've begun this leadership at home by bringing in top environmental professionals like William K. Reilly to administer the Environmental Protection Agency and Michael Deland to chair the Council on Environmental Quality.

We've begun this task by declaring that pollution prevention will be the key to the future. For preventing pollution is a far more efficient strategy than struggling to deal with problems once they've occurred. For too long, we've focused on clean-up and penalities after the damage is already done. It's time to re-orient ourselves using technologies and processes that reduce or prevent pollution -- to stop it before it starts. In the 1990's, pollution prevention will go right to the source.

We've begun this task by calling on business and industry to join us in cooperative approaches. Technology has given us tremendous, awesome power to alter the face of the earth. We must use it to do good. Environmental stability and industrial design must be partners. Industry is making -- and must continue to make -- environmental stability a essential fact of American industrial life.

In our struggle to protect the environment, there is something for everyone to do. Local communities;

businesses, large and small; individual families -- all can learn to generate less waste and to recycle more of the waste that is generated. In fact, those that do have discovered that there are sound economic ~~side effects~~ benefits. Environmental protection makes economic sense.

And there is one simple thing we can all do on Earth Day. I challenge you to join me in this new greening of America by planting trees. Trees possess a value that no high-tech solution to environmental problems will ever match.

Trees can reduce the heat of a summer's day, quiet a highway's noise, feed the hungry, provide shelter from the wind and warmth in the winter. Besides being amazingly functional, trees are, of course, things of extraordinary beauty, an inspiration to poets and painters since the first artist appeared amongst us. In short, trees are perhaps the finest gift in all nature's bounty. What a bargain!

I hope that Earth Day 1990 will once again demonstrate what good solutions to environmental problems exist at the grassroots level. My dream is this happy sight: Americans everywhere joining to shade this land and to clean our air -- a new spirit of activism and volunteerism to serve each other and save our planet.

Davis/Martin
Nov. 9, 1989
Title: Earth
Draft: One

THE PRESIDENCY AND THE EARTH DAY TRADITION
By George Bush

Six months ago, I took my 13-year-old grandson, George P. Bush, on fishing trip to Jackson Lake, Wyoming. The memory of that day lingers, as the two of us let out our lines, sinking their long flashy spinners deep into the crystalline water. After some effort, we caught three Mackinaw trout (and let them go). But the real catch was for our eyes.

From our little boat, we could spot elk emerging warily out of the forest at dusk to forage the grassy plains around us. And rising out of the forest in the distance were the Tetons -- jagged, immense, snow-capped, invincible. No words, no photo, no painter could do it justice.

Of course, there was a time when all of North America was as primitive and pristine as Jackson Hole. But aside from protected areas like the Grand Tetons, the buffalo hunters and the settlers changed the face of the land, forever. The exploitation of natural resources was a natural way of life for our forebears. In fact, it was the only way of life. So our ancestors did what they had to do build a great nation, simply assuming that the land offered a limitless bounty.

Today, of course, we know better. And knowing better, we must act better.

We know that nature is not an infinite resource. We also know it is not possible to contain environmental destruction to one swath of the Earth. In fact, more and more our leading scientists are comparing the Earth to a single organism, to a living thing that cannot survive too much abuse.

True, it is not possible to restore our environment to a perfectly natural state. To do so would mean to shut down our factories, our schools, our highways and our cities. But we can balance a growing economy with a better environment. This balance demands trade-offs and tough decisions, careful planning, exact science and creative proposals. It is, in short, the mastery of the near-impossible. And with increasing ability, it this very difficult science that Americans have been learning and practicing with increasing skill over the last twenty years.

The environmental movement emerged into law in the late 1960s, when Senators Ed Muskie, Howard Baker, the late Henry Jackson and others put aside party differences to craft the first comprehensive environmental legislation. On January 1, 1970, President Nixon began the new decade by signing the National Environmental Protection Act into law. All the landmark environmental legislation of the Seventies -- the Clean Air Act, the Clean Water Act -- were built on this foundation.

It was also roughly twenty years ago that Bill Ruckelshaus became the first EPA administrator. Bill was the perfect first

administrator, for he brought to his job a flair for leadership and a commitment to action that has set a high standard for all who followed him. And it is in this same tradition that Bill Reilly brings his distinctive brand of leadership to EPA today.

But the federal government covers only part of the story. Twenty years ago, the environmental movement was also gaining strength in the city halls and state capitols of our nation. And the new commitment to a cleaner, safer environment wasn't just confined to government. It grew from the bottom, up -- not just from school boards, city councils and state legislatures -- but from millions of homes.

Americans came together for the first time as environmental volunteers -- spontaneously, almost instinctively -- to save the Earth. And it was their movement -- **your** movement -- that created the first Earth Day on April 22, 1970.

Earth Day began as a spectacular moment of citizen leadership, and became an American tradition, worthy of future generations. That is why I followed the examples of Presidents Nixon and Carter before me, and issued an executive order designating Earth Day 1990 to be held on April 22. It was, in fact, my first executive order as president-elect.

JT Res 169 11-20-89 Recd WH Ddline Dec 1st

A president soon learns to see policy in the broadest terms possible. Urban and housing policy must be related to transportation; transportation policy to energy; energy policy to agriculture, and so on. Applying this same perspective, one cannot fail to see that deforestation, ozone depletion, ocean

pollution and the dire possibility of global warming pose grave threats to our very future. We no longer enjoy the luxury of a leisurely response. Environmental protection has become an urgent priority for us all.

If our response is to be effective, then all the nations of the world must make common cause in defense of our environment. This is a message I took this summer to the people of Europe. In Mainz, West Germany, I said that my generation remembers a world ravaged by war. And Europeans have certainly rebuilt their proud cities and restored their majestic cathedrals. But I said: "what a tragedy it would be if your continent was again spoiled, this time by a more subtle and insidious danger -- that of poisoned rivers and acid rain." I told them of America's environmental tragedy in Alaska. I noted that countries from France to Finland suffered after Chernobyl, and that West Germany is struggling to save the Black Forest today. The bottom line is this: "Environmental destruction respects no borders."

When I suggested that the United States and Western Europe extend a hand East, the people of Europe on both sides of the Iron Curtain responded with enthusiasm. Since then, working with my counterparts in Western Europe, we have reached agreements to extend our technical and regulatory knowledge and technologies to Eastern Europe.

I hope this becomes a model not just for Europe, but for the world. And I determined that in the 1990s, the United States of

America will continue to assume responsibility by providing world leadership on the environment.

At home, we've brought in top environmental professionals like Bill Reilly to administer EPA, and Michael Deland, to chair the Council on Environmental Quality. And we've broken new ground by declaring that **pollution prevention** is our ultimate goal. For too long, we've focused on clean-up and penalties after the damage is done. It's time to reorient our policies to technologies and processes that reduce or prevent pollution -- to stop pollution before it starts. In the 1990s, pollution prevention must go to the source.

To save the Earth will require the best efforts of us all. Everyone must be a volunteer. Business, labor and consumers must cooperate. Environmentalists and industrialists must be partners, not adversaries. Local communities, large and small, must enlist. And so must families -- all can learn to generate less waste, and to recycle the waste that we still generate. In fact, those families that do recycle have found it to make economic, as well as ecological, sense.

Finally, there is one simple thing we can all do on Earth Day, no matter your age or ability. I challenge you to join me in sowing a legacy of cleaner air, and more beautiful horizons. I challenge you to perform a simple act. I challenge you to plant a tree.

((Fun tree facts to come from Jim Pinkerton/Emily Mead))

Trees block the sun and absorb heat on a summer's day. They quiet the noise of a freeway. They provide a natural wind break in winter. And every tree makes America a little greener, a little more like the verdant nation the Pilgrims knew.

I hope that Earth Day 1990 will once again demonstrate that solutions to environmental problems are rising up from the goodwill, generosity and vision of the American people. We have already given the world so much. Let us give the world an example volunteerism and environmental leadership on April 22.

# # #

McNally/Simon
April 11, 1990
Draft Three (E:ARTHDAY)

PRESIDENTIAL OP-ED ARTICLE: WASHINGTON TIMES EARTH DAY ISSUE
FRIDAY, APRIL 20, 1990

In the late 1960's, American rivers caught on fire, whole cities were blanketed in thick, black clouds of industrial pollution, and raw sewage was discharged directly into our rivers. We were squandering our natural inheritance.

Newsweek 1-26-70

But Native Americans have an old saying: "We don't inherit the Earth from our parents -- we borrow it from our children."

And 20 years ago today, America's kids started calling in the debt.

Earth Day was a phenomenon -- the culmination of much that had come before -- the beginning of a new and sustained effort.

Those who look at our environment today only with increasing apprehension sometimes forget how far we've come -- not only as a people -- but as a planet.

Denis Hayes EPA Journal Jan/Feb 90 p. 24-26

The Earth Day tradition that began in 1970 has grown into a worldwide environmental movement, a movement born in the U.S.A., a movement nurtured by two decades of American leadership.

The change in attitude has been both fundamental and pervasive. In the late 1960's many otherwise responsible citizens roared across the landscape, their cars pumping invisible toxins into the air, their children carelessly littering country roads and city streets.

NYT 4-22-70 p. 36

On Earth Day 1970, students in Lake Ozark, Missouri, collected refuse along a stretch of U.S. Route 54, producing five piles along the roadside, each more than 10 feet high. In West

NYT 4-23-70 p. 30 CEQ annual report 1971 p. 96

Virginia, a five-mile span of U.S. Route 50 yielded five tons of trash. About a year later, on June 5, 1971, three and a half million Americans worked with the Boy Scouts and the Keep America Beautiful campaign to conduct what was probably the largest one-day litter clean-up project in history.

Today, America's roadways are vastly improved, ranking among the most beautiful in the world. True, government action helped spur this change. But the real change came about because of a new environmental ethic.

And just as America's roadways have improved, so have the oceans of air that float above them. Automobile emission controls, first mandated in 1970, have today resulted in a generation of new cars that emit only 4 percent as much pollution as the typical 1970 model. America cut airborne particulates by 60 percent, airborne carbon monoxide by about 40 percent. Airborne lead has all but disappeared from the American landscape. Factory smoke levels are down, as are emissions of sulfur and some of the prime ingredients of urban smog.

tom Super CEQ

This Nation has made tremendous headway towards our goal of clean air for every American. But many tough challenges remain. The U.S. still produces too much waste -- and wastes too much of the worlds's non-renewable resources. And as I said in Germany last year -- whether Chernobyl's radioactive steam or the acid rain that's killing Europe's Black Forest -- "environmental destruction ~~knows~~ respects no boundaries." A global problem demands a global solution.

Mainz 5-31-89

Part of the solution lies in America's technological and legislative leadership. Automobile emissions standards and unleaded gasoline -- pioneered here in the early 1970's -- will go into effect in the European Community in 1992. And Europe is now re-tooling to copy the technological innovations that gave America the world's cleanest cars.

Unfortunately, American breakthroughs, and the kind of environmental progress we've seen in Western Europe, are far from widespread in the developing world, or even the Eastern European ecologies that were ravaged by decades of communist neglect.

My frequent travels through the pollution-choked cities of developing nations have served to remind me how far we as a planet still have to go. During America's own development from an agrarian culture to an industrialized country, the U.S. suffered many decades of environmental destruction, often unintentionally, often in ignorance. The DDT designed to protect against pests nearly destroyed our national symbol, the Bald Eagle.

As we have learned in America, developing nations must find a responsible balance between quality of life, a sound ecology, and a sound economy. And in the developing world, "quality of life" often means <u>life itself</u>. There's no more hostile environment than one in which people are without food, shelter, or jobs.

Overseas, America is offering technical assistance, such as through the new, U.S.-led environment center in Budapest. We've

embarked on a plan to stop hazardous wastes from being indiscriminately exported to foreign countries -- and thrown U.S. support behind a U.N. Convention to help achieve this goal. And we've offered to host a landmark meeting designed to bring about an international treaty on climate change.

Back at home, America has continued to lead by example, setting the pace in balanced efforts to protect the world's air. The Clean Air initiative we launched in the Grand Tetons last summer is a very ambitious, very aggressive piece of legislation. It will help bring in to compliance ~~100 or more~~ cities that have failed to meet ~~health safety~~ national standards for carbon monoxide ozone. It includes the first acid rain control program and powerful new incentives for burning cleaner fuel.

And it's not only good for the environment -- it's also good for the economy. Consider, for example, the enormous savings in health care and lost productivity if we can reduce the 50,000 premature deaths a year that the American Lung Association estimates are related to air pollution.

All in all, one estimate puts medical bills avoided by pollution control at $40 billion per year. Where once environmental forces were harnessed to boost the economy, today we are harnessing economic forces to boost the environment.

Working with the White House, the Senate has now passed a historic compromise -- a strong and cost-effective compromise -- a balanced compromise that today awaits fast action in the House.

This is a bill that was gridlocked throughout the 1980's.

It's been 13 years coming. But no American should have to wait another day for clean air. The House should pass the new Clean Air Act now.

The House has also been the battleground for our campaign to elevate the Environmental Protection Agency to the highest level of the federal government -- the Cabinet level. The American people want this done. But they also want it done right. They want it done responsibly.

What the EPA needs is new clout -- not a new bureaucracy. Especially not a $100 million bureaucracy loaded down with management directives from the American Congress. As one congressional critic of the House bill put it: "Never try to teach a pig to sing. It frustrates you, and irritates the pig."

Rep Porter Goss R-Fla. Floor debate

The campaign to protect the environment is a marathon, a race for life for all Americans, a race in which the final triumph will ultimately belong to the long distance runner.

But it's needed a jump start. And during its first year in office, our Administration has:

Ken Yale says no

- Made good our pledge of "no-net-loss" of wetlands -- a policy first for America -- and for the world.

Joel Kaplan OMB x4993

- Asked Congress for ~~nearly half a billion dollars~~ $250 million to buy new land for parks and wildlife refuges.

FY91 Budget p. 75

- Launched an ambitious, billion dollar a year research program on climate change.

Peggy Dooley

- Concluded a historic, international conference on climate change at the White House ~~just yesterday~~ this week.

Building a Better America 12-11-89

- o Protected the ozone layer by backing a phase-out of CFC's.
- o Virtually outlawed the use of asbestos.

Wm. Reilly OP-ED

- o Banished alar from America's supermarkets.

BBA 12-11-89

- o Barred all African elephant ivory imports to the U.S.

FY91 Budget p. 129

- o Added three quarters of a billion dollars to clean up ~~toxic~~ hazardous waste at federal facilities.

Wm. Reilly OP-ED

- o Targeted the Superfund towards finding permanent remedies for abandoned hazardous waste sites -- an effort now being copied in Italy and West Germany.

Carol Deck - EPA Press Office fact sheet 9-18-89

- o Launched a pilot tracking program to stop the medical-waste wash-ups that threatens our beaches.

Our medical waste tracking program is a good example of the emerging new philosophy in fighting pollution -- pollution prevention. Where as Earth Day 1970 was devoted to cleaning up the mess -- Earth Day 1990 is aimed at stopping it at the source.

But of course, it's not enough to prevent environmental damage. Our mission is not just to defend what's left -- but to take the offense -- and improve our environment. Nature has powerful rejuvenative forces. But we need to help them along. We need to reforest this bountiful land.

Nat'l Tree Trust act FY91 Budget p. 121

We have launched a program that would promote the planting of a billion new trees a year. Trees are the oldest, cheapest, and most efficient air purifier on Earth. They can help clean the air by reducing carbon dioxide. Trees can reduce the heat of a summer's day, quiet a highway's noise, feed the hungry, provide

shelter from the wind and warmth in winter. And every tree planted is a compact between generations.

About a year after the first Earth Day, Dr. Seuss introduced America's kids to the fable of a lakeside forest and the brave little man who defends it. "I am the Lorax," he says. "I speak for the trees."

The Lorax Dr. Seuss © 1971

But in the end no trees remain. Gross ecological mismanagement leaves the forest leveled, the air unbreathable, the water choked with dying fish. And all that's left is a pile of barren rocks, and the Lorax's one-word warning: "UNLESS."

Today the Earth Day kids have grown up. But the message of the Lorax still rings true. Unless every business, every community, and every family -- in this nation, and in every nation -- pauses to consider what they can do to fight pollution, our goal of a reborn world environment will always remain elusive. The race to protect the environment is not a spectator sport.

# # #

Reilly's N.Y.T. op-ed draft approved by W.H.

The environment always has been a contentious issue, and these days are no exception. Environmentalists have taken to criticizing the administration reflexively if their demands are not met in full. Industrial trade groups are making well know their displeasure over the stringency of the Administration's clean air bill, which passed the Senate this week after herculean negotiations and protracted debate. The President -- who is trying to advance a broad, environmental agenda in novel, cost-effective ways -- seems to be catching it from both sides for his efforts.

I don't pretend to be disinterested. And I hope I have not, in the space of little more than a year, become a thin-skinned insider. But it seems to me indisputable that the Bush Administration has engaged the environmental issue in a very aggressive, ambitious way, a way that is designed to secure maximum environmental gains at reasonable economic costs. In fact, no President has ever given more time and attention to environmental policies than has George Bush. And his Chief of Staff John Sununu deserves great credit for having constructively moved these environmental initiatives forward. The result has been the most environmentally active presidency since Theodore Roosevelt.

Consider that since his inaugural the President has:

-- Banned most uses of asbestos.

-- Stopped the importation of all ivory into this country, a move already beginning to show evidence of beneficial effect on Africa's dwindling elephant herds.

-- Proposed a billion dollar a year research program on global climate change, the most ambitions in the world. Is hosting an international White House Conference on global change this month.

-- Started a pilot tracking program to prevent the type of medical-waste wash-ups that plagued beaches around the country only two years ago.

-- Presented a budget which expands the EPA's operating programs by twelve percent, and adds three quarters of a billion dollars to an aggressive effort to clean up wastes at federal facilities around the country.

-- Canceled alar, as well as proposed to cancel some 40 uses of EDBCs, a family of pesticides commonly applied to food crops and suspected of being harmful to health. In addition, the

President offered a comprehensive food safety proposal which, if adopted, would make it far easier to remove dangerous pesticides from the market.

-- Expanded our parks and wildlife refuges by proposing $450 million in spending for land acquisition.

-- Begun developing a proposal to assure that hazardous wastes are not indiscriminately exported to foreign countries, and endorsed the U.S. entry into a U.N. Convention to help achieve this goal.

-- Re-directed the Superfund programs toward "enforcement first," with emphasis on more permanent remedies for abandoned hazardous waste sites. The new enforcement priority has resulted in an unprecedented number of settlements and record billion dollars plus in private party contributions to cleanups.

-- Proposed that cars be designed to give off less evaporative emissions of gasoline and reversed a previous loosening of national fuel efficiency standards. Both of these will make significant contributions to smog reduction and energy conservation.

-- Began a procedure to evaluate the Two Forks dam project in Colorado with regard to environmental objections. Additionally, the Big River project in Rhode Island was rejected to save wetlands and other environmental resources.

-- Launched a program that would promote the planting of a billion new trees a year in America.

- Began developing the country's first no-net-loss of wetlands policy, and, by the way, recently approved an agreement between the Army Corps of Engineers and EPA that significantly strengthens procedures in effect a year ago.

-- Committed to a full phase-out of CFC's, with appropriate attention given to safe substitutes, in order to protect the stratospheric ozone layer and offered to host the first negotiating session aimed at developing an international treaty on climate change.

-- Offered technical assistance to all Eastern Block countries now trying to say national environments unbelievably ravaged after years of Communist rule.

And then, of course, there are the two critical proposals now pending in the Congress: the legislation to elevate EPA to the Cabinet and the Clean Air Act.

I've got more than a vested interest in the President's plan to give EPA the Cabinet-level clout we need to protect the environment. But neither of us supports the House bill that will bust the budget, overhaul the agency and restrict our ability to run our own Department. We'll fight this battle in the Senate in the coming weeks.

The Senate-passed Clean Air Act contains the first acid-rain control program and the first incentives for burning cleaner fuels ever offered by a President.

These are the proposals of a President who is committed to the environment. I could cite many more. They go well beyond his campaign promises. Taking up these issues promoted dicussion and debate, often quite vigorous, and often within and inevitably outside the Administration. Nevertheless President Bush has moved environmental policy steadily forward, to the point where, as David Broder put it recently, the question regarding the environment is no longer "whether" but in the Bush Administration it is "how."

And if the question is how, and your agenda is a long one, then the answer must be "cost effectively."

The fight for a realistic, cost-effective clean air bill is far from over. But through the efforts of Senators Mitchell, Dole, Baucus, Chafee and others, we are as close now as we have been in thirteen years. These men have taken their lumps from environmentalists. So has the President. But what we achieved brings the nation closer to a major strengthening of the clean air act. No one even remotely involved in the clean air debate has any doubt about why the nation is closer to having a new clean air bill: That's because President Bush is committed to it. Eventually the lobbyists and their children will be breathing much cleaner air. Then maybe they will be a little more thoughtful, a little fairer, about their evaluations of President Bush's record. We can wait. The environment is for long distance runners.

NOT FOR CIRCULATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Allan Hecht?

OFFICE OF
INTERNATIONAL ACTIVITIES

MEMORANDUM

TO: Carolyn Cawley
The White House - Research

FROM: Carol Deck

SUBJECT: Environmental Protection: U.S. and Western Europe

In response to your request last Friday, I am sending information on selected environmental protection activities in the U.S. and Western Europe. This information, which will serve as input for the President's remarks during the White House conference on Global Climate Change, is divided into three sections: areas in which the U.S. has taken the lead; areas in which the Europeans are ahead; and topics on which the U.S. and European countries are cooperating.

U.S. Lead

- The introduction of strict **automobile emissions standards** and unleaded gasoline occurred in the U.S. in the early 1970s, well before it did in Europe. The European Community last year proposed standards for hydrocarbons, nitrogen oxides, and carbon monoxide that will have the effect of introducing into the EC market U.S.-style catalytic converters. This type of technology meets U.S. 1981 and later exhaust emissions standards. The new EC standards should become effective in 1992.

- With the **Superfund** program, the U.S. is far ahead of any country in identifying and cleaning up hazards from past mismanagement of wastes. Italy, with U.S. assistance, has begun to plan a site cleanup program. West Germany is in the early stages of implementing a program.

Technical [illegible]

DRAFT

Europe Lead

- Because of their high population density and lack of available land, the European countries have led the U.S. in the **recycling of waste materials** and in the overall **reduction of waste generated.** Countries such as the Federal Republic of Germany, Sweden, and Denmark have embarked on extensive consumer-education programs to encourage citizens to reduce and recycle waste. According to Congressional Research Service estimates, West Germany and Japan attained rates of 40 to 50% in paper and glass recycling, while the U.S. recycled 30% of its paper and 15% of its glass in 1987.

- The Europeans have also done more to address the **acid deposition** problem. The Large Combustion Plants Directive, passed by the European Community in 1988, deals with combustion plants of over 50 megawatts and requires all new plants to incorporate best available technology for reducing emissions of sulfur dioxide, nitrogen oxides, and dust. Existing plants must also be modified.

  For each dollar of national income, the U.S. generates more NO_x than any other country, and more SO_2 than any other except Canada and the United Kingdom. The U.S. generates six to seven times more NO_x and SO_2 per dollar of GDP than Japan.

Areas of Cooperation

- The U.S. has received strong support form European countries interested in participating in the **East European Regional Environment Center** in Budapest. Several East European countries have indicated they would like to participate as well. Scheduled to open in late summer 1990, the Regional Environment Center initially will facilitate the sharing of information, expertise, and technology among participating countries.

- Also on Eastern Europe, the European Community has taken the lead of a Group of 24 countries (including the U.S.) to provide assistance to the newly emerging democracies there.

- Within the OECD, the U.S. and European countries (and others) have begun a cooperative effort to **test chemicals** used in international commerce for possible dangers. Previously, U.S. companies had been performing almost all chemical testing themselves. Now, through the OECD, chemicals will be divided among different countries for testing and the burden will be shared.

Areas of Cooperation (continued)

- Steps are being taken by the U.S. and European Community to coordinate testing and re-registration of pesticides. Still in the initial stages, the goal of the effort will be to share information about pesticides and to harmonize regulatory procedures.

I hope this information is useful to you. If you would like more in-depth information on any of these topics or on issues not covered here, please do not hesitate to contact me on 475-8199.

I will be sending two EPA documents that you may find helpful in the future, one prepared for the G-7 Economic Summit of last July, and the other a report on air pollutant emissions prepared by EPA's Office of Policy, Planning and Evaluation.

EPA

Talking Points

President Bush wants to elevate the Environmental Protection Agency to the highest level of the federal government, the Cabinet level. But responsibility demands that we do it right.

At best, the House-passed legislation, H.R. 3847, represents an irresponsible overhaul of the EPA and its mission to protect the environment.

At worst, it's a politically motivated attempt at congressional micro-management of the executive branch. Chief among the reasons the Administration opposes the Department of Environmental Protection Act:

-- The creation of a new Bureau of Environmental Statistics, an information gathering agency to operate within the new department, is not, in and of itself, problematic, but the bureau created by the House bill would act independently, without the direction, guidance or approval of the Secretary of the Department. It could conduct billions of dollars worth of new activities with no approval of its budget, programs or efforts.

-- Restrictions on the ability of the President and the Secretary to run the Department. The legislation limits the ability to hire and fire top level senior staffers and appointees in violation of the appointments clause of the Constitution. No other department of government operates under such a severe handicap.

-- The tremendous cost of the House bill, estimated to be as much as $50 to $100 million, according to congressional estimates. The President's proposal to give the EPA the clout it deserves would cost a fraction of that.

-- Housing the federal government's premier statistical and analytical environmental bureau within any one Cabinet agency will undermine the goal of a cross-government perspective of environmental issues and programs. Currently, numerous federal agencies, including NOAA, CEQ, NSF, NASA, DOI and DOE, have extensive environmental research and data gathering programs.

EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL ON ENVIRONMENTAL QUALITY
722 JACKSON PLACE, NW.
WASHINGTON, DC 20503

DATE: WEDS 4-3

TO: BOB SIMON

TELEPHONE NUMBER: x7350

FAX NUMBER: x 6218

SUBJECT OF MATERIAL: ENVIRO OP-ED

NUMBER OF PAGES: 5

MESSAGE: POLLUTION PREVENTION STUFF ON PP 3-4. BUSH RECORD ON 1-2. LET'S GET TOGETHER FOR COFFEE AND/OR CALL IF I CAN BE MORE ASSISTANCE.

FROM: DALE CURTIS, CEQ

TELEPHONE NUMBER: x 5750

FAX NUMBER: FTS: 395-3744

REMARKS BY THE HON. MICHAEL R. DELAND
TO THE

34TH MEETING OF THE J.P. MORGAN INTERNATIONAL COUNCIL
NEW YORK CITY, MARCH 2, 1990

I. Introductory remarks

A. The rising sense of environmental crisis... Public is willing to pay more for protection...

Given this pressure, the private sector has the greatest incentive and opportunity to lead by adopting pollution prevention.

Pollution prevention is a "radical" approach because it goes to the root of the problem. It requires a decision by top management about the kind of company you want to build: one that prevents pollution at the source, rather than devoting resources to cleanup at the end of the pipe.

II. The environmental situation not all bad news:

A. While we clearly can't declare victory and sing "Don't Worry, Be Happy," we do need to recognize the long strides America has already taken toward a cleaner environment:

1. The Bush Administration record:

a. Strong Clean Air Act proposal, which harnesses market forces to clean up the air

b. Parkland acquisition up from a rate of $36 million a year in last Reagan budget to $275 million a year in Bush budgets

c. Banning most uses of asbestos by 1997

d. Banning trade in African elephant ivory

e. Banning hazardous waste exports unless receiving nation has adequate disposal requirements

f. U.S. commitment, including business community, to phase-out CFC's by 2000

Full funding for clean coal technology development

g. Global warming research and prudent measures now, including energy efficiency and reforestation

h. Increase in CEQ and EPA operating budgets; comment on President's direction to rebuild CEQ role

2. Progress since 1970

We saved the bald eagle from DDT. We cut airborne lead by 97 percent, airborne particulates by 60 percent, carbon monoxide by about 40 percent. We built new sewage treatment plants to serve millions of people in hundreds of communities. Rivers that were literally on fire are now swimmable and fishable.

In short, we have developed the laws and institutions, the scientific capability and public awareness sufficient to guarantee a much greater sensitivity to environmental impacts of government and private sector actions.

III. Broken linkage between economic growth and pollution growth

A. The most important lesson of last twenty years: we've broken the presumed linkage between economic growth and pollution. We achieved significant environmental cleanup while our economy and population have blossomed.

Twenty years ago, many people said tough environmental rules would throw people out of work, shrink corporate profits and spike inflation. You still hear these dire predictions, and a new one: the cost of pollution controls will weaken our ability to compete with Japan and an integrated Europe.

But according to The Economist, the best study of the impact of environmental policies on growth, done about five years ago by the OECD, found the impact measurable in fractions of a percentage point. At the very least, I submit our competitiveness problem is due to a long list of economic inefficiencies, but environmental protection is only a marginal one, if one at all.

We can't even assess the impact of environmental regulation on growth accurately. Existing measures of economic growth are blind to the environment. For example, the money being spent to clean up oil spills in the United States is chalked up to growth in the economy.

Likewise, cutting down and selling all the trees in Brazil would be considered a boost to the Brazilian GNP, but it would be disastrous in the long-run for the environment and their economy.

In short, a truly green economy would pay its environmental bills as it goes along, without dumping the bills on neighbors or future generations. The laws passed since 1970 shoved us in that direction, but we still have a long way to go.

IV. The pollution prevention alternative

A. Command-and-control: weaknesses and strengths

Our present environmental laws were created to deal with the gross pollution problems of the last twenty years. When I started out twenty years ago, we knew the names of the pollutants and measured them in tons. Today, you need a PhD to pronounce the pollutants and we measure them in parts per million, billion, quadrillion.

The present laws focus on specific media like air or water, and on specific point sources. The result has sometimes been moving pollution around.

Command-and-control has been very effective in some ways, but we need to supplement it by relying on market forces and, the best approach--pollution prevention.

B. All pollution is essentially waste, and by definition, a cost. All pollution has to be paid for twice, once when the material-to-be-wasted is bought, and again when it has to be cleaned up. As more businesses focus on becoming material-efficient and energy-efficient, they will discover they save twice, and those savings show up on the bottom line.

3M, Monsanto... Robbins example. Let me give you a vivid example from days at EPA Boston. On the banks of the Ten Mile River in Massachusetts, there was a medium-sized firm on the receiving end of several very tough EPA enforcement actions. Before I could approve its permit to discharge wastewater into the river, the company faced a million dollar bill to upgrade its wastewater treatment system.

The company decided on a better strategy: they invested 220 thousand dollars into wastewater recycling. Not only did they save about 800 thousand dollars, and get EPA off their backs. The company reduced their annual generation of hazardous sludge from four thousand gallons to seven gallons; reduced

water usage from a half million gallons a day to 500 gallons a day, which incidentally cut their water and sewer bills; they even earned an extra 25 thousand dollars a year by recovering precious metals they had previously dumped.

That is a success story being repeated in companies large and small across the country. But this is only a beginning. Much more work is necessary.

V. What must be done:

A. For our part, this year, the President will propose comprehensive pollution prevention legislation, and make it one of the nation's top environmental priorities. The President has asked me to form a pollution prevention council modeled on the one I created in Boston, responsible for....

For your part, I challenge you to put your engineering and managerial imaginations to work cutting your companies' wastes. Redesign production processes. Substitute less harmful materials. Use energy more efficiently. Do a "pollution audit" like you would do an audit of your books to root out waste.

Learn more about the huge and growing global market in "green" goods and services, and don't let America fall behind in that competition. It's no coincidence that West Germany and Japan use energy two to three times more efficiently than America, and produce far less waste per capita. If Japan's advantage in industrial innovation is applied to pollution prevention, then American companies will have fumbled another basic industry of the future.

Pursue pollution prevention, and then watch your profits and international position grow.

I'll be happy to take your questions.

APPENDIX: LANGUAGE ON INTERNATIONALIZATION OF POLLUTION ISSUE:

Political boundaries mean nothing to Mother Nature. Think of the debate between the U.S. and Canada over acid rain; the fallout from Chernobyl; the accelerating rate of loss of plant and animal species, especially in the tropical rain forests, and so on. Soviets visiting CEQ. EPA bill includes new authority for EPA to do technical assistance to other nations.

On the so-called "global warming" trend: According to the World Commission on Environment and Development, at least a fivefold increase in world economic activity will be necessary in

the next 50 years just to meet the basic needs of our future population. US contribution of world CO2 is now 25-30%, but may shrink to 5-6%. What matters is how China, India, Eastern Europe develop.

The U.S. IS a world leader; what we are doing:

- The CFC phase-out
- Research: 1991 budget contains over $1 billion for global climate change research, an increase of 57 percent over 1990 levels, which were themselves a 43 percent increase over 1989
- The April conference which MRD is co-chairing
- Other actions which have merit in themselves:
  - raising the fuel economy standard for autos;
  - the cap on acid rain emissions;
  - renewable energy, energy efficiency and conservation initiatives by DOE

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FROM: DALE CURTIS, CEQ

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PS ENERGY EFF'Y WILL REDUCE OIL IMPORTS, WHICH ACCOUNT FOR 40% OF TRADE DEFICIT!

POLLUTION: GROWING MENACE— WHAT U.S. IS DOING ABOUT IT

Poisoned air, water, land—there is growing alarm over the way man is polluting all about him. Pressures are mounting for tough action before it is too late. Costs will soar into billions. A close look at the problem, here and abroad, shows what is involved.

There is growing urgency in American demands for a better environment—clean water, air and land.

Congress and the Administration are feeling the pressure. So are State legislatures and city governments.

On May 29, the President announced formation of the Environmental Quality Council to speed action on pollution problems. It will be a Cabinet-level group. Mr. Nixon, or, in his absence, the Vice President, will preside.

The first important domestic legislation passed by the House in this session called for tighter control over water pollution. A similar bill is being considered in the Senate.

Robert H. Finch, Secretary of Health, Education and Welfare, and a member of the newly formed Council, has already set up a commission to look into pesticides—particularly DDT—and the dangers they may pose to health.

Unanswered questions. A major goal of the Council will be to find answers to many basic questions where solid knowledge is lacking, such as:

How many pollutants are there in the environment?

How dangerous are they to humans?

How dangerous are they to the delicate balance of nature upon which all life depends?

Facts at hand. Some answers to these questions have already emerged.

Experts know that every year the nation produces:

- 1.3 billion tons of agricultural manure and refuse, some of which could be dangerous to health.
- 1 billion tons of mining wastes.
- 350 million tons of residential and industrial rubbish and sewage.
- 15 million tons of scrapped autos.

In addition, automobiles, power plants, factories and residential heating units belch more than 142 million tons of toxic matter into the air every year. Most of this is in the form of carbon monoxide, sulphur dioxide, nitrous oxide, hydrocarbons and solid particles.

Much of the drinking water in U. S. communities is of unknown quality, according to U. S. Public Health Service authorities. Even where communities do conform to PHS standards, they may not be getting really pure water. The standards need upgrading, PHS officials declare.

Radiation from atomic power plants, and from industrial use of lasers and microwave technology presents hazards not yet measured.

Soaring costs. Senator Henry M. Jackson (Dem.), of Washington, gives these cost estimates for pollution control:

Between 26 and 29 billion dollars over the next five years to do an "acceptable" job of cleaning our streams and lakes, our bays and rivers.

Between 12 and 15 billions in the next five years for cleaner air in U. S. metropolitan areas.

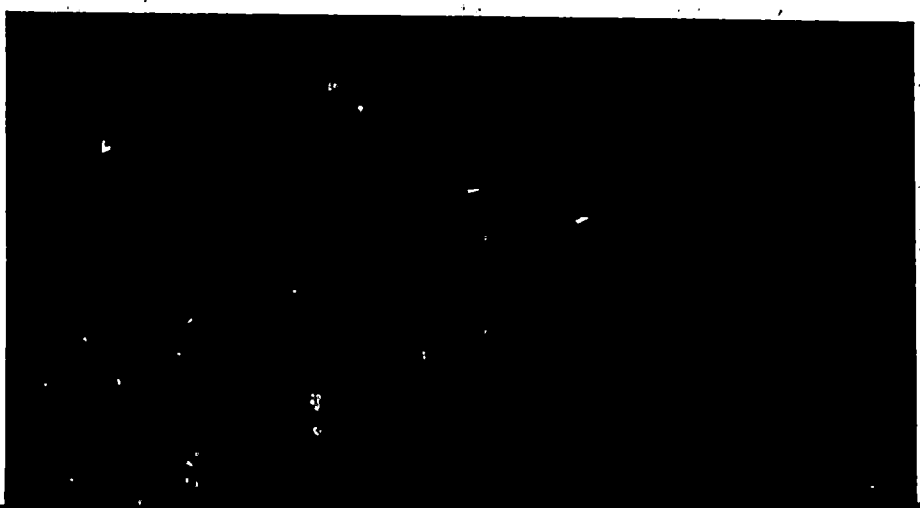
Some 15 billions in the same period to dispose of solid wastes in a sanitary manner.

Present laws. So far, the toughest federal action to combat pollution has been taken against auto manufacturers. They are under orders to cut fumes from gasoline-powered cars drastically. Makers of diesel trucks and buses may soon face the same situation.

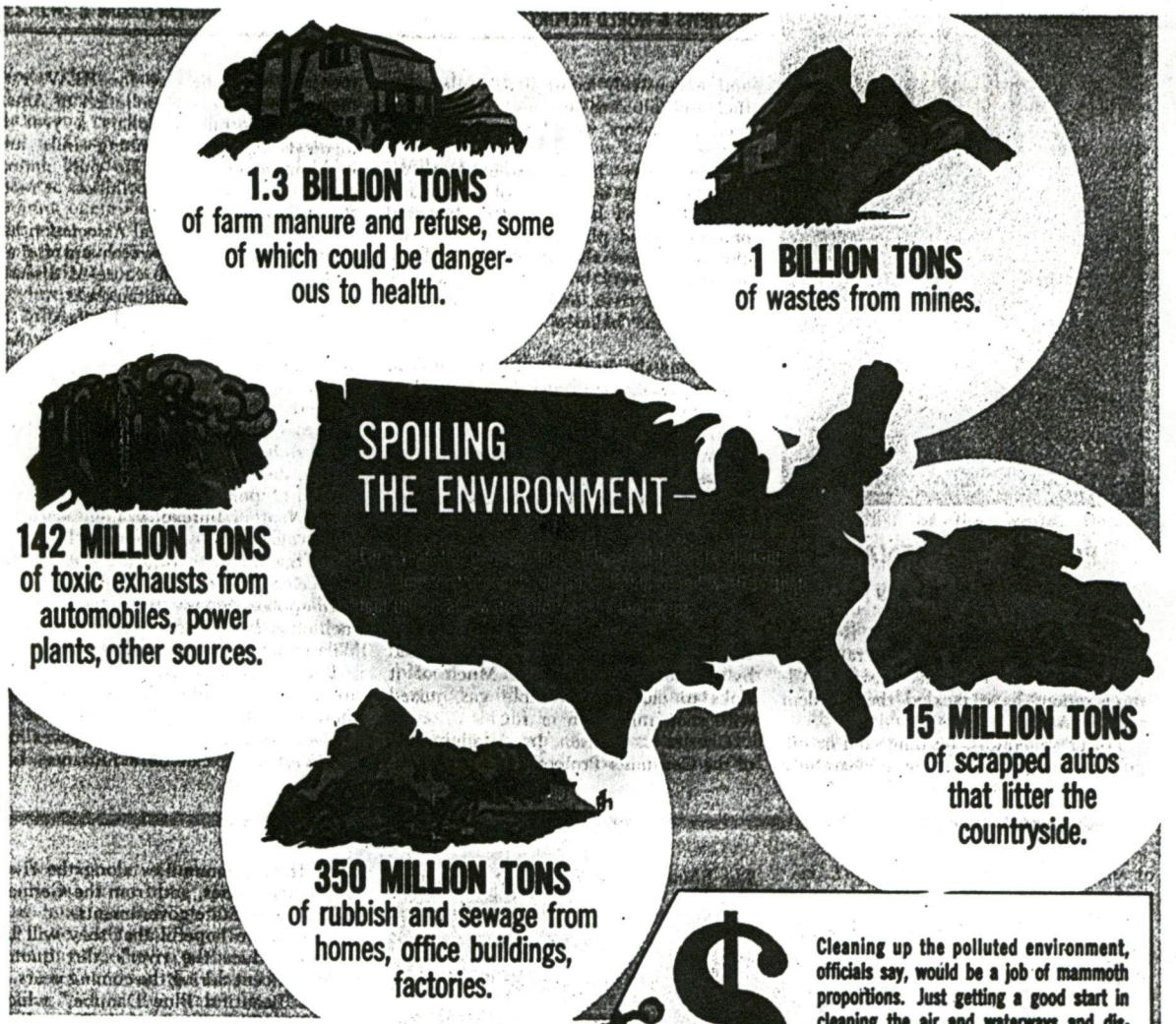
As for other forms of pollution, the Water Pollution Control Act of 1948, with subsequent legislation, gives the Department of the Interior the power to establish pollution standards for interstate water supplies. The law also permits the Federal Government to bring suit against those who fail to live up to agreed standards. A lot of delay is built into the law, however. Assistant Secretary of the Interior Carl L. Klein has indicated that he will rely on persuasion rather than formal action to enforce standards.

The Clean Air Act of 1963 and its amendments follows the pattern of the Water Pollution Act.

The problem of solid-waste disposal



Industrial wastes plus sewage can be seen oozing into Lake Erie near almost every city along its shores. This man-made filth is destroying the Lake, warn experts. Cost of cleaning it up: 20 billions at least, starting now.



was tacked to the Clean Air Act. This law simply calls for the Government to help pay for studies and pilot projects on the best ways to handle the mounting piles of refuse and garbage that litter the landscape.

Meanwhile, across the country, ordinary citizens are demanding action against all forms of pollution. Reports from members of the staff of "U. S. News & World Report" give you on-the-spot accounts of why people are complaining, and what is being done.

Filthy lakes. The Cuyahoga River, oozing into Lake Erie at Cleveland, is so oily it has been declared a fire hazard. The Buffalo River, emptying into the Lake from New York State, is just as bad. Five States—Michigan, Indiana, Ohio, Pennsylvania and New York—are now pouring 1.5 billion gallons of sewage and 9.6 billion gallons of industrial wastes into the Lake every day. Fish are dying. Many bathing beaches are closed as health hazards.

Cleanup efforts by communities and industries are getting started, but it may take 10 years to restore the Lake.

Meanwhile, a member of the Ohio State legislature, George V. Voinovich (Rep.), has written President Nixon asking that Lake Erie be declared "a disaster area" entitled to federal funds for help in a restoration job right away.

The other Great Lakes are not in such bad shape as Lake Erie—yet. All are threatened, however. Sewage from communities, commercial vessels and pleasure craft, seepage from stockyards and mining waste are all contributing to contamination. Pesticides, particularly DDT, have been blamed for massive fish "kills" in Lake Michigan. Birds that feed on the fish—America's symbol, the bald eagle, among them—are reported to be dying off.

A State legislator in Texas charges that the Houston Ship Channel is "probably the filthiest, worst-polluted body of water today."

The mighty Mississippi and most of its great tributaries are below standards recommended by the Department of the Interior. Purification programs are in progress in many areas served by this river system. The problem remains enormous, however.

Visitors to Washington, D. C., may admire the cherry blossoms in spring, but the smell of the Potomac, reeking of sewage from Virginia, Maryland, and the capital city itself, takes a lot of the

(continued on next page)

—USN&WR Photo

POLLUTION MENACE

[continued from preceding page]

pleasure away. High priority is being given by the Nixon Administration to cleaning up the Potomac. Previous Administrations have tackled the problem without success.

Power generators, burning coal or oil, pollute the air unless they are carefully and expensively controlled, both as to fuel and filtering devices. Atomic-powered generators would seem to be the answer.

There may be a catch, however. Atomic plants use a lot of water and they get it very hot—far hotter than coal or oil-powered plants. A number of biologists suggest that discharge of large amounts of very hot water into a lake, slow-moving river, or bay may completely upset the balance of nature in the area.

Laymen have the same worry. You hear it wherever an atomic power plant is proposed.

Air—getting dirtier. Water can be cleaned many times—at the point where it has been used, again at the point where it is reused. All that cleaning may give it a "funny" taste, but if the cleaning is properly done, the water will be drinkable.

Air also can be cleaned at the point of pollution; cleaned again, through air conditioning, in buildings. But between those two points much of it is breathed by humans in the street. Much of it sinks to earth as invisible gas, mixed with soot, mist, rain or fog.

Charles C. Johnson, Jr., Administrator of the Consumer Protection and Environmental Health Service for HEW, estimates the cost of air pollution to Americans at 13 billion dollars a year in medical expenses, cleaning bills and building maintenance. He puts annual crop damage from air pollution at more than 500 million.

The American Medical Association has alerted physicians to watch out for air pollution as a possible cause of disease, particularly in metropolitan areas.

Members of the medical faculty at the University of California at Los Angeles advise people to move away from the smoggiest part of town if they value their health.

Across the continent, in New York City, Robert F. Wagner, when he was mayor, described the town as lying in a "sewer of polluted air." Experts at the U. S. Weather Bureau, in more scientific terms, agree that very frequently conditions make Mr. Wagner's description come close to the truth.

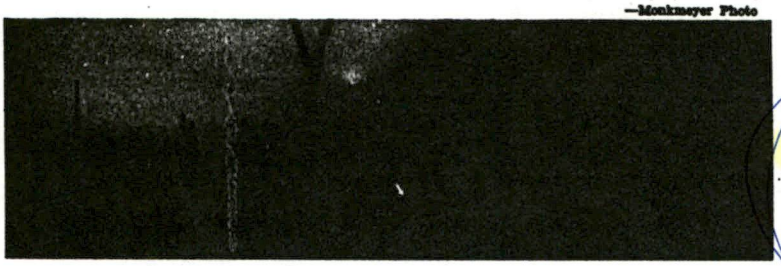
It applies equally well, they say, to such other Eastern cities as Philadelphia, Wilmington and Baltimore.

Reports from most major industrial areas in the Middle West and South show that the air is dirty there, too.

Even in the "great open spaces" of the West smog can be a nuisance. Las

The Rhine: a needed cleanup under way.

—Monkmeyer Photo



POLLUTION—WORLDWIDE PROBLEM

From "U.S. News & World Report" bureaus abroad—

LONDON—Since the "killer smog" of December, 1952, which resulted in the death of an estimated 4,000 persons, a strong drive against air pollution has been under way.

In about half of the industrial areas of Britain, "smokeless zones," in which no open-air burning or coal fires are permitted, have been set up.

The result: 50 per cent less smoke in the air all over the country, and 75 per cent less in London, than 10 years ago. Dirty water is still a problem, but improvement has been noticed, particularly in the Thames, where a 100-million-dollar water-treatment program has been installed. It is reported to be the most advanced in the world.

BONN—The West German Government has started a 10-year, 2.5-billion-dollar program to purify the Rhine River, which was in danger of becoming the world's biggest open-sewer system. Most of the money will be spent in a "crash" program over the next five years.

Industry will contribute about 60 per cent of the cost. The remainder will come from communities along the river and its tributaries, and from the German equivalent of State governments.

Experts are hopeful that they will be able to reduce the river's "dirt quota" by 80 per cent during the coming years.

The "Beautiful Blue Danube," which begins in Germany, is actually a dirty brown for most of its 1,744-mile length. Efforts are under way to clean it up. The job will be a tough one. International co-operation will be required because the river flows through seven countries before it empties into the Black Sea in Soviet Russia.

In West Germany's great industrial areas, both wild and domestic animals are reported dying from lung cancer and other disease related to air pollution. Vigorous efforts are being pushed by the Federal Government to combat this menace.

PARIS—In France, anyone caught throwing anything which could destroy fish into rivers or lakes is liable to a fine or a prison sentence. Fishing is good in most French lakes and streams.

Paris has four solid-waste incinerator plants in operation. Heat from these furnaces is being used in public buildings and housing projects.

Since 1963, new autos have been required to have exhaust controls. If a

Vegas, Nev., and Phoenix, Ariz., have their troubles at times. Exhausts from autos and trucks are the main pollutants, but in Las Vegas the trouble is complicated by dust from nearby chemical plants. In Phoenix, sulphur dioxide from mining operations adds contamination to the air.

Some successes. Here and there you find bright spots in the generally grimy picture of the U. S.

Pittsburgh, once known as "the Smoky City," still has air-pollution problems, but soot is not one of them.

The reeking Kenilworth dump, long a smoldering health menace to the residents of Washington, D. C., has been cleaned up, its fires put out and its rat population largely destroyed.

In Los Angeles, though smog persists, air pollution from industrial and domestic sources has been cut to 10 per cent of the total air contamination. The national average is 40 per cent.

The Ohio River, though still polluted, is cleaner now than it has been at any time during the past 30 years as a result of cleanup campaigns by communities and industries along the stream.

Health officials in New York City say that many bathing beaches, long closed because of pollution, may soon be reopened. Improved sewage treatment will make this possible, city officials explain.

Tighter State controls have made the Willamette River in Oregon cleaner than it has been in years. Some day it may again be fit to swim in, local authorities predict.

One more problem. The United States will never have clean air and clean water, however, until a way is found to get rid of solid wastes, health authorities say.

More than three quarters of municipal wastes—everything from garbage to the debris from urban-renewal projects—is disposed of in open dumps in the U. S.

These dumps are breeding grounds for rats, flies and other disease-carrying pests. Drainage from them seeps into the ground and can pollute the water. Open-air burning is inefficient and pollutes the air.

So far, three main methods of tackling the problem look promising:

1. Refuse can be compressed, disinfected chemically, or incinerated, and placed on unused ground. Then it is covered with good soil, planted with grass or shrubs.

This is known as the sanitary-landfill method of waste disposal. It has worked in the Kenilworth dump and it is being tried on a large scale in abandoned mines in Maryland.

In San Francisco and many other areas, however, residents oppose land fills. People living on San Francisco Bay point out that some 250 square miles of the original 700 in the Bay have given way to fill. This has reduced the ability of the Bay to clean itself.

2. Incineration in furnaces constructed to avoid air pollution is also being widely tested. Uses are being sought for the resulting ashes, and for the heat from the furnaces.

3. Composting of organic wastes for use as fertilizer is also under trial. This is expensive, however, and still leaves unsolved the problem of handling metal and plastic wastes.

The rest of the world. Because America is a big country, with a growing population and growing industry, its pollution problems are big and growing, too. No single set of answers will suit the pollution problems of every American community. Each will have to be tailored to local needs.

But the U. S. is not the only nation with a wide variety of pollution problems. Other countries have them too, as the reports that follow show.

policeman spots fumes coming from the tailpipe of an auto, the owner of the car must get it fixed. Even so, increase of auto traffic in large French cities is creating a pollution problem.

Beaches along the famed Riviera are being dirtied by waste disposal from large coastal cities.

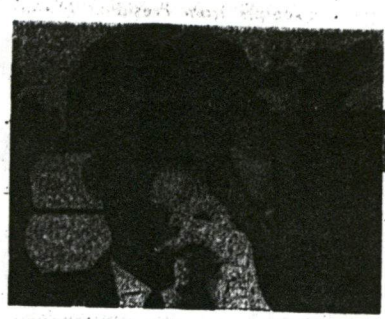
GENEVA — Switzerland has little heavy industry, yet an increasing number of dead fish on the shores of rivers and lakes, plus many "no bathing" signs on beaches, indicate that water pollution is serious. Sewage and chemical contamination are blamed.

In 1963 the fashionable resort town of Zermatt was hit by a typhus epidemic traced to polluted water.

The Swiss are taking steps. By the end of the next decade, three quarters of all sewage and almost all industrial-waste water will go through purification plants before being discharged into lakes or streams.

RIO de JANEIRO—This city's fine beaches are being cleaned up, largely, it is said, because foreign investors, mostly Americans, refused to put up money for luxury hotels along polluted shores.

Now a vast system of sewers has been designed to carry pollutants far out to sea.



In Tokyo, air gets so dirty that traffic police wear oxygen masks while on duty.

SANTIAGO, Chile—Smog is a big problem in Chile's capital. Lacking natural gas, residents must rely on soft coal for domestic and industrial use. More than 20 tons of coal dust fall on each square mile of the city every month. Landlords demand—and get—premium rents in areas where the smog is less dense.

LIMA, Peru—The foul odor of fishmeal, which often made visitors to this city violently ill, is no longer the constant problem it was a few years ago. The Government has ordered all fishmeal plants to install deodorizing towers. You still get a whiff, from time to time, but the smell is not anywhere near as bad as it used to be.

MEXICO CITY—This modern boom [illegible] growing in population at a rapid [illegible] an air-pollution problem as bad as any in the United States.

Government officials are doing little about it, however. They say they have more pressing problems, such as providing adequate amounts of clean drinking water, better sewerage and better housing with modern plumbing.

TOKYO—Going all out for industrialization, Japan left control of air and water pollution to local governments until 1967.

In that year the national legislature, the Diet, enacted a law to control "air and water pollution, noises, odors and landslides."

So far the law has had few visible effects. Fish in the polluted waters of the Tokyo-Yokohama area are dying off. Asthma, bronchial diseases, eye inflammations are all on the increase. Even stranger diseases have been reported in significant numbers as results of discharging metallic wastes into rivers.

Meanwhile a multiplicity of government agencies wrangle over which has authority for enforcing laws already on the books.

Earth Day kids have grown up.

MR. UTLEY: On "Meet the Press," the clean air bill and the rest of our environment--do the deeds match the words?

Our guest in William Reilly, head of the Environmental Protection Agency.

ANNOUNCER: From NBC News, this is "Meet the Press" with Garrick Utley.

MR. UTLEY: Earth Day--it will be observed later this month, an important symbol of concern for our world. The Environmental Protection Agency--it's going to be promoted to cabinet status this month, an important symbol of the Bush administration's concern for the environmental issue.

But it is time to go beyond symbols and ask what is being done, in fact. On Tuesday, the Senate will vote on the clean air bill--the first legislation on air quality in 13 years. Environmentalists argue it has been watered down; industry claims it is still too expensive for it and for an economy in a delicate state of health these days.

What is clear is that the environment is a problem and an issue which can no longer be ignored. That's why we're talking this morning with William Reilly, head of the Environmental Protection Agency. And joining me here on the panel are Robert Novak of The Chicago Sun Times and Elizabeth Drew of the New Yorker.

Good morning, Mr. Reilly. Thanks for coming by.

MR. REILLY: Good morning, thank you.

MR. UTLEY: The clean air bill, first and foremost--many environmentalists are not happy with the compromises, the deals that have been struck over it. In fact, the chairman of the Sierra Club, Michael McCloskey, says President Bush is starting to sound like a negotiator for the auto industry, the utilities.

Isn't there some truth in that?

MR. REILLY: I'd be very surprised if anybody in those industries were to agree with that.

We have seen that there has been a good deal of criticism on both sides--from industry and from environmental activists--of

the clean air initiative the president made last summer. It is a very ambitious, very aggressive piece of legislation--will bring in a hundred or more cities that are out of attainment for their health standards for ozone, and will do we think cost-effectively.

What we have been trying to do in the past couple of months is to take a much more expensive bill that would achieve much less--less than two percent that some people claim--less than two percent in pollution reduction--more than the Bush bill, and bring it down to a range where we could afford it.

And we have essentially done that. That's what the Senate compromise with Senator Mitchell and the administration represents. We're very pleased with that compromise. It's good for the environment; it's also good for the economy.

MR. UTLEY: Now, as head of the EPA, as an individual who's had a long career involvement in the environment and environmental issues, are you totally happy with this bill?

MR. REILLY: I am delighted with this bill. Frankly, we have moved the clean air issue faster, farther than I would ever have expected. This has been a bill that's been 13 years coming. It's been stalemated throughout the 1980s. The president's commitment made the difference. I think we're going to see clean air this year.

MRS. DREW: Mr. Reilly, when Governor Sununu, acting as the chief of staff, waters down a speech, as he did on global warming, or changes a policy, as he did on wetlands, do you think he's acting for himself or for the president?

MR. REILLY: Governor Sununu has been an absolutely vital partner in virtually everything we've done for the environment. We're talking about clean air, acid rain and the commitment to a 10-million-ton reduction of sulfur dioxides--and a commitment to keep that in the next century, which is very controversial, was something that would not have happened without Governor Sununu.

MRS. DREW: Can you answer my question, though? When he

makes these changes about which there's always much controversy in the papers, and it appears that people working for you are pretty unhappy, again do you think he is doing that out of his concern, or is he acting on the president's behalf--and, in fact, these are the president's policies?

MR. REILLY: Well, first of all, the people who are concerned about those changes, very few are capable of saying precisely what they were. The only one that one hears about is a change of term from "global warming" to "climate change"--not exactly a significant item.

Secondly, I think a chief of staff has a very different function from an EPA administrator. He has got the job of brokering for all of the interests involved, for all of the agencies, for all of the concerns--whether economics or energy, agriculture or whatever--and someone's got to do this. It's not something that I can do, and he does it.

MR. UTLEY: Let me just jump in here and follow up on this point.

You say Mr. Sununu is supportive. And yet you said just a few weeks ago there was a tendency by some faceless bureaucrats on the environmental side to try and create a policy in this country that cuts off our use of coal, oil, and natural gas.

He's talking about your bureaucrats.

MR. REILLY: Well, first of all, he was talking about leaks, which, I've discovered in the course of 14 months or so, do pose problems, do get in the way of policy from time to time, and I suppose now I've shared some of the concern about that.

In that instance, when people talk about EPA, they rarely accuse us of being faceless. You know, if leaks came out of our agency, that's regrettable.

MR. NOVAK: But, Mr. Reilly, one of your future cabinet colleagues-to-be says you're the leaker. And he has referred to you as the enemy within, the Trojan horse in this administration.

Have you been leaking?

MR. REILLY: Who's that, Mr. Novak?

MR. NOVAK: I'm not going to tell his name. It was given in confidence.

MR. REILLY: I've read about that only in your column. That is not true. We are, I think, working very well and loyally and effectively with the president.

The president is calling the tune on the environment. And if he has set a policy which is stronger on the environment than some people expected, then I think there is going to be some conflicts, some contention, some concern. But we are moving forward as an administration on it.

MR. NOVAK: Well, if you have this collegiality, sir, why is it that one of the most powerful figures in the administration, Mr. Darman, the director--Richard Darman, the director of the Office of Management and Budget--will not talk to you, will not attend meetings that you attend?

MR. REILLY: I talk to Darman all the time. I've had any number of dealings with Darman. But more important than anything, than our personal relationship--which is of great interest in this town, I think more than appropriate--is the substance of our relationship.

We have never at EPA had, I think, a better relationship with the Office of Management and Budget than we've had with the Darman OMB--measured by our budget increase this year of 12 percent in operating funds, measured by the $2 billion more the president is spending on the environment, or measured by regulations that we've moved through on asbestos and benzine and any number of others.

MR. NOVAK: Well, Mr. Darman is quoted by other reporters as giving quite a different story of your relationship.

But moving on from that, do you feel that there is some conflict between your championship of the environmental cause and a conservative Republican administration?

MR. REILLY: The president has set the tone on the

environment. He has made clear on clean air, on pesticide reform, in his budget decisions, on climate change, that we're going to move this country forward and we're going to move it forward aggressively on the environment.

I think all of us have got that message. It's my job, as it is of others, to see to it that we act on it.

MR. UTLEY: Coming back to the problem facing business, you're talking in the clean air bill $21 billion a year--that business, eventually the consumer, is going to have to pay for.

Given the state of the economy--it's rather weak these days, barely one percent growth--is this not going to be a very heavy burden and perhaps affect our economy in the months and the years to come? Is this the best time to bring this bill, this $21-billion bill?

MR. REILLY: As a society, we spend something in the range of $33 billion a year on clean air. That's a substantial amount of money. We are, as you say, proposing to add to that another roughly $19-21 billion. Over time, all of those expenses are not going by any means to impact within the next few years, or even within this decade.

But neglected is the terrific benefits you get from clean air. The American Lung Association has estimated 50,000 premature deaths a year associated with air pollution. In terms of illness, in terms of lost time from work, all of these have to be factored in. And I think we're getting more than good value for the most unavoidable of all of the pollutants--the one that all of us breathe.

MR. UTLEY: So you're not worried about any economic impact?

MR. REILLY: We are very concerned to make sure that the things we do on clean air, as with respect to the rest of the environment, do make sense--can justify themselves cost-effectively. And that's the reason we worked so hard over the month of February to negotiate a change in the Senate Environment Committee's bill.

MRS. DREW: Mr. Reilly, the president in 1988 campaigned very hard against Governor Dukakis for the pollution of Boston harbor. And yet the Bush administration's budget this year has zero funds for Boston harbor.

Does that mean it really never was a big problem in the first place?

MR. REILLY: Pollution in Boston harbor is a very big problem, and it's been allowed to get a lot bigger than in most other comparable places. It's been allowed to get that way because the state, throughout the 70s and 80s, failed to give it the priority that it needed.

MRS. DREW: But the federal government doesn't seem to think it matters.

MR. REILLY: We are not providing special funds for the clean-up of San Francisco Bay or New York harbor or New Orleans or any number of other places. We are providing funds, and a substantial amount of them, to the state of Massachusetts, which they can allocate to Boston harbor; I expect that they will.

But there's no special claim that because a jurisdiction delays, fails--in fact, fights in the court--efforts to get it to clean up over time, it therefore ought now to have special preference.

MRS. DREW: Just quickly, a number of us wonder why do we need a new cabinet department? What substantive difference does it make, except for just more titles, more cars, more doorways--assistant secretaries? What do we need it for?

MR. REILLY: First of all, it represents only, as we have proposed it, a change in name from the Environmental Protection Agency. That's it. No new employees, no new laboratories--nothing of that sort.

new dept - not new bureaucracy

I think the summit participants last July stated it best when they said the environment today is an issue that cannot adequately be addressed without regard for its impact on transportation and vice versa, and energy and agriculture--and all factors of the economy. It's a way, I think--putting EPA in the cabinet--of

first in level world ministerial rank?

saying to those other departments, those other concerns, those other agencies, the environment has to be taken into account; it affects everything that you do, it's now at an equal level of concern.

MR. NOVAK: But, Mr. Reilly, there is something new in the bill that passed the House; and that is a bureau in the new department will operate independently of the president--the president cannot remove it.

What have you done to try to prevent that from being passed--or have you tried to prevent it?

MR. REILLY: I've tried very hard to prevent it. I spoke to the Republicans in the House, and also to the Republican Senate leadership on it. We are confident that the Senate will not have a provision of that sort.

MR. NOVAK: But isn't a fact that several of the staffers in the EPA have worked with staffers on the Hill to put that in? Don't you know that?

MR. REILLY: No. What we have done--

MR. NOVAK: You're not aware of that?

MR. REILLY: What we have done is to try to ensure that we do get a Bureau of Environmental Statistics, which the administration supports, I testified for, and Mr. Darman helped work out with the Senate committee.

We do not want an independent agency that we have no control over, whose research we don't even know--

MR. NOVAK: You're denying that the staffers in your agency have worked with the staffers on the Hill to make an independent agency?

MR. REILLY: Our staff has worked to try to get a Bureau of Environmental Statistics, but to do so in the context of an agency that has the integrity, I think, to develop the data--much as the Labor Department does with real labor statistics.

MR. UTLEY: But why shouldn't data be independent? It's the key to all you're talking about and deciding.

MR. REILLY: Well, data is obviously a very important part of our function; a great deal rides on it. We want data to have integrity; we want it collected systematically and professionally. But the quality of information, as with the case of the Bureau of Labor Statistics, is guaranteed by the people who conduct the work and the quality of their profession.

We don't want to see--one could, I suppose, move through the executive branch and attempt to isolate, for purposes of enhancing independence--you lose accountability, if you do that--virtually all of the functions one considers important.

One inference I draw from the efforts by some Democrats in the House to create such an entity is that don't expect to be in power very soon. I think it's a slight to the Environmental Protection Agency to suggest that we're not capable of developing quality information and doing environmental statistical collection.

MR. UTLEY: Mr. Reilly, many more questions about our environment. We'll be right back in just a moment, as we continue here on "Meet the Press."

(Announcements)

MR. UTLEY: On "Meet the Press" this morning, Robert Novak, Elizabeth Drew and I are talking with William Reilly, head of the Environmental Protection Agency.

Mr. Reilly, when we talk about the environment, we talk about dollars, billions of dollars, that have to be spent to clean it up. The clean air bill will soon be law, we assume. There's another price: many people will lose their jobs. Coal miners--perhaps thousands of miners will be out of work because their coal can't meet the new standards. What do you say to these people?

MR. REILLY: Well, first of all, we are going to see some losses in those jobs. We're going to see some countervailing gains in mining jobs for low-sulfur coal miners. We are not pleased about that. It's not something we want to see happen. We're prepared to work very carefully with those workers and with the

state to try to insure that we have as good a safety net and unemployment-retraining provisions as possible. We worked with the secretary of labor already to try to insure that that's available.

MR. UTLEY: But you know that these workers in many cases are in very poor areas. We can talk about retraining, safety nets. But that doesn't mean a job out there. They face a very bleak future.

MR. REILLY: Honestly, I think the real future for the miners of high-sulfur coal is clean coal technology. We have as an administration made a very strong, very expensive commitment to developing a capacity to burn high-sulfur coal more efficiently and with less impact on the environment. We expect to see the benefits of that within the not-too-distant future. We're talking about job losses that are at least five years away--the three to four to five thousand jobs will not be impacted before then. Most of them will come in the next century, and by that time we hope that we will have--we expect that we will have, based on what we now know, substantial new clean coal technology to ease that shift.

MRS. DREW: Let's move to some environmental issues on which there is debate. The president got a lot of criticism from making a speech on global warming that didn't call for new action; it called for further study. Yet just this week a study came out by some scientists using weather satellites, said that they could detect no long-term change in the temperature over the past 10 years, and it might take another 10 years to see whether there is change. Other people disagree with that. Who's right? How do you look at it?

MR. REILLY: Well, the study you refer to is based on 10 years of satellite study and collection of information. It's not, I don't think any one would say, a sufficient time period to draw any conclusions. Unfortunately, we are not likely, from all that I have heard from scientists, to have really conclusive indisputable information on climate change, or see any effects of it thus far

within the near future, within perhaps several years. We do have, however, consensus in the scientific community that a build-up of CO2 in the atmosphere will lead inevitably to climate change, and probably to warming, possibly to significant warming. That's a matter of time. There are strong arguments about how fast it will come on, how far it will go, perhaps how the atmosphere will respond in creating clouds and that sort of thing--but that it will happen is generally accepted within the scientific community.

MRS. DREW: Let's take another one on which there's debate, which is acid rain. As I understand it, a federal report was ordered, is about to come out, saying that they could see no great long-term damage to forests from acid rain. Again, other scientists say this is wrong. Who's right?

MR. REILLY: Well, they acknowledged impacts on upper atmosphere, upper elevation forests, from acid rain, and they acknowledged a whole range of ecological effects beyond the forestry effects--effects on lakes, effects on monuments, effects on the ecology generally of the northeast and of Canada. Some 17,000 lakes in Canada, for example, have been impacted by acidic deposition. The sooner we get the poison out of the air, the sooner we'll begin to see those systems start to recover. But it will take some time.

MR. NOVAK: Mr. Reilly, contrary to the picture of conviviality that you paint in the Bush cabinet, isn't it a fact that Governor Sununu, Mr. Darman, disagree with your views on global warming and consider them alarmist?

MR. REILLY: My views on global warming, I think, are very substantially the same as those of Governor Sununu. He has strong concerns about the quality of the models, and understands, I might say, those models better than virtually anybody else I know, and how much you can predicate on them. He has been a strong supporter. If he didn't think that this was a significant problem, I don't think we'd see a billion dollars in the budget for scientific research on climate change in the budget the president's just

proposed. That is what I support. He also was centrally involved in the decision to commit the president to a treaty on climate change, as was I.

MR. NOVAK: Well, as far as those models are concerned, sir, several of your colleagues, or some of your colleagues, have been quoted as questioning your scientific credentials and your ability to understand. You're a lawyer by profession. You've had some graduate work.

MR. REILLY: I confess that's true.

MR. NOVAK: And you're not a scientist.

MR. REILLY: That's right.

MR. NOVAK: Do you really feel capable of passing these judgments on global warming which would really change the way we live on this planet?

MR. REILLY: Look, look, every important decision involving the environment involves the necessity to take scientific information--very important partial information, inconclusive data--and figure out what is in the best interests of the country and the world environment. I do that consistently with respect to pesticides and chemicals, clean air, clean water. And we do it--we have a responsibility under the law to do it with respect to climate change.

MR. NOVAK: Are you qualified to judge one scientist's view against another? You say they disagree, but you take the ones that show the most alarm.

MR. REILLY: I also said there's a consensus in the scientific community about the consequences finally of atmospheric build-up.

We've seen about a 25-percent increase in CO2 concentration in the atmosphere in the last hundred years. It's going to a doubling. Virtually every atmospheric scientist I know believes that will have impact finally on climate.

MR. UTLEY: Finally, Mr. Reilly, coming back to the home and environmental problem there--waste disposal. We know it's a

national, international problem. But in the home, do you see us coming to the day rather soon where we're going to have to have not just one trash can but two or three--that we're all really going to be required to separate our garbage?

MR. REILLY: I do see that coming. And I think the public will welcome it, when it does.

We have got a waste crisis coming in this country. we're going to see about a third of our landfills become obsolete within the next five years. Eighty-five percent of our waste goes into landfills.

I think the public is interested--feels a sense of impatience, even urgency, about ways to do better. They know that we waste too much--much more than other countries. We can do better. We're going to have programs to help people.

MR. UTLEY: And you're going to push for that?

MR. REILLY: And we're going to push for it. Segregating the waste stream makes good sense. Communities that don't currently do that, that allow you to put the bottles one place and the cans in another and the paper in yet another are behind the curve. They ought to be begin to do that--for their own economics, among other things.

MR. UTLEY: A vision of the future, Mr. Reilly. Thank you for being with us this morning here on "Meet the Press."

MR. REILLY: Thank you, sir.

MR. UTLEY: In a moment Robert Novak, Elizabeth Drew and I will be back with some personal observations, as we continue.

(Announcements)

MR. UTLEY: Changing topics this Sunday morning here on "Meet the Press," the United States and the Soviet Union and Lithuania--a very fine line that George Bush is walking in that dispute which has not yet reached its ultimate showdown.

The right line, Bob Novak?

MR. NOVAK: I think it's exactly the wrong line. They're kicking the journalists out of Vilnius this weekend. I think that

the president has given Mr. Gorbachev a hunting license to do what he wants, to keep the Soviet Union together by force, if need be. And, really, I think he has taken the pressure off the Soviet Union.

I think the world is acting toward Lithuania today very much as it acted toward them a half century ago.

MR. UTLEY: But what's the alternative?

MR. NOVAK: The alternative is to go public with some very strong threats of an end to the special relationship that has been developing between the U.S. and the Soviet Union, if they continue to use force--because they've already used force.

MR. UTLEY: Elizabeth?

MRS. DREW: Well, this changes almost daily, Garrick. I would say the administration has various purposes. One is to preserve Gorbachev and not do things that would have him end up with less power; to work for the independence of Lithuania by trying to get both sides to negotiate--and that was one of the reasons for not taking a strong position affirming one or the other; and to sort of cool things off--to stop commenting on it every day.

They say they don't want to be like the Carter administration during the hostage problem. But the problem is, just when the Soviet army went in there to beat up those kids who had deserted was when the White House said, well, we're not commenting anymore. And it didn't look very good.

MR. UTLEY: Well, how much of this is a moral question? And how much of it is cold power politics?

MR. NOVAK: Well, they think it's cold power politics because they really feel that there's so much to be gained by arms control and other bilateral questions. But I believe it is a moral question.

I think our place in the world, when people are reading Thomas Jefferson in the streets of Prague, is as a moral power. And I think that that influence is diminished because of the way

we're conducting this policy.

MR. UTLEY: Bob, Elizabeth, thanks very much for coming by this morning. Now, let me get my word in on this subject.

It is a very difficult subject. It is, indeed, a moral dilemma of the week, Lithuania, and perhaps the weeks to come. As we've heard now, there is a lively debate going on as to how we should respond to the Lithuanians' declaration and desire for independence. Our hearts say go for it--there can be no compromising on freedom. But then there is that unpleasant intruder, like it or not, known as political reality--and it has to be dealt with, one way or the other. The likely reality is that Mikhail Gorbachev's reform program, which includes greater freedoms, would be derailed, or at least seriously delayed, if he feels forced to use force to keep Lithuania in his crumbling empire. That would carry a high price for Gorbachev, also for the Lithuanians--and, yes, let's face it, for us, too. Americans are already starting to count the peace dividend.

There are those in this country who say anything less than 100-percent vocal American support for Lithuania is a denial of our basic values; and that is, indeed, a valid argument. But to suggest that anything less than that is appeasement, as some have, is a cheap shot. Reality, otherwise known as history, reminds us what happened in Hungary in 1956 when we encouraged freedom fighters there, and then did not come to their assistance.

In Lithuania, the issue is not just freedom now; it is also freedoms which are going to last. The Estonians understand that, and are handling their bid for independence in a more measured way. The Soviet Union, of course, is no garden of democracy this spring. But Gorbachev is allowing some shoots of freedom to sprout up. They have to be tended carefully, or a Russian frost could kill them off soon.

I'm Garrick Utley. I hope you'll join me this evening for NBC Nightly News and again next week for "Sunday Today" and "Meet the Press."

Remarks Announcing the Clean Air Act Amendments of 1989

June 12, 1989

Well, in this room are Republicans and Democrats, leaders from both sides of the aisle in Congress, Governors, executives from some of the most important companies and business organizations in America, leading conservationists, and people who have devoted their lives to creating a cleaner and safer environment. And I've invited you here today to make a point. With the leadership assembled in this room, we can break the stalemate that has hindered progress on clean air for the past decade; and with the minds, the energy, the talent assembled here, we can find a solution.

So, let me tell you the purposes of this morning's gathering. First, I'd like to lay on the table my proposals to curb acid rain and cut urban smog and clean up air toxics. And second, I want to call upon all of you to join me in enacting into law a new Clean Air Act this year. But first, we should remember how far we've come and recognize what works.

The 1970 Clean Air Act got us moving in the right direction with national air quality standards that were strengthened by amendments in 1977. Since 1970, even though we have 55 percent more cars going 50 percent farther, in spite of more utility output and more industrial production, we've still made progress. Lead concentrations in the air we breathe are down 98 percent. Sulfur dioxide and carbon monoxide cut by over a third. Particulate matter cut 21 percent. Even ozone-causing emissions have been cut by 17 percent. And still, over the last decade, we have not come far enough.

Too many Americans continue to breathe dirty air. And political paralysis has plagued further progress against air pollution. We have to break this logjam by applying more than just Federal leverage. We must take advantage of the innovation, energy, and ingenuity of every American.

The environmental movement has a long history here in this country. It's been a force for good, for a safer, healthier America. And as a people, we want and need that economic growth, but now we must also expect environmental responsibility and respect the natural world. And this will demand a national sense of commitment, a new ethic of conservation. And I reject the notion that sound ecology and a strong economy are mutually exclusive. So, last week I outlined five points of a new environmental philosophy: one, to harness the power of the marketplace; two, to encourage local initiative; three, to emphasize prevention instead of just cleanup; four, to foster international cooperation; and five, to ensure strict enforcement—polluters will pay.

We know more now than we did just a few years ago. New solutions are close at hand. It's time to put our best minds to work; to turn technology and the power of the marketplace to the advantage of the environment; to create; to innovate; to tip the scales in favor of recovery, restoration, and renewal. Every American expects and deserves to breathe clean air, and as President, it is my mission to guarantee it—for this generation and for the generations to come. If we take this commitment seriously, if we believe that every American expects and deserves clean air, and then we act on that belief, then we will set an example for the rest of the world to follow.

Today I am proposing to Congress a new Clean Air Act and offering a new opportunity. We've seen enough of this stalemate. It's time to clear the air. And you know, I think we will. We touched a lot of bases as we prepared this bill, and we've had the benefit of some good thinking on the Hill. And we've met with business leaders who see environmental protection as essential to long-term economic growth, and we've talked with environmentalists who know that cost-effective solutions help build public support for conservation. And we've worked with academics and innovative thinkers from every quarter who have laid the groundwork for this approach. And just this morning I spoke by phone with Prime Minister Mulroney of Canada. I believe he's excited about the prospect, too. I have no pride of authorship. Let me commend Project 88 and groups like the Environmental Defense Fund for bringing creative solutions to longstanding problems, for not only breaking the mold but helping to build a new one.

And we've had to make some tough choices. And some may think we've gone too far, and others not far enough. But we all care about clean air. To the millions of Americans who still breathe unhealthy air, let me tell you, I'm concerned—I'm concerned about vulnerable groups like the elderly and asthmatics and children, concerned about every American's quality of life; and I'm committed to see that coming generations receive the natural legacy they deserve.

We seek reforms that make major pollution reductions where we most need them. First, our approach is reasonable deadlines for those who must comply. It has compelling sanctions for those who don't. It accounts for continued economic growth and expansion; offers incentives, choice, and flexibility for industry to find the best solutions; and taps the power of the marketplace and local initiative better than any previous piece of environmental legislation.

This legislation will be comprehensive. It will be cost-effective. But above all, it will work. We will make the 1990's the era for clean air. And we have three clear goals and three clear deadlines. First, we will cut the sulfur dioxide emissions that cause acid rain by almost half, by 10 million tons, and we will cut nitrogen oxide emissions by 2 million tons, both by the year 2000. We have set absolute goals for reductions and have emphasized early gains. And that means 5 million tons will be cut by 1995, and the degradation caused by acid rain will stop by the end of this century. To make sure that coal continues to play a vital role in our energy future, we've provided an extension of 3 years and regulatory incentives for the use of innovative, clean coal technology. We've set an ambitious reduction target, and applying market forces will be the fastest, most cost-effective way to achieve it. So, we're allowing utilities to trade credits among themselves for reductions they make, to let them decide how to bring aggregate emissions down as cost-effectively as possible. Cleaner fuels, better technologies, energy conservation, improved efficiency—in any combination, just as long as it works.

There's a wisdom to handing work to those most qualified to do it. Four hundred years ago Montaigne wrote: "Let us permit nature to have her way. She understands her business better than we do." Well, it's true. Acid rain must be stopped, and that's what we all care about. But it's also true that business understands its business better than we do. So, we're going to put that understanding to work on behalf of clean air and a sound environment. We've provided the goals, but we won't try to micromanage them. We will allow flexibility in how industry achieves these goals, but we stand firm on what must be achieved.

Second, this Federal proposal will cut the emissions that cause urban ozone, smog, virtually in half. This will put the States well on the road to meeting the standard. Twenty years ago, we started on the job. And if Congress will act on the clean air reforms that I'm offering today, 20 years from now, every American in every city in America will breathe clean air. Today 81 cities don't meet Federal air quality standards. This legislation will bring clean air to all but about 20 cities by 1995, and within 20 years, even Los Angeles and Houston and New York will be expected to make it.

In the nine urban areas with the greatest smog problems, we propose bold new initiatives to reconcile the automobile to the environment, ensuring continued economic growth without disruptive driving controls. We'll accomplish this through alternative fuels and clean-fueled vehicles. We propose to put up to a million clean-fueled vehicles a year on the road by 1997. But we're also proposing flexibility on the means, even as we remain firm on the goals. A city can either request inclusion in the program or, if they show they can achieve these ambitious reductions through other measures, we will scale back the clean-fuel vehicle requirements accordingly. Also, we're sensitive to the problems of smaller cities, whose own ozone problems are due to—largely to pollutants that are generated in other areas, other regions, other cities. They will not be penalized for pollution problems outside their control.

Our program incorporates a mix of cost-effective measures to cut emissions from cars, fuels, factories, and other sources. But I'm asking the EPA [Environmental Protec-

tion Agency] to develop rules like those we're employing on acid rain to allow auto and fuel companies to trade required reductions in order to meet the standard in the most cost-effective way. Our challenge is to develop an emissions trading plan; their challenge is to meet the standards.

The third leg of our proposal is designed to cut all categories of airborne toxic chemicals by three-quarters within this decade. Our best minds will apply the most advanced industrial technology available to control these airborne poisons. The very best control technology we have will determine the standard we set for those plants. And until now, because of an unworkable law, the EPA has been able to regulate only 7 of the 280 known air toxics. The bill I am proposing today will set a schedule for regulating sources of air toxics by dates certain. In addition, it will give the dedicated people of the EPA the right tools for the job, and it will make state-of-the-art technology an everyday fact of doing business. And that's the way it should be.

In its first phase, this initiative should eliminate about three-quarters of the needless deaths from cancer that have been caused by toxic industrial air emissions. And we plan a second phase to go after any remaining unreasonable risk. People who live near industrial facilities should not have to fear for their health.

And for 10 years, we've struggled to engage a united effort on behalf of clean air, and we're now on the edge of real change. Nineteen eighty-nine could be recorded as the year when business leaders and environmental advocates began to work together, when environmental issues moved out of the courts, beyond conflict, into a new era of cooperation. And this can be known as the year we mobilized leadership, both public and private, to make environmental protection a growth industry and keep our ecology safe for diversity. The wounded winds of north, south, east, and west can be purified and cleansed, and the integrity nature can be made whole again. Ours is a rare opportunity to reverse the errors of this generation in the service of the next. And we cannot, we must not, fail. We must prevail. I ask for your support. We need your support to make all of this into a reality.

Thank you all, and God bless you, and thank you very much for coming.

Note: The President spoke at 11:15 a.m. in the East Room of the White House.

White House Fact Sheet on the President's Clean Air Plan

June 12, 1989

Fulfilling a major campaign commitment, President Bush today proposed a comprehensive program to provide clean air for all Americans. The President's plan calls for the first sweeping revisions to the Clean Air Act since 1977 and represents the first time an administration has put forward a proposal since that time. The President's plan is designed to curb three major threats to the Nation's environment and to the health of millions of Americans: acid rain, urban air pollution, and toxic air emissions.

While emissions of some pollutants—such as sulfur dioxide, urban ozone, and carbon monoxide—have been reduced since passage of the 1970 law, progress has not come quickly enough. The President's plan will dramatically accelerate the pace of pollution reduction and put America on the path toward markedly cleaner air by the end of the century.

The President's plan will:

- Cut sulfur dioxide emissions virtually in half by the year 2000. The plan calls for a 10 million ton reduction in SO_2 and a 2 million ton cut in nitrogen oxide (NO_x) emissions, for a total reduction of 12 million tons in acid rain-causing emissions.
- Bring all cities currently not meeting the health standards for ozone and carbon monoxide into attainment. Most cities will attain the standard by 1995, and the plan is designed to ensure attainment in all but the most severely impacted cities by the year 2000.
- Require factories and plants emitting toxic compounds into the air to employ the best technology currently available in order to achieve in the near term a cut estimated at 75 to 90 percent in pollutants suspected of causing cancer.

Taken together with efforts to reduce cancer-causing emissions from cars and trucks, it is estimated that the plan will eliminate in its first phase over three-fourths of the annual cancer deaths that air toxics are suspected of causing.

Fundamental Principles

Five goals underlie the President's clean air proposals and the means for accomplishing them:

- *Protecting the Public's Health.* The goal of the legislation is to prevent public exposure to cancer-causing agents and to protect those citizens, especially vulnerable populations—such as the elderly, asthmatics, and children—who live in cities with dirty air that does not conform to national health standards.
- *Improving the Quality of Life.* The proposal will improve the quality of life for all Americans by exercising responsible stewardship over the environment for future generations.
- *Achieving Early Reductions and Steady Progress.* The proposal establishes realistic timetables to meet air quality standards, but contains provisions to cut substantial amounts of air pollution in the near term, while requiring steady progress toward reducing emissions that are harder to control.
- *Harnessing the Power of the Marketplace.* The proposal calls for the use of marketable permits to achieve acid-rain reductions and emissions trading to achieve reductions from the automobile pollution, so as to clean the air to a definite standard while minimizing the burden on the American economy.
- *Employing Innovative Technologies.* The proposal encourages development of clean coal technology, alternative fuel systems for automobiles, and other cost-effective means of using new technology to cut pollution.

The President's plan allows for both environmental protection and economic growth, two longstanding concerns often considered at odds with each other. By incorporating both concerns in his proposal, the President seeks to break the gridlock which has characterized the debate on clean air for the past several years.

ACID RAIN

Highlights

- Requires sulfur dioxide reductions of 10 million tons and nitrogen oxide reductions of 2 million tons.
- Calls for 5 million tons of reductions in the first phase by the end of 1995.
- Establishes a system of marketable permits to allow maximum flexibility for utilities to achieve required reductions in the most efficient and least costly manner.

Background

Acid rain occurs when sulfur dioxide (SO_2) and nitrogen oxide (NO_x) emissions undergo a chemical change in the atmosphere and return to the Earth in rain, fog, or snow.

Approximately 20 millions of SO_2 are emitted annually in the United States, three-quarters from the burning of fossil fuels by electric utilities; 20 percent from other, more widely dispersed industrial sources; and 5 percent from transportation sources. The source of most SO_2 emissions causing acid rain are old (pre-1971) electric powerplants, not subject to the existing Clean Air Act's strict emissions requirements on newer plants. Fifty power plants are responsible for about half of all SO_2 emissions.

Acid rain causes damage to lakes, forests, and buildings; contributes to reduced visibility; and is suspected of causing damage to human health.

Since 1970 the United States has spent $225 billion to control air pollution. American industry spends about $33 billion a year on air pollution controls ($10 billion by the electric utility industry). One result of this expenditure is that SO_2 have been reduced by almost 20 percent since 1977, despite a substantial increase in coal consumption during the period since then.

Any acid rain control program will increase electricity rates for affected utilities. Generally speaking, however, proposals with greater flexibility will result in smaller

rate increases. Thus, the President's proposal to allow trading among utility companies will ensure that protection from acid rain is achieved in a less costly fashion than many of the more traditional "command and control" proposals that have been advanced.

The President's plan represents a major new innovation in harnessing the power of the marketplace to protect the environment.

The President's proposal calls for:

- A reduction of 10 million tons of sulfur dioxide by the year 2000, using a baseline year of 1980 for tons of SO_2 emitted, primarily from coal-fired powerplants.
- A two-phase program in order to ensure early reductions. A reduction of 5 million tons is required during the first phase, by the end of 1995. All dates assume enactment of this legislation by December 31, 1989.
- A 2 million ton reduction of NO_x in Phase II. The plan would allow utilities to trade reductions of NO_x for reductions of SO_2 or vice versa, and thus represents a call for a total reduction of 12 million tons in acid rain-causing pollutants.
- A 3-year extension of the Phase II deadline for plants adopting clean coal-repowering technologies, combined with regulatory incentives designed to smooth their transition into the marketplace. This will allow the United States to make good on the major investment the President has called for in clean coal and will ensure that coal continues to play an important role in America's energy future.
- Freedom of choice in cutting pollution. The plan requires all plants above a certain size in affected States to meet the same emissions standard, but does not dictate to plant managers how the standard should be met. The plan requires the largest polluting plants to make the greatest cuts in pollution. The emissions standard would be set at the rate necessary to achieve 5 million tons in the first phase. The plan envisions a standard of 2.5 lbs. per million BTU, which would affect 107 plants in 18 States. The standard would then be tightened to approximately 1.2 lbs. per million BTU's so as to achieve a 10 million ton reduction in Phase II.
- Maximum flexibility in obtaining reductions. The plan would allow utilities to trade required reductions so that they will be achieved in the least costly fashion. In the first phase, trading would be allowed among electric plants within a State or within a utility system. In addition, full interstate trading would be allowed in Phase II.
- The estimated cost of the President's proposal would be $3.8 billion annually in the second phase and approximately $700 million per year in the first phase. While this represents an increase of over 2 percent by the year 2000 in the Nation's $160-billion-a-year electricity bill, the flexibility built into the President's plan reduces by up to half the cost of various competing proposals mandating the use of specific technologies.

URBAN AIR QUALITY

Highlights

- Employs a mix of Federal measures and State initiatives to cut sharply air pollution in our nation's cities. The Federal measures alone will cut emissions that cause urban ozone, the primary contributor to urban air pollution, nearly in half and help bring all cities into compliance with air quality standards.
- Sets realistic timetables for attaining the standards but is designed to ensure steady progress toward meeting that goal.
- Contains new initiatives to promote alternative fuels to reduce pollution from cars, buses, trucks, and motor fuels, and to harness the power of the marketplace to ensure cost-effective reductions.

OZONE

Background

Based on data measured during the summers of 1985 to 1987, over 100 million people live in 81 urban areas across the country that exceed the health standard for ozone. In some cities, such as Los Angeles, the situation is persistent and severe (176 days in violation of the health standard in 1988); in other cities the problem is marginal (Lancaster, PA, is listed as a nonattainment area, but in fact has exceeded the Federal standard for only a few hours in the last 3 years).

The President's plan is designed to ensure that over two-thirds of the cities now out of attainment—all but about 25 cities—come into attainment by 1995. All but the 3 most seriously polluted areas—Los Angeles, Houston, and New York—will come into attainment by the year 2000; and these special cases will be given until 2010, contingent upon a requirement in the President's plan that they show significant annual progress toward cleaning the air and meeting the health standard.

Ozone is formed when volatile organic compounds (VOC's) are mixed with nitrogen oxides (NO_x) in the presence of sunlight. Heat speeds up the reaction, and therefore, concentrations are usually higher in the summer months. Exceedances of the ozone standard (.12 parts per million) grew sharply during the especially hot summer of 1988. If a city exceeds the standard for at least 1 hour on 4 or more days during a 3 year period, it is judged to be "out of attainment" with the standard.

Exposure to ozone causes short term effects, such as shortness of breath, coughing, and chest pains, that are particularly acute for asthmatics, children, and senior citizens. Moreover, ozone is suspected of playing a role in the long-term development of chronic lung diseases and permanent lung structure damage. In addition to health effects, ozone has effects on vegetation, including crops such as soybeans, wheat, and corn; is damaging forests in California; and is suspected as a contributing agent in damage to forests in the southeastern United States.

The major sources of VOC's, the most important ozone precursor, are motor vehicles (40 percent); small area sources, e.g., bakeries, dry cleaners, and consumer solvents (40 percent); large point sources, e.g., petroleum refineries (15 percent); and gasoline refueling (5 percent). Many large point sources have already been required to reduce emissions by roughly 80 percent from uncontrolled levels under the Clean Air Act, and tailpipe emissions from new vehicles have been reduced by 96 percent. The smaller area sources are largely uncontrolled.

VOC and NO_x emissions have decreased nationally since 1978—VOC's by 17 percent and NO_x by 8 percent—despite growth in population, travel, and industrial activity. As a consequence, the trend in ambient ozone concentrations declined by 9 percent from 1979 to 1987. Increases occurred again, however, in the hot summers of 1987 and 1988.

The deadline for meeting urban ozone standards set back in 1977 under the existing Clean Air Act has already expired. Despite this progress in reducing ozone, the health standards have not been met within the deadlines. Without new legislation, the Environmental Protection Agency (EPA) will be required by law to impose Federal Implementation Plans (FIP's) on several major American cities. Courts are, for example, already preparing to impose such requirements on Chicago and Los Angeles. These FIP's could involve extraordinary controls that would sharply curb economic growth and dramatically alter the lifestyles of local residents.

Over the next decade, both EPA and the Federal Highway Administration estimate that growth in automobile use will begin to outstrip reductions occurring from fleet turnover, so that VOC emissions will increase after 2000.

Thus, additional measures to reduce ozone-causing emissions are needed if Americans are to have air that is clean enough to meet the health standard. The President's plan sets forth these additional clean air measures.

Some measures required under current law will help reduce VOC's. These include:

- The effect of tightened automobile and truck-tailpipe emission standards, which will continue to cut emissions as older cars are replaced with new ones;
- The implementation of required inspection and maintenance programs for motor vehicles by State and local governments;
- Volatility controls on gasoline. Earlier this year, the Bush administration required a reduction of gasoline volatility to a standard of 10.5 pounds per square inch;

- Selected stationary source controls on refineries and other factories.

It is estimated that these measures will reduce VOC emissions from baseline levels by 18 percent by 2005. They will bring 23 cities into attainment by 1995, but without additional controls, increased automobile use would cause many of these to slip back out of attainment, leaving 72 cities out of attainment by 2005.

Additional Federal Measures Under the President's Proposal

In an ambitious effort to bring all cities into attainment, the President's proposals call for:

- Further tightening the volatility requirements for gasoline nationwide during the summer months to reduce evaporative emissions which cause ozone formation. This will reduce VOC emissions by an estimated 8 percent.
- Reductions in vehicle evaporative emissions caused by automobile running losses, which will cut VOC emissions by an estimated 4.2 percent.
- Federal regulations to control emissions from treatment, storage, and disposal of hazardous wastes, which will cut VOC emissions by 3.2 percent.
- Providing EPA with the authority to regulate VOC emissions from small sources and consumer products, such as consumer solvents and paints, which EPA estimates will cut VOC emissions by 2.5 percent.
- Tightening hydrocarbon emission tailpipe standards for automobiles by almost 40 percent. The current standard will be tightened to the level soon to be required on all California vehicles (from .41 to .25 grams per mile). This will cut VOC emissions by 0.4 percent.
- A first time requirement for light duty trucks to meet the same tailpipe standard now required of automobiles (.41 gpm). This will cut VOC emissions by 0.2 percent.
- Expanded vehicle inspection and maintenance programs in serious nonattainment areas, which will cut VOC emissions by 1.2 percent.
- Controls to reduce evaporative emissions which occur during refueling of motor vehicles. These stage II controls would require refueling stations to install special nozzles on gasoline pumps in nonattainment areas and are expected to reduce VOC's by up to 2 percent in such areas.
- Provide EPA new authority to issue control technology guidelines (CTG's) to major stationary source emitters (factories and plants). The most cost-effective control guidelines will be issued first. These guidelines are expected to result in a 3.5 percent reduction in VOC emissions.
- Provide for the use of alternative fuels—such as clean burning methanol, natural gas, and ethanol—in the most serious nonattainment areas. The President's plan is designed to ensure that 1 million clean-fueled vehicles per year are introduced into America's most polluted cities by the year 1997. The program will not only reduce VOC emissions by an additional 2 to 5 percent, it will dramatically reduce toxic air emissions, such as benzene, toluene, and xylene.
- It is estimated that these new Federal measures to curb ozone pollution will add $3 to $4 billion in annual costs to the economy when fully implemented.

The Long-Term Clean Fuels Program

The clean fuels program proposed by the President is perhaps the most innovative and far-reaching component of his proposal. It is designed to provide a long-term reconciliation of the environment and the automobile so that Americans can continue to enjoy economic growth, freedom in using their motor vehicles, and clean air.

The administration proposes to replace a portion of the motor vehicle fleet in certain cities with new vehicles that operate on clean burning fuels. In the 9 major urban areas where current data shows the greatest concentration of ozone, the administration's plan calls for a 10-year program for the phased-in introduction of alternative fuels and clean-fueled vehicle sales according to the following schedule:

—500,000 vehicles in 1995
—750,000 vehicles in 1996
—1,000,000 vehicles each year from 1997 through 2004

The major metropolitan areas affected by the plan are Los Angeles, Houston, New York City, Milwaukee, Baltimore, Philadelphia, greater Connecticut, San Diego, and Chicago. If these areas are able to demonstrate that they can achieve analagous reductions in VOC's and toxic air chemicals through other measures, the plan would allow them to opt out of the clean-fueled vehicle and alternative fuels program, in which case the vehicle target numbers would be scaled down proportionately. The plan would also allow other cities to be included in the program at their request.

The President's alternative fuels program, combined with other motor vehicle and fuel measures in the plan, will shrink the contribution of vehicles to the ozone problem from the current 40 percent to 10 percent. This represents not only an alternative to some of the more disruptive driving controls currently being considered by some States but also a bold and innovative means of reconciling continued use of the automobile by a growing society with the need for cleaner air.

Effect of the Federal Measures Proposed by the President

Taken together, the Federal measures proposed by the President, combined with the effect of measures being pursued under current law, will cut ozone-causing VOC emissions nearly in half. EPA estimates the program will reduce annual emissions by 45 percent by the year 2005. In and of themselves, these measures will bring all but about 20 cities into attainment of the ozone standard.

Because of the President's commitment to ensuring clean air in *all* American cities, however, his plan calls for additional measures to be undertaken by the States in order to meet the standard for healthy air.

State Measures Under the President's Proposal

Under the President's proposal, the roughly 20 cities with the most serious ozone pollution problems would be required to take steps to cut ozone-causing emissions by 3 percent per year beginning with enactment of the legislation.

This will guarantee that, even as more realistic deadlines for meeting the standard are set, those cities with the most significant air pollution problems will be on a steady path toward cleaner air.

Because of ozone transport, some areas may be unable to attain the standard in spite of adequate efforts to control their own pollution. Cities under 200,000 in population, which are not part of regional airsheds, but whose attainment is prevented as a result of ozone pollution transported from other cities or regions, will not be subject to sanctions under these circumstances.

Emissions Trading: Harnessing the Power of the Marketplace to Protect the Environment

The President has also directed the EPA to develop rules and regulations which will provide companies with the maximum flexibility in achieving the pollution reductions called for in his plan. Specifically, the President's plan would require the Administrator to issue regulations within 18 months to allow automobile manufacturers to engage in emissions trading and refiners to engage in fuel pooling to the maximum extent feasible. Such regulations shall establish performance standards for vehicles and transportation fuels marketed in the most serious and severe nonattainment areas. Companies would then be able to choose to engage in emissions trading and fuel pooling so long as they can demonstrate to EPA that the combination of measures they select will allow them to achieve the same emissions reductions as the control measures outlined in the President's program.

This emissions trading concept is already being considered by the State of California. It represents a market-based means of reducing both VOC's and reactive aromatics in the most cost-effective way. The EPA would publish these regulations at the same time as it publishes regulations implementing the other control measures in the President's plan. If companies cannot demonstrate alternative means of achieving the same amount of pollution reduction, they would be required to implement the control measures outlined above.

Carbon Monoxide

Background

Carbon monoxide (CO) is a colorless, odorless gas that tends to reduce the oxygen carrying capacity of the blood. It is a particularly serious health threat to individuals who suffer from cardiovascular disease, especially those with angina or heart disease. Unlike ozone, carbon monoxide problems are worse in cold weather.

Two-thirds of CO emissions come from motor vehicles. Emissions of carbon monoxide decreased 25 percent from 1978 to 1987, despite a 24-percent increase in vehicle miles traveled during that period, largely because of controls already in place on emissions from cars, buses, and trucks. Some improvement from these controls will continue, as older, more heavily polluting cars are gradually replaced on America's roads by newer, cleaner vehicles. Currently, cars purchased before 1981 amount to only 38 percent of the vehicle miles traveled (VMT), but they account for over 86 percent of CO emissions.

As use of the automobile continues to grow, however, it is expected that many American cities will not attain the health-based carbon monoxide standard. That standard is 9 parts per million (ppm), measured over an 8-hour period. If a representative reading of monitors in an area shows that it exceeds the standard for 2 or more 8-hour periods, it is classified in nonattainment.

There are currently about 50 American cities not meeting the standard. As with ozone, in some cases, cities exceed the standard only moderately. About six urban areas, however, have a carbon monoxide problem classified by EPA as serious.

EPA estimates that even as vehicle miles traveled (VMT) grow, the effect of fleet turnover will bring almost half of those cities currently violating the standard into attainment. Several of the measures in the President's proposal designed to curb ozone-causing emissions will also help reduce carbon monoxide. These include the measures described above to tighten tailpipe standards for light-duty trucks and to improve State and local inspection and maintenance programs.

Even with these measures, however, several American cities will continue to have a carbon monoxide problem. To bring these cities into compliance with the health-based standard, the President's proposal contains several important measures designed to cut carbon monoxide emissions. Specifically, the President's plan calls for:

- A major new program to promote the use of clean-burning oxygenated fuels, which emit dramatically less carbon monoxide. The plan would require those cities with the most serious carbon monoxide problems to use gasoline blended with oxygenated fuels during the winter months. Oxygenated fuels include ethanol, methanol, ETBE, and MTBE. Blending oxygenates into fuel will not only reduce carbon monoxide, it will also sharply reduce toxic air emissions caused by aromatics in conventional gasoline.
- Ethanol and ETBE are generally produced in the United States from corn, wheat, and potato crops. They offer the opportunity both to clean the air and to provide expanded markets for America's farmers. The President's plan would allow cities to opt out of the oxygenated fuels requirements if they could demonstrate to EPA that they would come into attainment of the carbon monoxide standard using other measures. EPA estimates that requiring oxygenated fuels in areas with serious carbon monoxide problems will reduce carbon monoxide emissions by an additional 18 percent in these areas.
- Giving EPA the authority to issue regulations for a carbon monoxide cold temperature standard. Carbon monoxide problems are exaggerated when motor vehicles start in exceptionally cold weather. This standard has the potential to reduce carbon monoxide emissions by 7 to 12 percent.

The President's plan will bring the vast majority of cities into attainment with the carbon monoxide standard by 1995, and will bring *all* American cities into attainment by the year 2000.

Particulate Matter

Background

Particulate matter (PM10) includes acid sulfates, toxic organics and metals, and insoluble dusts that come from traditional stack emissions, as well as area sources such as wood stoves and open burning. Construction, roadways, and mobile sources also contribute to the problem. PM10 can cause premature death in elderly and ill persons, aggravation of existing respiratory disease, increased respiratory illness, and other effects. Particulate matter (PM10) standards were revised in 1987 to address smaller particulate matter particles most likely to penetrate the lungs.

The President's program will:

- Require reasonably available control measures to meet the standard.
- Ensure that the majority of cities meet the standard by 1994, and that *all* cities meet PM10 standards by 2001.

Toxic Air Pollutants

Highlights

- Dramatically accelerates progress in controlling major toxic air pollutants.
- Uses best technology available to cut air toxics.
- Promises certifiable progress in regulating sources of toxic air emissions on a set schedule.

Background

The emission of toxic chemicals into the air is believed to cause cancer and other health effects in humans. Since 1974 EPA has been required to regulate such emissions in order to provide an ample margin of safety to the public. Because this margin has been difficult to define and has been the subject of continued litigation, EPA has had difficulty proceeding with regulation under the law. Since passage of the statute, it has published regulations for only seven toxic air pollutants. Because the statute has proven unworkable, the President has proposed a major revision of the law in order to guarantee greatly accelerated progress in reducing the damaging effects of toxic air pollution.

Data recently released by the EPA indicate that 2.7 billion pounds of toxic chemicals are emitted into the air each year. EPA estimates that these emissions contribute to approximately 1,500–3,000 fatal cancers annually. Toxic chemical emissions are associated also with respiratory disease and birth defects. Motor vehicles and stationary sources each account for approximately half of air toxic emissions. The measures in the President's plan designed to curb VOC emissions and promote alternative fuels will sharply reduce emissions from motor vehicles.

The President's plan also includes a major new initiative to reduce air toxic emissions from stationary sources (factories, plants, and other such sources). A majority of identified carcinogens are emitted by about 30 industrial categories, including steel mills (coke ovens), rubber, pulp and paper, chromium electroplating, and solvent users. The President's plan is designed to reduce quickly emissions from these sources.

The President's program will:

- Establish a set schedule for regulating major sources of toxic air pollution. Under the plan, EPA will publish regulations for controlling 10 source categories within 2 years, 25 percent of source categories within 4 years, 50 percent of source categories within 7 years, and all necessary additional categories of air toxics within 10 years.
- Require emitters of toxic air pollution to use the Maximum Available Control Technology (MACT) to sharply cut pollution. This means that EPA would set a standard based on the best technology currently available. Plants would then be required to meet that standard, with some exceptions to add flexibility for those who have already reduced most air toxics and for very small plants.
- Encourage voluntary reductions early, before standards are even published, by providing credit for those reductions against the MACT requirement.
- After Phase I is implemented, the EPA Administrator shall assess any remaining risk after reductions from state-of-the-art technology and determine if there is a need for further controls. Based on his assessment, the EPA Administrator would set additional standards to prevent the public from being

exposed to unreasonable risk, which would allow considerations of cost and technical feasibility as well as health-based risks.

It is estimated that the President's air toxics initiative will eliminate in the first phase about three-quarters of the cancer deaths caused by toxic air emissions from factories and plants. The annual costs of the program are difficult to estimate until actual standards are published, but current EPA estimates center at about $2 billion per year.

Designation of Kenneth M. Carr as Chairman of the Nuclear Regulatory Commission

June 12, 1989

The President has designated Kenneth M. Carr as Chairman of the Nuclear Regulatory Commission, effective July 1, 1989. He would succeed Lando W. Zech, Jr.

Since 1986 Commissioner Carr has served as a member of the Nuclear Regulatory Commission. Prior to this, he served in the U.S. Navy as Deputy and Chief of Staff to the Commander in Chief, Atlantic Command, and the Commander in Chief of the U.S. Atlantic Fleet, retiring as a vice admiral in 1985. From 1977 to 1980, he commanded the submarine force of the Atlantic Fleet and served as Vice Director of Strategic Target Planning at Offutt Air Force Base, NE. In 1972 he was assigned as chief of staff to the commander of the submarine force of the Atlantic Fleet, and in 1973, assumed duties of military assistant to the Deputy Secretary of Defense. Commissioner Carr enlisted in the Navy in 1943.

Commissioner Carr graduated from the U.S. Naval Academy in 1949. He has received the Distinguished Service Medal, the Legion of Merit, Presidential Unit Commendation, and Defense Distinguished Service and Meritorious Service Medals. He was born March 17, 1925, in Mayfield, KY. He is married to Molly Pace of Burkesville, KY.

Remarks to Students at the Teton Science School in Grand Teton National Park, Wyoming

June 13, 1989

Sorry, Manuel mentioned my birthday. It's so nice to be in Wyoming. Nobody, not one person—your Governor, the Senators, our new Congressman—no one has said, And now you can ride the subway in Jackson Hole for half fare. [*Laughter*] I'm delighted, and thank you for your tolerance. But, Manuel, thank you for that warm introduction. Secretary Lujan and I served in Congress. And I liked very much what Lorraine said about him, and I know he'll do a first-rate job with all the responsibilities that the Secretary of the Interior has. I want to thank all of you for one of the best birthday presents a person could possibly have, and that was going fishing yesterday on Lake Jackson with my grandson. The score: caught six, ate two. Not bad for 45 minutes worth of work out there.

And I am really thrilled to be here. I'm just sorry that the Silver Fox is not here. That's my wife, Barbara. But some have inquired about her health, and she's doing very well, thank you. And she's off doing the good works for literacy in New York City, I think it is, this evening. I wish she were here. She was with me last time, and she'll never forget your hospitality either.

I want to thank Governor Sullivan, who showed us the extraordinary courtesy of coming over across the line into Montana to greet us yesterday and—[*laughter*]—was with us here and then had his beautiful daughter come out, and we could see a little more of that wonderful Sullivan family. I'm glad that Senator Malcolm Wallop, a friend of longstanding, is with us. Our new Congressman who's going to do a great job for this State, Craig Thomas, is here. And then I had to put up with [Senator] Al Simpson. [*Laughter*] You see, every January or so, he and I go fishing, but not in Wyoming. And we have to listen for two straight nights to him lying about Wyoming fishing to those of us fishing in Florida. [*Laughter*] But nevertheless, I'm glad he's here. And I also want to just single out another friend, a friend of my dad's, a friend of mine, who I'm told is here. And I didn't actually see, but Al tells me that Cliff Hansen is here. He and Martha—one of the great Wyoming Senators—Governor, everything else. There he is right over there, looking younger than a spring colt.

Yesterday I announced our proposals for the Clean Air Act—how to improve it. But protecting the environment requires good people as well as good laws. And I'm especially pleased today to announce that my nominee for the Director of the U.S. Fish and Wildlife Service is one of Wyoming's own. His Triangle X Ranch I passed just a minute ago up the road. He's president of the State senate. He's here with us today, your own, my friend, Senator John Turner, who's going to take on this very important responsibility. And, Jack, I want to thank you and Lorraine and all the other troopers out there and the Park Service people, who do such a superb job for the entire country.

I want to just visit with you today on some concepts of the environment. It's well-known that Wyoming's first tourist was a trapper named John Colter, a veteran of the Lewis and Clark expedition. In 1808 Colter was captured by the locals, stripped naked, and hotly pursued—given a chance to run for his life. Seven days later he arrived at a Spanish fort, sore feet and a sunburned back. And today George P. and I, my grandson and I, are awful glad that Wyoming's attitude towards visitors—[*laughter*]—is, what's the phrase, kinder and gentler. [*Laughter*]

We meet in the heart of an environmental success story, part of a tradition that began when Abraham Lincoln granted Yosemite Valley to California, set aside as a preserve, and continued through Teddy Roosevelt and others who found inspiration in these majestic American peaks. And creating national parks was an American idea, an idea imitated all around the world. And it was one of our very best ideas. Five generations of Americans have since enjoyed Yellowstone and the Tetons, the largest intact natural area in the temperate zones of the Earth. And yesterday afternoon I toured the fire areas north of here, saw how Yellowstone is coming back, and marveled at nature's regenerative power.

But whether restoring a forest or the air that flows above it, nature needs our help. And yesterday I stood in the majestic East Room at the White House to announce the proposal designed to ensure that we do our part to improve and preserve our natural heritage, the very air we breathe, from coast to coast and beyond, for another five generations and beyond. And today, with our backs to the Pacific and the jewels of the American Rockies, I look east across this fertile and productive land and call on the American people and on the Congress to join me in this new initiative for clean air.

I've said it before, when talking about issues like drug abuse, crime, and national security, the most fundamental obligation of the Government is to protect the people—the people's health, the people's safety, and ultimately our values and our traditions. And nowhere are these traditions more real, more alive, than here in the western reaches of Wyoming. It is a land of legend, campfire tales of brave Sioux warriors, of Butch Cassidy and the Union Pacific Railroad, or range wars between cattlemen and the ranchers. And just over that ridge to the east lies the headwaters of the Wind River, one of the settings—the epic western "Lonesome Dove." And the book, by McMurtry, begins with the famous passage from T.K. Whipple: "All America lies at the end of the wilderness road, and our past is not a dead past, but still lives in us. Our forefathers had civilization inside themselves and the wild outside. We live in the civilization they created, but within us the wilderness still lingers. And what they dreamed, we live, and what they lived, we dream."

Frontier legends have filled America's movie screens and our imagination for most of this century. But the frontier is not the end of the road. It is quite simply our inspiration. The frontiers we face in the final decade leading to the year 2000 are different from those that our forefathers faced in the mountains and meadows of the American Rockies. What we face are the frontiers of the mind—scientific, geographic, cultural—that remain to be crossed. And so, let's cross them.

Last summer I called 1988 the year the Earth spoke back. Time dubbed "Spaceship Earth" the planet of the year. And although, ultimately, medical waste on beaches or that wandering garbage barge may

In Witness Whereof, I have hereunto set my hand this seventh day of June, in the year of our Lord nineteen hundred and eighty-nine, and of the Independence of the United States of America the two hundred and thirteenth.

George Bush

[*Filed with the Office of the Federal Register, 2:53 p.m., June 8, 1989*]

***Note:** The proclamation was released by the Office of the Press Secretary on June 8.*

Remarks to Members of Ducks Unlimited at the Sixth International Waterfowl Symposium

June 8, 1989

Thank you, Harry, very, very much, and all of you for that warm welcome. Every member of Ducks Unlimited can eat his heart out—or hers—and I say that because you should be very jealous of me. You ought to see the beautiful carvings that you all gave to me carved by Bill Veasey—two ducks—one of the most spectacular pieces of duck artwork that I believe I've ever seen. And so, I'm grateful to all of you for that presentation that Harry made.

I want to salute the Members of Congress that are here. I want to pay my respects to the head of the EPA, Bill Reilly. We are very fortunate to have him leading our Environmental Protection Agency. I want to pay my respects to our Secretary, Manuel Lujan, who is going to do a fantastic job for us. I served with him in the Congress, and he rates and merits your confidence. Mike Deland was supposed to be here, and he—showing the fact that he's human—he is caught up at the airport in Washington right now [*laughter*] so I expect we'll see him in a while. But most of you know him. And I would simply say that the Members of Congress and friends—it's a real pleasure to be here.

One of my greatest pleasures is going fishing with my grandchildren and seeing the Grand Tetons through the eyes of a 10-year-old grandson or teaching our 6-year-old twin granddaughters—now Texans again—the wonders of the ocean. Makes life really sing for me. And when I am out in the great outdoors with my own kids or grandkids, I realize how true it is that our children will inherit the Earth. And so, any vision of a kinder, gentler America—any nation concerned about its quality of life, now and forever, must be concerned about conservation. It will not be enough to merely halt the damage we've done; our natural heritage must be recovered and restored. And we saw it at Mount St. Helens, and we see it now at Yellowstone Park and in the growth of spring: nature healing its wounds, coming back to life. We can and should be nature's advocate. And that means an active stewardship of the natural world. And it's time to renew the environmental ethic in America and to renew U.S. leadership on environmental issues around the world. Renewal is the way of nature, and it must now become the way of man.

And that's why I so readily accepted when Harry invited me, and that's why I wanted to talk to you today. When this organization was founded over 50 years ago, in the Dust Bowl days, there was just a handful of you committed to preserving and restoring our wetlands. And just about that time, a few hunters got together and formed a little group called Ducks Unlimited. And thank goodness they did. And since then, you've set aside, I am told, over 5 million acres as habitat, raised nearly half a billion dollars, started wetlands projects in each of the 50 States, for a simple reason: 75 percent of the remaining wetlands in the continental U.S. are privately owned. We can't do it without your help. The partnerships you've set up with State and Federal agencies and with conservation groups like the Nature Conservancy and the Wildlife Foundation have been outstanding.

And that's good news for ducks. Remember, though, what Dick Darman [Director of the Office of Management and Budget] said about taxes. Anything that looks like a duck or walks like a duck or quacks like a duck is going to hear from him. [*Laughter*] The poor guy; the very thought of Ducks Unlimited keeps him up at night. [*Laughter*] But your work is even better news for America, for what you're doing represents just the kind of local, on-site private sector initiative that we must bring to every environmental challenge.

As you know too well, our wetlands are being lost at a rate of nearly half a million acres a year. So, every year, fewer mallards and pintails make it to the pothole country. You may remember my pledge, that our national goal would be no net loss of wetlands. And together, we are going to deliver on the promise of renewal, and I plan to keep that pledge. I've set up an interagency task force, under our Domestic Policy Council, to work with you, with governments at all levels, with the private sector, to stop the destruction of those precious habitats. Their first task is to develop a united Federal policy for the North American Waterfowl Management Plan here, and in Canada as well. And Canada has lost over 40 percent of her wetlands. And the time has come to simply say stop.

And to support the plan, this week Secretary Lujan proposed a new trust fund, using interest from the Pittman-Robertson Fund, that would contribute about $10 million. And our goal is to restore a fall flight of more than 100 million birds. And we're looking at legislation from Senators Mitchell and Chafee, Congressmen Dingell and Conte. And there are a few details to be worked out, but the basic thrust of the legislation is sound. I look forward to signing a bill to conserve North American wetlands this year. And we've asked for nearly $200 million in new funding for acquisitions under the Land and Water Conservation Fund. We've also increased funding for coordinated water quality programs to protect the wetlands we already have, and for the first time in 7 years, some of those dollars will go towards acquiring wetlands.

But we're looking far beyond the Federal role. We want to improve the management of federally owned wetlands by leasing them to concerned groups like yours. And you know, the local momentum is picking up. Just last month, Maryland's Governor Schaefer approved the Nation's first State nontidal wetlands law, and it's an outstanding piece of work. Bill Reilly emerged as a key supporter for that bill. And I certainly would encourage him to do more, but in his case, he's the one that's encouraging me to do more all the time. And again, I'm grateful for his leadership.

We're working with American farmers through the farm bill program to provide technical assistance for wetland conservation. Wherever wetlands must give way to farming or development, they will be replaced or expanded elsewhere. It's time to stand the history of wetlands destruction on its head. From this year forward, anyone who tries to drain the swamp is going to be up to his ears in alligators. [*Laughter*]

Let me just spend a few minutes outlining our environmental philosophy. Our approach to wetlands conservation is driven by a new kind of environmentalism, a set of principles that apply to all of the environmental challenges that we face. We believe that pollution is not the inevitable by-product of progress. So, the first principle is that sound ecology and a strong economy can coexist. But let's remember: The burden of proof is on man, not nature. And the fact is, our ecology and the economy are interdependent. Environmentalists and entrepreneurs must see how much their interests are held in common. It's time to harness the power of the marketplace in the service of the environment.

The second principle is that a true commitment to restoring the Nation's environment requires more than just a Federal commitment. The tradition of purely Federal, "top-down" directives will never again be enough. So, we're working to promote more creative State and local initiatives, drawing on the energy of local communities and the private sector into the cause—pulling them into the cause of conservation. All of you in this room have made that commitment, and now it must be made an all-American commitment.

And our third principle is obvious, but too rarely acted on: that preventing pollution is a far more efficient strategy than struggling to deal with problems once they've occurred. For too long, we've focused on cleanup and penalties after the damage is done. It's time to reorient ourselves using technologies and processes that reduce or prevent pollution—to stop it before it starts. In the 1990's, pollution prevention will go right to the source.

Technology has given us tremendous, awesome power to alter the face of the Earth. We must use it to do good. Environ-

mental soundness, industrial design must be partners. Industry is making—and must continue to make—environmental soundness an essential fact of American industrial life.

We've already taken several steps in that direction. And as you know, I've called for the elimination of CFC's [chlorofluorocarbons] by the year 2000. And we've also reviewed the Corporate Average Fuel Economy, those CAFE standards. We've tightened the standard, as the law originally intended. More efficient cars are good for our environment and good for our energy security. We're going to promote the use of alternative "neat" fuel technology. And I've proposed full funding to develop clean coal technology.

The fourth principle is a recognition that environmental problems respect no borders. I'm delighted to see the Ambassador from Canada here. So, we're working with nations around the world to provide leadership in finding cooperative international solutions. From Japan to Brazil, we're discussing ways to reverse rainforest devastation. And we've recommended a ban on international shipment of hazardous waste unless an agreement is signed that makes sure waste is disposed of safely. In Germany 2 weeks ago, I announced our intention to provide technical assistance and new technologies to the nations of Eastern Europe to help them handle pollution problems. And some of the rivers in those countries are now so polluted they can't even be used for industrial cooling because they're too corrosive. And even our recommendation to ban the importation of elephant ivory underscores this new international emphasis.

The fifth and final principle is that existing environmental laws will be vigorously and firmly enforced. And I've requested funds to hire more environmental prosecutors at the Justice Department. And next week, Bill Reilly will deliver to Congress a report on overhauling the Superfund program for hazardous waste. Our message about environmental law is simple: Polluters will pay.

And finally, on Monday, I will unveil the most sweeping changes to the Clean Air Act since it was last amended 12 years ago. And it will allow us to recover and restore precious forests, lakes, and streams. And whether Americans live near factories or in cities or in high woodland country, it'll significantly improve every North American's quality of life.

So, those are our five principles. Harnessing the power of the marketplace, State and local initiative, promoting prevention, international cooperation, and strict enforcement.

But behind all of the studies, the figures, and the debates, the environment is a moral issue. For it is wrong to pass on to future generations a world tainted by present thoughtlessness. It is unjust to allow the natural splendor bestowed to us to be compromised. It is imperative that we preserve the Earth and all its blessings—to meet the challenge of renewal.

Some 40 years ago, a man named Aldo Leopold wrote a book that some of you may have heard of. It was called "A Sand County Almanac." And in it, he talked about values, values that you and I share. "That land is to be loved and respected," Leopold wrote. Let me start—"That land is to be loved and respected is an extension of ethics." That was 40 years ago. And since then, millions of acres of wetlands, habitat for so many plants and animals, have disappeared. And they continue to vanish at an alarming rate, some one-half million acres a year.

And I want to ask you today what the generations to follow will say of us 40 years from now. It could be they'll report the loss of many million acres more, the extinction of species, the disappearance of wilderness and wildlife. Or they could report something else. They could report that sometime around 1989 things began to change and that we began to hold on to our parks and refuges and that we protected our species and that in that year the seeds of a new policy about our valuable wetlands were sown, a policy summed up in three simple words: "No net loss." And I prefer the second vision of America's environmental future.

A man I greatly admire, Theodore Roosevelt, was the first President to act on that ideal. And when he set aside the Grand Canyon as a national monument of nature, his words of warning were driven by great personal conviction. "Leave it as it is," he said. "You cannot improve on it. The ages have been at work on it, and man can only mar it. What you can do is keep it for your children and your children's children."

Recovery, restoration, and renewal—that is our moral imperative. And from today forward, it is the ethical legacy we must inspire in every American.

To one of the great private sector organizations in America, I thank you. God bless you. And God bless the United States of America. Thank you very, very much.

Note: The President spoke at 1:10 p.m. in the Arlington Ballroom at the Crystal Gateway Marriott in Crystal City, VA. In his opening remarks, he referred to Harry D. Knight, president of Ducks Unlimited, and Michael R. Deland, member-designate of the Council on Environmental Quality.

Nomination of William C. Brooks To Be an Assistant Secretary of Labor

June 8, 1989

The President today announced his intention to nominate William C. Brooks to be an Assistant Secretary of Labor (Employment Standards Administration). He would succeed Fred William Alvarez.

Since 1973 Mr. Brooks has served in several capacities, for the General Motors Corp., including executive director of personnel administration, since January 1989; manager of executive recruiting; director of education systems and program services; director of personnel planning, industrial relations staff; director of personnel, Fisher Body Division's engineering center; general director of personnel and public relations, Delco Moraine division; general director of personnel administration; and executive director of the personnel analysis group. Prior to this, Mr. Brooks held several positions in the Federal Government: in the Office of Management and Budget in the Executive Office of the President, the Department of Defense, the Department of Labor, and the Department of the Air Force.

Mr. Brooks received a bachelor of arts degree from Long Island University in Brooklyn, NY, and a master's degree in business administration from the University of Oklahoma, Norman, OK. He is also a graduate of Harvard Business School's advanced management program and has received an honorary doctor of humane letters degree from Florida A&M University. Mr. Brooks was born in Ste. Genevieve, MO. He is married, has three children, and currently resides in Detroit, MI.

Nomination of Debra R. Bowland To Be Administrator of the Wage and Hour Division

June 8, 1989

The President today announced his intention to nominate Debra Russell Bowland to be Administrator of the Wage and Hour Division at the Department of Labor. She would succeed Paula V. Smith.

Mrs. Bowland is currently Deputy Director of the Women's Bureau at the Department of Labor. From 1985 to 1988, she was a Special Assistant to the Assistant Secretary of Policy, Department of Labor; the Deputy Under Secretary for Employment Standards, Department of Labor; the Assistant Secretary for Vocational and Adult Education, Department of Education; and a member of the Federal Labor Relations Authority. Mrs. Bowland was director of the department of citizens' service in Baton Rouge, LA, 1985; executive director in Louisiana for Reagan-Bush '84, 1984; owner of Debra Bowland and Associates, 1982–1984; and the secretary of labor for Louisiana, 1980–1982.

Mrs. Bowland attended the University of Wyoming, 1963–1965, and Louisiana State University, 1975–1976. She was born January 24, 1944, in Dayton, OH. Mrs. Bowland is married, has three children, and resides in Fairfax, VA.

Some will tell you it's ideology that matters. Some say it's a question of competence. And others say that issues are the issue. But the fact is, what it takes to move a nation can't be captured in one word. It's a matter of principles and performance, ideology and action on the issues. And this administration understands that the American people expect all of this and something more: They expect results.

And so, while I'm pleased with what's been done and what we've accomplished in these 3 months, there is a long road ahead of us. And I am optimistic that our reforms will produce lasting results, that the long-range planning we do today will pay off in the future, that our consultations with Congress will result in progress in domestic and international affairs as well. But most of all, this nation is ready to move forward to meet the central challenges that we face: keeping America free, prosperous, and at peace, tomorrow and into the century ahead.

Thank you very, very much.

Note: The President spoke at 12:17 p.m. in the Grand Ballroom at the Hyatt Regency Hotel. In his opening remarks, he referred to William J. Keating, chief executive officer of the Detroit Newspaper Agency; Louis D. Boccardi, president and general manager of Associated Press; and James F. Tomlinson, vice president and assistant to the president of Associated Press.

Remarks at the Dedication Ceremony for the Centennial Grove in Bismarck, North Dakota

April 24, 1989

I'm so pleased to be here. Thank you, Tom Kleppe. When Secretary—and I say "Secretary" because North Dakotans know that Tom served so well as Secretary of the Interior—former Congressman, but called me about this marvelous project of yours, he's right, I accepted in a hurry. And I'm very grateful to Governor Sinner and all involved in the preparations for this wonderful visit.

I want to pay my respects [illegible] Governor and Mrs. Sinner, [former] Governor Link, Senator Conrad, Congressman Dorgan, and other distinguished leaders of the North Dakota legislature. Thank you for inviting me. It has been a very emotional day for me. I understand that lost on the *Iowa* was the grandson of a Bismarck family, and if that family didn't attend today's services, I can attest firsthand how moving it was and what a wonderful job our Navy did in holding the loved ones close to them, giving them comfort that I know all Americans would want given to these families. It was a very moving day. And the flags I see at half-mast here are appropriate tribute to those young men who lost their lives.

I'm also proud to see that POW and MIA flag flying, Governor, right here at this magnificent State capitol because we must never forget the POW's and the MIA's.

When I accepted your invitation to come here, I had no idea that part of the program was to put me to work. "A sapling," they said. "All you'll have to do is to plant a sapling." No one told me that the sapling is about 12 feet tall over there. But I think we can figure it out. This hardy elm is a descendant of a tree planted on the White House lawn by John Quincy Adams. And now, its seedlings will be a part of North Dakota forever.

And just a few years before this State was carved out of the Dakota territory, a young man from New York City set aside a prominent career in politics to become a North Dakota rancher. Having lost his wife and mother in one single day, he came to these parts almost insane with grief. No tenderfoot, he worked the range in the harshest weather, always leading and never following. And he wore a sheriff's badge, and he roamed the Badlands to singlehandedly bring the worst characters to justice. And in short, Teddy Roosevelt became a man in North Dakota. And he became something else, a guardian of nature. When he went back East and back to politics, Teddy Roosevelt took with him an understanding that the seemingly endless resources of the West were threatened by the unfettered exploitation of man. As President, Teddy Roosevelt wrote these words to school children on

dren would face a hopeless future; a country without trees is almost as hopeless."

So, let us honor the coming 100th birthday of North Dakota and the memory of the Nation's first true environmentalist by dedicating this Centennial Bur Oak along with this White House Elm. Before the year 2000, your State will plant 100 million trees, almost half as many new trees in one State as there are Americans in the Union. May each tree add to the abundance of the good life in North Dakota, cleaner air for North America. This forestation effort is just one of 600 ambitious centennial projects North Dakotans are taking on. You are fulfilling the spirit that I call 1,000 points of light: the spirit of voluntarism, from projects to help senior citizens, to the building of local and community centers, to a memorial for the North Dakotans who fell in the war.

This year you're also honoring those who settled here before North Dakota became a State by honoring their children: the sons and daughters of the pioneers, some 3,000 strong. And let us especially remember, in word and deed, those great peoples and great cultures here well before anyone else—the Native Americans of North Dakota. These Americans knew the plains when buffalo ranged in the millions. We can learn then from a special, poignant knowledge that they taught us, that nature once violated is forever altered.

Around the world there's a growing recognition that environmental problems respect no borders. In these first few months in office we've begun to act on our own and in concert with other nations to face up to this fundamental fact. We've agreed that all nations must get together to ban CFC's [chlorofluorocarbons] and to prevent global warming. And as the world wakes us to these problems—and believe me, it is awakening—North Dakota, you're already at work planting trees that exchange carbon dioxide for fresh oxygen. What a fitting way to celebrate this magnificent centennial by getting ready for the next 100 years.

As you've shown, we do not have to accept as inevitable the spoiling of our air, our rivers, our wetlands and our forests. When North Dakotans celebrate their bicentennial, these 2 trees will be mammoth, [illegible] the people they represent. [illegible] as a symbol of our commitment to a clean and healthy environment. May we always have the priceless resource of the outdoors for the enjoyment of our children and our children's children.

Thank you for asking me to be with you today at this wonderful celebration. I just can't tell you how moved I was when I came in from the airport to be greeted by so many of your neighbors, so many citizens of this great State. The respect for the institutions that we hold dear, in this case, the Presidency. It has nothing to do with the President—the respect for the institution was clear and evident for all to see, and I am grateful for that warm welcome.

And so, I will watch with interest and lend a hand where I can, as this tree grows and develops, just like the Peace Garden State.

Happy birthday North Dakota. God bless you, and God bless the United States of America. Thank you all very much.

Note: The President spoke at 4:35 p.m. in the Great Hall of the State capitol. Following the remarks, he participated in a tree planting ceremony on the capitol lawn. At the conclusion of the ceremony, the President traveled to San Jose, CA, where he stayed overnight.

Remarks to Employees of the Ford Aerospace Space Systems Division in Palo Alto, California

April 25, 1989

The President. Thank you, Don, very much. And my respects to our congressional representatives that are here today—Pete Wilson, our United States Senator with us today; and Congressman Campbell especially; other Members of Congress that are here—and all of you at Ford. I want to thank Don Petersen for coming from Detroit for this occasion and thank everybody involved in this visit. And I know what a logistical headache a visit like this might be. [*Laughter*] So, we promise to go on time. [*Laughter*] Thank you, gentlemen from the

Nomination of Richard H. Melton To Be United States Ambassador to Brazil

September 18, 1989

The President today announced his intention to nominate Richard H. Melton, of Virginia, a career member of the Senior Foreign Service, Class of Minister-Counselor, to be Ambassador Extraordinary and Plenipotentiary of the United States of America to the Federative Republic of Brazil. He would succeed Harry W. Shlaudeman.

Since 1988 Ambassador Melton has served as the Deputy Assistant Secretary of State for Inter-American Affairs. Prior to this, Ambassador Melton served as Ambassador to Nicaragua, 1988; Director of the Office of Central American and Panamanian Affairs at the Department of State, 1985–1988; and Deputy Chief of Mission at the U.S. Embassy in Montevideo, Uruguay, 1982–1985. From 1979 to 1982, he was political officer at the U.S. Embassy in London, UK; and a political officer at the U.S. Embassy in Lisbon, Portugal, 1975–1978. Ambassador Melton was a Special Assistant in the Bureau of Inter-American Affairs, 1973–1975, and an international relations officer, 1971–1973.

Ambassador Melton graduated from Cornell University (B.A., 1958) and the University of Wisconsin (M.A., 1971). He attended the National War College, 1978–1979. He served in the U.S. Army, 1958–1961. Ambassador Melton was born August 8, 1935, in Rockville, MD. He is married, has three children, and resides in Alexandria, VA.

Appointment of Christine D. Reed as a Member of the Board of Directors of the Federal National Mortgage Association

September 18, 1989

The President today announced his intention to appoint Christine D. Reed as a member of the Board of Directors of the Federal National Mortgage Association (Homebuilding Industry Representative) for a term ending on the date of the annual meeting of the stockholders in 1990. She would succeed Vance C. Miller.

Mrs. Reed is currently the executive director of the Building Industry Association of Southern California for the Orange County Region in Santa Ana. Prior to this, she was director of the California Department of Housing and Community Development, 1987–1989, and was the interim director, 1986–1987. From 1983 to 1986, Mrs. Reed was assistant secretary and then deputy secretary for the business, transportation, and housing agency in Sacramento, CA. She was deputy attorney general for the State of California at the California Department of Justice, 1981–1983, and assistant legal director for the California District Attorneys Association, 1980–1981.

Mrs. Reed graduated from San Diego State University (B.A., 1974) and Western State University, College of Law (J.D., 1977). She was born July 28, 1952, in Frankfurt, Germany. She is married and resides in Corona del Mar, CA.

Remarks at the State Centennial Celebration in Spokane, Washington

September 19, 1989

The President. Thank you very, very much. Thank you, Tom, thank you, Speaker Foley, for that very kind introduction. Please be seated—sorry about that. [*Laughter*] Oh, heavens, what a day. And thanks to the magnificent performances and performers on the Opera House steps over here. You added considerably to this. Thank you all very much.

Let me say at the very beginning that Washington State is very lucky to have a friend like Tom Foley in the Nation's Capital. He is a man of integrity, decency, fairplay, and—okay, he's a Democrat, but—[*laughter*]—he's a man I'm very proud and honored to work with. And you should be very fortunate to have him as your Congressman, just as I am to have him as the Nation's Speaker.

Mrs. Foley——

Audience member. Yea, Mother! [*Laughter*]

The President. See she brought the family. [*Laughter*] And my old friend, Joel Pritchard, the Lieutenant Governor. Thank

you all for your warm welcome. My congratulations to Cochairmen Ralph Monroe and Jean Gardner, Washington's First Lady, on a great centennial. And Mayor Pro Temp Higgins, you've got a beautiful city here to be proud of. And then I'd like to just say hello all the way across the country to Senator Slade Gorton, thanking him for all his work on behalf of the people of this great State.

You know, back in 1889, when President Harrison sent a letter—telegram, rather, to the first Governor of Washington to tell him that Washington had become the 42d State, he sent the telegram collect. [*Laughter*] Well, that's one way to balance the budget. [*Laughter*]

It's a pleasure to be here at the dawn of a second century of statehood, here in the Evergreen State. I'm not going to give you, you can be pleased to know, the usual stump speech. And I may be going out on a limb here, but I think most of America thinks of you as the real Washington. Yours is a land of rich resources and resourceful people. Salmon, gold, timber in abundance brought us here, as the promise of the Pacific brought the railroads West. There has always been, and will always be, a sense that the future is being decided here in this gateway to the Pacific.

Here in Washington you're doing well, living in a State with exports that went up nearly 40 percent last year alone, leading the Nation in exports per capita, and cutting unemployment from 10 percent to 6 percent over the last 5 years, during a time of rapid population growth. And last month you held a Pacific summit that reminded America how crucial the interrelations between nations are for our future. Even now your able Governor is in Japan—Governor Gardner. Last Thursday he attended groundbreaking ceremonies for Washington Village, a housing development in Kobe, Japan, using Washington-finished forest products and U.S. construction methods. And that means $10 million for the State of Washington and a great American export to Japan.

Washington has had a wonderful 100 years, and you deserve a great centennial celebration. But it's the future that I'm here to talk to you about today. I took this trip out West because I'm concerned—as I think we all are—about the future of the planet we share. You see, it won't be enough to restore our balance of trade if we throw off the balance of nature.

In South Dakota, I talked about the need to restore the balance of nature here at home and how each of us can begin by planting a single tree. In Montana, I talked about interdependence: how the actions we take and the pollutants we create have consequences that are being felt the world over. And today I'm asking all Americans to join in the renewed spirit of conservation, a new commitment to a more careful stewardship of the natural world. And at my side, I'm glad to have such an able and sensible Environmental Protection Agency—EPA—Administrator, Bill Reilly, with me here today, a man in whom I have a great deal of confidence and trust.

You see, I think many of us are beginning to understand something that Native Americans understood long before we got here. When it comes to preservation of our precious environment, there's a connection between the smallest individual action and widespread global consequences. No words convey that better than a legendary speech given in the 1800's by an Indian chief named Seattle. "The Earth does not belong to man," he said, "man belongs to the Earth. Whatever happens to the Earth happens to the sons of the Earth. The sky, the lands which appear changeless and eternal may change. Continue to foul the Earth and you will achieve an end to living and the mere beginning of survival. You must teach your children that the Earth is rich. Teach your children that to harm the Earth is to heap contempt upon its Creator."

Chief Seattle understood what it has taken us a century to learn. Our material prosperity and economic growth have served us well. But now, together, we must find new ways to apply the creativity of the marketplace in the service of the environment. Sound ecology and a strong economy can and, indeed, must coexist. I am convinced that we need not yield to the extremes. We must and will protect the environment, and we must and will protect the jobs of the working men and women of the State of Washington. There is no question in my mind: We can do both.

We have an opportunity to renew the environmental ethic in America and to reassert U.S. leadership on environmental challenges around the world. And that's an opportunity that we simply cannot afford to miss. In the 8 months since I was sworn in as President, we've moved fast and hard to make the environment a priority. We're seeking a worldwide ban by the year 2000 on CFC's [chlorofluorocarbons] which destroy the ozone layer. We've prohibited imports of ivory, and prices have dropped by 50 percent, making elephant poaching less profitable. And we're working for a policy that would ban the export of hazardous wastes unless we're sure they'll be disposed of safely. We've proposed tougher laws to eliminate medical waste on our beautiful beaches. And we want to expand dozens of forests and parks and refuges across America. We've announced a national goal of no net loss of wetlands. And we've laid out detailed proposals to stem acid rain, cut urban smog, clean up air toxics, and encourage the use of alternative fuels with a clean air bill that achieves 95 percent of the smog-causing VOC [volatile organic compounds] reductions sought by competing legislation at a cost of $6.5 billion less.

And that's just in 8 months. And as your President, I plan to stay involved, helping to protect our precious environment. As long as I remain President, I will do that. When it comes to clean air, we need action on the legislation that we've proposed—now. Every day that passes is another day that we are postponing progress on clean air. And we've brought people together and put a sound proposal on the table. And now it is up to the United States Congress to pass this clean air legislation and pass it this year.

But if we really hope to recover, restore, and preserve our natural heritage, that other Washington can't do it alone. And the answer can't simply be limited to new laws. It must be more fundamental. It lies in a shared sense of personal responsibility, a new environmental awareness on the part of all Americans. Through millions of individual decisions—simple, everyday, personal choices—we are determining the fate of the Earth. So, the conclusion is also simple: We're all responsible, and it's surprisingly easy to move from being part of the problem to being part of the solution.

So many of the big problems—coastal water pollution, pesticides in groundwater, urban smog and municipal garbage—aren't simply caused by large power plants and refineries; and many can't be solved by national legislation alone. Millions of small, diverse sources contribute to these problems, including the everyday behavior of people at work and at home. And such overwhelming environmental challenges can be solved by individual determination that we can do better. Local communities; businesses, large and small; individual families—all can learn to generate less waste, recycle more of the waste that is generated. In fact, those that do have discovered that there are sound economic side effects. Environmental protection makes economic sense.

The people of Washington State, in fact, have a history of showing the rest of the Nation the way. Back in the 1940's, J.P. Weyerhaeuser moved the lumber industry from simply harvesting forest resources towards comprehensive management of tree farms that could endure indefinitely. And after research into product development, Weyerhaeuser began introducing marketable products made from what was once treated as waste.

The 3M Corporation announced last spring that since starting their pollution prevention program in 1975, the company has saved $408 million and prevented 111,000 tons of air pollutants, 15,000 tons of water pollutants, and 388,000 tons of solid waste from being released into the environment. And they've done it by rewarding employees for coming up with good ideas.

In the city of Seattle, fees for waste disposal have been an incentive for businesses and households to reduce the amount of waste produced. And I understand that over the last several years, waste has been cut here by nearly a fourth.

So, the power of the marketplace can encourage conservation with spectacular results, results that need to be duplicated everywhere in America. I am delighted to be able to make these comments about your city in your city so they'll be heard across the rest of the United States.

You know, 15 years ago, when Spokane invited the world over for a visit at 1974 Expo, it became the first World's Fair to put the focus—the world's focus, if you will—on the environment. It was a good beginning, and we've made progress since then. And perhaps nothing better symbolizes that than the surging river that pulses through Spokane, a river that first lured men here as a source of protection, transportation, and sustenance. Such damage was done to this river by the early part of this century that by 1938 the Spokane River was called a serious health hazard. And over the past few decades, you have restored and reclaimed this magnificent river. The damage has been reversed, totally turned around. Nature's balance has been restored, and the river had been reborn.

The ethic of Native Americans like Chief Seattle must also be reborn on this continent. His was a religious understanding: that the whole Earth has a soul that can be destroyed by man. He saw the world as a spiritual place of precious but fragile beauty. Over a century ago, he said, "Hold in your mind the memory of the land as it was when you found it. And with all your strength, with all your mind, with all your heart, preserve it for your children and love it as God loves us all."

That is a challenge to us all. The American people—all people—need a fuller relationship with the world they live in, a better understanding of causes and effects. And if the Earth is an altar, we must make it an altar not of sacrifice but of celebration, a place where our commitment to restoring its natural beauty is felt in a thousand everyday decisions. You've made one of those decisions today by deciding to plant a centennial tree. May it grow, flourish, and symbolize the hope of a new century: that man will one day be reconciled to nature once again.

What a spectacular day in the State of Washington. Thank you for inviting me. God bless you, God bless this State, and God bless the United States of America. Thank you all very, very much.

Note: The President spoke at 10:02 a.m. in Riverfront Park. A tape was not available for verification of the content of these remarks.

Statement by Press Secretary Fitzwater on Federal Emergency Relief for the United States Virgin Islands and Puerto Rico

September 19, 1989

The President today expressed concern and sympathy for the death and destruction wreaked on the Virgin Islands and Puerto Rico and throughout the Caribbean by Hurricane Hugo. The Federal Government stands ready to respond promptly and fully. A team from the Federal Emergency Management Agency (FEMA) will be in the air this morning bound for the Virgin Islands, accompanied by Lt. Gov. Derek Hodge, Delegate Ron de Lugo, and officials of the Department of the Interior. Their initial mission will be to assess the damage and assist in reestablishing communications throughout the islands, which appear to have been devastated by this tremendous storm. Another FEMA team stands ready to travel to Puerto Rico as soon as a landing site can be located, and a FEMA representative is expected to meet with government officials in Puerto Rico today. We anticipate receiving formal requests for assistance from Gov. Alexander Farrelly of the Virgin Islands and Gov. Rafael Hernández-Colón of Puerto Rico today and will review those requests immediately in an effort to expedite the appropriate Federal response. All necessary Federal resources will be quickly mobilized to help the people of the Virgin Islands and Puerto Rico recover from this disaster.

Nomination of Catherine A. Bertini To Be an Assistant Secretary of Agriculture

September 20, 1989

The President today announced his intention to nominate Catherine Ann Bertini to be an Assistant Secretary of Agriculture for Food and Consumer Services. She would succeed John William Bode.

Since 1989 Mrs. Bertini has served as Acting Assistant Secretary for the Family Support Administration at the Department of Health and Human Services in Washington, DC. Prior to this, she served as Direc-

- George Bush has called for stricter federal enforcement of illegal ocean dumping. He calls the problem of dangerous medical waste washing up on our beaches a "national disgrace." He will direct the EPA, Coast Guard and FBI to join forces with state authorities to track down illegal dumpers.

- George Bush will ban all ocean dumping of sewage sludge by 1991.

- George Bush will instruct EPA to increase its work in developing land-based alternatives for sewage sludge disposal. He's a leader, not a talker, and he will get results.

- George Bush proposes restoring cuts Congress made in our budget for the Coast Guard so they can more effectively prevent illegal ocean dumping.

* * *

ENVIRONMENTAL POLICY STATEMENT
Erie Metropark, Michigan
August 31, 1988

I am here today to talk about building a better America. I am here to make a case I feel very strongly about -- and that is the case for a cleaner environment. It is a case based not only on our own health and safety, and not only on the obligation we have to future generations. It is based on the knowledge that successful economic development and environmental protection go hand in hand. You cannot have one without the other.

This summer has been full of warnings about the condition of our environment. Medical waste has washed up not only on our ocean beaches, but on the shores of this very lake over in Cleveland. Ozone levels and accompanying respiratory problems have been frighteningly high. Even the exceptionally hot weather -- if only symbolically -- has been seen as a portent of things to come.

1988 is the year the earth spoke back. Our land, water, and soil support a remarkable range of human activities; but they can only take so much. We must remember to treat them not as a given, but as a gift.

I am an environmentalist: always have been, from my earliest days as a Congressman, when I first chaired a House Task Force on Earth Resources and population. And I always will be, to my last days as President of this great and beautiful country. That's not inconsistent with being a businessman; nor is it with being a conservative. In fact, it is an essential part of the thinking that should guide either one.

Today, I'd like to begin to outline what I'd do about the environment; my plan for how we as a nation -- and as a people -- can lead the world to a new recognition of the importance of the environment.

Some say that these problems are too big -- that it's impossible for an individual, or even a nation as great as ours, to solve the problem of global warming, or the loss of forests, or the deterioration of our oceans. My response is simple: it can be done. And we must do it.

Let's not forget all that we have accomplished since America first concentrated its attention on preserving the environment -- under a Republican administration -- back in 1970. Lead levels in our air have declined by 87 percent, sulfur dioxide levels by 37 percent and particulates by 23 percent. 50 percent more Americans have adequate public sewage treatment systems.

Some of our most notable achievements have sprung from the leadership of Michigan's Governors -- men whose vision was ahead of their time, men like William Milliken and George Romney.

We need look no further for evidence of progress than to this very lake, once pronounced dead, and now home to one of the finest walleye fisheries in the world. All of this progress has occurred while America's population -- and what that population produces -- have been growing.

Today we face a different set of problems. They are complex. Many are international in scope. But with the right leadership, they can be solved.

We should be clear: The solution begins with the individual. Every family in America, from the White House to the house on the corner of Main Street, from the smallest apartment to the most expansive farm, makes choices very day, and those choices have an effect on our environment. But we cannot forget the effect of the choices we make.

Two years ago, a CBS-New York Times survey found that two-thirds of the American people felt that "protecting the environment is so important that standards and requirements cannot be too high."

But what of our personal standards?

Two weeks ago, I called for a "kinder, gentler nation". That means, in part, a nation in which all of us treat the environment with greater reverence and respect.

But some issues cannot be solved by individuals alone. On these, there is a role for government. Some issues involve competing local, regional, or even national interests. On these, there is a need for leadership. Let me tell you how I would lead as President.

I would start by integrating environmental considerations into all policy decisions -- from foreign to farm to economic policy; from the education of our children to the research and development of our scientists. And I would immediately begin to address some of the major challenges that confront us.

This summer, we have seen many reports about the so-called "greenhouse effect." As the nations of the world grow, they burn increasing amounts of fossil fuels. That gives off carbon dioxide, which acts as a blanket insulating the earth and thus could contribute -- the theory goes -- to an increase in the temperature of the atmosphere. The problem is compounded as the earth loses some of its valuable forest -- because trees naturally use carbon dioxide. So when we lose forests, we lose part of the answer to global warming.

One critical answer to this problem is conservation -- and that will be a priority of my administration. Another, frankly, is nuclear power -- although a precondition of its continued use is safe operation of plants and safe disposal of nuclear waste.

The problem, however, is international in scope; unilateral action by the United States alone will not solve it. In fact, some say the problem is just too big to be solved. That the world is growing too much and too fast.

I say they are wrong. Those who think we're powerless to do anything about the "greenhouse effect" are forgetting about the "White House effect." As President, I intend to do something about it.

In my first year in office, I will convene a global conference on the environment at the White House. It will include the Soviets, the Chinese, the developing world as well as the developed. All nations will be welcome -- and indeed, all nations will be needed.

The agenda will be clear. We will talk about global warming. We will talk about acid rain. We will talk about saving our oceans, and preventing the loss of tropical forests. And we will act.

These issues know no ideology, and no political boundaries. They are of equal importance to the developing world and to the developed. Just as they are the common heritage of the past and present, they are the common agenda of the future.

Those who doubt the possibility of international agreement -- forged by America's leadership -- can look to our recent experience. Last year, we took the lead in developing a historic accord to cut world wide production of chlorofluorocarbons (CFCs) by 50 percent. CFCs contribute to the depletion of the ozone layer -- and to the "greenhouse effect". This agreement, called Motreal Protocol, represents one of the first times that the nations of the world have joined together to meet a common environmental challenge.

We now have a second example. We are close to reaching agreement with other nations on a protocol to limit emissions of nitrogen oxides. These gases, NOx for short, contribute to the problem of acid rain. Let me state my position clearly: I believe this protocol should be signed by the U.S. and implemented around the world.

Acid rain is a problem that will require both international and national cooperation. Last year, I had a hand in securing an agreement with our neighbors in Canada to undertake a $2.5 billion clean coal technology development effort on the problem. This technology is vital, because our most our most abundant fossil fuel must retain a key place in our economy.

On the question of acid rain, the time for study alone has passed. We know enough now to begin taking steps to limit future damage; action we take today -- even as scientific inquiry continues -- is an insurance policy against future disaster.

As President, I will ask for a program to cut millions of tons of sulfur dioxide emissions by the year 2000, and to significantly reduce nitrogen oxide emissions as well. I will work out the exact amounts and the exact methodology with the Congress. But we must have a clear commitment to emissions reductions, on a clear timetable.

The burden of achieving these emissions must be shared equitably; no one region or group should be hit unfairly with the cost of addressing a problem that affects all of us. But the waiting period for action on acid rain is over, and I -- as President -- will be ready to move.

Curbing acid rain is just one element in achieving cleaner air and cleaner water. Earlier this week, EPA moved ahead with mandated sanctions against an area of the country -- Los Angeles -- that is not meeting the standards of the Clean Air Act. This shows dramatically the need to press ahead with the battle for clean air. I support a reauthorization, correction and strengthening, of our clean air laws -- with realistic timetables and tools to get the job done.

Clean air is only one part of the picture. What about clean water? Groundwater provides more than half of the American public with its drinking water -- and 97% of rural households. And yet it is threatened -- by toxic wastes, by pesticides and by fertilizers.

Too many towns in America have had a nightmare with hazardous waste that is disposed of improperly. Well, I plan to attack the toxic waste menace with every ounce of energy I have, and with every enforcement tool at my disposal.

Superfund has the money. But we can use it faster, and more efficiently. We can make greater use of the EPA's emergency authority to step in and clean up immediately.

We can cut the red tape that slows down a program that, frankly, was written by lawyers, and it seems for lawyers.

Right now, the incentives often work against those private parties who agree to settle with the EPA and clean up waste sites themselves. Voluntary cleanups should be encouraged rather than impeded.

For those who don't cooperate, EPA should use its authority to sue them for triple damages. Our guiding principle should be simple: those who are responsible for the dumping should be responsible for the cleanup. Polluters should pay.

When America moves into the 90s, I want to insure that "zero tolerance" is applied not only to those who poison our children's minds with drugs, but to those who poison our water with toxic chemicals.

We have some fine and extremely able public servants enforcing our environmental laws today -- including our outstanding EPA Administrator, Lee Thomas. But lest there be any doubt about my intention to vigorously execute our environmental laws, I make the following commitment to you today: I will appoint the finest, most qualified individuals in the land to serve in my Environmental Protection Agency. They will have my support. They will have my ear. They will have my confidence. And they will have my mandate: go after the polluters.

Just a few miles from here, I'm told, is an environmental success story. The Pointe Mouillee wetlands. I don't have to tell those of you who are hunters and fishermen how important wetlands are as a habitat for fish, ducks, geese, and other waterfowl. But they also help control flooding by serving as a "sponge," and they "recycle" water by filtering out wastes. Wetlands are a vital environmental and recreational resource -- and they are at risk.

We have been losing wetlands at a rate of almost a half-million acres per year -- although this should be reduced with the conservation-oriented "swamp buster" provisions in last year's farm bill. Much of the loss comes from inevitable pressure for development, and many of our wetlands are on private property. But I believe we must act.

We must bring the private and public sectors together, at the local and state levels, to find ways to conserve wetlands. One state has a policy of "no net loss" of wetlands, and it has worked -- through mitigating the effects of development, preserving wetlands where possible, and sometimes even creating new wetlands. And that state is not a no growth, no development state.

I believe this should be our national goal -- no net loss of wetlands. We can't afford to lose the half of America's wetlands that still remains.

I want to increase the recreational opportunities provided by the great American outdoors. And in that task, I will pay special attention to the condition and management of our parks. I will look for ways to expand them, to link our cities with greenways along abandoned railroad tracks, and refresh them with urban parks.

already mentioned ←

I will look carefully, and favorably, at many of the recommendations of the President's Commission on the Outdoors.

Consider, for example the Land and Water Conservation Fund. It was used to purchase much of this very park. It has been a success, and I believe it should continue to give Americans the chance to enjoy -- and to use -- land and water resources like this one.

I mentioned the Republican role in environmentalism, and no Republican President personified that role better than Teddy Roosevelt. "This country will not be a good place for any of us to live in," Teddy Roosevelt once said, "unless it is a good place for all of us to live in."

Those words are no less true today. In this world of rapid communications, growing population, and global environmental problems, we are more tightly bound than ever -- not only in this country, but in this world.

And that explains the real challenge facing conservationists as we work to build a better future -- to bring people together, because the task involves all of us.

Our actions as individuals can affect our common destiny. We Americans produce 160 million tons of garbage every year. We can produce less. We can recycle. We can waste less. Japan's recycling rate is 50%, yet some feel the EPA's national goal of a 25% reduction in waste is excessive. I'd like to see us exceed that goal in my first term.

We consume mountains of plastic packages, waste millions of gallons of water, and produce barrel upon barrel of hazardous waste. We can waste less, and reduce pollutants at their source. The technology is there, what is needed now is the will.

We can instill a new spirit in the people of this country. A new appreciation for the land and water. A conservation ethic.

There are some natural allies in this cause, and one task of our next President is to rally them to a common purpose.

Tom Washington, through the Michigan United Conservation Clubs, you have tied together the interests of sportsmen and environmentalists.

As President, I want to build further on the coalition you have spawned here. We as Americans should recognize how much conservation can unite us.

Sportsmen know how much preserving the habitat of our wildlife means to their continued enjoyment of what nature has to offer. But the stalwarts of the environmental movement should recognize, as well, that they are in common league with families across America who don't even think of themselves as environmentalists. They think of themselves as concerned citizens, as lovers of sport and play, and, of course, just as Americans.

We've talked of practicing "the Politics of Inclusion" in the Republican Party. We should bring this same politics of inclusion to the cause of protecting America's environment. I believe that I have the experience and leadership to bring Americans together.

It's been said that we are all on one small ship on this planet. That ship is traveling fast moving -- potentially -- to a brighter future. Its condition demands our urgent attention. Its salvation can be our common triumph.

* * *

PREVENTING POLLUTION

Americans produce 160 million tons of garbage every year. For too long we all have ignored the long-term problem of how to dispose of this mountain of garbage. What can we do with so much waste, year after year? Under George Bush's leadership, we will start to address this problem by making a national commitment to reduce waste and preventing pollution.

- o There is no single solution to this problem. George Bush will work with and help state and local authorities by:

  1) Renewing our national commitment to recycling;

  2) Targeting funds for research and development into safer, environmentally-sound ways to dispose of waste that cannot be recycled;

  3) Encouraging industry to look for ways to produce less waste by vigorously enforcing the environmental laws restricting waste disposal. When businesses incur the full cost of waste, they will be less wasteful.

  4) Calling on industry and consumers to increase their use of biodegradable products.

SUPERFUND AND TOXIC WASTE

George Bush knows the EPA has done more with Superfund these past few years. Currently, work is underway at 700 large sites. But he knows that we can do more and cleanup sites even faster.

George Bush knows the EPA's enforcement program is more aggressive now than ever before. During 1986 and 1987, EPA took more enforcement actions against polluters than in any other two years in its history. The Texas Eastern pipeline cleanup, which will cost more than $400 million and involves nearly 100 sites in over a dozen states, is one recent example of the EPA's tough enforcement policy. Even so, his EPA will be even tougher and more comprehensive about enforcing Superfund rules.

Under George Bush's leadership, Superfund will be a high profile program. He will protect appropriations for Superfund and vigorously enforce EPA regulations on toxic waste disposal.

- o George Bush will place even greater emphasis on getting those who have dumped toxic wastes to cooperate with expedited cleanups at priority sites. George Bush will instruct the EPA to vigorously pursue all responsible parties, so that no one has an incentive to drag out settlement negotiations.

- o George Bush will streamline and accelerate the priority cleanup process.

- o Building on the initiatives he has already made to rationalize federal regulation, George Bush will remove regulatory barriers to the introduction and implementation of new technology to reduce the production of toxic wastes and to dispose of these wastes more safely.

- o George Bush will ensure that federal facilities, including military bases, meet all environmental standards. There is no national security interest in contaminating groundwater.

* * *

IOWA METHODIST HOSPITAL
Des Moines, Iowa
January 22, 1988

Undoubtedly, the three biggest challenges facing America's health care system as we prepare for the 21st century are affordability, availability, and quality. Here at Iowa Methodist I know you're working hard on all of these issues.

There is a cost problem -- anyone who's ever been hospitalized knows that -- and we need to address it. Our Administration has made a good start. The prospective payment system instituted in 1983 has finally permitted us to get a handle on hospital costs.

But the system is not perfect. For one, it's unfair to rural hospitals. When Congress decided to institute a differential scale for payment to rural and urban hospitals, it hurt rural hospitals. Rural hospitals do have more costs than Medicare assumes.

The rural hospital is the backbone of its community. When you lose the hospital, the community has a tough time keeping, let alone attracting, industry. As President, I will support efforts to correct this differential payment problem in a way that will not bankrupt the federal budget.

OUR DIRTY AIR

Trees and ponds are dying, and many American cities are choked by a lung-searing, eye-blearing haze. But for the first time in a decade, there's hope for a tough new law

Nearly 20 years after Congress decided to "protect and enhance" the nation's air quality, Americans are still spewing filth into the skies. Noxious gases produced by huge industrial smokestacks are poisoning the lakes, streams and forests of the North and Southeast. Industry belches billions of pounds of toxic chemicals into the atmosphere every year. In car-choked metropolitan areas, last year's levels of ozone, the poisonous form of oxygen that is the chief component of urban smog, reached an all-time high. Some 140 million Americans, nearly 3 out of every 5 citizens, now live in areas that do not meet the health standards set by the Clean Air Act of 1970.

It is clear that the 1970 law, a delicate compromise among dozens of competing economic and regional interests and between federal and state authority, left a mountain of unfinished business. It barely mentioned acid rain. Its strictures made it almost impossible for the U.S. Environmental Protection Agency to clamp down on growing emissions of toxic chemicals. It left a large part of the responsibility for meeting health standards to the states, which have missed one deadline after another since the act was passed. "The great dirty secret is that, except in auto emissions, we haven't tried very hard on air pollution," says Richard Ayres, chairman of the National Clean Air Coalition.

That may soon change. Things are so bad in some areas that regional air-quality managers are considering drastic new measures: Trying to limit the number of cars families own, forcing manufacturers to reformulate cosmetics and paints, outlawing gasoline-powered lawn mowers, charcoal lighter fluids and a host of other everyday products. After more than a decade of legislative stalemate, powerful new political players are finally putting air quality back at the top of the agenda. Robert Byrd of West Virginia, which produces the kind of high-sulfur coal that helps acidify Eastern rains, has yielded to a new Senate majority leader, George Mitchell, from the acid-polluted state of Maine. Ronald Reagan, whose administration questioned the need for any new action at all, has given way to self-proclaimed First Environmentalist George Bush, who will soon produce clean-air proposals of his own. Meanwhile, industry leaders who once opposed almost any clean-air strictures have changed their tune. Alarmed at the prospect of 50 separate sets of regulations, as states take matters into their own hands, they now see the wisdom of cooperating in the design of a federal umbrella law.

WINNING THROUGH INFLATION

WHITE HOUSE STRATEGY

After months of sniping at the Federal Reserve Board for keeping interest rates high for so long, the White House finally has revealed its game plan. The administration is willing to accept the worst inflation since 1981 to keep the economy expanding and rescue the President from his budget-deficit quagmire.

The disclosure came from Treasury Secretary Nicholas Brady last week in a speech to the Organization for Economic Cooperation and Development in Paris. Listing five economic challenges facing the world, Brady put "solid, balanced growth" first and placed "remaining vigilant against inflation" last.

That ranking of priorities was a diplomatic warning to the other major industrialized nations not to go too far in raising interest rates to combat inflation. Last month, Great Britain and Japan raised their key interest rates for the first time in a decade. Switzerland also increased its rates.

There is no need, Brady cautioned the OECD members, to risk "a premature end to an expansion that has served us all so well." The West Germans apparently got the message. Despite expectations, the Bundesbank did not join the rate increase.

Now, Brady is waiting to see if his own country's money managers, led by Fed chief Alan Greenspan, are paying attention to the President's priorities. Although U.S. interest rates have eased a bit this spring, the White House wants further downward movement. Unless that happens soon, the Bush team fears a recession may occur. Only by assuming continued economic growth was the President able to reach a budget accord with Congress in April without reneging on his promise not to raise taxes. "They're scared," says Mickey Levy, chief economist for Fidelity Bank in Philadelphia. "A slump would increase the budget deficit and make them look bad."

BUSTING OUT ALL OVER

The cost of saving Bush's face on the budget, however, would be acceptance of rising inflation here and abroad. In the U.S., retail prices rose at a 6.6 percent annual rate through April.

The Fed's tight-money policy should slow inflation in the months ahead, but most analysts still see prices climbing by 5 percent or more this year. That would be the sharpest jump since the 8.9 percent increase in 1981 and compares with 4.4 percent in each of the last two years.

Overseas, inflation is busting out all over. It is up to the 7-to-8-percent range in Britain and 3 to 3.5 percent in West Germany and Japan, where inflation had been barely noticeable.

The outbreak, along with political unrest in Bonn and Tokyo, is pushing foreign capital to the U.S., raising the dollar's value. That, in turn, feeds foreign inflation by hiking the prices of imports from America. The effort to reverse the greenback's rise through central-bank selling of dollars in the currency markets has failed. And, says Fred Bergsten, head of the Institute for International Economics in Washington, policy synchronization among the major industrial powers "has been out to lunch."

COOLER HEADS AT THE FED

The Fed is not likely to heed the White House's call for easier money until it gets clear evidence that the economy is, in fact, slowing down, and price increases are cooling off.

That evidence may have come last week. The government reported that job growth, 101,000 in May, was at its lowest level in more than three years. Unemployment dipped one tenth of a percentage point to 5.2 percent last month. "The jobs picture was weak," says David Wyss, chief economist at Data Resources Inc., a Lexington, Mass., consulting firm. If the Fed shares that interpretation, it could decide to lower interest rates soon.

ALL FALL DOWN

The Fed board has been split for a while. Some members are pushing for a drop in rates. Others want to wait for reports on May's inflation due out in mid-June. Whenever the move comes, it seems clear that interest rates are heading downward.

By year-end, rates could be as much as a full percentage point lower than today's. The question is: Will they fall because the Fed has successfully broken the inflation spiral or because the economy is tumbling into recession? It is the latter that worries George Bush.

by Monroe W. Karmin

Suddenly, the question is not whether there will be a bill, but just what, exactly, the Clean Air Act of 1990 will contain. There's no escaping the political and economic battles that will be fought along the way. At present, according to EPA estimates, the United States is spending about $30 billion a year to control air pollution; the tougher measures now being considered could more than double that figure. Fierce arguments are already under way over which cleanup benefits are worth such costs, and over who, precisely, is to pay. Midwestern utility customers, for instance, probably cannot afford the entire cost of cleaning up regional power plants. One proposed solution is a national users' fee that would spread the cost among all 50 states. But would voters in Wyoming, a producer of low-sulfur coal, be willing to chip in to help clean up Ohio plants so that they can burn high-sulfur coal from the East?

Whatever bill finally emerges from the coming months of political horse-trading is almost certain to focus on three critical subjects:

■ **Ozone.** Urban smog is made up of dozens of ingredients, including carbon monoxide, particulates such as dirt, soot and dust, and ozone, a highly reactive gas that is cooked up in the troposphere when sun shines on a mix of nitrogen oxides (NOx), hydrocarbons and other volatile organic compounds (VOC's). The main source of both NOx and hydrocarbons is motor vehicles, which is why sunny, gridlocked cities like Los Angeles and Mexico City are particularly at risk. But ozone observes no borders. Typically, it builds up in a large stagnant air mass above a city, then drifts downwind. Thus, northern New England is often treated to pollution that originates as far away as Baltimore. Last summer, rangers in Maine's Acadia National Park recorded ozone levels so high that they would have triggered a smog alert in Los Angeles, smog capital of the nation.

Nationwide, 1988 ozone levels were the decade's highest, and for many cities they were the worst ever recorded. Fully 94 urban areas violated the Clean Air Act's standards. More than 20 were first-time offenders. And after 19 years of trying to break the ozone curse, the highest ozone levels were, nonetheless, depressingly predictable: Southern California, New York City, Houston and Chicago.

Cutting ozone levels has proven far more difficult than anyone at first anticipated. True, new cars emit 90 percent fewer hydrocarbons and 75 percent less carbon monoxide than did those of the early 1970s. But at the same time, the national vehicle fleet is nearly twice as big as it was two decades ago. Cars today are traveling more miles per year. And all those automobiles, traveling all those extra miles, also sit idling in traffic jams for many more hours than did their predecessors.

The complex chemistry of smog can play some befuddling tricks on efforts to reduce ozone. In certain circumstances, cutting back emissions of NOx can actually *increase* the amount of ozone formed in smog. When America cracked down on the use of chlorofluorocarbons as spray-can propellants because the CFC's attack the stratospheric ozone layer that shields the earth from excessive solar radiation, manufacturers replaced CFC's with propellants like butane. But butane, it turns out, is a volatile organic compound; it contributes to the buildup of the undesirable ozone—smog—at ground level.

■ **Toxics.** The Clean Air Act of 1970 ordered the EPA to protect public health from the bewildering, and growing, assortment of toxic substances released into the atmosphere by manufacturers. The agency was supposed to evaluate the health hazards posed by each one, then set rules to control it. That chemical-by-chemical approach, however, has proven hopelessly unwieldy. The evaluation studies take time and money, and expenditures of both are compounded by the endless legal challenges mounted by producers of the chemicals. Nineteen years after the act was passed, the EPA has issued regulations for only seven of the hundreds of

THE NEWEST HEALTH HAZARD: BREATHING

The best advice is to cut back on strenuous activity when the smog rolls in

When smog settles into the Los Angeles basin, Shirley Levy slows down. Instead of showing condominiums, shopping or meeting friends for lunch, she stays at home, reading or working quietly at her desk. On really hazy days, she wraps a scarf around her nose and mouth. "I get this tight feeling across my chest," she explains. "Every movement feels like I'm climbing stairs with a 50-pound weight on my back."

Levy is one of the 140 million Americans—about 60 percent of the population—who live in areas where the air is unhealthy at least part of the time. Because she has asthma and emphysema, she suffers more than most when the air quality drops. But dirty air isn't just a hazard for people with weak lungs or a damaged heart. It harms everyone who inhales it, though the impact is often subtle and cumulative. A jogger notices that on smoggy days she tires quickly, or a construction worker realizes that he's catching an alarming number of colds. Faced with these symptoms, people often put the blame on stress, late nights or a fast-food diet. Increasingly, they should take a hard look at the air they breathe as well.

Many of the pollutants that people inhale are cleared out of the nose and throat well before they reach the lungs. Tiny particles, such as soot, are trapped on fine hairs lining the nasal passages and trachea, and some gases, such as sulfur dioxide, are absorbed largely in the upper airways. But the body has no front-line defenses against ozone, a poisonous form of oxygen that is the most harmful component of the brownish haze choking metropolitan areas. Ozone irritates and inflames delicate pulmonary membranes, producing a host of symptoms, including chest pains, coughing and throat irritation. The corrosive chemical also lowers the lungs' defenses against infection and may trigger asthma attacks.

Permanent damage. Most disturbing, however, is the way ozone whittles away an individual's lung capacity. Scientists find that after a person exercises outdoors in ozone-filled air, lung inflammation reduces the amount of air he can inhale in a single breath. The deficiency can last up to a week. While people at rest can tolerate relatively high levels of ozone without ill effects, many experts suspect that regular doses of smog may permanently scar the lungs. "As with cigarette smoke, every exposure may do a little damage," says New York University Medical Center Prof. Morton Lippmann. Enough scarring, warns Philip Landrigan, of the American Academy of Pediatrics, and you are a "pulmonary cripple by the time you hit your 50s or 60s."

The other major poison in smog is carbon monoxide. It is emitted primarily by cars, and can build up to dangerous levels along major urban thoroughfares. This colorless, odorless gas robs the body's tissues and organs of life-sustaining oxygen; when inhaled, it binds with the red blood cells that otherwise would transport oxygen around the body. Carbon-monoxide pollution impairs concentration and motor coordination. It is especially hazardous to developing fetuses, since the fetal brain needs a lot of oxygen, and to people with heart disease, whose oxygen-carrying circulatory systems already are compromised.

The same acids that kill off fish in Eastern lakes and streams also harm people. Created in the atmosphere from nitrogen oxides and sulfur dioxide, acid aerosols slip easily past the body's defenses deep into the lungs where they inflame tissues. Like ozone, acid aerosols depress pulmonary function and may permanently scar the lungs.

The jury is still out on whether the many toxic chemicals dumped into the air by industrial processes pose a major threat to public health. Scientists don't yet know how many people are exposed to which chemicals and at what doses. The U.S. is dotted with toxic "hot spots," like Front Royal, Va., and Lemoyne,

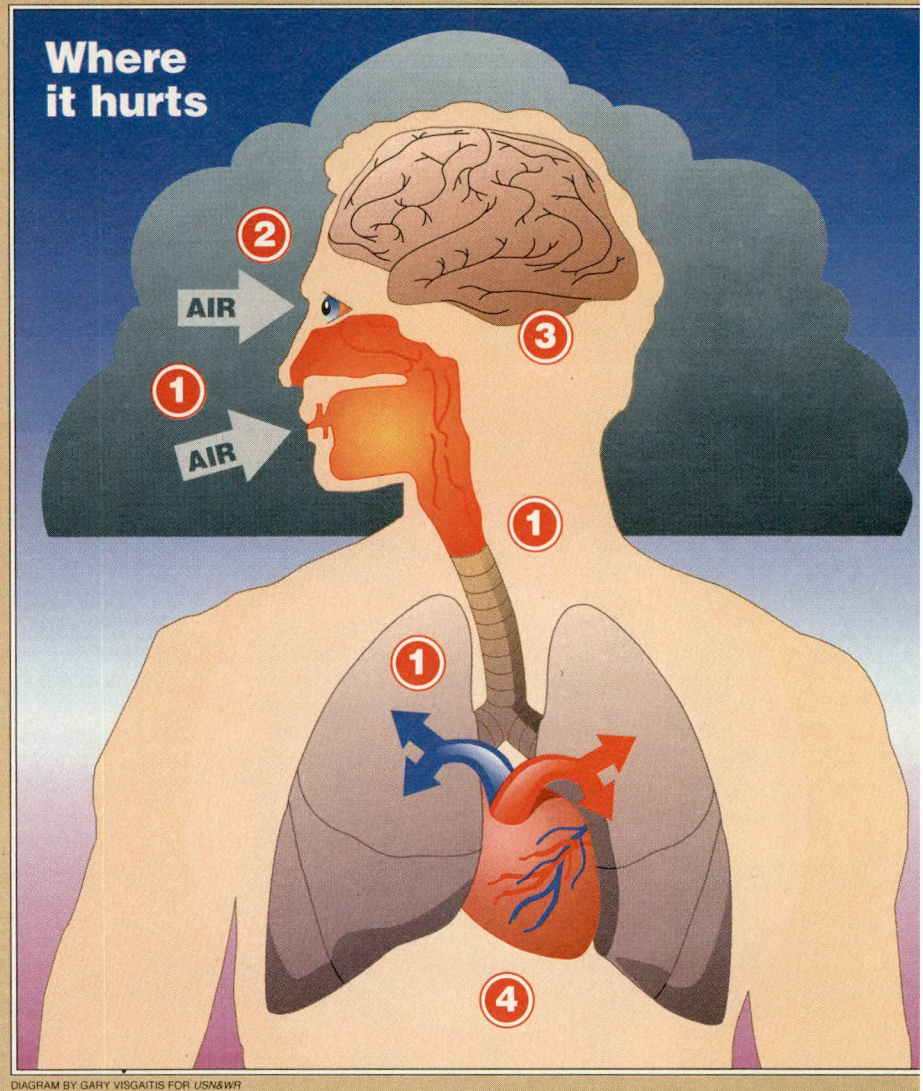


DIAGRAM BY GARY VISGAITIS FOR *USN&WR*

Nose, Throat, Lungs

1 Ozone, when inhaled, reduces the lung's ability to clear out infectious agents and toxins and can aggravate asthma.

Eyes

2 Other chemicals formed in smog, especially PAN, or peroxyacetyl nitrate, irritate the eyes.

Brain

3 Inhalation of carbon monoxide can impair motor coordination and concentration, perhaps by reducing oxygen supply to brain.

Heart

4 Carbon monoxide disrupts the delivery of oxygen to the body by binding with red blood cells. Low blood-oxygen levels aggravate angina (chest pains).

Smog index

Most metro areas issue air-pollution alerts based on a numerical scale that reflects the concentration of the most unhealthful pollutant present in the air

Good

Moderate

Unhealthful
Persons with heart or respiratory ailments should reduce physical exertion

Very unhealthful
Elderly and persons with heart or lung disease should stay indoors

Hazardous
Elderly and persons with those diseases should stay indoors and avoid physical exertion. Everyone should avoid outdoor activity

Ala.; though in the average community, the concentrations of airborne toxics from industry are vanishingly small. In fact, most of the toxics that people inhale come from cigarette smoke and household chemicals. The EPA estimates that toxics are responsible for 2,000 excess cancer deaths a year, but right now that number isn't much more reliable than a wild guess. "There's cause for enlightened concern, but it doesn't do any good to get hysterical," says Rogene Henderson, senior scientist at the Lovelace Inhalation Toxicology Research Institute in Albuquerque, N.M.

Even with new legislation, the task of cleaning up the air will not be accomplished overnight. In the meantime, Shirley Levy's prescription may make the most sense: When the air is bad, try not to breathe it. ■

by Betsy Carpenter

chemicals considered dangerous to human health.

Meanwhile, toxic chemicals may be a far worse problem than Congress realized in 1970. Last April, a House subcommittee released the results of the first national survey of toxic chemicals. The survey—nicknamed "Bhopal's baby" because it was ordered after the 1984 chemical disaster at Union Carbide's plant in Bhopal, India—showed that during 1987 industry released 2.7 billion pounds of toxics, some of them known carcinogens, into the air. "The magnitude of the problem far exceeds our worst fears," said California Democrat Henry Waxman, chairman of the subcommittee. The real magnitude may be even greater than the study suggested. The survey did not cover chemicals released from cars, trucks and toxic-waste dumps, by companies that used less than 10,000 pounds of chemicals during the year or by thousands upon thousands of service businesses, such as dry cleaners and gas stations, which spew out toxics as a matter of course.

To improve toxics regulation, the EPA wants any new law to permit an industry-by-industry approach to the problem, instead of the old chemical-by-chemical system. First, the EPA would rank industries according to the amount of toxics they produce; the chemical industry, smelting, pesticide production, petroleum refining and tire manufacturing would fall high on the list. Then, the EPA would evaluate the cost of cleanup technologies available to each industry, and order various toxic-producing sites to use them. Refineries, for instance, might be ordered to light flares on their smokestacks to burn off organic chemicals. Smelters might have to install fabric filters, much like lint traps in clothes dryers, on stacks to trap cadmium and other particulate metals dangerous to public health.

■ **Acid pollution.** Ironically, it is the atmosphere's own self-cleaning mechanism that produces the pollution known as acid rain. Sulfur dioxide and nitrogen oxides are released into the earth's atmosphere by a variety of natural processes, including volcanic eruptions and lightning strikes, and by an increasing number of human activities, especially the burning of fossil fuels. Sunlight causes a series of chemical reactions that transform these gases into sulfuric and nitric acids. Most of the acid molecules end up in cloud droplets. They may remain suspended for a while in cloud form; near Los Angeles, for instance, the fog sometimes is as acidic as lemon juice. Eventually, however, the molecules are washed out of the air in rain or snow and fall back to earth, where natural processes in the soil work to neutralize or dilute the acidity before it can do any harm.

The problem is that industrial society's inexorably growing use of cheap, plentiful coal to produce electric power has overloaded nature's cleansing cycle. As a result, one fifth of the lakes in New York's Adirondack Mountains have grown too acidic to support fish, and half the streams in the mid-Atlantic coastal states are endangered. Spruces, maples and pines in California and Appalachia absorb the acids through needles, leaves and roots, and are now suffering from what the Germans poetically call *Waldsterben,* forest death. Buildings and monuments in the Midwest and Northeast, especially structures made of marble, are being steadily eaten away.

Back in 1970, acid rain was not an issue. Few scientists, let alone politicians, realized how much damage it could do. The old act focused on sulfur dioxide as a health hazard, whose effects were mostly visible in the immediate neighborhood of the worst SO_2 offenders, power plants burning high-sulfur coal. The law placed strict limits on the amount of sulfur dioxide that could be emitted by any plant built after 1972. New plants either had to install flue-gas desulfurization gear, "scrubbers," or burn low-sulfur coal; plants built before 1972 were grandfathered. The EPA set standards governing the concentration of sulfur and nitrogen near the Midwestern plants that produced them, "so much crud per cubic meter of air," in the words of David Bassett, one of the agency's acid-rain experts.

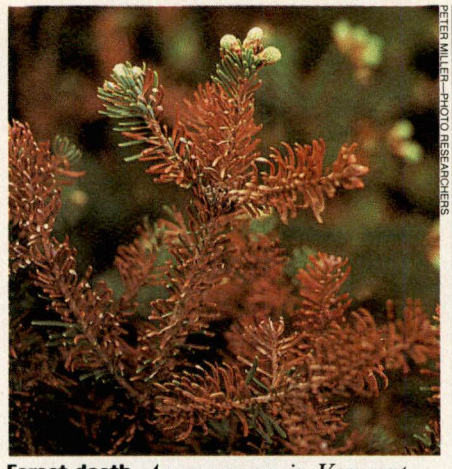
The result was not what environmentalists expected. Until the EPA finally cracked down on the practice, industry built taller smokestacks that efficiently reduced the local concentration of sulfur and nitrogen oxides to meet the EPA's standards and ended up wafting the crud toward the Northeastern forests. To make matters worse, the dirty old plants are lasting 50 to 60 years, instead of being retired to make room for clean burners.

Environmentalists are now demanding fast and unequivocal action, and that means forcing even the long-lived old plants to install scrubbers. Utilities would prefer to stall as long as possible. And no wonder. One recent analysis shows that every year of delay in cleaning up old plants has saved industry as much as $5 billion. The utilities' current strategy is to argue that "clean coal" technologies now under development will provide the answers. If they are forced to retrofit all old plants with scrubbers, industry spokesmen argue, they will not be able to develop and deploy plants that incorporate such ad-

vanced schemes. One new technology burns pulverized coal together with limestone to absorb the sulfur, cutting sulfur-dioxide emissions. Another system heats coal to produce gas, which is then cleaned and burned in a gas turbine similar to a jet engine; the sulfur recovered from the gas cleansing is pure enough to be sold as a byproduct.

If, despite these arguments, they are forced to clean up, utilities desperately want "freedom of choice." That means legislation that sets limits on emissions, but allows industry itself to choose the cheapest course for meeting them. In some cases, that would mean installing scrubbers on old plants, a course both environmentalists and Eastern coal miners approve. In others, it would be to burn low-sulfur coal from the West: Fine with environmentalists but anathema to the miners.

It is conflicts and complications like these that make the drafting of a new law so difficult. "There aren't 15 people in the Capitol who understand the technical complexities," says Republican Senator Alan Simpson, whose state of Wyoming, a big producer of low-sulfur coal, has a large stake in the outcome.



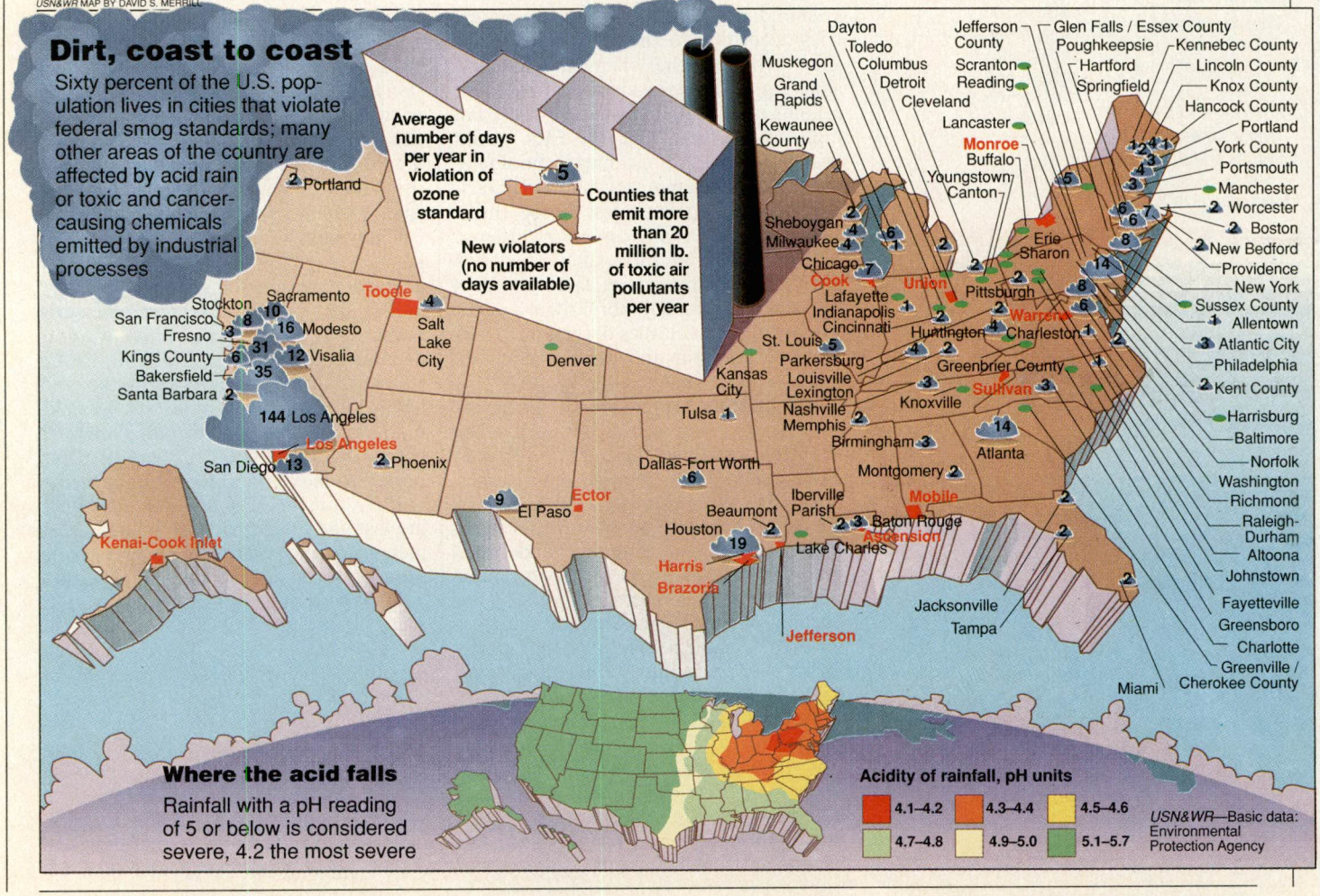
PETER MILLER—PHOTO RESEARCHERS

Forest death. *An evergreen in Vermont, victim of acid rain from the Midwest*

California Congressman Henry Waxman, the environmentalists' champion on Capitol Hill, is trying to change that. For the last two months, he has been holding weekly "clean-air classes" to help his colleagues and their staffs sort through the issues. Recently, for example, a class heard a debate between an auto-company executive and a former EPA expert on the feasibility of tighter tailpipe standards. In addition, Waxman publishes a weekly newsletter, *Clean Air Facts,* which he sends to every member of the House.

The laundry lobby. They can use the help. Already, two-dozen clean-air bills have been introduced on the Hill, and lobbyists are hard at work trying to win congressional hearts and minds. Some are obvious players. The auto industry, not surprisingly, is fighting against tougher emissions standards, and mine workers hope to protect the use of high-sulfur Eastern coal. But this time round there are also some unfamiliar interests at work. Bakeries and laundries, for instance, don't want to be forced to reduce emissions of ozone-producing hydrocarbons from fermenting yeast or evaporating dry-cleaning fluids. Companies that make cleanup equipment want to make sure any new law requires the use of their products or at least does not preclude it. Railway engineers are lobbying for required use of low-sulfur coal, which would have to be shipped east by rail.

Meanwhile, all sides await word from the White House. Bush's clean-air plan, originally promised for late March, has been delayed by high-level skirmishing



between the EPA, which wants tougher regulations, and the Office of Management and Budget, which is wary of the costs. The most contentious questions include how many power plants in the Midwest and Southeast to target for acid-rain cleanup. Is it more cost-effective to require lots of plants to clean up a little, or to force a few plants to cut emissions by a lot? In addition, the EPA insists on the need for heavy use of alternative fuels for vehicles, a policy the Energy Department resists.

Bush will choose from a menu of options prepared by his advisers, and the White House will try to translate the President's choices into "legislative language" as early as this week. Then the congressional debate will get under way in earnest. By next spring, Bush may well have a tough new clean-air measure to sign. To stop acid rain, the new legislation is likely to require reductions in sulfur-dioxide emissions of 5 million tons a year by the mid-1990s, 10 million tons a year by 2000. It will probably require scrubbers for some of the dirtiest old plants but permit others to do some fuel switching, a compromise fairly palatable to all concerned. To get toxic chemicals under control, the new law may extend the EPA's regulatory reach to include not just major offenders like chemical plants and refineries but also gasoline stations and dry cleaners. To attack ozone levels, the new legislation will include both new deadlines for compliance and a series of new standards governing small polluters. Despite ferocious opposition by Michigan Democrat John Dingell, it will almost surely slap tougher emissions standards on automobiles and perhaps require increased use of nongasoline fuels like methanol, especially in the nation's most polluted areas.

The future of the nation, in fact, is beginning to look a lot like California. Faced with the worst air quality in the country in the Los Angeles air basin, that state long ago took many of the

TED SPIEGEL—BLACK STAR

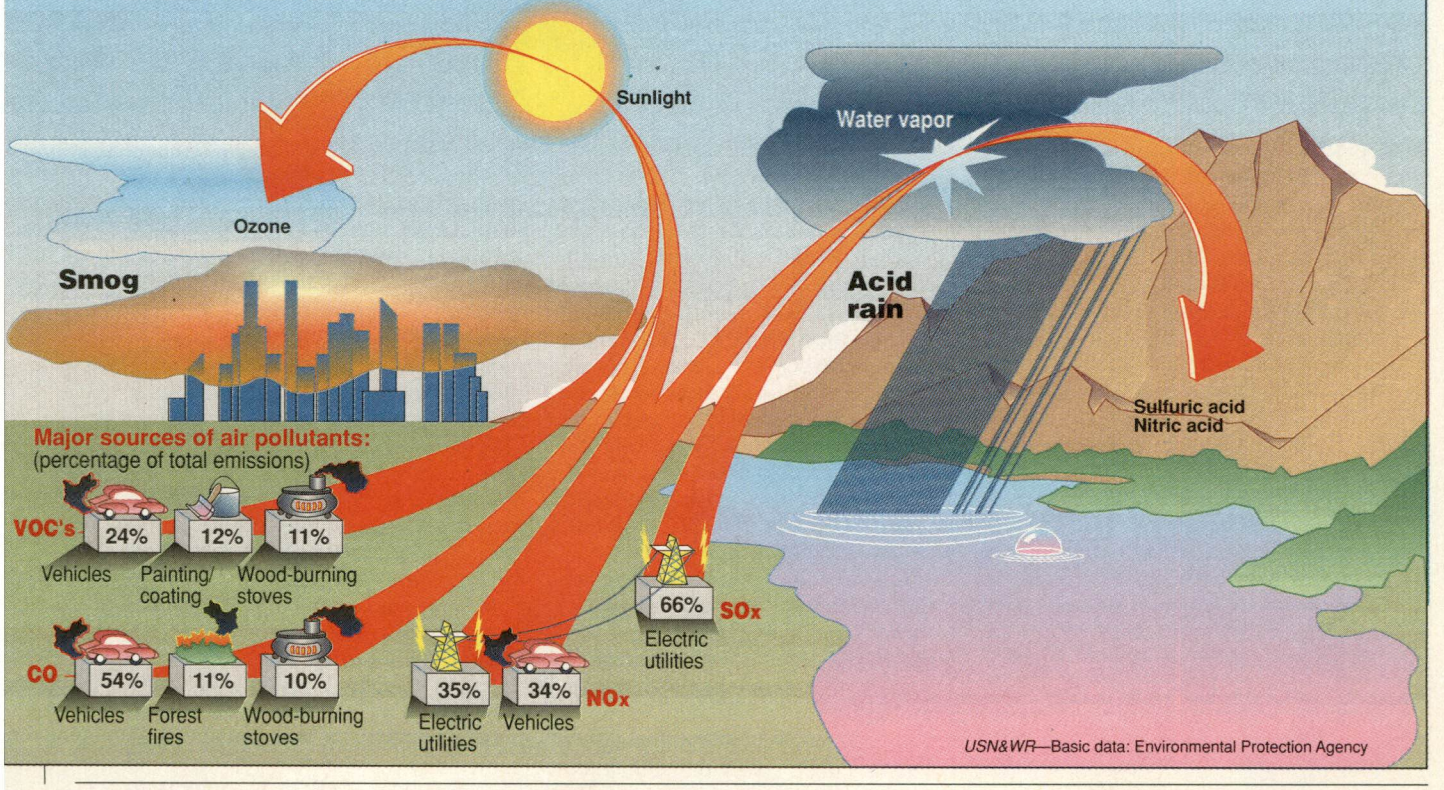
Smog alert. *A scientist studies the effects of ozone on orange trees in Riverside, Calif., where pollution is so bad that oranges are no longer grown commercially*

USN&WR DIAGRAM BY MATT ZANG

Transformations in the air

Smog. Nitrogen oxides (NOx, produced by combustion processes) combine with volatile organic chemicals (VOC's, which include gasoline vapor, paint thinners, dry-cleaning fluid and many other industrial chemicals) in the presence of sunlight to form ozone, an irritating chemical that is the chief component of smog. Carbon monoxide (CO) from combustion adds to the toxic brew.

Acid rain. NOx and sulfur oxides (SOx), most of it produced by power plants burning sulfur-containing coal, react with water vapor and other naturally occurring chemicals higher in the atmosphere to form acids that fall to earth as acid rain.



USN&WR—Basic data: Environmental Protection Agency

steps now under discussion in Washington. If other urban areas had enforced the same clean-air measures Los Angeles has adopted already, says James Lents, executive officer of the South Coast Air Quality Management District, which monitors L.A.-area pollution, Los Angeles itself—the victim of a geography that traps pollutants in abundant sunshine—would be the only city in the country that is not in compliance with existing federal health standards.

Now Southern California is planning to go even further. In March, the Los Angeles air-quality authorities proposed the most ambitious antipollution plan yet, to be put into effect in three tiers. Tier I, required by 1993, would not require any new technology. It would, for instance, outlaw new drive-through facilities to keep vehicles from idling in lines, promote van-pooling and charge families a premium to own more than one car. Tier II, to be in place by the turn of the century, would require significant advances in technology and vigorous regulatory intervention. Extensive cleanup of electric-power plants and oil refineries in the L.A. basin would be compelled, for example. Tier III, scheduled for the year 2007, would require the development of brand-new technology, such as electric cars.

Whether the rest of the country ever has to contemplate such strictures may depend, in large part, on the coming debate in Washington. Waxman, for one, is hopeful that this time the nation has the political will to do what remained undone in 1970, perhaps to preclude the necessity for more Draconian measures next time around. He is pushing to get a bill to the House floor before the end of the summer smog season. That, of course, is no accident. It was a 14-day Washington smog alert in 1970 that helped produce the original Clean Air Act. ■

by Merrill McLoughlin with Betsy Carpenter, William J. Cook and Andy Plattner

LET THE LOBBYING COMMENCE

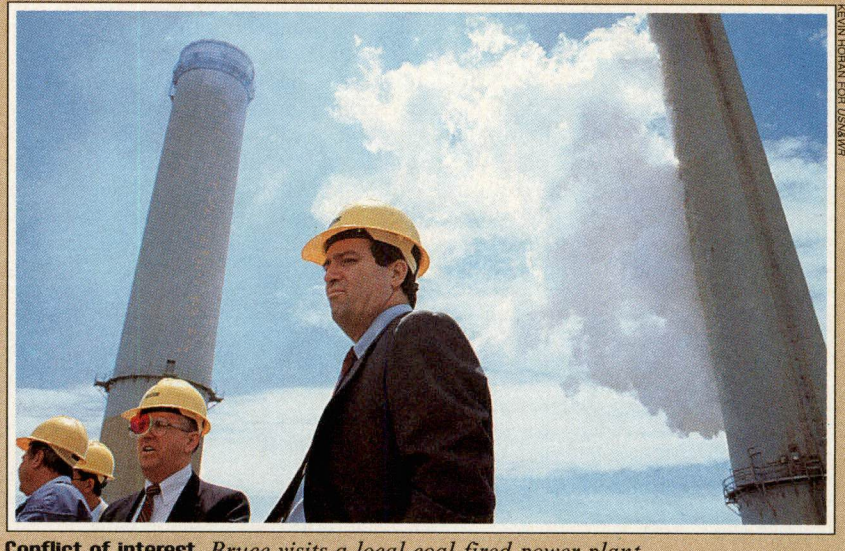
Forget the environment—the real battle's about jobs, coal and politics as usual

For Democratic Congressman Terry Bruce, clean air is a political minefield. Cleaning up acid rain will force the coal-burning utilities in his Southern Illinois district to reduce sulfur fumes, driving up electric rates and possibly eliminating local coal-mining jobs. New restrictions on auto emissions could squeeze the largest industry in Bruce's district, a General Motors foundry in Danville. But Bruce cannot vigorously protect utilities, coal miners or auto workers without drawing the wrath of the University of Illinois environmentalists who helped put him in office.

As a member of the committee writing the new Clean Air Act, Bruce faces the classic collision between America's economic interests and the search for cleaner air. His constituents offer a sample of the battle to come:

■ **Coal miners.** Don Baldwin, 41, runs the massive machine that rips coal from the underground Amax, Inc., mine, employer of 900. The coal fuels the 2,853-megawatt Gibson power station, which spews 306,000 tons of sulfur dioxide annually into the air. Baldwin believes his job is threatened by a new clean-air law. But he also wants to help clean up acid rain. "I want New Englanders to enjoy the outdoors, but I want a job so I can enjoy the outdoors myself."

The miners' solution is to install expensive scrubbers on Midwest power plants so they could continue to burn high-sulfur coal. The scrubbers would be paid for by a national electric tax. The miners tell Bruce to remind his colleagues that federal income taxes helped pay for the Tennessee Valley Authority and the Hoover Dam.



KEVIN HORAN FOR USN&WR

Conflict of interest. *Bruce visits a local coal-fired power plant*

■ **Utility executives.** If sulfur emissions are to be cut, Richard Grant, environmental manager for Central Illinois Public Service Company, wants the freedom to burn low-sulfur coal, much of it mined in the West. At one plant in Newton, there are two 545-megawatt boilers. One is fitted with a $121 million scrubber that costs $11 million a year to run; the other burns lower-sulfur coal and requires no scrubber. Grant is quick to remind Bruce that 15 of Bruce's 18 counties are served by his company: "The people in Southern Illinois neither see the problem nor feel they should pay for it."

■ **Environmentalists.** At the University of Illinois, environmental activists helped Bruce defeat an incumbent Republican in 1984. He would like to please them, but they want a bill that would crack down on cars as well as acid rain. "We are seeing a surge of environmental awareness," says Clark Bullard, who directs the university's office of energy research.

Bruce wants Congress to craft a delicate compromise that requires *some* scrubbers to help the coal miners, gives *some* leeway to utilities to choose low-sulfur coal, protects auto workers and, to please the environmental crowd, spreads the economic pain to even small polluters such as bakeries and dry cleaners. But he is painfully aware that a compromise may displease everyone: "What they want, I can't deliver." ■

by Andy Plattner in Keensburg, Ill.

The President. I justify it because I think the prime responsibility of a President is the national security of the United States, and I'm determined to put forth a program that is sound in every way. And that's how I justify it. And I also justify it because, when you look at the full defense program, I want to have maximum flexibility as we have arms control negotiations.

Espionage Case of Felix S. Bloch

Q. Mr. President, do you have any reaction to the espionage case against Mr. Bloch?

The President. Yes. Yes, I do. [*Laughter*]

Q. What is it?

The President. No, I think anytime there's allegations of this nature, it is most serious. And anytime the person is a potential—I want to be careful because this matter is being investigated—or allegedly involved in something like betraying his country, that, to me, is a very serious matter. And it will be thoroughly investigated, and I'll have nothing else to say about it until the facts are known. But I've known about this matter for some time. And the minute I heard about it, I was aggrieved, because it is a very tragic thing should these allegations be true.

Q. Mr. President, if it does turn out to be true, what does it portend for U.S.-Soviet relations?

The President. It doesn't help any, and it doesn't—I think everybody around this table knows that espionage goes on. And I don't think it helps when you have high visibility cases. But I think, regrettably, it says more—if it's true—about an individual who is alleged to have passed secrets to the Soviets, which is very bad.

Q. Have you heard that it goes back to the seventies?

The President. Well, I'm not going to, as I say, go into the details on it because I think, even in matters of this nature, everybody is entitled to a full and fair hearing.

One more and then I've got to run.

Q. You said, Mr. President, that you've known about this for some time.

The President. Two more and then I've got to run. What?

Q. You said you've known about this for some time. Did the disclosure of it on the TV news on Friday compromise the investigation in any way?

The President. I don't know the answer to that question. I haven't talked since I've gotten back here this morning to the people conducting the investigation.

Ann [Ann Devroy, Washington Post], last one.

Q. Have you any gauge of how seriously American security was hurt by this?

The President. Not yet.

Q. Do we know at this point what type or level of——

The President. I don't think anyone could give you a full damage assessment at this point.

Q. Why hasn't he been arrested?

The President. The investigation is going on. And these are very serious matters, and a thorough investigation takes a good deal of time.

Thank you all very much.

Capital Gains Tax

Q. ——going to win the capital gains tax cut?

The President. Stay tuned.

Note: The President spoke at 10:05 a.m. in the Cabinet Room at the White House, prior to a meeting with Members of the Senate.

Remarks at the Presentation Ceremony for the Take Pride in America Awards

July 24, 1989

Please, be seated if there are chairs out there. For those who have no chairs, eat your heart out. It's warm. [*Laughter*] Let me first thank Lee Greenwood and the Moodys for being with us today, and salute all you distinguished guests and the award recipients. Fellow citizens of what a child once called the nearest thing to heaven, this America—lots of sunshine, lots of places to swim, and peanut butter sandwiches.

I want to welcome you to the White House and to a city which takes pride in its contrariness. Only in Washington could they call the office that manages the great outdoors the Department of the Interior. [*Laughter*] And in particular, I want to thank the man who superbly leads that Department, Secretary of the Interior Manuel Lujan, and also Secretary Derwinski, the head of our Veterans Administration, and then I saw our able Peace Corps Director over here, Paul Coverdell, but most of all, each of you who've taken pride in America and whom we take pride in saluting now.

Last month we celebrated the volunteer spirit, which is as timeless as America and as timely as today. For by launching the Points of Light Initiative, we sounded a nationwide call for each American to engage in community service. Well, this afternoon we renew that call in the cause of conserving our national and cultural resources and of enshrining our parks, forests, wildlife, waters, and monuments. For the great outdoors is precious, but fragile. To preserve it, we must protect it.

And now, as you may know, I, too, love the outdoors—always have. Love to hunt and hike and go fishing in the Keys or out West. And you can just ask the honorary chairman of Take Pride in America, Barbara Bush. She might feel that she's a fishing widow at times, but she, too, loves to fish. And in fact, she's the only person I know who can read and fish at the same time. [*Laughter*] You might call it reading between the lines. [*Laughter*] I knew that was risky.

You know something? Among our greatest joys has been exploring the outdoors with our kids and our grandchildren, and seeing the Grand Tetons through the eyes of a 13-year-old grandson, or teaching George's twins, Jenna and Barbara, 6 years old, about the mysteries of the ocean. For it's at times like these, seeing the wonder in their eyes, that we are overwhelmed by nature, when we realize, more than ever, that our children will, indeed, inherit the Earth.

And today, it is for them, America's children, that we've gathered here. For we know that our pride in America is central to their future in America. And that future demands that anyone concerned about America's quality of life must be concerned about conservation. For America can only be as beautiful as her people are vigilant.

You know that, and so did one of my favorite Presidents. Over the years, I've often talked about Theodore Roosevelt, a vital man, a visionary, and one of America's great conservationists. It was Teddy who called our lands and wildlife "the property of unborn generations." And he had this to say about America's redwoods and sequoias: They "should be kept as we keep a great and beautiful cathedral."

Well, that's where you come in, the winners of the Take Pride in America Awards. Two years ago when I hosted the first Take Pride ceremony out at the National Arboretum, there were only 38 top winners. You know this year's number? One hundred and four. And let's not forget the other thousands of program participants in 48 States: military and Peace Corps volunteers and veterans, 11 agencies of the Federal Government, churches and businesses, inner-city groups and garden clubs, groups and individuals—volunteers all.

I think, for example, of how in Page, Arizona, volunteers rally every year to clean up the nearby Glen Canyon Recreation Area and Navajo Reservation. Or—how's this for a tongue twister?—in Craig, Colorado, the High Country Cactus Kickers preserve archaeological sites. In Lilburn, Georgia, 12-year-old Vanessa Cline is passing out Pride in America brochures to "each person around my neighborhood," she says. "I want people to get the message." And in Kansas City, that message has moved Phillip Mendenhall and his best friend, Nathaniel Riley, both 11 years old, to start a conservation club. "We formed it," Phillip writes, "because we wanted to help our public lands."

Today, across America, millions of kids of every age have gotten the message: protecting and preserving America's cathedral of the outdoors. And they're restocking our forests and wildlife refuges and helping from campgrounds to playgrounds. And in rural and urban areas, where the environmental ethic and personal commitment are restoring the purity of our air and our waters and the beauty of our land—for that, I thank you. I thank you for protecting the bounty of America, our soils, lakes, and forests, its teeming fisheries and mineral reserves. And yet I also challenge you: challenge you not to rest but to move onward, always upward, preserving the splendor of America.

perity which can of right be treated as an earnest of future success, and for no other are the rewards of foresight so great, so certain, and so easily foretold. Yet hitherto as a Nation we have tended to live with an eye single to the present, and have permitted the reckless waste and destruction of much of our natural wealth.

The conservation of our natural resources and their proper use constitute the fundamental problem which underlies almost every other problem of our national life. Unless we maintain an adequate material basis for our civilization, we can not maintain the institutions in which we take so great and so just a pride; and to waste and destroy our natural resources means to undermine this material basis. (Before National Editorial Association, Jamestown, Va., June 10, 1907.) *Presidential Addresses and State Papers* VI, 1310-1311.

————————. Optimism is a good characteristic, but if carried to an excess it becomes foolishness. We are prone to speak of the resources of this country as inexhaustible; this is not so. The mineral wealth of the country, the coal, iron, oil, gas, and the like, does not reproduce itself, and therefore is certain to be exhausted ultimately; and wastefulness in dealing with it to-day means that our descendants will feel the exhaustion a generation or two before they otherwise would. But there are certain other forms of waste which could be entirely stopped—the waste of soil by washing, for instance, which is among the most dangerous of all wastes now in progress in the United States, is easily preventable, so that this present enormous loss of fertility is entirely unnecessary. The preservation or replacement of the forests is one of the most important means of preventing this loss. (Seventh Annual Message, Washington, December 3, 1907.) *Mem. Ed.* XVII, 526; *Nat. Ed.* XV, 448.

————————. There must be a sound moral standard on public matters; our public men must represent and respond to the aroused conscience of the people. . . . All the great natural resources which are vital to the welfare of the whole people should be kept either in the hands or under the full control of the whole people. This applies to coal, oil, timber, water power, natural gas. Either natural resources of the land should be kept in the hands of the people and their development and use allowed under leasing arrangements (or otherwise); or, where this is not possible, there should be strict governmental control over their use. *Outlook,* April 20, 1912, p. 853.

————————. Conservation means development as much as it does protection. I recognize the right and duty of this generation to develop and use the natural resources of our land; but I do not recognize the right to waste them, or to rob, by wasteful use, the generations that come after us. I ask nothing of the nation except that it so behave as each farmer here behaves with reference to his own children. That farmer is a poor creature who skins the land and leaves it worthless to his children. The farmer is a good farmer who, having enabled the land to support himself and to provide for the education of his children, leaves it to them a little better than he found it himself. I believe the same thing of a nation.

Moreover, I believe that the natural resources must be used for the benefit of all our people, and not monopolized for the benefit of the few, and here again is another case in which I am accused of taking a revolutionary attitude. People forget now that one hundred years ago there were public men of good character who advocated the nation selling its public lands in great quantities, so that the nation could get the most money out of it, and giving it to the men who could cultivate it for their own uses. We took the proper democratic ground that the land should be granted in small sections to the men who were actually to till it and live on it. Now, with the water-power, with the forests, with the mines, we are brought face to face with the fact that there are many people who will go with us in conserving the resources only if they are to be allowed to exploit them for their benefit. That is one of the fundamental reasons why the special interests should be driven out of politics. Of all the questions which can come before this nation, short of the actual preservation of its existence in a great war, there is none which compares in importance with the great central task of leaving this land even a better land for our descendants than it is for us, and training them into a better race to inhabit the land and pass it on. Conservation is a great moral issue, for it involves the patriotic duty of insuring the safety and continuance of the nation. (At Osawatomie, Kan., August 31, 1910.) *Mem. Ed.* XIX, 22; *Nat. Ed.* XVII, 15.

CONSERVATION—BASIS OF. We have become great because of the lavish use of our resources and we have just reason to be proud of our growth. But the time has come to inquire seriously what will happen when our forests are gone, when the coal, the iron, the oil, and the gas are exhausted, when the soils have been still further impoverished and washed into the streams, polluting the rivers, denuding the fields,

and obstructing navigation. These questions do not relate only to the next century or to the next generation. It is time for us now as a nation to exercise the same reasonable foresight in dealing with our great natural resources that would be shown by any prudent man in conserving and widely using the property which contains the assurance of well-being for himself and his children. (At Conference on the Conservation of Natural Resources, Washington, May 13, 1908.) *Mem. Ed.* XVIII, 163; *Nat. Ed.* XVI, 124.

————. Conservation and rural-life policies are really two sides of the same policy; and down at bottom this policy rests upon the fundamental law that neither man nor nation can prosper unless, in dealing with the present, thought is steadily taken for the future. (*Outlook,* August 27, 1910.) *Mem. Ed.* XVIII, 191; *Nat. Ed.* XVI, 146.

CONSERVATION — BEGINNINGS OF. The conservation movement was a direct outgrowth of the forest movement. It was nothing more than the application to our natural resources of the principles which had been worked out in connection with the forests. Without the basis of public sentiment which had been built up for the protection of the forests, and without the example of public foresight in the protection of this, one of the great natural resources, the conservation movement would have been impossible. (1913.) *Mem. Ed.* XXII, 463; *Nat. Ed.* XX, 398.

CONSERVATION — IMPORTANCE OF. There can be no greater issue than that of conservation in this country. Just as we must conserve our men, women, and children, so we must conserve the resources of the land on which they live. We must conserve the soil so that our children shall have a land that is more and not less fertile than that our fathers dwelt in. We must conserve the forests, not by disuse but by use, making them more valuable at the same time that we use them. We must conserve the mines. Moreover, we must insure so far as possible the use of certain types of great natural resources for the benefit of the people as a whole. The public should not alienate its fee in the water-power which will be of incalculable consequence as a source of power in the immediate future. The nation and the States within their several spheres should by immediate legislation keep the fee of the water-power, leasing its use only for a reasonable length of time on terms that will secure the interests of the public. Just as the nation has gone into the work of irrigation in the West, so it should go into the work of helping to reclaim the swamp-lands of the South. . . .

In the West, the forests, the grazing-lands, the reserves of every kind, should be so handled as to be in the interests of the actual settler, the actual home-maker. He should be encouraged to use them at once, but in such a way as to preserve and not exhaust them. (Before Progressive National Convention, Chicago, August 6, 1912.) *Mem. Ed.* XIX, 404; *Nat. Ed.* XVII, 293.

————. I desire to make grateful acknowledgment to the men, both in and out of the Government service, who have prepared the first inventory of our natural resources. They have made it possible for this Nation to take a great step forward. Their work is helping us to see that the greatest questions before us are not partisan questions, but questions upon which men of all parties and all shades of opinion may be united for the common good. Among such questions, on the material side, the conservation of natural resources stands first. It is the bottom round of the ladder on our upward progress toward a condition in which the Nation as a whole, and its citizens as individuals, will set national efficiency and the public welfare before personal profit.

The policy of conservation is perhaps the most typical example of the general policies which this Government has made peculiarly its own during the opening years of the present century. The function of our Government is to insure to all its citizens, now and hereafter, their rights to life, liberty and the pursuit of happiness. If we of this generation destroy the resources from which our children would otherwise derive their livelihood, we reduce the capacity of our land to support a population, and so either degrade the standard of living or deprive the coming generations of their right to life on this continent. If we allow great industrial organizations to exercise unregulated control of the means of production and the necessaries of life, we deprive the Americans of today and of the future of industrial liberty, a right no less precious and vital than political freedom. Industrial liberty was a fruit of political liberty, and in turn has become one of its chief supports, and exactly as we stand for political democracy so we must stand for industrial democracy. (Message to Congress, January 22, 1909.) *Presidential Addresses and State Papers* VIII, 2093-2094.

CONSERVATION — LEADERS IN. Far and away the best work that has been done for

the cause of conservation has been done by two men, James Garfield and Gifford Pinchot. I saw them work while I was President, and I can speak with the fullest knowledge of what they did. They took the policy of conservation when it was still nebulous and they applied it and made it work. They actually did the job that I and the others talked about. I know what they did because it was something in which I intensely believed, and yet it was something about which I did not have enough practical knowledge to enable me to work except through them and largely as the result of following out on my part their initiative. They did not confine themselves only to speaking. . . . They translated their words into actions; they actually did what we were all saying ought to be done; and our profound respect and appreciation is due them for their work. (At Harvard University, Cambridge, December 14, 1910.) *Mem. Ed.* XV, 558; *Nat. Ed.* XIII, 603-604.

CONSERVATION — PRINCIPLES OF. Now there is a considerable body of public opinion in favor of keeping for our children's children, as a priceless heritage, all the delicate beauty of the lesser and all the burly majesty of the mightier forms of wild life. We are fast learning that trees must not be cut down more rapidly than they are replaced; we have taken forward steps in learning that wild beasts and birds are by right not the property merely of the people alive to-day, but the property of the unborn generations, whose belongings we have no right to squander; and there are even faint signs of our growing to understand that wild flowers should be enjoyed unplucked where they grow, and that it is barbarism to ravage the woods and fields, rooting out the mayflower and breaking branches of dogwood as ornaments for automobiles filled with jovial but ignorant picnickers from cities. (*Outlook,* January 20, 1915.) *Mem. Ed.* XIV, 567; *Nat. Ed.* XII, 425.

CONSERVATION—PURPOSE OF. Surely our people do not understand even yet the rich heritage that is theirs. There can be nothing in the world more beautiful than the Yosemite, the groves of giant sequoias and redwoods, the Canyon of the Colorado, the Canyon of the Yellowstone, the Three Tetons; and our people should see to it that they are preserved for their children and their children's children forever, with their majestic beauty all unmarred. (1905.) *Mem. Ed.* III, 293; *Nat. Ed.,* III, 107.

———————. We do not intend that our natural resources shall be exploited by the few against the interests of the many, nor do we intend to turn them over to any man who will wastefully use them by destruction, and leave to those who come after us a heritage damaged by just so much. The man in whose interests we are working is the small farmer and settler, the man who works with his own hands, who is working not only for himself but for his children, and who wishes to leave to them the fruits of his labor. His permanent welfare is the prime factor for consideration in developing the policy of conservation; for our aim is to preserve our natural resources for the public as a whole, for the average man and the average woman who make up the body of the American people. (Before Progressive National Convention, Chicago, August 6, 1912.) *Mem. Ed.* XIX, 405; *Nat. Ed.* XVII, 294.

CONSERVATION—ROOSEVELT'S POLICY ON. I acted on the theory that the President could at any time in his discretion withdraw from entry any of the public lands of the United States and reserve the same for forestry, for water-power sites, for irrigation, and other public purposes. Without such action it would have been impossible to stop the activity of the land thieves. No one ventured to test its legality by lawsuit. (1913.) *Mem. Ed.* XXII, 412; *Nat. Ed.* XX, 353.

CONSERVATION AND PUBLIC RIGHTS. The rights of the public to the natural resources outweigh private rights, and must be given its first consideration. Until that time, in dealing with the national forests, and the public lands generally, private rights had almost uniformly been allowed to overbalance public rights. The change we made was right, and was vitally necessary; but, of course, it created bitter opposition from private interests. (1913.) *Mem. Ed.* XXII, 456; *Nat. Ed.* XX, 393.

CONSERVATION OF HUMAN LIFE. Let us remember, also, that conservation does not stop with the natural resources, but that the principle of making the best use of all we have requires with equal or greater insistence that we shall stop the waste of human life in industry and prevent the waste of human welfare which flows from the unfair use of concentrated power and wealth in the hands of men whose eagerness for profit blinds them to the cost of what they do. (Before Ohio Constitutional Convention, Columbus, February 21, 1912.) *Mem. Ed.* XIX, 165; *Nat. Ed.* XVII, 120.

CONSERVATION. *See also* ARBOR DAY; AUDUBON SOCIETIES; ELECTRIC POWER; FLOOD

3RD STORY of Level 3 printed in FULL format.

May 14, 1987, Thursday, Final Edition

SECTION: METRO; PAGE D1

LENGTH: 829 words

HEADLINE: The Potomac's 'Remarkable Improvement';
Plants, Fish Come Back and Some Spots Are Clean Enough for Swimming, COG Says

BYLINE: John Lancaster, Washington Post Staff Writer

BODY:

The Potomac River is continuing its dramatic recovery, with fish and plant life making a strong comeback and pollution levels low enough to allow swimming in some areas, according to an upbeat new report by the Metropolitan Washington Council of Governments.

The water quality study, which is based on data collected in 1985 and released yesterday, offers reams of evidence to buttress its case that the river has shown "remarkable improvement" in the last two decades. Among other achievements, the study credits a $ 1 billion investment in municipal waste water treatment plants with reducing pollutants in the Potomac to their lowest recorded levels ever.

"Compared to the late '60s and early '70s, the Potomac is a whole new river," said Wendy Chittenden, an environmental planner with COG. "It's really exceeded our expectations in terms of turnaround time."

The report cautions that the Potomac still is beset with significant problems, including pollutants that are washed into the river from urban and rural areas during heavy rains. The report notes that, in places, algae still blooms during the summer and that oxygen levels in some areas are lower than those considered healthy for aquatic life.

The study included the Anacostia River and its tributaries. The report described the quality of the Anacostia as poor, with sediment-laden water and concentrations of bacteria "far higher" than the recommended swimming limit. Chittenden said, however, that the river would benefit substantially from a new sewage treatment facility being built near RFK Stadium.

The assessment of the Potomac's water quality marks a major turnaround for a river that just two decades ago amounted to an environmental disaster. Raw sewage spewed into its once-pristine waters and fish had virtually disappeared.

The cleanup began in 1965 at the urging of President Johnson, who was said to be offended by the carpet of algae on the doorstep of the nation's capital. In the two decades that followed, local and federal authorities poured more than $ 1 billion into modernizing the sewage treatment facilities that discharge effluent into the Potomac.

Environmentalists criticized the sewage treatment improvements as inadequate, and in 1982 the General Accounting Office charged that more than $

120 million had been wasted in the effort.

But the COG study leaves little doubt that progress has been substantial. The report notes that 65 species of fish have been identified in the river above Chain Bridge, including smallmouth and largemouth bass, catfish and crappie. As the river approaches Chesapeake Bay, it becomes home to blue crabs, oysters and clams.

Environmentalists generally agree that the Potomac is much cleaner than it was. "There has been constant improvement," said Keith Brooks, an environmental scientist with the Interstate Commission on the Potomac River Basin. "Out by National Airport is some of the best bass fishing in any urban area in the United States. And that's a relatively clean-water fish."

Perhaps the best evidence of the improvement is that some areas of the Potomac are now deemed safe for swimming, an activity that once would have been unthinkable.

"During the summer, from a health point of view, the river below Mount Vernon is perfectly safe," said Chittenden. "Within the District, on any given day, bacteria levels may or may not be above the standard. The river is right on the edge of being swimmable all the time."

The report cites dramatic evidence of the reduction in pollutants from the 12 sewage treatment plants that serve the Washington area.

According to the report, the amount of organic materials measured in the Upper Estuary, just below Little Falls, declined from 140,000 pounds a day in 1970 to about 10,000 pounds a day in 1985. The materials are measured on a scale of "BODs" -- biochemical oxygen demand -- and are particularly harmful to water quality because as they break down they consume oxygen that is needed by fish.

Total "suspended solids" showed a similar decline over the same period, dropping from 140,000 pounds a day to less than 10,000 pounds a day in 1985. Phosphorous, a key nutrient that feeds the growth of algae, dropped from 24,000 pounds a day to about 1,000 pounds a day. Algae depletes oxygen needed by fish and blocks out light that allows aquatic plants to survive.

The report concludes that the largest single source of pollution in the Potomac is so-called nonpoint pollution, most of which consists of urban runoff and agricultural fertilizers from rural Maryland that arrive in the Potomac via the Monocacy River, a tributary.

The Anacostia fares far worse in the report, with the tidal part of the river described as a "sink" for all manner of urban pollutants. "The Anacostia is one of the most heavily polluted rivers in the country," said Jim Dougherty, who heads the local chapter of the Sierra Club. "There's almost no life in it. That should be our next Potomac."

GRAPHIC: PHOTO, THE FISHERMAN PULLS IN A FISH NEAR FLETCHER'S BOAT HOUSE. COG REPORT SAYS 65 SPECIES HAVE BEEN IDENTIFIED IN AREAS WHERE FEW LIVED TWO DECADES AGO. LARRY MORRIS

TYPE: DC NEWS

THE WHITE HOUSE
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Potomac 20 years ago

local successes

Hon Parris

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Pollution Prevention

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marketable permits in Clean Air Act

Mark Davis - Earth Day

EPA Journal

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Earth -

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deadline 4/13

importance of Earth Day

why environment important to him

1500 words

Elizabeth Colleen 638 - 3183

Bill Reilly - changing the way we think - pollution prevention

Paul Johnson - environmentalism thru the ages - used for political ends

Ron Taylor - WT reporter - how spread to lower classes

Al Gore - greenhouse
Warren Brookes - anti greenhouse

Dixy Lee Ray - moderate position
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Gene Shaw - Richard Sharp
emotionalism leads to
legislation

Elizabeth Hinkey - mankind's
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to Congressional regulation

THE WHITE HOUSE

Office of the Press Secretary
(Spokane, Washington)

For Immediate Release

September 18, 1989

FACT SHEET

ADMINISTRATION ENVIRONMENTAL INITIATIVES

CLEANING UP THE NATION'S AIR

Clean Air Act. On June 12, the President announced proposals to reduce emissions which cause acid rain, urban ozone and toxic air pollution. The proposals, the first major overall of the Clean Air Act to be proposed by an Administration in over a decade, calls for a 10 billion ton reduction in SO2 emissions by the year 2000, a 2 million ton reduction in NOx, and a 40 percent reduction in emission of volatile organic compounds which cause urban smog, and a reduction of 75 to 90 percent in air toxic emissions. These reductions will also help to curb an increase in global warming resulting from fossil fuel combustion. The proposal also calls for use of alternative fuels in one million vehicles by 1997. Alternative fuels, while reducing ozone precursors, will also reduce the toxic aromatics which come from conventional gasoline. The President submitted a comprehensive clean air bill to the Congress on July 21 embodying the proposals announced on June 12.

Clean Coal Technologies. The President proposed $710 million in FY 1990 for the Clean Coal Technology Program to encourage development of new technologies to reduce SO2 and NOx, while still allowing coal to play a role in our energy future.

Fuel Efficiency. The Administration approved action to increase Corporate Average Fuel Efficiency (CAFE) standards for automobiles to 27.5 miles per gallon. This action will reduce oil imports and reduce the contribution of automobile emissions to global warming.

AIRBORNE TOXICS

Asbestos Ban. On July 7, EPA announced an almost total phaseout of all uses of asbestos by 1997. The ban will prohibit importation, manufacture and processing of asbestos, a carcinogen linked to lung cancer and mesothelioma (lung and chest cancer). EPA estimates asbestos is responsible for 3000 to 12,000 cancer deaths each year. The action comes after over a decade of proposed rulemaking and data analysis on effects of asbestos and its uses.

- more -

Air Toxics Emissions Standards for Benzene. On August 31st, the EPA Administrator announced standards to reduce public health risks from benzene emissions. This air toxics standard has been in litigation for years and this action represents an important step toward reducing emissions of a major air toxic pollutant.

HAZARDOUS WASTE CLEAN-UP

Medical Waste. EPA implemented a medical waste tracking program on March 10 to track medical wastes to ensure proper disposal and prevent ocean pollution. The pilot program applies to ten states. EPA will report to Congress after two years on whether nationwide application is needed. Violators can be charged up to $25,000 for civil penalties and up to $50,000 for criminal penalties. The program constitutes a first step in the President's pledge to clean up medical wastes which have washed up on beaches.

Superfund Clean-Up. The President's budget proposed $315 million to pursue an aggressive clean-up schedule of toxic waste sites; and the Administration has opposed Congressional efforts to cut the Superfund budget to $150 million.

Superfund Management Review. The President proposed in February a major strengthening of the Superfund program to beef up enforcement. On June 14, under the President's direction, Administrator Reilly concluded a Management Review of the Superfund Program outlining initiatives for a more effective program, including immediate control of acute threats; better enforcement to induce private-party clean-ups; and expanded research into better technologies for clean-up. Over five hundred people will be added to EPA's enforcement staff to ensure that sites are cleaned up.

Department of Energy Nuclear Weapons Facilities. The President has endorsed a major increase of almost a billion dollars in the Federal government's effort to clean up the environmental effects of federal nuclear weapons plants. Under the President's direction, Secretary Watkins announced a five-year environmental and safety clean-up for federal nuclear weapons facilities. The Administration is aggressively investigating any possible violations of applicable environmental laws that may have occurred at federal facilities.

National Energy Strategy. The President announced the development of a National Energy Strategy and the Department of Energy has conducted five public hearings across the nation to elicit public testimony. The Strategy will have as one component a plan to reconcile the need for a secure, abundant energy supply with environmental protection.

Ocean Pollution. The President proposed in his 1990 budget and has sent to Congress legislation which will toughen penalties for those who dump waste illigally in our oceans. The legislation calls for criminal felony sanctions against illegal dumpers. The Administration signed a consent agreement with New York providing for phase-out of ocean dumping of sewage, sludge and industrial wastes by 1991.

INTERNATIONAL ENVIRONMENT

Global Climate Change. The President proposed an increase in global environmental research for FY 1990 of 43 percent or $191.5 million. In addition to Clean Air Act initiatives and the Clean Coal Technology Program, the United States will host the plenary meeting next Frebruary of the Intergovernmental Panel on Climate Change (IPCC). The United States chairs the Response Strategies Working Group which Secretary Baker addressed last January where he stressed the importance of a coordinated effort to address climate change. The United States has begun discussions on a framework for a global convention to reduce emissions of gases which may cause global warming.

Chlorofluorocarbons. On March 3, the President called for a world wide phase-out of chlorofluorocarbons by year 2000, if safe substitutes are available. Chlorofluorocarbons are responsible for depletion of the ozone layer.

Hazardous Waste Exports. On March 10, the President called for a ban on the export of hazardous waste unless the receiving country agrees to its proper disposal through a bilateral agreement. A small amount of hazardous waste generated in this country is exported, some to developing countries whose lack of good disposal practices could pose environmental problems.

Poland and Hungary. On July 9 and 10, the President announced technical assistance to both Poland and Hungary to control air pollution and improve water quality.

Driftnet Fishing Agreements. The Administration successfully persuaded Japan, Taiwan and Korea to enter into driftnet fishing agreements to monitor driftnet practices and enforce laws prohibiting the take of U.S. origin salmon. The agreements will allow the U.S. to quantify the incidental take of seabirds, seals, whales and other marine mammals. Each year several hundred billion dollars worth of illegal U.S. origin salmon is traded on the international market. The agreements will protect the U.S. fishing industry from such losses in the future, while protecting the Marine environment at the same time.

Peace Corps Initiative. On September 18, the President announced a joint Peace Corps/EPA initiative to begin in 1990 the training of Peace Corps volunteers as part of their standard preparation for duty, to deal with a full range of environmental challenges: water pollution prevention, waste disposal, reforestation, pesticide management.

ENDANGERED SPECIES AND HABITAT PROTECTION

Ban on African Elephant Ivory. On June 5, the Administration announced a ban on importation of African elephant ivory into the United States. Under the ban, importation of African elephant ivory from any country is illegal and includes both commercial and non-commercial shipments. Seized goods could subject a traveller to $5000 fines. As a result, the value of ivory on the world market has plummeted, reducing the incentive for illegal poaching of elephants.

Desert Tortoise. The Department of the Interior issued an emergency listing of the Desert Tortoise as an endangered species under the Endangered Species Act in Southern California, Utah, Nevada.

Panthers. The Department of the Interior has acquired additional habitat for endangered panthers in Florida.

Habitat Protection. The EPA has denied a permit for construction of the controversial Two Forks Dam in Colorado because construction would have destroyed thousands of acres of valuable wildlife habitat.

Fishery Development. The President reversed a proposal to cap the outlay of funds collected under the Wallop-Breaux Trust Fund used for fisheries protection and development.

Offshore Oil Drilling. In his February address to the Joint Session of the Congress, the President proposed to postpone lease sales of offshore oil and gas development in environmentally sensitive areas off the coasts of California and Florida. The President set up a task force to examine environmental concerns associated with these sales, and pledged to pursue development only in areas where drilling can be accomplished in an environmentally sound manner. The Administration published proposed rules to prohibit oil and gas leasing in the environmentally sensitive Cordell Bank National Marine Sanctuary off the coast of California.

RESOURCE RESTORATION AND PROTECTION

Wetlands. The President has called for a national goal of "no net loss" of wetlands. Consistent with that pledge, an interagency task force has been convened and is meeting to develop recommendations to meet that goal. The President has proposed special legislative authority to allow interest from monies collected under the Pittman-Robinson Act to be used for wetland purchases under the North American Waterfowl Management Act.

Expanding Parks and Refuges. The President proposed in his FY 1990 budget new spending of $206 million to expand America's national parks, forests, and wildlife refuges. This was the first proposed expansion in several years.

Reforestation. The President has long believed that the concept of stewardship of our natural resources is the basis of a sound approach to the environment. As part of this belief, the President has long been an advocate of reforestation. His personal commitment to planting trees is indicative of his support for the ongoing efforts of federal, state, and local programs, as well as reforestation projects undertaken by private and voluntary organizations.

# # #

EPA Earth Day 1990 Project Office

EARTH DAY TALKING POINTS

What is Earth Day, 1990?

- In the late 1960s --
  rivers caught on fire,
  whole cities were routinely enshrouded
  by thick black clouds of industrial pollution,
  raw sewage was discharged into rivers,
  and automobiles released ten times the emissions of today's cars.

- In the spring of 1970,
  a critical mass of citizen concern and commitment
  came together with a tremendous impact on April 22,
  the first Earth Day.

- Earth Day in 1990 marks the 20th anniversary of that event.

- President Bush has said,
  "Earth Day began as a spectacular movement
  of citizen leadership.
  It has become an American tradition,
  worthy of future generations."
  -- EPA Journal "Earth Day" 1990 issue

- While our country has made tremendous progress
  in improving our environment
  in the two decades since the first Earth Day,
  a number of environmental problems remain,
  and new ones have arisen.

- Given the breadth and degree
  of environmental concern in America today,
  the 20th anniversary of the first Earth Day
  is developing into a monumental event
  in the United States as well as around the world.

- Earth Day is an occasion for <u>everyone</u>
  to show they care about the Earth, nature, the environment
  -- and everyone does.

- On Earth Day this year, television programs are planned,
  rallies will be held in many major cities,
  and thousands of local events will occur.

- The President, at a White House ceremony January 3,
  signed a proclamation designating April 22
  as "Earth Day, 1990."
  (Its issuance had been requested by Congress
  in a joint resolution.)

o No one "owns" Earth Day -- it's everyone's.
Three major national groups are helping to organize Earth Day activities in 1990, and EPA has been working with each one:

* the Earth Day 1990 organization,

* Earth Week 1990 / Earth Day 20, and

* the National Celebration of the Outdoors

Observations on Earth Day, 1990

o Over the 20 years since the first Earth Day, we as a nation have made considerable progress on a number of environmental fronts.

Some examples:

- The dramatic decline in the quantity of dangerous lead in people's blood is largely attributable to the 99 percent reduction from the 1970 level in the amount of lead in gasoline.

- Today's automobiles release one-tenth the emissions of cars before the first Earth Day in 1970.

- On the first Earth Day, there was no system for managing the nation's growing production of wastes. Generally, hazardous and nonhazardous waste alike was buried, or burned in open dumps, with resulting groundwater, air, and soil contamination. Today we have management and tracking systems for hazardous waste that ensure that those who improperly generate, manage, store, or dispose of hazardous waste are held responsible for their actions.

- Similarly, the open dumping and burning of municipal solid waste -- household garbage and the like -- were banned.

- A whole class of pesticides that do not degrade in the environment for decades after being applied was banned; among these was DDT, the banning of which led to the return of the bald eagle and other birds.

- The quality of the most heavily polluted waters, particularly urban rivers, has dramatically improved as a result of controls on industrial and municipal discharges. Today, compared with 1972, more than twice as many Americans -- 71 percent of the population -- are served by plants that treat sewage so that the disease potential of human waste is sufficiently reduced to protect the public and that remove most of the nutrients in sewage which can seriously degrade bodies of water. In many areas of urban rivers, sport fish have returned.

- In the past year, environmental progress has continued....

- As the President said in signing the Earth Day proclamation on January 3, in 1989 he:

  - Signed legislation to protect wetlands and valuable waterfowl habitat

  - Added funds to expand our parks, forests and wildlife refuges

  - Banned the importation of ivory

- The coming year will bring further progress....

  - The Administration and senators of both parties have agreed on a series of Clean Air Act provisions.

  - The President, in his State of the Union Message to Congress, proposed an "America the Beautiful" program of expanding our national parks and wildlife preserves, improving recreational facilities on public lands and planting a billion trees a year.

  - The President's budget proposal to Congress asks for over $2 billion in new spending to protect our environment, with over $1 billion for global change research.

- While we face many environmental challenges, EPA Administrator Reilly stated at the official opening of EPA's Earth Day office:

  "I don't believe that Earth Day should be an occasion for long faces, even though the problems we have to address are very, very sobering.

  "I think it ought to be a cause for celebration, and joy, and excitement -- a day for passion and renewal of love for the Earth and all of the life that's in it."

- Speaking of the need for greater personal involvement in environmental stewardship, the President stated in remarks before signing the Earth Day, 1990, proclamation:

  "Earth Day -- and every day -- should inspire us to save the land we love, to realize that global problems do have local solutions, and to make the preservation of the planet a personal commitment."

EPA's Activities Commemorating Earth Day in 1990

- Federal Interagency Committee. Since December, 1989, an interagency Earth Day task force has been meeting under the auspices of the White House Office of Cabinet Affairs and the President's Council on Environmental Quality. Ten federal departments and agencies sent representatives to the EPA Earth Day kick-off back on December 1.

- A full year ago, anticipating that Earth Day 1990 would be a major U.S. and international event, and recognizing the public education opportunities that attention offers, in April, 1989, the Administrator designated one of his special assistants, Ann Boren, to take the lead in coordinating the Agency's Earth Day 1990 activities and to oversee the commemoration of related anniversaries.

- This year, we at EPA are celebrating:

  - On January 1, the 20th anniversary of the enactment of the National Environmental Policy Act, which requires federal agencies to systematically take environmental considerations into account in their planning and decisionmaking;

  - On April 22, the 20th anniversary of the first Earth Day, and

  - On December 2, 1990, the 20th Birthday of the United States Environmental Protection Agency

- EPA's theme for Earth Day this year is

  Think Globally ... Act Locally:
  You Can Make a Difference,

  meant to underscore pollution prevention as our primary means of protecting our air, land and water.

- One reason we believe this relatively novel concept of 'preventing pollution' will be adopted by the American people is that it recognizes the importance of the contribution each individual can make to protecting the environment.

- The Agency is using Earth Day 1990 to educate the public about the virtues and the methods of pollution prevention, which supports the President's promotion of the stewardship ethic.

- President Bush has declared that "pollution prevention is our ultimate goal," pointing out that -- quote --

  "For too long, we've focused on clean-up campaigns and penalties after the damage is done. It's time to reorient our policies to technologies and processes that reduce or prevent pollution -- to stop it before it starts. In the 1990s, pollution prevention must go to the source." [from Earth Day issue of EPA Journal]

- Emphasizing the importance of personal pollution prevention efforts, the President said last fall,

  "Through millions of individual decisions -- simple, everyday, personal choices -- we are determining the fate of the Earth. So, the conclusion is also simple: We're all responsible, and it's surprisingly easy to move from being part of the problem to being part of the solution."

- EPA Administrator Reilly, speaking at the EPA Earth Day 1990 kick-off back in December, noted that --

  "laws and regulations can only do so much. We at EPA, I think, know better than anyone that end-of-the-pipe solutions are only partial responses to environmental abuse. We really do need to transform our approach to resources in the United States."

- In his article in the Earth Day issue of EPA's magazine, the Administrator said,

  "Through education, consumer demand, and improved technological innovation, I am convinced that we can find ways to manufacture products and provide services while using less energy and raw materials, and while reducing, if not eliminating completely, the generation of waste," he said. "This will bring us closer to attaining a sustainable economy for future generations to enjoy. My wish for Earth Day 1990, therefore, is that this celebration will help to bring about a national commitment to pollution prevention...."

- To promote this new approach, the Administration is in the final stages of drafting a pollution prevention legislative proposal.

[ADD HERE SOME SUGGESTIONS ON WAYS TO HELP PREVENT POLLUTION FROM THE NEW "YOU CAN MAKE A DIFFERENCE" BROCHURE]

Specific EPA Earth Day Projects

- EPA's Earth Day Office has been operating from a storefront location at EPA headquarters since December to better serve individuals and organizations interested in Earth Day. It now has a ten-person staff on loan from their permanent EPA positions.

- With the help of an Agency-wide Earth Day steering committee that held its first monthly meeting back in May, 1989, EPA is conducting over 170 special projects for Earth Day. These range from publishing citizen anti-pollution handbooks to holding open houses at EPA laboratories around the country, to a water quality monitoring program.

  [CITE EARTH DAY PROJECTS SPONSORED BY YOUR OFFICE]

- To cite some of the notable activities among these 170-odd EPA Earth Day projects, we are:

  - Distributing a half million EPA-printed brochures which encourage citizens to participate in Earth Day and to incorporate the pollution prevention ethic in their lifestyles

  - Distributing the Pollution Prevention Office's new pamphlet entitled "You Can Make a Difference," which lists a variety of ways individuals can prevent pollution

  - Publishing a special Earth Day edition of our Agency magazine, the EPA Journal, featuring articles by President Bush, Administrator Reilly and others; copies of the magazine are being mailed to junior and senior high school science teachers countrywide for use as a teaching guide and student resource

  - Developing an aggressive office recycling and waste minimization programs at EPA headquarters to serve as a model for the federal executive branch to follow

  - Tracking Earth Day activities across the country, and

  - Operating a registry of tree-planting projects in conjunction with President Bush's "America the Beautiful" initiative

  - Developing new teacher activity guides offering activities relating to Earth Day and the environment, and distributing them to elementary, junior and senior high schools

IDEAS FOR WAYS YOUR AUDIENCE CAN CELEBRATE EARTH DAY

POLLUTION PREVENTION EDUCATION: Distribute copies of the Pollution Prevention Office's new brochure entitled "You Can Make a Difference" to educate your audience on ways individuals can minimize waste and prevent pollution. [Contact EPA's Public Information Center for copies: 475-7751, mail code PM-211B.]

PLANTING TREES: Organize tree plantings and help ensure that the trees survive. This is perhaps the most popular Earth Day activity. In an article appearing in EPA Journal commemorating the 20th anniversary of Earth Day, President Bush wrote,

> Finally, there is one simple thing that you can do on Earth Day, regardless of your age or ability. I ask you to join me in sowing a legacy of cleaner air and more beautiful horizons. I ask you to perform a simple act. I ask you to plant a tree.

Planting a tree demonstrates a recognition that trees consume carbon dioxide, the increased production of which is likely to cause more of the sun's heat to be trapped and thus contribute to contribute to stabilizing the climate.

President Bush was planting trees late last summer on a trip that took him to North Dakota, South Dakota and the state of Washington. To reinforce his desire to see more trees planted, he dug a hole on the South Grounds of the White House on March 22nd and planted a 14-foot-tall eastern redbud tree there.

As one of our Earth Day projects, U.S. EPA has established a world-wide tree registry as an historical record of reforestation projects commemorating Earth Day 1990.
To register, contact your EPA regional office or the Earth Day Office at EPA Headquarters.

WATER QUALITY MONITORING: Encourage participation in a water quality monitoring project. EPA's Office of Water has compiled a "Directory of National Citizen Volunteer Environmental Monitoring Programs," which is available from EPA's Public Information Center, Mail Code PM-211-B, Washington, D.C. 20460. The Agency is encouraging monitoring because states and the federal government need the data to assess water quality.

RECREATION: In commemorating Earth Day, nothing is more important that simply demonstrating one's appreciation of the environment by participating in picnics, concerts, fun runs or hike-, bike- and walk-a-thons.

PERSONAL COMMITMENT: Make at least one and preferably several changes in your own lifestyle to prevent pollution, such as conserving energy and water, recycling at home, etc.

United States
Environmental Protection
Agency

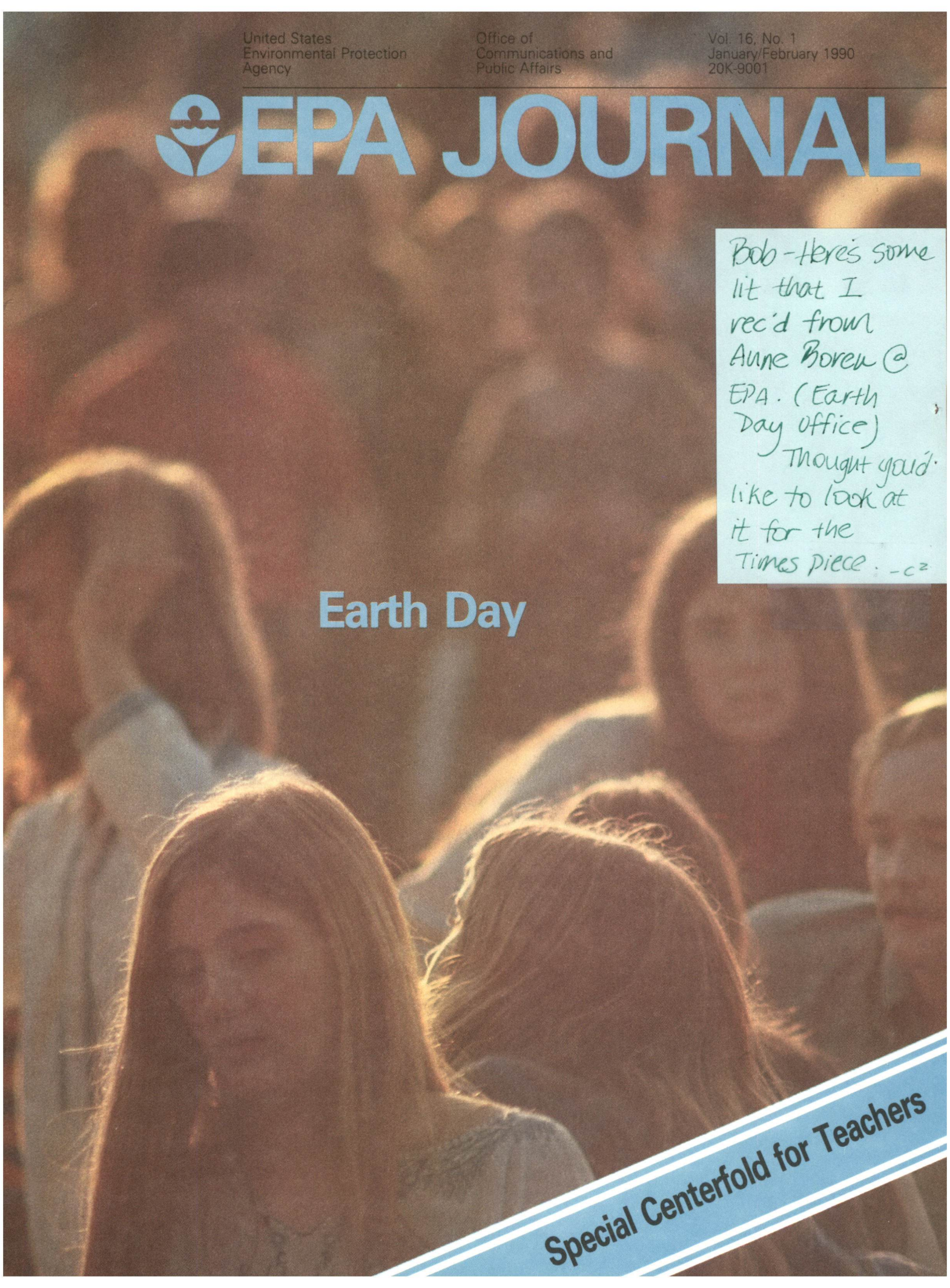
Office of
Communications and
Public Affairs

Vol. 16, No. 1
January/February 1990
20K-9001

EPA JOURNAL

Bob - Here's some lit that I rec'd from Anne Boren @ EPA. (Earth Day office) Thought you'd like to look at it for the Times piece. - cz

Earth Day



Special Centerfold for Teachers

Earth Day

Earth Day—special in its first incarnation in 1970; special now as we approach its 20th-anniversary observance on April 22, 1990. This issue of *EPA Journal* is dedicated to Earth Day and its meaning then and now.

President George Bush leads off the issue with an article that reflects his perspective on the environment at home and abroad. EPA Administrator William K. Reilly follows with a piece articulating a goal that he feels should become a key focus of the nation's environmental initiatives: pollution prevention.

An article by *EPA Journal* writer Jack Lewis describes the spirit and character of the first Earth Day, and an accompanying feature surveys a group of people who were key environmental players in 1970 and also reports on what they are doing now. Former U.S. Senator Gaylord Nelson, the founder of Earth Day, outlines the legacy of Earth Day as he sees it.

Next is a series of articles looking back and looking ahead, occasioned by this 20th anniversary of the "year of the environment." For in addition to Earth Day, other environmental landmark events helped to make 1970 a special year: in particular, the birth of EPA; the establishment of the President's Council on Environmental Quality and an environmental impact review program (both mandated by the National Environmental Policy Act of 1970); and the passage of the Clean Air Act of that year. The authors are EPA's first Administrator, William D. Ruckelshaus; the first Chairman of the President's Council, Russell E. Train; former Congressman Paul G. Rogers, who was involved in the deliberations leading to the 1970 Clean Air Act; and two activists who figured prominently in 1970 Earth Day events—Denis Hayes, who headed the national Environmental Teach-In office that coordinated Earth Day, and Edward W. Furia, who directed Philadelphia's Earth Week program.

Next, illustrating the burgeoning activity that may make 1990 another year of the environment, an article by *Journal* writer Roy Popkin reports on the growing commitment within the entertainment industry to promoting environmental awareness.

Two articles report on subjects that demonstrate how dramatically the environmental agenda has changed since 1970. First, John S. Hoffman and Robert Kwartin from EPA's Global Change Division write about ongoing efforts to design refrigerators that are free of chemicals that damage the stratosphere and to make this new technology available in developing countries. Second, Joel S. Hirschhorn, a Senior Associate at the Congressional Office of Technology Assessment, explains the steps needed if American industry is to adopt a preventive approach to industrial waste rather than the traditional effort to control waste at the "end-of-the-pipe."

Then Paul and Anne Ehrlich, a husband-and-wife team of environmentalists, describe the nature of the environmental crisis in their view and outline an approach for dealing with it. Next, providing an industry perspective, Jerald terHorst, Director of National Public Affairs for the Ford Motor Company, gives a rundown on efforts to clean up a major pollution source, the automobile.

The phenomenon of the "Greens" in West Germany and other European countries is explained in terms of its political dynamics by Konrad von Moltke, a senior fellow at The Conservation Foundation and former Director of the Institute for International Environmental Policy in Bonn. In a related article, Bowdoin College professor John Rensenbrink discusses the prospects for a Greens movement in the United States.

This issue of the magazine concludes with a report on the clean-up tasks confronting another industrialized society—the Soviet Union—authored by Alexei Yablokov, a key environmental official in that country. □

Patrick A. Burns photo. The New York Times.

New York City's Fifth Avenue was closed to motor vehicles for Earth Day 1970. The result was one of the biggest people jams in the city's history.

United States Environmental Protection Agency

Office of Communications and Public Affairs

Volume 16, Number 1
January/February 1990
20K-9001

EPA JOURNAL

EPA is charged by Congress to protect the nation's land, air, and water systems. Under a mandate of national environmental laws, the agency strives to formulate and implement actions which lead to a compatible balance between human activities and the ability of natural systems to support and nurture life.

EPA Journal is published by the U.S. Environmental Protection Agency. The Administrator of EPA has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this agency. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget.

Contributions and inquiries should be addressed to the Editor, *EPA Journal* (A-107), Waterside Mall, 401 M Street, SW., Washington, DC 20460.

Front Cover: Earth Day 1970: A scene in Washington, DC. Photo by Dennis Brack, Black Star.

Design Credits:
Ron Farrah
James R. Ingram
Robert Flanagan

The text of EPA Journal *is printed on recycled paper.*

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What I Believe About the Environment

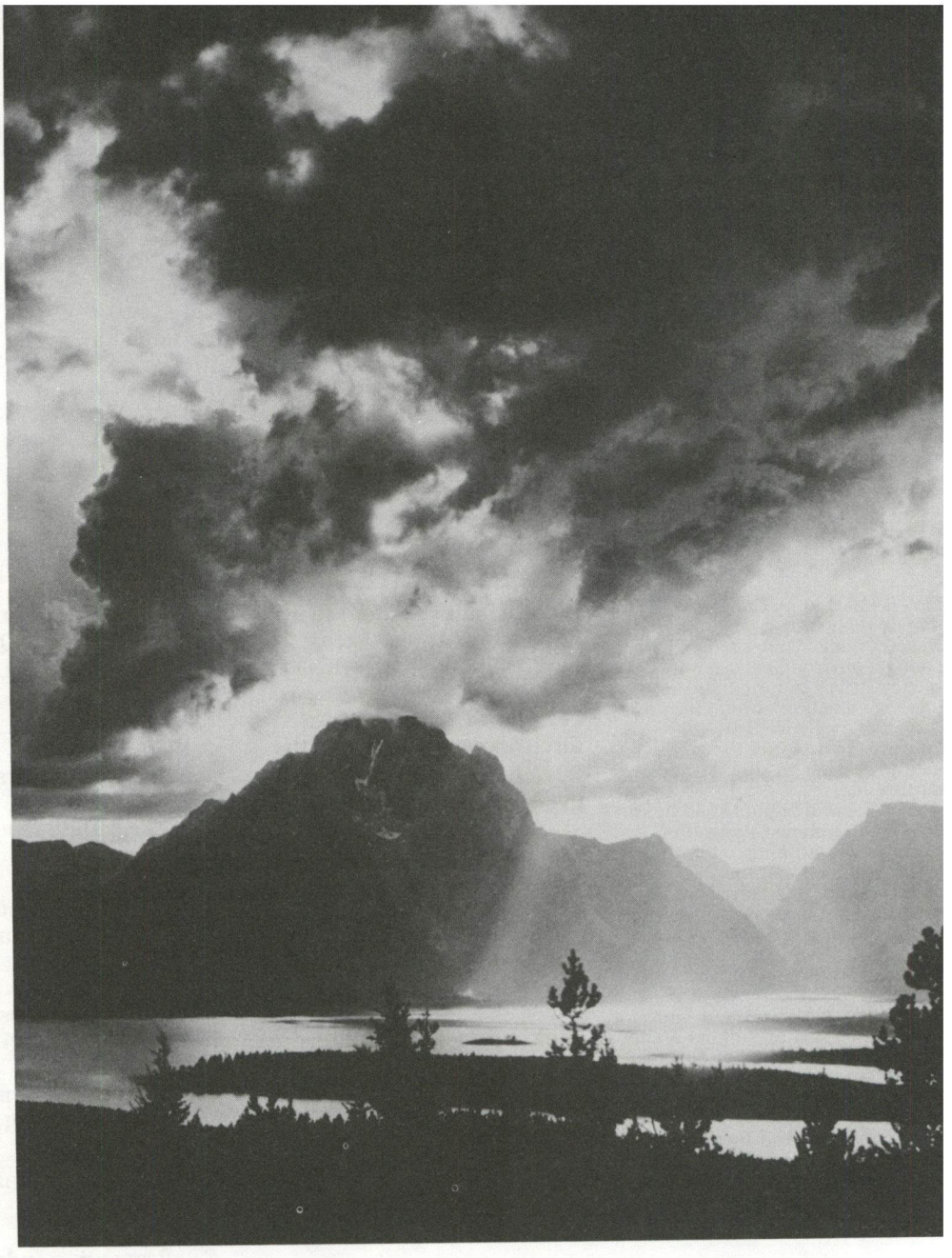
by President George Bush

Last summer, I took my 13-year-old grandson on a fishing trip to Jackson Lake, Wyoming. The memory of that day lingers—the two of us casting our lines, sinking long, flashy spinners deep into the crystalline water. After some effort, we caught a few Mackinaw trout and let them go. But the real catch was for our eyes.

From our small boat, we watched elk warily emerge from the forest at dusk to drink at the lake. And rising out of the forest in the distance were the Tetons—jagged, immense, snow-capped, invincible. No words, no photo, no painter could do them justice.

Of course, there was a time when all of North America was as primitive and pristine as Jackson Hole. But aside from protected areas like the Grand Tetons, the buffalo hunters and the settlers changed the face of the land, forever.

We no longer enjoy the luxury of leisurely action. Environmental protection must become a higher priority for us all.



National Park Service photo.

The exploitation of natural resources was a natural way of life for the pioneers. In fact, it was the only way of life. So our ancestors did what they had to do to build a great nation, simply assuming that the land offered a limitless bounty.

Today, of course, we know better. And knowing better, we must act better.

President Teddy Roosevelt declared 80 years ago that nothing short of defending this country in wartime "compares in importance with the great central task of leaving this land even a better land for our descendants than it is for us." He was one of the first to perceive that nature is not an infinite resource. Environmental destruction in one place on Earth can have serious consequences for other, sometimes remote, parts of our planet. In fact, some scientists compare the Earth to a single organism, a living system whose ability to survive depends on its overall well-being.

It is not possible to restore our environment to a perfectly natural state. Yet we've also learned that a growing economy can only be sustained with a healthy environment. This requires a balance—trade-offs, tough decisions, careful planning, exact studies, and creative proposals.

Seeking that balance, environmental leaders like Senators Ed Muskie, Howard Baker, the late Henry Jackson, and others put aside party differences in the late 1960s to craft landmark comprehensive environmental legislation. On January 1, 1970, President Nixon began the new decade by signing the National Environmental Policy Act into law. All the historic environmental laws of the 70s followed this bold step: the Clean Air Act, the Clean Water Act, and the laws regulating pesticides, toxic substances, and hazardous wastes.

It was also roughly 20 years ago that EPA began its historic mission under the strong leadership of Bill Ruckelshaus. And in this same tradition Bill Reilly brings to EPA his own distinctive brand of leadership—leadership based on both environmental expertise and real commitment.

In the first year of this Administration, we've taken on many tough environmental problems. On June 12, I announced ways we can use the market to reduce emissions of acid rain urban smog, and toxic air pollution—al included in the first major overhaul of

Grand Teton National Park, Wyoming.

the Clean Air Act to be proposed in more than a decade.

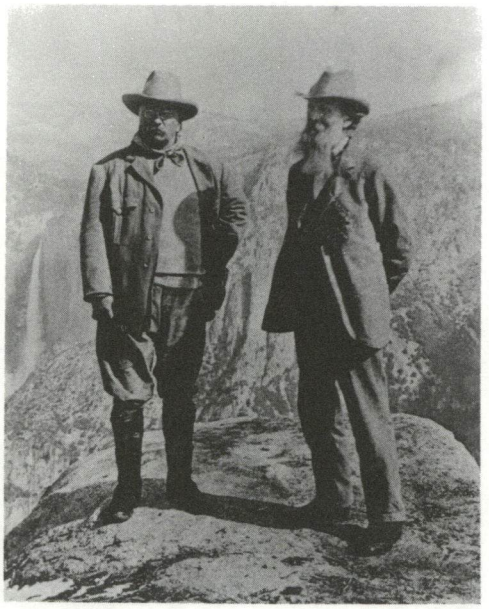
Later in the year, we called for $710 million for Clean Coal Technology; a ban on nearly all uses of asbestos by 1997; and a ban on the export of hazardous waste. In addition, we've accelerated our leadership on global change, proposing a 28-percent increase in global environmental research and offering to host an international conference next fall to negotiate a framework treaty on global change.

But the federal government is only part of the story. Twenty years ago, the environmental movement was gaining strength in the city halls and state capitols of our nation, as well as in Washington. And the new commitment to a cleaner, safer environment wasn't just confined to government. It grew from the bottom up—not just from school boards, city councils, and state legislatures—but from millions of homes.

Americans came together as environmental volunteers—spontaneously, almost instinctively—to save the Earth. And it was this movement that created the first Earth Day on April 22, 1970. Earth Day began as a spectacular movement of citizen leadership. It has become an American tradition, worthy of future generations.

A president quickly learns to see policy in the broadest terms possible. Urban and housing policy must be related to transportation, transportation policy to energy, energy policy to agriculture, and so on. Applying this same perspective, one cannot fail to see that deforestation, ozone depletion, ocean pollution, and the threat of global warming interconnect to challenge our future. We no longer enjoy the luxury of leisurely action. Environmental protection must become a higher priority for us all.

If our response is to be effective, then all the nations of the world must make common cause in defense of our environment. This is a message I took to



Sierra Club photo.

President Theodore Roosevelt, an early environmentalist, loved hiking and camping. In this 1903 photo, he is shown with John Muir, who founded the Sierra Club.

the peoples of Europe in May. In Mainz, West Germany, I said that my generation remembers a world ravaged by war. And, of course, Europeans have rebuilt their proud cities and restored their majestic cathedrals. But I told them: "What a tragedy it would be if your continent were again spoiled, this time by a more subtle and insidious danger—that of poisoned rivers and acid rain." I told them of America's environmental tragedy in Alaska. I noted that countries from France to Finland suffered after Chernobyl, and that West Germany is struggling to save the Black Forest. The bottom line is this: Environmental destruction respects no borders.

If our response is to be effective, then all the nations of the world must make common cause in defense of our environment.

When I suggested that the United States and Western Europe extend a hand to the East, the people of Europe on both sides of the Iron Curtain responded with enthusiasm. Since then, working with my counterparts in Western Europe, we have reached agreements to share our environmental technical and regulatory knowledge with Eastern Europe.

I hope these agreements become a model not just for Europe, but for the world. And I am determined that in the 1990s, the United States of America will continue to assume responsibility by providing world environmental leadership.

At home, we've brought to my Administration outstanding environmental professionals, like Michael Deland, who chairs the important Council on Environmental Quality. We've broken new ground by declaring that pollution prevention is our ultimate goal. For too long, we've focused on clean-up campaigns and penalties after the damage is done. It's time to reorient our policies to technologies and processes that reduce or prevent pollution—to stop it before it starts. In the 1990s, pollution prevention must go to the source.

To save the Earth will require our best efforts. Everyone must volunteer to help. Business, labor, and consumers must cooperate. Environmentalists and industrialists must be partners, not adversaries. Local communities, large and small, must enlist. And so must families—we all can learn to generate less waste and to recycle the waste that we do produce. In fact, those families that do recycle have found it makes economic, as well as ecological, sense.

Finally, there is one simple thing that you can do on Earth Day, regardless of your age or ability. I ask you to join me in sowing a legacy of cleaner air and more beautiful horizons. I ask you to perform a simple act. I ask you to plant a tree.

You don't have to be a poet or a painter to appreciate a tree. Trees cool the Earth on a summer's day. They quiet the noise of a freeway. They provide a natural wind break in winter. And every tree makes America a little greener, a little more like the verdant nation the Pilgrims knew.

I hope that Earth Day will once again demonstrate that solutions to environmental problems are emerging from the good will, generosity, and vision of the American people. We have already given the world so much. Let's give the world an example of volunteerism and environmental leadership on April 22, 1990, and in the years to come. □

Pollution Prevention: An Environmental Goal for the 90s

by William K. Reilly

Despite their popularity, national celebrations of anniversaries often turn out to be what the eminent historian Daniel Boorstin has called "pseudo-events"—long on hype and nostalgia, short on substance.

Earth Day 1990 should be an exception to that rule. The 20th anniversary of Earth Day, like the first Earth Day on April 22, 1970, marks a turning point in the history of our relationship with planet Earth.

In 1970, as a result of mounting public concern over environmental deterioration—rivers on fire, cities clouded by soot, waterways choked by raw sewage, automobiles pumping out some 20 times the smog-producing emissions of today's cars—we began as a nation to address the most obvious, most acute environmental problems.

The National Environmental Policy Act was signed by President Nixon on New Year's Day 1970. In short order, the Clean Air Act of 1970 was passed. In December 1970 EPA was created. The Clean Water Act of 1972 soon followed. Because these readily identified environmental problems were so immediate, so obvious, it was relatively easy to see what had to be done and to summon the political will to do it.

As more environmental laws were enacted, they shared a common approach: They authorized EPA to develop rules and regulations that dictated, to a large extent, how our society would control its pollution and other wastes.

The regulations defined treatments for wastes, set discharge limits, mandated proper disposal methods, and provided enforcement authorities. For the most part, this command-and-control approach achieved dramatic successes in reducing discharges of pollutants from point sources. In other words, the substantial environmental investments made by the American people paid off handsomely.

EPA photo.

An outfall. Despite progress in controlling such point-source discharges, we still face massive pollution problems.

Yet the achievements, as significant as they are, have been overtaken by new, growing environmental challenges and expectations. As the technology improved to detect ever-smaller levels of contamination, and as we learned more about the health and environmental problems associated with pollution, we found that deeper cuts in pollution were necessary. True to the theory of diminishing returns, reducing the remaining increments of pollution proved more difficult and more expensive than the initial ones.

New problems also surfaced. Few can forget the drama with which Love Canal entered the public consciousness. The tragic story of the Love Canal community, built above an abandoned hazardous waste dump, resulted in the Superfund program to clean up improperly disposed-of hazardous wastes. This program added a huge new task to EPA's already ambitious mandate. From the inception of Superfund until now, EPA has devoted tremendous effort to the regulation and cleanup of hazardous wastes.

The big picture emerging from the first two decades of environmental protection is one of a nation investing considerable money and effort in a basic problem: how to cope with all the wastes generated by our modern industrial society.

(Reilly is Administrator of EPA.)

And now the entire world is confronted by alarming new discoveries of global environmental problems urgently requiring attention. Despite our best efforts at pollution control, this country still faces a massive accumulation of waste here at home—and accelerating devastation of nature abroad.

Global warming, stratospheric ozone depletion, acid rain, deforestation, soil erosion, species extinction, habitat destruction: This daunting array of new environmental challenges not only could overshadow environmental gains already recorded, it could destabilize the very natural systems which sustain human life on Earth.

For all these reasons, I believe the dawning of the third environmental decade finds us at a historic turning point—a time when we must find a new approach to meeting our needs. If we don't, we may seriously compromise the ability of the poor to improve their standard of living and of future generations to meet their needs. We must find ways to continue economic growth and progress *without* irreversibly depleting the natural capital of the planet.

I am encouraged that today our institutions and our people seem ready to accept a new ethic, a new sense of stewardship on behalf of the environment. And right at the heart of this is a new approach to managing waste: pollution prevention.

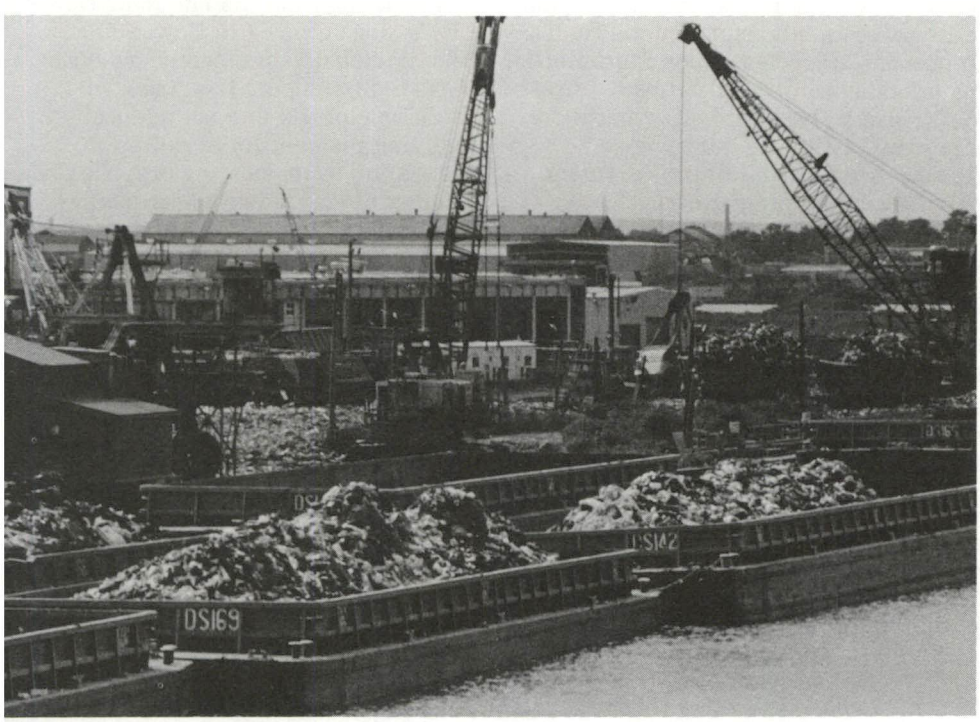
Pollution prevention must become a fundamental part of all our activities, all our initiatives, and all our economic growth. Increasingly, businesses are recognizing that pollution prevention can save them money. As the magazine *The Economist* recently suggested, good growth will be "green" growth.

Jim MacNeill, Secretary General to the World Commission on Environment and Development, recently laid out his vision of sustainable development. It's "not the type of growth that dominates today," he wrote, "but growth based on forms and processes of development that do not undermine the integrity of the environment on which they depend."

Pollution prevention must become a fundamental part of all our activities, all our initiatives, and all our economic growth.

As MacNeill points out, an essential condition for sustainable development is that a nation's basic stock of ecological capital not decrease over time; in other words, developed and developing countries alike must learn to live on the *interest* of the earth's stock of renewable resources, without encroaching further on the *principal*. Doing so, MacNeill believes, will require a significant reduction in the energy and raw-material content of every unit of production. And to accomplish this, the nations of the world will have to adopt far-reaching strategies aimed at abating and, more importantly, preventing pollution.

Finding creative approaches to pollution prevention is a priority for EPA; it's also the theme of EPA's Earth Day 1990 celebration. My intent is that as time goes by, the pollution prevention ethic will work its way into



Garbage—one of the major challenges for pollution prevention. Here, barges bring solid waste from New York City to Fresh Kills, the world's largest landfill.

William C. Franz photo.

Environmental regulation first dealt with pollution that was all too visible to everyone, then moved on to control less obvious pollutants. The next step is to prevent pollution before it is released into the environment.

the fabric of our society, becoming an integral part of our way of life.

How can pollution prevention contribute to sustainable development? An obvious example, and one that is close to home for all of us, is municipal solid waste—garbage.

As the magazine* The Economist *recently suggested, good growth will be "green" growth.

By now, most Americans are well aware of the growing burden the garbage glut is placing on the nation's landfills and other disposal facilities. But along with the disposal problem, we must also pay attention to the supply side of the equation—the insupportable drain on natural resources represented by the millions of tons of trash that we throw away every day. Much of that waste could be saved through pollution prevention and recycling—preserving resources at the front end and returning expended resources to productive use at the back end.

EPA has set a goal of achieving a 25-percent reduction in the nation's waste by 1992. This is a realistic national goal *if* everyone contributes—government, business, and, especially, consumers.

Thus, in designing products, business executives need to design for waste reduction: to think not just about how a product will be used, but also about how long it can last and what will happen to it when its useful life is over.

Manufacturers and distributors need to eliminate unnecessary packaging.

And we *all* need to rethink the wisdom of disposable, "use-once-and-throw-away" products, however convenient they may seem.

On the household level, we need to start composting our kitchen garbage and yard waste, if possible. At the very least, each of us should begin to separate our garbage according to local recycling programs. The transition to recycled materials is an important part of limiting encroachment on natural capital. It's no coincidence that countries that have already made considerable progress in recycling aluminum, steel, paper, and glass are at the top of the list of international economic performers.

At EPA, we're doing our part by looking for ways to encourage markets for recycled and recyclable materials. For example, we've issued federal procurement guidelines that require the federal government, as well as state and local governments using federal funds, to purchase recycled paper and building materials, used oil, and retreaded tires. We're also trying to set an example for others by instituting our own Agency-wide waste-minimization and paper-recycling program.

But more is needed. The nation may need new legislation to foster markets and incentives for recycled materials. We also may need new disincentives to unnecessary waste generation, such as excessive packaging of consumer products. Several bills that would address pollution prevention and waste minimization are now pending in Congress; and the Bush Administration is drafting its own "Pollution Prevention and Recycling Act," which will offer a comprehensive approach to prevention.

In placing such strong emphasis on pollution prevention, I am not calling for a retreat from environmental regulation or from vigorous enforcement. Pollution prevention *complements* and *reinforces* the continuing efforts to ensure proper waste treatment, disposal, and cleanup.

What I *am* saying is that until now, our nation's laws and regulations have concentrated almost exclusively on waste treatment and waste cleanup. As vital as these efforts are, they can achieve only a limited amount of environmental protection. In fact, the biggest environmental gains we have made have been in the handful of cases when industry has phased out or found substitutes for problem substances. The banning of DDT in the early 1970s is probably the best-known example. Another is the drastic reduction of lead in gasoline; since EPA began its efforts to remove lead from gasoline, lead levels in the ambient environment, as well as in people's blood, have dropped dramatically.

Borrowing from the late René Dubos, EPA's slogan for Earth Day 1990 is, "Think globally; act locally. You can make a difference." The Agency is thinking globally and acting locally by applying the concept of pollution prevention to its existing programs in a number of very down-to-earth ways. For example, the water program is emphasizing pollution prevention and conservation as it develops guidelines for controlling industrial wastewater pollution. EPA is also identifying and incorporating pollution prevention techniques in its permitting activities.

We have put together a state grant program to support state and local pollution-prevention programs. We're changing our enforcement policies to encourage defendants to make fundamental alterations in products and processes, in addition to coming into compliance with end-of-pipe standards.

EPA is also establishing a Pollution Prevention and Recycling Awards program to honor the best national

James Douglas photo. Woodfin Camp, Inc.

prevention and recycling efforts. And the Agency has set up a Pollution Prevention Information Clearinghouse to help ensure that successful prevention practices are shared as widely as possible.

Finally, we're dramatically increasing our support for environmental education. Some of the most intractable pollution problems confronting us are from decentralized sources—pollution that does not come out of a smokestack or a pipe, but results from the activities of millions of Americans going about their daily lives. Car tailpipe emissions, the use and release of CFCs, agricultural and urban run-off, indoor air pollution, the use and disposal of consumer products containing toxic substances—all are examples of big pollution problems generated by millions of small sources.

In a speech last fall in Spokane, Washington, President Bush said that

The biggest environmental gains we have made have been when industry has phased out or found substitutes for problem substances.

"through millions of individual decisions—simple, everyday, personal choices—we are determining the fate of the Earth." We are all responsible for the environment, the President said, and "it's surprisingly easy to move from being part of the problem to being part of the solution."

Over time, the best way to help people become part of the solution is through education and information that increases their understanding of the environment and helps encourage a national ethic of individual responsibility. I recently created an Agency-wide Environmental Education Task Force to work closely with the states to develop an environmental education program. The task force is charged with developing a strategic plan, sponsoring an Environmental Youth Forum, and participating in the development of national environmental education legislation. Environmental education, when combined with legislatively created market incentives, could have a powerful influence on millions of individual choices and prevent a great deal of pollution.

EPA is also sponsoring the first National Minority Environmental Career Conference on April 9, 1990, at Howard University in Washington, DC. The conference is the lead activity in EPA's Earth Day celebration and will offer expanded opportunities to minorities for education and employment in environmental fields.

Through education, consumer demand, and improved technological innovation, I am convinced that we can find ways to manufacture products and provide services while using less energy and raw materials, and while reducing, if not eliminating completely, the generation of waste. This will bring us closer to attaining a sustainable economy for future generations to enjoy.

My wish for Earth Day 1990, therefore, is that this celebration will help to bring about a national commitment to pollution prevention—through the actions of millions of individuals finding ways to prevent, recycle, or reduce waste.

The national goal for the 1990s and beyond should be to push technology to its limits, with the ultimate objective of creating an efficient, *sustainable* society—a society that will preserve the environmental legacy and productivity of our nation and our planet for generations to come. □

The Spirit of the First Earth Day

by Jack Lewis

April 22, 1970, a Wednesday, was a glorious spring day in most parts of the country.

In the waning months of the 1960s, environmental problems were proliferating like a many-headed hydra, a monster no one could understand let alone tame or slay. Rampant air pollution was linked to disease and death in New York, Los Angeles, and elsewhere as noxious fumes, spewed out by cars and factories, made city life less and less bearable. In the wake of Rachel Carson's 1962 best-seller, *Silent Spring*, there was widespread concern over large-scale use of pesticides, often near densely populated communities. In addition, huge fish kills were reported on the Great Lakes, and the media carried the news that Lake Erie, one of America's largest bodies of fresh water, was in its death throes. Ohio had another jolt when Cleveland's Cuyahoga River, an artery inundated with oil and toxic chemicals, burst into flames by spontaneous combustion.

In a response commensurate with the problem, an estimated 20 million Americans gathered together on April 22, 1970, to participate in a spectacularly well-publicized environmental demonstration known as "Earth Day." The rallies, teach-ins, speeches, and publicity gambits almost all went smoothly, amid a heady and triumphant atmosphere that was further enhanced by perfect spring weather. But the months leading up to Earth Day had been frantic, and the success of the event had been unpredictable up to the very last moment.

Such uncertainty is endemic when volunteer effort is the driving force behind any activity, let alone one as ambitious as Earth Day 1970. Some of the grassroots activists who coordinated the work of thousands of Earth Day volunteers had come to the environmental cause rather late, after cutting their teeth on other political issues of the 1960s, such as civil rights and the anti-war movement. Others, however, had been intensely involved in environmental causes for many years. Whatever their background, these activists were the driving force not only behind Earth Day, but also behind many smaller and less publicized environmental reforms during the closing months of the 1960s.

The term "Breathers' Lobby" was coined by the *Wall Street Journal* in the late 1960s to denote one of the most prominent components of the grassroots movement: the congeries of anti-air pollution groups that had sprung up over the previous decade in urban areas across the country. GASP in Los Angeles and Pittsburgh, the Metropolitan Washington Coalition on Clean Air, the Delaware Clean Air Coalition, and other similar groups started with sweat equity, then qualified for grants and technical assistance from the federal government. Groups focusing on water-quality issues were also making dramatic inroads: most notably, the Lake Michigan Federation, and Get Oil Out in Santa Barbara, California.

The anti-pollution stance of these groups, after changing the climate of political opinion at the state and local level, quickly permeated editorials and editorial cartoons featured in the nation's leading newspapers. Even Broadway picked up the environmental theme when the smash-hit musical *Hair* lampooned air pollution with a hilarious song called "The Air," which ended in a choking chorus of coughs. Readers were sampling a range of provocative books on the environment: *The Whole Earth Catalogue*, John Sax's *The Environmental Bill of Rights*, Paul Ehrlich's *The Population Bomb*, and Charles Reich's *The Greening of America*. Students tuned into the counterculture were picking up environmental messages from rock lyrics.

(Lewis is an Assistant Editor of EPA Journal.*)*

Julian Wasser/*TIME Magazine*.

Students at Cerritos Junior College in Norwalk, California, near Los Angeles, gave Earth Day a sendoff in 1970.

Media coverage of the massive youth rallies of 1969—as well as the ghetto riots of 1965 to 1968—helped to impress on the American public that the United States had become an urban country with complex problems compounded by huge numbers of people. Early in the 1960s, most rhetoric about the state of America's air, water, and other resources had revolved around the word "conservation," with heavy emphasis on

To countless participants, Earth Day was a turning point in their lives which they remember to this day with awe and reverence.

the preservation of parks and recreational areas. The word "environment" came into widespread use only at the end of the decade. By then, committed activists understood that urban environments would be the battlefield for years to come, but they wanted the American public and American political leaders to understand that as well.

One prominent politician, Gaylord Nelson, then Senator from Wisconsin, had been frustrated throughout the 1960s by the fact that only a "handful" of his Congressional colleagues had any interest in environmental issues. On the other hand, during his travels across the United States, he had been greatly impressed by the dedication and the expertise of the many student and citizen volunteers who were trying to solve pollution problems in their communities.

It was on one such trip, in August 1969, that Nelson came up with a strategy for bridging the gap separating grassroots activists from Congress and the general public. While en route to an environmental speech in Berkeley, California, the Senator was leafing

through a copy of *Ramparts* magazine when an article about anti-war teach-ins caught his eye. It occurred to him that the teach-in concept might work equally well in raising public awareness of environmental issues.

In September, in a ground-breaking speech in Seattle, Senator Nelson announced the concept of the teach-in and received coverage in *Time* and *Newsweek* and on the front page of the *New York Times*. Several weeks later, at his office on Capitol Hill, he incorporated a non-profit, non-partisan organization called Environmental Teach-In, Inc. He announced that it was to be headed by a steering committee consisting of himself, Pete McCloskey, a Congressman from California, and Sidney Howe, then the President of The Conservation Foundation.

The main purpose of the new organization, he declared, was to lay the groundwork for a major nationwide series of teach-ins on the environment early in 1970. The purpose of the teach-ins was, in Nelson's words, to "force the issue [of the environment] into the political dialogue of the country." Very quickly, Environmental Teach-In received pledges from the Senator himself ($15,000), from the United Auto Workers and the AFL-CIO ($2,000 each), as well as from The Conservation Foundation ($25,000) and other organizations.

Early in December, Senator Nelson selected a 25-year-old named Denis Hayes, the dynamic former President of the Stanford student body, as national coordinator. Hayes, postponing plans to enter Harvard Law School, immediately set to work making plans for the inaugural Earth Day.

Hampered from the start by an extremely limited budget (approximately $190,000), he rented an office in Washington and gathered around him an enthusiastic cadre of volunteers, most of them students. The most promising and the most dedicated of these were named coordinators for various regions of the country. Working in an atmosphere Midwest Coordinator Barbara Reid Alexander recalls as "mass confusion," they were inundated each day by torrents of phone calls and overflowing mailbags.

Senator Nelson's Senate staff lent its full support and guidance to the work of Hayes and his assistants, only a few of whom were salaried and those only at meager levels. Nelson and Hayes had already agreed that the teach-ins should, wherever possible, be located not on college campuses, but in public spaces within the community, and furthermore, that active participation should be sought from labor unions, the League of Women Voters, and other organizations. The latter goal was realized, but not the former, at least not to the extent originally intended.

One masterstroke was the purchase of a full-page ad that appeared in the *New York Times* early in February 1970. The advertisement announced that on April 22, 1970, at locations throughout the United States, citizens would demonstrate for a cleaner environment. Immediately contributions started to roll in, and better yet, the curiosity of

The Legacy of Earth Day

by Gaylord Nelson

We can get a rough measure of the impact of Earth Day 1970 on the nation by asking some key questions:

- What changes on the political scene did it bring?
- What has been achieved?
- How did it affect public attitudes on environmental issues?
- Can we see some sprouting seeds that might flower into a national conservation ethic?

These questions can be answered fairly briefly.

My major objective in planning Earth Day 1970 was to organize a nationwide public demonstration so large it would, finally, get the attention of the politicians and force the environmental issue into the political dialogue of the nation. It worked. By the sheer force of collective action on that one day, the American public forever changed the political landscape regarding environmental issues.

(Nelson, founder of Earth Day 1970, is Counselor to The Wilderness Society.)

By the sheer force of collective action on that one day, the American public forever changed the political landscape regarding environmental issues.

The politicians got the message. They responded with a series of major legislative initiatives that have begun to move us in the right direction. There are even glimmers of hope that we, as a society, may be starting to develop a conservation ethic and that the next generation may turn out to be the conservation generation so vital to our future.

Another important change has occurred in the past decade or so—a change that now makes it likely that Congress, regulatory agencies, industry, environmentalists, and the public can cooperate to make environmental controls more effective and less costly. For years every major legislative initiative to control pollution was opposed by the affected industries on the grounds that the proposals were unnecessary, too expensive, or

Magnolia blossoms encountered through a gas mask. On Earth Day 1970, this Pace College student in New York City used this symbolic gesture to warn of pollution dangers.

unworkable. The result was constant confrontation. Endless amounts of time and energy were wasted on political maneuvering, delay, and debates over whether it was necessary to do anything. Witness the 10 years of debate over acid rain.

That kind of deadlock has passed. The business community now generally acknowledges that there are serious environmental problems that need to be addressed. A recent statement by Chrysler Corporation President Robert A. Lutz reflects the change: "The party's over. We are making a mess out of our environment, and the sooner we clean it up, the better."

Most confrontations in the future will not be over the need to do something but rather over how much needs to be done, how fast, and how to use market forces to help achieve the goal. Many environmentalists will have to re-examine their attitude toward the use of market forces. It is a tool too valuable to overlook.

There remains, still, an important question. Where does all of this leave us?

I think the answer to that question is that we, as a society, finally understand that human activities—many of them careless, irresponsible, or unnecessary—have created a global environmental crisis that urgently demands our attention. This is a giant leap forward.

We have come to recognize that right now, and into the next century and the centuries thereafter, no other issue is more relevant to the condition of human life than the status of our resources: air, water, minerals, soil, scenic beauty, wildlife habitat, forests, rivers, lakes, oceans.

If we agree that this an issue of fundamental consequence to us all, we must very soon respond to some important, pragmatic questions:

- How rapidly can we make the necessary conversion from a throw-away society to a preserve-and-recycle society?
- How do we launch a global movement that will begin to work changes in the way we treat the planet Earth and its resources?

Global cooperation is the key. The most important objective of this 20th anniversary celebration of Earth Day is a worldwide demonstration of concern so overwhelming that it galvanizes the political leadership of the world into a monumental cooperative effort to stop the deterioration of the planet and begin its restoration.

The time has come to stop the arms race and begin the race to preserve the planet. □

network broadcasting giants was piqued.

April 22, 1970, a Wednesday, was a glorious spring day in most parts of the country. Newspapers such as the *New York Times* and the *Washington Post* had given front-page coverage the day before to the roster of scheduled events, and the television networks also had provided enough coverage to give the impending day something of the aura of a national holiday.

Perhaps the most impressive observance was in New York City, whose mayor, John V. Lindsay, had thrown the full weight of his influence behind Earth Day. For two hours, Fifth Avenue was closed to traffic between 14th Street and 59th Street, bringing midtown Manhattan to a virtual standstill. One innovative group of demonstrators grabbed attention by dragging a net filled with dead fish down the thoroughfare, shouting to passersby, "This could be you!" Later in the day, a rally filled Union Square to overflowing as Mayor Lindsay, assisted by celebrities Paul Newman and Ali McGraw, spoke from a raised platform looking out over a sea of smiling faces. In New York, as elsewhere, self-policing demonstrators left surprisingly little litter in their wake.

In Washington, the focus of events was the Washington Monument and its adjacent Sylvan Theatre, where thousands of Earth Day demonstrators congregated to hear speeches as well as songs by Pete Seeger and other performers. One of the most noteworthy statements, by Denis Hayes, made it clear that Earth Day was a beginning, not an end in itself: "If the environment is a fad, it's going to be our last fad . . . . We are building a movement, a movement with a broad base, a movement which transcends traditional political boundaries. It is a movement that values people more than technology, people more than political boundaries, people more than profit."

There was no point in marching to Capitol Hill, for Congress—at the behest of Gaylord Nelson and others—had recessed so that members could return

1970 Earth Day participants were so alarmed about the environment that some thought the world couldn't survive another 20 years. But we did. What happens in the next 20 years?

Paul M. Schmick photo. Copyright Washington Post*; reprinted by permission of the DC Public Library.*

to their constituencies and address Earth Day rallies. Interestingly, many of these politicians had to borrow prepared texts from Nelson and Environmental Teach-In, Inc. Philadelphia, Chicago, Los Angeles, and most other major American cities were also scenes of Earth Day rallies; in fact, 80 percent of all observances were urban affairs.

To countless participants, Earth Day was a turning point in their lives which they remember to this day with awe and reverence. "It was something magical and catalytical," remarked Denis Hayes, "touching a huge cross-section of Americans." Byron Kennard, then a grassroots coordinator with The Conservation Foundation, was also impressed by "one of the largest peaceful demonstrations in human history, [an event] sacred in my memory." "A charmed event," "a joyous occasion," "a public-relations masterpiece," "foundation of a national environmental consciousness" were words of praise conjured by other participants.

Earth Day was also the foundation of many environmental careers. Denis Hayes and Ed Furia, who are heading the 20th anniversary celebration of Earth Day, are typical of many individuals who built environmental careers on the momentum generated that day. One former participant, Tom Jorling, is today the Commissioner of New York's Department of Environmental Conservation; another, John Turner, is Director of the U.S. Fish and Wildlife Service. The list goes on.

Public opinion polls indicate that a permanent change in national priorities followed Earth Day 1970. When polled in May 1971, 25 percent of the U.S. public declared protecting the environment to be an important goal—a 2500 percent increase over 1969. That percentage has continued to grow, albeit more slowly, so it is fair to say that the ideals espoused on April 22, 1970, however naive and simplistic they were in many ways, have left an enduring legacy. They are, in the words of Barry Commoner, "permanently imbedded in our culture." Sam Love, who was Southern Coordinator for Environmental Teach-In, fully agrees: "What has surprised me, is the staying power of the environmental movement. A lot people were saying this was a flash in the pan. History has proven them wrong."

With the founding of EPA in December 1970, the history of the environmental movement entered a new phase. The Agency was fused together from 44 organizations scattered in nine departments, and it gave a much stronger profile to the federal effort to curb environmental decay across the nation. Also during the 1970s, in keeping with the stepped-up pace of environmental reform, conservation organizations began to take more active stances on urban environmental issues. These private lobbying groups soon found that they needed lawyers, scientists, and economists to make their voices heard. The whole tenor of environmental activism increasingly took on an aura of "professionalism" that was a far cry from the bold and sometimes simplistic generalities debated on Earth Day 1970.

Yet today—despite the rise of specialists and experts—grassroots emotions still boil over in the face of clearcut local issues, such as defective landfills or hazardous medical waste, which can quickly galvanize a community of homeowners.

The signs are promising that Earth Day 1990 will suffer from no dearth of volunteers or money. Its budget of $3 million is 15 times greater than the budget of the 1970 event, and its scope will be worldwide, rather than strictly confined to the United States and Canada. In fact, there is every reason to expect that Earth Day 1990 will be an appropriate legacy of that April day 20 years ago when, even if only for 24 hours, people really did seem to matter more than profit and more than technology. □

Earth Day 1990 Viewpoints

What are some of the most important issues Earth Day 1990 should emphasize? EPA Journal asked seven people who were leaders in the 1970 Earth Day observances to respond to this question; each was also asked what he or she is doing 20 years after the first Earth Day. Here are their answers:

Ruth Clusen: Former national environmental chair for the League of Women Voters, she sees Earth Day 1990 as a time for reflection on how far we've come and how far we've got to go. Although her primary interest today is serving on the Board of Regents of the University of Wisconsin, she is still active with the Lake Michigan-oriented Clean Water Coalition and local Green Bay area environmental groups. Ruth Clusen says, "Solid waste is the major public concern at this time," but even more than that, Earth Day 1990 "is a time to look at how far we have come and whether we have met the promise of the first Earth Day. We need to look backward and forward at the same time."

Barbara Reid Alexander: Lifestyle changes and environmental education are the most important issues facing us on Earth Day 1990, says Barbara Reid Alexander, who 20 years ago was Midwest coordinator at national Earth Day headquarters. Now associated with the Maine Public Utilities Commission, she urges 1990 Earth Day observers to focus on "educating a new generation to be environmentally concerned and active. Having taken the first steps over the past two decades, we must move on to the next level of hard issues—creating a new lifestyle that frees us from dependence on toxic materials, plastics, and the like, and promoting conservation. Earth Day should help each individual learn what he or she can do to make a difference."

Sam Love: The onetime southern regional coordinator of Environmental Teach-In, Inc., Love is now a Washington film-maker with the Public Production Group, which produces films, public service announcements, and television releases for environmental groups. Like Alexander, Love stresses lifestyle changes: "The most important issue for 1990 is encouraging lifestyle changes, including conservationism. We have to move beyond the 1970s' general concern about the Earth to more specific targets, and we need to be more informed to do that."

Lee Botts: Pollution prevention is the key issue today, says Lee Botts, a 1970 founder of the Lake Michigan Federation (and still a Board member) and currently a consultant to the Chicago Department of Streets and Sanitation, where she is grappling with the problem of how Chicago can recycle plastic wastes. "In 1990, we need to concentrate on pollution prevention," she says. "We need to take advantage of a major change in the attitude of industry. In 1970, industry was the enemy; now many industries are working with environmentalists, as in our Chicago project. In 1990, we need to concentrate on pollution prevention. We are still hung up on the contamination that's already there. Instead, we need to focus on giving up sources of pollution, and on prevention. We need a new law like the National Environmental Policy Act to provide a pollution-prevention incentive."

Jack Sheehan: World-wide environmental issues should be the focus of Earth Day 1990, believes this labor-union environmentalist. Twenty years ago, he was involved in environmental programs for the United Steel Workers of America, on the Board of the American Lung Association, and Chairman of the Clean Air Coalition. Now legislative director for the Steel Workers, he is still active in both groups and is leading the union's efforts in relation to pending Clean Air Act legislation. "Earth Day 1970 was directed at our piece of the earth—the United States," Sheehan says. "We didn't even know what we meant by our own problems; we weren't ready to look beyond them. In the intervening years, we have seen that we have to deal with environmental problems on an international level. In 1990, we need to use the word 'Earth' in a broader sense."

Michelle Madoff: She sees dealing with solid waste and protecting the water supply as key issues for 1990. In 1970, she was President of Pittsburgh's Group Against Smog and Pollution (GASP).. Today, as a Pittsburgh City Council member, her main concern "is and will be solid waste and recycling it. With landfills filling up and waste from outside of Pennsylvania coming into the state, the city government is faced with being mandated to have a plan for the city by next September. By Earth Day, we have to be well along the way to a solution, so that's our Earth Day priority. The second most important issue—here and throughout the nation—is protecting our water supply against pollution."

Jack Winder: Individual action in environmental matters should be Earth Day 1990's focus, says attorney Jack Winder, 20 years ago executive director of the Metropolitan Washington Coalition for Clean Air and today an enforcement attorney for the EPA. "The 1990 focus should be on individual participation ... on the simple concept that everyone can make a difference, whether it be by recycling household waste or by filing a lawsuit against a polluter. The second major priority is water pollution and related issues, particularly protection of the water supply."

Retrospectively dubbed the year of the environment, 1970 saw not only the first Earth Day, but also a number of other environmental landmarks: the birth of EPA, the enactment of the National Environmental Policy Act, the creation of the President's Council on Environmental Quality, and the passage of a new Clean Air Act establishing national air quality standards for the first time.

In the following five articles, these landmark events are respectively considered from the vantage point of their 20-year anniversaries; the authors all played prominent roles in the year of the environment and continue to be actively involved in environmental issues.

EPA

by William D. Ruckelshaus

As we observe the 20th anniversary of Earth Day, it may be constructive to look back to the origins of EPA 20 years ago in order to gain perspective on the nature of the environmental issue today and to explore what the future may hold for EPA and the country.

Born in the wake of the first Earth Day, EPA opened its doors in downtown Washington, DC, on December 2, 1970. For the first time, concern about environmental pollution was elevated to a national issue. The causes of this sudden escalation of the environment to the national scene were many and varied.

For one thing, color television saturated American living rooms, and the visible effect of a yellow outfall flowing into a blue river, or brown smog against a bright blue sky was far more impressive than those same images in black and white. On our newly colored TV screens, we saw spaceships heading for the moon, and the subsequent photographs of our planet—looking so small and vulnerable in the firmament—gave us a sense of our limits and a concern about exceeding them.

It was no accident that our heightened environmental concerns coincided with an unpopular war in Southeast Asia. The impact of the Vietnam War on America was dramatic and tore at our spirit and our sense of ourselves. Many became persuaded that a country that seemed to care so little for life in a far-off land might also ignore the environmental underpinning of life here at home. Modern environmentalism in America has always had a certain spiritual quality about it. I believe the coincidence of its rise with the Vietnam War both defined and contributed to that quality.

Certainly in the 1960s, America had environmental problems. Gross pollution problems abounded. Raw sewage and industrial discharges spoiling our rivers were more the rule than the exception. Air pollution from mobile and stationary sources was far more intense on a per-capita basis than today. The toxic waste issues that have dominated the headlines in the last decade were there in the 60s, but we were focused on the problems we could smell, touch, and feel: the problems that television loved and our senses attested to on the way to work every morning.

In the late 60s, the public reacted to these problems by organizing and putting pressure on the political system, and as always, the politicians responded. What ensued was the creation of the Council on Environmental Quality and EPA at the national level. Similar agencies were created in states all over America. A cascade of environmental laws and regulations followed.

The turmoil of the early 80s left some deep and abiding scars on the Agency.

Like few other public issues in our history, the environment has drawn a high level of public awareness and commitment from the day EPA began to the present. Public opinion polls over the years have shown the consistency of the public's concern for a safe and clean environment. Events in the latter half of the 1980s have served to raise that concern to even higher levels. And today, once again, we are experiencing a strong, predictable political response.

The resurgence of public concern for the environment resulted from the emergence of new environmental issues during the 1988 presidential election. Publicity about global warming in the summer of 1988, coupled with intense heat and drought, followed by the television-recorded images of medical waste closing beaches from coast to coast was more than the public or the politicians could bear. For the first time in the history of this country, the environment became a key issue in a presidential campaign. In 1988, the environmental records of the two major candidates were debated throughout the country—from a heaving ship in Boston

(Ruckelshaus, EPA's first Administrator, is currently Chairman and Chief Executive Officer of Browning-Ferris Industries, Inc.)

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Harbor to an abandoned Superfund site in New Jersey. Both candidates made major speeches about the environment and featured one another's environmental past in their television ads.

Nor is the environment strictly an American phenomenon. Green politics have emerged from minority status and become a political movement to be reckoned with in countries throughout Europe. (See article on p. 46.) Such events as the massive destruction that resulted from a chemical spill on the Rhine River and the nuclear disaster at Chernobyl only served to bolster the emergence of the Greens. Even in the Soviet Union and the rest of newly enfranchised Eastern Europe, the public has demanded more environmental protection, and the leaders are beginning to respond.

EPA sits in the middle of this new awareness and increased demand for action. Like it or not, EPA is the repository for this nation's hope, concerns, and frustrations about the environment. How can and should EPA respond to the new forces that buffet it on all sides reflecting the ever-changing concerns of the public, the Congress, or the special interest groups? What are its responsibilities in the decade to come? What are the responsibilities of the other institutions in our society that affect environmental policy? The answers will determine how effectively our country and the rest of the world respond to the increased demand for action on the new environmental agenda.

Without question, today's EPA is far different than it was in 1970. It is more mature. It is more focused on public health than it was 20 years ago. EPA is more seasoned, more bureaucratic, but in my view, no less committed than it was in the heady days of the early 70s.

Despite that commitment, I have concerns about the future of EPA. The turmoil of the early 80s left some deep and abiding scars on the Agency. It affected EPA's ability to interact effectively with Congress in defining its mission and goals. The scandals broke the fragile ties of trust that must exist between an entity like EPA and the public if the Agency's judgments are to be trusted and the Agency itself is to remain self-confident. Both public trust and a self-confident EPA are necessary ingredients for true environmental progress.

In addition, the turmoil—and the high degree of politicization attendant to it—has resulted in a stridency and bitterness in the environmental debate that was unheard of in the 70s. Too often the focal point of public and political rancor is EPA. Congress, environmental groups, and industry, pursuing their own agendas, have engaged in "EPA bashing" on a wide scale. That has contributed to the further erosion of trust in the Agency, and in recent times has led to highly dedicated civil servants leaving government service.

As the Agency became an inviting and vulnerable public target, it attracted the inevitable legislative response. The history of environmental legislation in the 80s is characterized by a singular lack of trust in EPA by Congress. That is manifested in increasingly prescriptive legislation that strips away administrative discretion from EPA managers and often sets impossible goals for the Agency. These goals may gain political mileage, but their extreme nature ensures practical failure. The result has been missed deadlines, unfulfilled promises of purity, failure to achieve goals, another round of EPA bashing, followed by even more stringent goals; and the spiral of mistrust continues.

What is so remarkable about all this is that EPA, when given well-defined, realistic goals and adequate resources, performs as well as, if not better than, other institutions of government. If you look back over the 20 years of EPA's existence, the progress made in cleaning up the gross pollution problems of the past and addressing the more difficult

issues of toxic pollution of today is quite impressive. Of course, there have been missteps; certainly not every reasonable goal has been achieved, but overall the record on the environment in America is as good as, and probably better, than anywhere in the world.

Just imagine the condition of our harbors and rivers had we not embarked on the sewage treatment program of the 70s and the vigorous enforcement of the Clean Water Act in the 80s. Imagine the skies over our major cities had we not aggressively implemented the Clean Air Act, controlling both smokestack emissions and severely restricting automobile pollution. One of the major health threats to our society—airborne lead—has now been virtually eliminated. We should take pride in the fact that we have been able to achieve these gains. These precedents should give us confidence that the new issues that confront us—toxics and acid rain, and the planetary problems of ozone depletion and global warming—can be effectively addressed by our government, given proper direction and incentives.

Like it or not, EPA is the repository for this nation's hope, concerns, and frustrations about the environment.

Any doubt concerning America's progress on the environmental front may quickly be erased with the purchase of a few plane tickets. My travels as a member of the United Nation's World Commission on Environment and Development during the 80s took me to any number of Third World countries where the environmental problems make ours pale into insignificance. In Latin America, Africa, and Asia, the pollution problems are so fundamental, so massive, and so pervasive in every aspect of human life as almost to defy description. While that should not deter us from addressing our continuing environmental problems in this country, it should show us how much we have achieved and provide us with the confidence to allocate more wisely our resources for environmental improvement in the future.

To achieve that wise allocation, and consider what to do next, we need to lower the decibel level of environmental rhetoric in this country. The bitterness and anger that have characterized the debate in recent years represent something new, something we didn't have in the late 60s and early 70s, and it ought to end. There must be room in the America of the 90s to debate these issues and disagree about solutions to problems without the participants being dismissed as "tree-huggers" or "industry stooges."

We need to address the increasing inability of our political processes to make final decisions about needed facilities for the disposal of waste in our society. Regardless of the merits of public participation in environmental decisions, the "not-in-my-backyard" (NIMBY) syndrome is here to stay. We need to institute processes that come to an end, that provide closure, that ensure the finality of decision-making without sacrificing the quality of decisions. To maintain the status quo is to ensure gridlock.

EPA must re-enter the fray: EPA must re-assert itself and help define the environmental agenda for the future and set realistic goals. This alone could lead to a far more efficient allocation of what necessarily will be inadequate resources, and ultimately a re-establishment of trust in EPA by the public.

The process of setting these goals needs to be based on a solid scientific understanding of the problems we face, a thorough and objective review of the solutions that are available, and a realistic assessment of the costs of each of those solutions. A very open goal-setting process will lead to a greater public understanding and acceptance of the goals that are set and the solutions chosen.

Right now the Agency, according to its own analysis, is spending an enormous amount of its precious resources to control environmental hazards that pose relatively small risks to our society. At the same time, many known environmental hazards are barely being addressed because of the low priority for them dictated by Congress. Some would say the answer is to give EPA more money. The Agency may need increased resources, but the fact is there will always be problems waiting when those of higher priority are brought under social control.

As with all problems facing our society, today's reality in Washington is one of limited resources, and choices must be made by EPA, like everyone else. Congress, working with the EPA comparative risk analysis already available, must thoroughly re-examine the existing allocation of resources in terms of real health and environmental priorities. Surely the current disconnect between Congressionally allocated resources and priorities to be addressed can be remedied. It is in the best interest of EPA, the environment, and the country to do so.

As environmental demands increase in breadth and depth, allocating resources will become an increasingly larger challenge for all our elected leaders. Let me give you an example. A major chemical company, as a result of its SARA Title III chemical emissions report, has decided to reduce those emissions by more than 90 percent by 1992. That decision will cost the company almost $200 million. The company has estimated that if all industrial concerns in this country undertook the same control program, the total cost would approach $20 billion.

Recently, when I asked the senior scientists and engineers of the firm whether they honestly believed that a significant public health improvement would result from that action, they answered no. Their action stemmed from a combination of public spiritedness, enlightened self-interest, and a desire to be out of the line of fire. The point was not whether reducing those emissions of chemicals is a good or bad thing. In a world of limitless resources, it is probably something worth doing. But in a society faced with real and hard choices about resource allocations, is this the best way to spend $200 million or $20 billion to serve public health? I doubt it.

These kinds of choices are being made by institutions and individuals in our society every day. The choices often involve the commitment of resources against one devil at the expense of a more formidable one. The dynamics of the choices made are driven by a combination of public opinion, Congressional legislative reaction, and EPA implementation—the process that generates public policy. EPA cannot escape responsibility for the human health or environmental implications of the policies or the choices made as a result of that process. The failure to help society understand where its best interests lie is no less because "Congress made me do it."

This is where EPA's role as educator is important. More knowledge about public health or environmental risks exists within EPA than anywhere else. That knowledge must be shared. It

should be shouted from every podium or forum available in the hopes that wiser policy will result.

People need to know what their Agency is doing and why, and what the intended or expected result will be. That shared knowledge builds trust and leads to real environmental improvement. One of the most useful Agency initiatives in recent years took place in Tacoma, Washington, in the mid-1980s. EPA undertook a massive educational effort to make sure that the community understood the risks associated with the continued operation of a local copper smelter, how those risks would be reduced by various control options, and what the true impact of those various options would be on the continued operation of the smelter—and thus on the community itself. That exercise proved, very dramatically, that when fully armed with all the facts of a situation, the public can and will make rational, intelligent decisions about the environment and the future course of human lives.

The question for us really isn't whether humanity will survive our environmental assaults. I think we will. The question is whether free institutions will survive.

At the end of the educational process, people from all sides of the debate—environmentalists, smelter workers, community leaders—were all sporting buttons that read "BOTH." The buttons meant that the environmental risks inherent in the operation of the smelter could be controlled to acceptable levels, and the community would still have the economic benefit of that smelter. In other words, they could have "BOTH."

We must constantly strive to make our process of dealing with environmental risks more realistic, efficient, and effective. If for no other reason, let's do it to celebrate the 20th anniversary of Earth Day. Our nation and the world are faced with major environmental challenges for the future. There is broad and intensified interest in the environment. There is increased demand to achieve greater levels of cleanup of the problems we know about. At the same time, there is scientific evidence of new and potentially serious environmental problems yet unaddressed.

Increased public pressure is not restricted to the industrialized world. Certainly, it is very intense and immediate here in the United States, but in the future, the greatest pressure on the developed world and on the environment is going to come from the four-fifths of the world's population in the underdeveloped and developing countries yearning to approximate the standard of living now enjoyed by us. Unchannelled and uncontrolled, that inexorable push to economic development will create an assault on our environment the likes of which we have never seen.

How the developed nations, and how we as a leader of those nations, respond to our own challenges—and the path we set for the rest of the world—will say much about what kind of world will be left to coming generations. Ultimately, what is at stake in free societies and those now throwing off the shackles of 40 years, is the ability of free institutions to solve these difficult, complex, and emotionally wrenching problems. The emerging democracies are watching us, as are the vast populations in the underdeveloped world. They want to see if we can cope with our own complexities and do it within the context of freedom. If we can, our dedication to freedom will seem increasingly attractive to them as they struggle for an enhanced standard of living.

The question for us really isn't whether humanity will survive our environmental assaults. I think we will. The question is whether free institutions will survive.

When confronted with a choice between authoritarianism and chaos, people will always choose the former. Whether we can address our environmental problems within a system of political and economic freedom is an open question in the last decade of this century. Is freedom indeed the banner to which all should repair? Certainly that is the world's question and our challenge. At the next observance of Earth Day, perhaps in 20 years, I hope we can celebrate the success of attaining a livable environment, enhanced development, and expanded freedom. □

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The Council on Environmental Quality

by Russell E. Train

Today, CEQ clearly needs more staff and an augmented budget to go with it.

(Train, the first Chairman of the Council on Environmental Quality and a former Administrator of EPA, is currently Chairman of the Board of World Wildlife Fund and The Conservation Foundation.)

The environmental movement came of age in the 1970s. Fittingly, President Nixon's first official act of the decade was to sign into law the National Environmental Policy Act (NEPA), one of the most far-reaching and innovative pieces of environmental legislation in our history.

A key element of NEPA was the creation of the Council on Environmental Quality (CEQ) in the Executive Office of the President to serve as a focal point for environmental policy development. I became the first Chairman of the Council shortly after President Nixon signed NEPA, but my involvement with the legislation goes back to my tenure as president of The Conservation Foundation.

In the late 1960s, The Conservation Foundation began to focus on building ecological principles into development activities. The Senate Interior Committee, then chaired by Senator "Scoop" Jackson, had similar concerns, and with the help of The Conservation Foundation hired Dr. Keith Caldwell, a professor of political science at the University of Indiana, as a consultant. Caldwell originated and developed the concept of environmental impact analysis, which became an integral part of NEPA. Together with the creation of CEQ, environmental impact analysis requirements—obliging federal agencies to consider environmental factors in their decision-making processes—were really the heart of NEPA.

In 1968, President Nixon asked me to chair a task force on the environment to advise him on environmental issues. Our principal recommendation was to create a mechanism for developing environmental policy within the White House—a forerunner of the CEQ concept. In 1969, the administration acted on that proposal by setting up, by executive order, an interagency Committee on Environmental Quality, chaired by the president's science advisor. In short, the committee worked imperfectly and took little leadership on environmental matters.

Once NEPA was signed, the Council replaced this interagency committee and was vastly more effective. The Council had the enormous task of developing and promulgating guidelines for federal agency compliance with the environmental impact statement requirement of the act. The environmental impact statement was a revolutionary concept in government. It brought about a radical change in the way government decisions were made because it required bureaucrats to look at alternatives to proposed actions—including the alternative of doing nothing—if a planned course of action would damage the environment.

We had many interagency struggles and controversies because some agencies were extremely reluctant to go along with the process. But in fact the environmental impact statement opened up the process of decision-making for input by other agencies and the public in an unprecedented way.

Early on, the Council made the decision that each individual agency had to act as its own implementing authority for NEPA requirements. That was important because there had been some suggestion that CEQ would oversee all government actions and make its own determinations concerning environmental impacts, alternatives, and so on. First of all, this suggestion was impractical from a workload standpoint and secondly, it would have meant that individual agencies would not have felt responsible for addressing environmental considerations in their programs. They would have perceived it as someone else's job, namely CEQ's. So from the beginning, the Council tried to delegate authority to the agencies themselves, focusing the Council's own role on developing guidelines, overseeing NEPA implementation, and reacting when a poor job was being done. The Council stressed that the agencies themselves must keep full responsibility for their own environmental performance.

The Council had some dramatic successes. For example, in 1970, we recommended that the President halt work on a barge canal across northern

Reviews of the potential environmental impacts of federally aided highways were one of the innovations of the National Environmental Policy Act. This aerial view shows construction of an interstate highway in Wisconsin.

Mike Brisson photo.

Florida, although one-third of the work had been completed. I sent the President a memorandum stating that the environmental costs of the canal far outweighed the benefits because it threatened to destroy a unique scenic area, a major wildlife habitat, and a large sport fish population. Other adverse effects, such as pest infestation and water pollution, also were feared.

The President ordered work stopped on the canal, despite strong protests from the shipping industry and local developers. This controversial decision dramatically demonstrated the new force the environmental ethic had in government decision-making.

Within a few years, the staff of CEQ numbered about 54, the same size as the Council of Economic Advisors. It was a superb staff. The environment was a hot issue at the time, and since young people graduating from college and law school were anxious to get into the environmental area, we had the pick of the crop. Bill Reilly came in as a young attorney and played a major role in developing the National Land Use Policy Act that President Nixon submitted to Congress.

But that legislation was too far ahead of its time and never seriously considered by Congress. It would have required states, as a condition for obtaining federal financial assistance, to assume responsibility for land-use decisions that have impacts *beyond* the local jurisdiction where the decision is made. The bill would also have required states, for the first time, to: protect areas of critical environmental value such as coastal wetlands and historic districts; control land use around public facilities such as airports, highway interchanges, and major recreation areas; and assure that regionally needed development, such as water-treatment plants or low- and moderate-income housing was not excluded by local governments. Though many of these principles were incorporated into other laws, many others—such as wetland protection—were long neglected and are only now being given their full due.

The Council quickly adopted the role of developing an annual environmental message for the President to send to Congress. This message became the repository for a wide range of legislative initiatives as well as executive actions in the environmental area. The Council had a great deal of clout through having responsibility for putting together this message. Under CEQ staff direction, various interagency committees were working on environmental problems involving drinking water, strip mining, and air pollution, for example. Through

Miami Herald *photo.*

Acting on the recommendations of the newly created Council on Environmental Quality, President Nixon called a halt to construction of the Trans-Florida Barge Canal in 1970.

this interaction, we were able to shape an enormous number of recommendations. The series of environmental legislative proposals of the early 1970s represented the greatest outpouring of legislation in any single subject area in the nation's history.

The creation of EPA in December 1970 might be construed to indicate that CEQ no longer had an important role to play. That was not the case in 1970, nor is it true today. CEQ, because of its location in the Executive Office of the President, has the unique opportunity to work in the realm where environmental responsibility overlaps with the jurisdiction of other agencies. This is a crucial role, because the environment by its very nature cuts across the entire fabric of government. Agricultural policy, transportation policy, and energy policy all have enormous environmental implications. It is not easy for one agency to effectively interact with another in this kind of situation. EPA has a strong working relationship with the other agencies, but it is not always welcomed with enthusiasm. Often it is perceived as interfering in the exclusive jurisdiction of another bureaucracy. This is a hard row to hoe.

CEQ is better able to operate in that situation by virtue of its position in the executive office, assuming it is given adequate authority by the President. It has the potential to revive the cooperation and coordination that it built to put together the comprehensive environmental messages it sent to Congress in the early 1970s. That is where CEQ's real role lies, and it is an extremely important one.

Today, CEQ clearly needs more staff and an augmented budget to go with it. Currently, it has a staff of only about ten, one-fifth what it was in the early 1970s. This is simply inadequate to meet the challenges ahead. On the issue of global warming, for example, the interaction between energy and environmental policy will be critical. CEQ could help implement an environmentally sound energy policy by ensuring that federal agencies are aware of and abide by energy and environmental guidelines. EPA need not abdicate any authority in the area, but I would recommend a close working relationship between CEQ and EPA, with CEQ coordinating interagency responses. Such a relationship, however, will be extremely difficult to implement without a major commitment to CEQ by the current Administration.

CEQ should not try to operate as the Administration's voice on the environment.

CEQ should not try to operate as the Administration's voice on the environment. Such a role for CEQ became unnecessary when EPA came into existence—especially when EPA is headed by a strong environmentalist like Bill Reilly. Michael Deland is an outstanding choice for Chairman of CEQ. He is a strong environmentalist, with a lot of experience in the field. He has dealt in the past with many controversial issues, and he is intelligent and tough but fair-minded. With talented environmentalists at EPA and CEQ, and with a renewed commitment by the President, the United States will be ready to confront the difficult environmental problems of the new decade. □

The Clean Air Act of 1970

by Paul G. Rogers

AP/Wide World photo.

Shortly after Earth Day 1970, Congress enacted the landmark Clean Air Act amendments. Progress has been made on air quality, but much more needs to be done. This 1963 photo shows a massive smog episode in New York City.

Historians of the environmental movement are likely to peg Earth Day 1970 as a key turning point in the American public's consciousness about environmental problems. I believe that Congress' enactment of the 1970 amendments to the Clean Air Act a few months later was an equally significant landmark. For the 1970 amendments moved environmental protection concerns to a prominent position on Capitol Hill, where they by and large have remained ever since.

It seems appropriate, as Congress is considering new amendments to the Clean Air Act, to assess what lessons might be learned from the events of two decades ago.

The juxtaposition of Earth Day and the 1970 amendments was no accident. As a representative body, Congress was responding to the heightened public concern about environmental pollution that was symbolized by the Earth Day demonstrations. Some have said that Congress reacted to public pressure *too* quickly and rushed through clean-air legislation that was not up to the task of responding to real air-pollution concerns. I disagree.

While the 1970 amendments may have been the first time that pollution-control efforts obtained such a high profile in Congress, they were not Congress' first effort to address air-pollution problems. On the contrary, we drafted those amendments to correct previous pollution-control strategies that had failed. With the passage of the 1970 amendments, Congress adopted new approaches to regulation such as national air quality standards and statutory deadlines for compliance that are commonplace today, but represented a significant turning point in 1970.

To put the 1970 amendments in proper context, one needs to look back at Congress' prior efforts to control air pollution, particularly the Air Quality Act of 1967. That statute authorized the Secretary of Health, Education, and Welfare (who then had chief responsibility for federal environmental protection programs) to designate so-called air quality regions throughout the country; the states were given primary responsibility for adopting and enforcing pollution-control standards within those regions.

Some of us involved in the enactment of the 1967 statute had significant doubts as to the viability of the regional approach to air-pollution control; after all, air contamination does not stop at

(Rogers served as Chair of the House Subcommittee on Health and the Environment during the 1970 Clean Air Act deliberations. He is currently a partner in the law firm of Hogan and Hartson in Washington, DC.)

David F. Grady assisted in the preparation of this article.

neatly defined regional boundaries. Nevertheless, Congress as a whole and American industry were not yet convinced of the need for a national strategy for pollution control; therefore, as a first step, the 1967 statute's regional approach became the law of the land.

The approach was a notable failure. By 1970, fewer than three dozen air-quality regions had been designated, as compared to an anticipated number in excess of 100. Moreover, not a single state had developed a full pollution-control program.

This unsatisfactory record, coupled with the public pressures created by the Earth Day movement, provided the necessary impetus to convince Congress that national air quality standards were the only practical way to rectify the United States' air-pollution problems. Similarly, the record of inaction under the 1967 law led Congress to impose statutory deadlines for compliance with the emissions standards authorized under the 1970 statute, in the hope that those deadlines would spur action.

Thus, the two key provisions in the 1970 act were not a frenzied reaction to public pressure, but instead were a deliberate response aimed at correcting the demonstrated failures of previous regulatory efforts.

Of course, no one would argue that the 1970 statute achieved all of its objectives; the deadlines were extended, and for the most part, the national standards were not attained. Yet I believe that history, on balance, should judge the 1970 amendments as a major and positive turning point in the national environmental-protection effort. The 1977 Clean Air Act amendments confirm this judgment.

For just as important as its deadlines and innovative nationwide standard-setting approach was the 1970 statute's underlying purpose: to raise the consciousness of the American public and American business regarding the importance of pollution control. In enacting the 1970 statute, Congress knew that a central element in any successful approach to air-pollution control (and, indeed, environmental protection generally) would have to be a change in attitude about the value of environmental protection.

During the House floor debate on the amendments, one of my colleagues quoted a small town mayor, who (in expressing the previous conventional wisdom that environmental protection and economic growth were not compatible) is reported to have said: "If you want this town to grow, it has got to stink." Before 1970, there were still many persons and companies throughout the United States who agreed with the mayor that pollution was the inevitable price of progress. In the 1970 amendments, however, Congress signalled its firm belief that economic growth and a clean environment are not mutually exclusive goals.

The 1970 amendments moved environmental protection concerns to a prominent position on Capitol Hill, where they by and large have remained ever since.

In order to change these previously entrenched attitudes, it was necessary to get the attention of industry and the American people. By taking the then-bold step of making air-pollution control a national responsibility, with strict deadlines for compliance, Congress accomplished that purpose in the 1970 statute. Even though the deadlines originally imposed in the 1970 amendments ultimately were not met, the amendments unquestionably succeeded in fostering a profound attitude shift in this country.

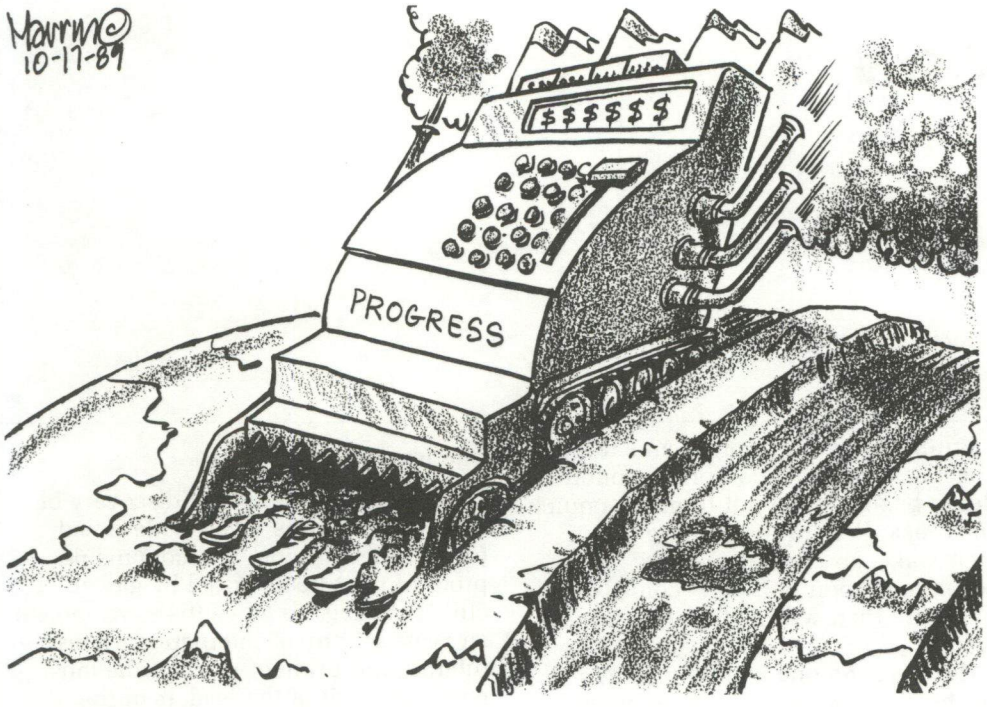
A consensus has emerged from the experiences gleaned under the 1970 amendments that environmental protection and economic growth can, and must, be accomplished hand-in-hand. Indeed, I suspect that if the mayor quoted by my colleague were to seek election today, he or she would be soundly rejected at the polls. This attitudinal change in American society is itself a significant achievement for which the 1970 Clean Air Act amendments deserve a share of the credit.

But a positive change in attitude and assumptions about environmental protection does not in itself clean up dirty air. Congress is still struggling with the difficult question of how to achieve that goal. Thus it is fair to ask what lessons the 1970 amendments might hold for Congress as it sets about revising the Clean Air Act once again. I believe several lessons may be drawn.

- *Strike while the iron is hot.* While the 1970 amendments gradually evolved to correct previous statutory initiatives that had failed, their actual enactment by the full Congress was accomplished with unaccustomed speed. This was made possible because of the high priority assigned to environmental issues on the public agenda following Earth Day.

  Today's political climate is similar. Rising public concerns over well-reported environmental problems such as acid rain, global warming, and fouled beaches, coupled with the high profile that environmental issues took in the 1988 presidential elections, provide this Congress with one of the most promising opportunities for legislative initiatives on clean air in recent years. Since this positive combination of events is likely to have a somewhat limited life span, Congress should seize the opportunity—as it did in 1970—and act now to revise the statute.

- *Avoid artificial limits on pollution-control efforts.* Just as the 1970 amendments demonstrated Congress' acknowledgment that air pollution could not be effectively addressed on a regional level, the current effort to amend the statute should take into account the increasing emphasis on the international nature of air-pollution problems. The recent Montreal Protocol on reducing use of chlorofluorocarbons and our ongoing dialogue with Canada regarding acid rain are but two examples of the growing recognition that air pollution



Pat Marrin cartoon.

does not stop at state or regional boundaries; it crosses national boundaries as well.

Just as in 1970 Congress took the ground-breaking step of making air-pollution control a national effort, Congress today should not hesitate to lay the groundwork for international approaches to environmental issues.

- *Take advantage of improved knowledge.* Striking developments since the 1970 amendments have been the explosion of knowledge about the nature of air pollution, and the advanced new technologies available to control that pollution. The study of pollution and the design of pollution-control techniques were in their infancies in 1970. Congress did not have the benefit of the wealth of additional knowledge at society's disposal today. This expanded knowledge base should permit Congress to adopt compliance deadlines that are better pegged to technical feasibility than in 1970.

- *Follow through with oversight and enforcement.* One of the reasons the 1967 Air Quality Act failed and thus spurred Congress to enact a tough national air quality program in 1970 was the almost complete lack of enforcement of the earlier statute. A similar fate befell the 1970 amendments and has continued to plague implementation of the Clean Air Act ever since (although enforcement activity has increased somewhat in recent years).

A consensus has emerged from the experiences gleaned under the 1970 amendments that environmental protection and economic growth can, and must, be accomplished hand-in-hand.

Congress, of course, can only pass laws; it is up to the Executive Branch to enforce them. It is imperative that Congress follow through on the upcoming amendments to the Clean Air Act with a stringent oversight role. It will be critical to keep the pressure on in order to see to it that those who are covered by the statute obey it—or pay the requisite penalties for violations.

Overall, the concepts set forth in the 1970 Clean Air Act amendments and revised and strengthened in the 1977 amendments are still valid. A national approach to air-pollution control remains the only practical way to respond to this problem. Indeed, as I mentioned earlier, the real question today is not so much whether more efforts should be ceded to more localized governments, but the extent to which international cooperation is needed to fight air pollution.

Similarly, the use of statutory deadlines to force compliance with air quality standards is, if anything, more appropriate today, given our greater information base and technological capabilities upon which to base such deadlines. What is needed is not so much a change in approach from the framework of the 1970 amendments, but a reinvigorated commitment on the part of government, industry, and the population at large to meet the new compliance deadlines that are likely to be part of the Clean Air Act expected to pass later this year.

As our environmental problems accumulate, and as our concerns about air pollution grow broader and more complex, we cannot afford to let the current opportunity to amend the Clean Air Act go by without success. The 1970 Clean Air Act amendments were a watershed that paved the way for the widespread consensus in our country today that air-pollution control must be a top priority of the federal government. Those of us who had a hand in drafting the 1970 amendments therefore can take satisfaction because that legislation has had a positive impact on our nation's environmental protection efforts. It is now up to our successors to build on that foundation and make further progress in improving air quality in the United States. □

Earth Day: One View

by Denis Hayes

Little more than a year ago, in an article for *EPA Journal*, I proposed that someone seize the initiative and organize a global Earth Day to coincide with the 20th anniversary of the first Earth Day. As "luck" would have it, a year later that someone turns out to be me. Two months after the article appeared, a dozen national environmental leaders asked me to take a leave of absence from my legal practice to coordinate the Earth Day 1990 campaign.

At this time last year, Earth Day 1990 was nothing more than a concept. Now it is a staff of 30 in Palo Alto, California; a National Board of Directors well over 100 in number, with representatives from every sector of American society; an International Board of Sponsors spanning every continent; and a field organization with 18 regional offices. In little more than a year, Earth Day 1990 has gone from the drawing board to being a huge, global coalition determined to turn the tide in the battle to pull the planet back from the brink of ecological destruction.

In 1970, the goal of Earth Day, as articulated eloquently by then-Senator Gaylord Nelson, the true "father" of Earth Day, was to demonstrate to corporations, politicians, and our somnambulant neighbors that nobody is immune to the threats posed by environmental pollution and no one can avoid culpability. Twenty years later, some of the symptoms have changed, but the problem remains the same. Us.

Sure, there are lots of villains to point fingers at: uncaring corporate monoliths; sleazy businessmen out to make a quick buck regardless of the damage left in their wake; and politicians too dependent upon polluters' contributions and more than willing to turn a blind eye.

However, no one is holding a gun to our heads as we merrily drive ourselves into the greenhouse age. Nothing short of a society-wide commitment is needed if we are to turn our backs on the "disposable society" and move toward realizing the vision of a society that lives in harmony with the environment. The 20th anniversary of Earth Day is an auspicious time to remind corporations, politicians, and ourselves that such a profound shift is needed. The alternative is catastrophe.

The Concept

The concept of Earth Day was American in its origin. However, the problems that Earth Day addresses are global in nature. Whereas Earth Day 1970 was the catalyst for the creation of the modern American environmental movement, Earth Day 1990 is designed to catalyze a truly global environmental movement—and to make the 1990s a decade of striking environmental achievements.

In 1970, the focus was on air, water; and noise pollution. Thousands of schools, universities, and communities staged Earth Day events. In the past two decades, endangered species have been protected, once-dead waterways have been cleaned up, and air quality in some areas has improved. However, despite notable local improvements, the health of the planet has declined precipitously.

The Issues

Unfortunately, it took the discovery of holes in the ozone layer, widespread fires in the Amazon, and convincing proof of the threats posed by global climate change to make the environment an issue worthy of international press interest and pride of place at the most recent summit of the leaders of the major industrial powers. Now that environmental issues have captured the attention of our politicians and the press, we have an unprecedented opportunity to translate public concern about the environment into concerted action.

Earth Day 1990's campaign will send a clear signal to the world's leaders that the time is nigh to set aside narrow self-interest and focus on the global environmental issues that threaten the continued existence of the human race. The time has come to galvanize our collective energies on making "sustainable development" more than a pleasing rhetorical phrase.

The Constituency

To meet the formidable challenge of building a constituency for sustainable development, Earth Day 1990 is seeking the assistance, participation, and commitment of leaders from all sectors of society. Earth Day 1990's National Board of Directors is drawn from government, education, labor unions, civil rights groups, corporations, academia, and the arts, and includes the chief executive officer of every major national environmental organization in the United States.

At the grassroots level, Earth Day 1990's field staff have held organizing meetings in over two dozen cities across the country. The response has been overwhelming. Regional Earth Day 1990 offices are now open across the country. Local grassroots and student organizations now exist in hundreds of cities, including all of the nation's

(Hayes served as National Coordinator for Earth Day 1970 and is currently Chair and Chief Executive Officer of Earth Day 1990.)

largest metropolitan areas. Individuals involved in local Earth Day 1990 coalitions are a study in diversity. Participants range from members of neighborhood improvement associations to city council representatives, from environmentalists to civil rights activists, from students to senior citizens. Many have never been involved with an environmental campaign before.

Supplementing our field-organizing activities, Earth Day 1990 has developed public-education programs to reach people in their homes, their workplaces, and their recreation centers. These programs are designed to change how people shop and affect how they vote and raise their children. Some are aimed at primarily a U.S. audience while others have been adapted for use in other countries.

Education

To reach the next generation of leaders with lessons that we have yet to learn, Earth Day 1990 has developed formal educational materials including a Lesson Plan and Survey for students in grades K-12 and a Campus Environmental Audit for colleges and universities. At the K-12 level, students will work with their parents to complete a survey which they can use to measure the environmental soundness of their homes. The campus audit will help students, faculty, and administrators to gauge accurately the impact their college has on the community's environment through the generation of solid, medical, radioactive, and hazardous waste as well as air and water pollution, procurement policies, and dangers in the workplace.

Investment

Drawing on the examples of anti-apartheid activists and other social justice movements, the environmental movement has launched an ambitious campaign to apply environmental concerns to decisions in the corporate boardroom. I co-chair the Coalition for Environmentally Responsible Economies (CERES), which includes environmental organizations and financial institutions. In the fall, CERES unveiled a new 10-point corporate code of ethics, the Valdez Principles, which address the damaging impacts of products and production processes on consumers, employees, communities, and the global environment.

Already, the Valdez Principles have been endorsed by state, city, and religious pension funds totaling over $150 billion in assets. In conjunction with other coalition members, Earth Day 1990 is working with corporations, state treasures, portfolio managers, universities, and cities to urge the wide adoption of the Valdez Principles as an effective gauge for corporate

NYT Pictures.

Concern about pollution and other forms of environmental degradation spread across the United States in 1970. A goal of Earth Day this year is planet-wide environmental commitment.

Ted Polumbaum/TIME Magazine.

Making a point on Earth Day 1970.

performance and a guideline for socially responsible investing.

Global Cities

Responding to an upsurge of municipal environmental activism, Earth Day 1990 has developed the Global Cities Project, which offers practical assistance to city and county authorities in expanding or creating programs that fulfill the maxim, "Think globally. Act locally."

Under the Global Cities Project, Earth Day 1990 will help cities and counties to develop or augment existing programs in areas such as ride-sharing, recycling, energy and water conservation, hazardous waste reduction, and tree planting. Cities participating in the project also will receive an "Earth Day Project Planning Guide" and will be eligible to attend project-planning seminars held throughout the country. The response has been enthusiastic, with participants ranging from Newark, New Jersey, to West Hollywood, California, to Atlanta, Georgia.

International Earth Day

On the international level, Earth Day 1990 has a growing International Board of Sponsors, which spans every continent and includes two heads of state and the leaders of 10 international organizations, including two United Nations agencies. Over 120 countries have Earth Day coalitions representing more than 1,000 non-governmental organizations, universities, and government agencies. Planned activities range from an "Indigenous Peoples Consultation on Bio-Diversity" in the Phillipines to a "Green Train" bearing Earth Day 1990's logo on its side as it travels through 21 major Italian cities testing pollution levels with its on-board laboratory.

The Global Challenge

International Earth Day is a concept that has come due. Global environmental issues exemplify the interdependence of communities around the world. If we truly want to develop solutions to global warming, ozone depletion, ocean pollution, and the rest of the global ecological horrors that we've created, world leaders need to take the pragmatic steps of setting aside parochial priorities and focusing on threats to the global commons. Earth Day 1990's global campaign will provide the politicians of the world with compelling evidence that there indeed exists an informed and angry constituency that considers the health of the planet an issue second to none.

If You Want To Get Involved

If you want to be a part of the Earth Day 1990 process, contact our main office in Palo Alto. Wherever you live, our field staff can put you in touch with a local grassroots coordinator. For further information, contact:

Earth Day 1990
P.O. Box AA
Stanford University
Palo Alto, California 94309
(415) 321-1990. □

In the battle against pollution...

YOU can make a difference

At home, at school, at work, and in your community you play an important part in the battle against pollution of our environment. The unsightly and unsafe litter we see along our highways and on our streets, like many other pollution problems, is created by thoughtless people. Pollution is a problem that can't be solved by Congress and state legislatures alone, or by court orders, or by pronouncements from important people.

You and other individuals—working alone and in cooperation with friends and neighbors, with industry, with government, with nonprofit organizations, with schools and colleges—can make a difference. Individual environmental work can take the form of planting trees, or restoring wildlife habitats, or launching a recycling program. Or it could be action toward cleaner streams and parks and low-input agriculture.

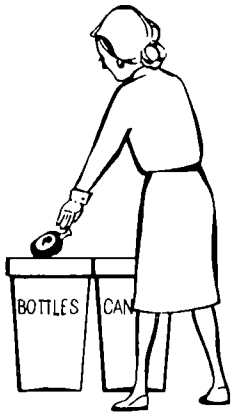
EPA encourages this kind of individual and cooperative action to clean up the environment. Here are some suggestions you can use where you live to make a difference in our environment—through what you do and what others see you do.

For more information, contact the
U.S. Environmental Protection Agency,
Office of Pollution Prevention,
401 M Street, SW. (PM-219),
Washington, DC 20460.

EPA

United States
Environmental Protection
Agency

Note to teachers: This center section is designed for tear-out and reproduction.



Recycle paper, glass, plastic, aluminum, scrap metal, motor oil, and yard wastes.

Reuse, repair, and recycle as often as possible. Don't throw away what can be used again.

Avoid filling landfills with disposables. Consider using reusable mugs, glasses, dishes, cloth towels, and sponges.

Save your leaves, grass, and bush clippings and use them as compost.

Participate in a recycling program. Encourage your community and your school to begin recycling.

Maintain and repair products. Donate usable materials to charities or thrift shops.

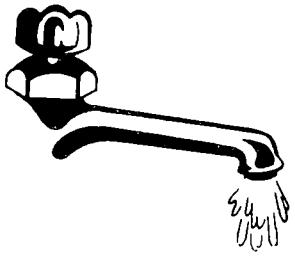
For further information, call:
U.S. Environmental Protection Agency
Solid Waste Hotline
(800) 424-9346. *

**All 800 numbers are toll free.*

Be careful around surfaces covered with lead-based paint, and be cautious when children are nearby during renovation or rehabilitation of old buildings. Be sure drinking water does not contain harmful levels of lead or other contaminants.

Be alert for lead-based paint in older homes, especially those in poor repair or in need of painting. The fine dust from deteriorating old paint and dust created during renovation or rehabilitation of older buildings may contain lead particles. This dust can travel throughout your house and even outside. Keep children away from such areas. Workers should wear protective clothing. Consider contacting an expert before undertaking such renovations.

EPA has found unhealthy contaminants in drinking water in some areas. Because lead and other contaminants may cause a health problem, consider having your water tested if your house has lead pipes.



Two drinking-water precautions are to run water until it changes temperature—and use only the cold-water tap for drinking and cooking, especially for making baby formula. Lead can slow children's physical and nervous-system development and cause other neurological, reproductive, and circulatory problems.

For additional information, contact:
Safe Drinking Water Hotline
(800) 426-4791

Your local water company

Your community or county health department.

Buy energy-efficient automobiles and other vehicles and keep them tuned. Carpool, bike, walk, or use mass transit when possible.

A well-tuned internal combustion engine makes your car, boat, or tractor safer for you and the environment.

Carpooling and using mass transit, biking, and walking result in less pollution.

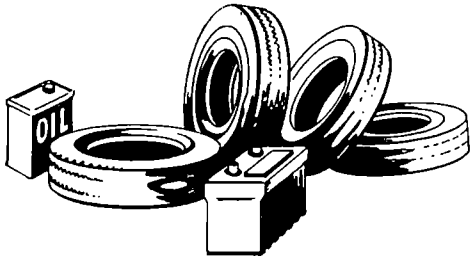
Disposal of auto waste is another significant problem. Used oil can contaminate water supplies; used auto batteries contain lead, lead sulfate, and sulfuric acid that can leak into soil. Take used oil, auto batteries, and auto tires to a recycling center or an appropriate disposal facility.

For further information, call:
U.S. Department of Energy
(800) 523-2929

Local Chambers of Commerce and local transit-oriented nonprofit organizations

Your state and local environmental agencies

Your local chapter of the American Lung Association.



Apply pesticides such as insecticides and herbicides carefully if they must be used. Follow instructions carefully.

Use natural pest-control methods whenever possible.

Pesticides can pollute air, ground, and water. They can harm beneficial insects as well as wildlife, pets, and people. Improperly applied, they can spread beyond the intended area and into local water supplies.

Purchase only the amount needed, and follow instructions carefully, minimize use, and reduce run-off by maintaining ample grass cover and shrubs.

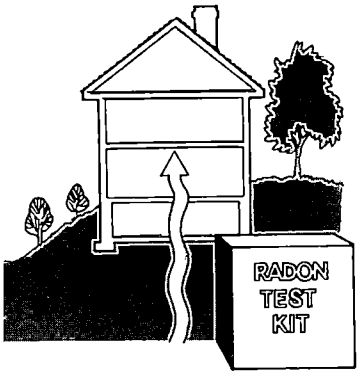
For further information, contact:

U.S. Environmental Protection Agency
Office of Pesticides and Toxic Substances (TS-788)
401 M Street, SW.
Washington, DC 20460

Pesticide Telecommunications Network (800) 858-7378

National Pesticide Information Retrieval System (317) 494-6614

Local garden clubs and nature centers.



Noxious air invades our homes and workplaces. Reduce smoke, radon, asbestos, and other indoor-air pollutants.

Americans spend more than 85 percent of their time indoors, so this is one of the most important areas where you can reduce environmental hazards.

One of the most harmful indoor hazards is radon, a naturally occurring, colorless, and odorless gas that seeps into homes through cracks in foundations or floors. It is the second most common cause of lung cancer—leading to 20,000 deaths a year. Many stores sell test kits for measuring radon levels. A reading above 4 picocuries per liter could indicate a problem.

Another indoor air pollutant, tobacco smoke, causes problems for both smokers and non-smokers. When combined with radon, it further increases one's chances of developing lung cancer. Formaldehyde-based resins in some new furniture, building materials, and fabrics are other common indoor pollutants, as are pesticides, aerosols, household cleaners, and solvents from dry-cleaning.

Asbestos is best handled by professionals. Asbestos removal is *not* a do-it-yourself project. If in doubt about asbestos in your home or work place, check with a professional.

For a general guide to indoor air quality, contact:

U.S. Environmental Protection Agency (202) 382-7400
Office of Air and Radiation (ANR-455)
401 M Street, SW.
Washington, DC 20460.

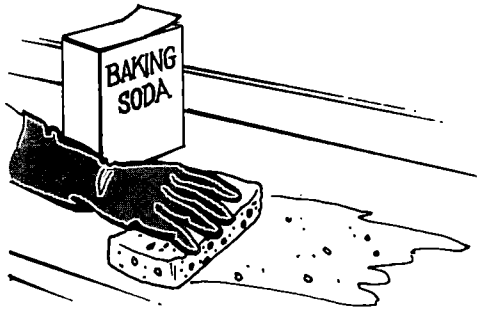
For information on radon, contact your state environmental agency.

For information on cancer-causing chemicals, contact:

National Institutes of Health (800) 422-6237.

Household hazardous waste—purchase products containing toxic ingredients only when you cannot avoid using them, and buy only as much as you need. Do not buy bulk quantities.

Always read product labels to identify any hazardous constituents, and pay attention to container and product disposal information. Whenever possible, avoid using products labeled with the words "DANGER," "WARNING," or "CAUTION." Use non-toxic alternatives. For example, clean your counter tops with baking soda instead of chlorinated cleaners.



Store hazardous products carefully. Where possible, recycle leftover hazardous products such as oil-based paint.

Find out your local community's policy on disposal of hazardous waste. If the product should not go down the drain or into the rubbish, save it for a household hazardous waste-collection program. If a program is not in place, encourage your community to institute one.

For additional information, contact:

U.S. Environmental Protection Agency
Solid Waste Hotline (800) 424-9346

Or contact your state and local environmental agencies.

Environmental shopping—buy recycled and recyclable products. Seek out reusable or returnable packages.

Look for the recycling symbol on products you buy. Such symbols identify recycled or recyclable products.

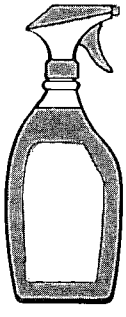
Buy durable products—don't buy throw-aways. Borrow or rent things you use infrequently.

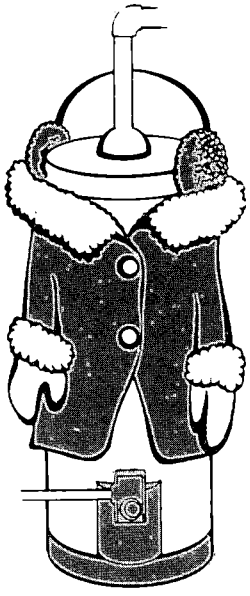
Avoid buying products that use unnecessary packaging—either plastic or paper. Use returnable or reusable containers. Look for pump dispensers rather than aerosol sprays. Buy rechargeable batteries for flashlights, toys, and household items.

Carry your own reusable shopping bag.

For additional information, contact:
U.S. Environmental Protection Agency
Solid Waste Hotline
(800) 424-9346

Or contact your state and local environmental agencies.





Use less energy. Set back your thermostat, insulate your water heater, and buy energy-efficient appliances.

Setting back the thermostat not only saves money, it saves energy. It's an investment in yourself and your environment.

Insulation conserves our valuable fuel supply and saves you dollars. Consider insulating your home and school with fiberglass or cellulose fiber.

For further information, call:
U.S. Department of Energy
(800) 523-2929

EPA Public Information Center
(800) 828-4445

Your local utility company.

Plant trees, shrubs, and indoor plants. They replenish the Earth's oxygen supply and help curb the Greenhouse Effect.

Plant trees or bushes in your yard or neighborhood. Trees in your yard may reduce heating and cooling costs and curb soil-erosion. In addition, they beautify your property and increase its value.

For further information, call or write:

Your local garden club, nature center, or arboretum

Global Releaf (American Forestry Association) (202) 667-3300

National Wildlife Federation
Backyard Wildlife Habitat Program
1400 16th Street, NW.
Washington, DC 20036.

EPA Earth Day Contacts

Following are contacts at EPA for questions you may have related to Earth Day. The identifications are broken down by EPA regional offices and headquarters.

Brooke Chamberlain-Cook
Earth Day Contact
U.S. EPA, Region 1
Public Affairs - RPA 2203
JFK Federal Building
Boston, MA 02203
(617) 565-3420
Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont

Lisa Peterson
Earth Day Contact
U.S. EPA, Region 2
Office of External Programs - RM 905
26 Federal Plaza
New York, NY 10278
(212) 264-2515
New Jersey, New York, Puerto Rico, Virgin Islands

Janet Viniski
Earth Day Contact
U.S. EPA, Region 3
841 Chestnut Street 3PA00
Philadelphia, PA 19107
(215) 597-9370
Delaware, Maryland, Pennsylvania, Virginia, West Virginia, District of Columbia

Jane McConathy
Earth Day Contact
U.S. EPA, Region 4
345 Courtland Street, NE.
Atlanta, GA 30365
(404) 347-3004
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee

Jon Grand
Earth Day Contact
U.S. EPA, Region 5
230 S. Dearborn Street
Chicago, IL 60604
(312) 353-2072
Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin

Phil Charles
Earth Day Contact
U.S. EPA, Region 6
12th Floor
1445 Ross Avenue
Dallas, TX 75202
(214) 655-2200
Arkansas, Louisiana, New Mexico, Oklahoma, Texas

Rowena Michaels
Earth Day Contact
U.S. EPA, Region 7
726 Minnesota Avenue
Kansas City, KS 66101
(913) 236-2803
Iowa, Kansas, Missouri, Nebraska

Eric Johnson
Earth Day Contact
U.S. EPA, Region 8
999 18th Street, Suite 500
Denver, CO 80202-2405
(303) 294-7599
Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming

Deanna Wieman
Earth Day Contact
U.S. EPA, Region 9
215 Fremont Street
San Francisco, CA 94105
(415) 974-8083
Arizona, California, Hawaii, Nevada, American Somoa, Guam, Trust Territories of the Pacific

Jean Baker
Earth Day Contact
U.S. EPA, Region 10
1200 Sixth Avenue
Seattle, WA 98101
(206) 442-1203
Alaska, Idaho, Oregon, Washington

Ann Boren, Director
Earth Day 1990
U.S. EPA (A 101-ED)
401 M Street, SW.
Washington, DC 20460
(202) 475-7751

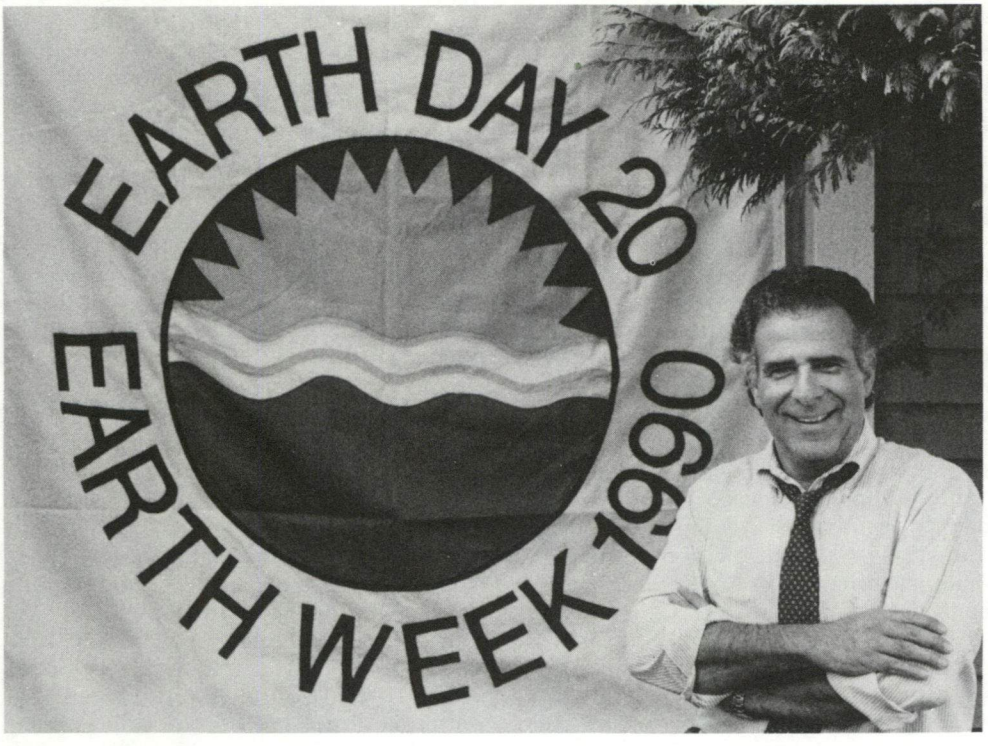
Earth Day: Another View

by Edward W. Furia

So the summer of '88 was a kind of last straw for a lot of people, including me.

Recently I experienced a sense of déjà vu when I gave an address about Earth Day at the Threshold National Student Environmental Action Coalition (SEAC) Conference. I spoke to 1,600 student leaders of campus environmental organizations from 43 states who had converged at the University of North Carolina at Chapel Hill for this conference.

A little more than 20 years before, I was among a group of graduate students at the University of Pennsylvania City Planning School who met to discuss the famous 1969 Seattle speech of Senator Gaylord Nelson calling for the first national Earth Day. We responded by organizing the first Earth Week, a convocation on environmental issues that cut across racial, economic, and political boundaries and, for the first time, got ordinary people involved in environmental issues.



Staunch efforts are under way to make the upcoming observance of Earth Day as full of impact as Earth Day 1970. Here, one of the lead organizers, Ed Furia, stands by his group's logo.

(Furia was Project Director of Earth Week 1970 in Philadelphia. He is currently President and Managing Director of Earth Day 20/Earth Week 1990.)

The recent Chapel Hill SEAC meeting was not just another conference. It was a historic event that marked the rebirth of environmentalism on college campuses. It may also have been the first real evidence since the 1960s of a rebirth of student political activism.

Unlike the budding "yuppie" stereotypes I expected to encounter—with ambitions consisting of an MBA, a job on Wall Street, and a BMW—these young people wanted to change the world. They seemed every bit as idealistic as their predecessors on 2,000 college campuses and in 10,000 high schools who, in 1970, took up the challenge of Earth Day and helped drive environmentalism into the mainstream of American consciousness.

What were the goals of the first Earth Week, and how do they compare to the goals of Earth Week 1990?

The most widely recognized goal in 1970 was to "raise consciousness" on college campuses about environmental problems, but the group of students in Philadelphia who developed the original Earth Week also wanted to involve the general public. I was hired as Earth Week 1970's project director, partly because of my city planning master's thesis, in which I had argued that no meaningful national policy shift could be achieved without motivating ordinary people through messages embedded in riveting events that the mass media could amplify. In other words, if you want to change the world, it's not enough to be *earnest*, you have to be *interesting*.

The literature on communications and behavior provided an additional insight: Even if you succeed in getting people to listen to your message and begin changing attitudes, actual changes in behavior usually don't occur unless the message is accompanied by reinforcing action. In other words, if your goal is to change the world, after you reach ordinary people with your message, give them a way to participate.

Thus, to promote Earth Week 1970, we literally developed a marketing strategy that sold environmentalism like Proctor & Gamble sells soap.

Philadelphia's Earth Week program involved every major public and private

institution in the region. At scientific symposia, experts from universities, corporations, and state and local governments met to discuss the most pressing air and water pollution and waste disposal issues of the day. The events attracted Clean Air Act author and then-likely Presidential candidate Senator Edmund Muskie, Senate Minority Leader Hugh Scott, biologists René Dubos, Luna Leopold, and Paul Ehrlich, Nobel laureate George Wald, consumer advocate Ralph Nader, sociologist John McHale, poet Allen Ginsburg, *Dune* author Frank Herbert, nuclear physicist and former Atomic Energy Commission Chairman and critic, Ralph Lapp, urban planners Lewis Mumford and Ian McHarg, and ecologist Kenneth Watt. Also in attendance were several rock bands and other performers, including the entire Broadway cast of *Hair*.

The strategy worked. The Philadelphia Earth Week program became a major subject in the national media. It was featured twice on the *Today* Show, for a full hour live on PBS, and in the *CBS Special Report* that aired at 7 p.m. on April 22. The CBS crew arrived two weeks early, and when host Walter Cronkite opened the program, he was sitting in front of a blow-up of our logo. One-quarter of that one-hour news special was devoted to the Philadelphia program.

The new environmentalism also worked for other organizers in Berkeley, New York, Washington, Boston, Madison, Wisconsin, and thousands of other American cities and towns. On hearing of the Earth Day idea, civic groups, college and high school students, garden clubs, and others began organizing their own spontaneous events, each marked by a local vision about the environment. Earth Day was spontaneously organized and pluralistic, and it was apparently the largest public demonstration in U.S. history, involving an estimated 20 million people.

Earth Week and Earth Day's implications were not missed by national policy-makers. And for a while during the 1970s, it appeared as though the United States was well on its way toward reversing the most troubling environmental trends. A newly created EPA had shown it intended to enforce the new environmental laws, billions of dollars were being spent to reduce municipal and industrial water pollution, and the catalytic converter and unleaded gasoline seemed to be making a dent in urban air pollution. So in 1979, when the prospect of organizing a national 10th-anniversary Earth Day was suggested to me, I said I didn't think the need existed the way it did in 1970. Laws had been passed, state, local, and federal environmental agencies were hard at work on the problems, and hundreds of new environmental organizations had been formed. Finally, I said I just wasn't interested in putting together what would amount to a birthday party for Earth Day.

We need to move environmentalism an order of magnitude beyond where it has ever been.

By the summer of 1988, things had changed. Every day, headlines seemed to bring news of a new environmental catastrophe: Holes in the earth's protective ozone layer were confirmed by scientists; experts spoke of global warming from the Greenhouse Effect; and there was the news of medical waste washing up on east-coast beaches. Other evidence of ocean pollution damage continued to mount, including the widely reported incident of dead seals washing up on North Sea beaches. Each day brought fresh news of species extinction, deforestation, toxic-waste contamination of food and water supplies, and other insults to the environment. It was becoming clear that despite a 20-year effort to improve it, the global environment was deteriorating at an accelerating pace.

So the summer of '88 was a kind of last straw for a lot of people, including me. As a result, when I was asked to organize an international 20th Earth Day program, I agreed. Something had gone terribly wrong since the first Earth Day, and it had happened in spite of all the new legislation, and the creation of the federal, state, and local regulatory agencies and international bodies. It had occurred in spite of the proliferation of environmental organizations in the United States and the Green parties in Europe.

To develop a meaningful program for the 20th Earth Day, we felt we needed to look both at the way governments were dealing with environmental problems *and* at how the environmental movement itself was addressing the issues.

As Barry Commoner pointed out in his recent article in *EPA Journal*, the *pollution-control* approach that governments have been using hasn't worked. We have failed to improve the environment in a really significant way with the black boxes we have attached to wastestreams that still end up depositing pollutants from our oceans, rivers, air, and land. Only *pollution prevention* seems to have worked. Only when we have removed pollutants in the production process have we succeeded in dramatically improving the environment: The cessation of atmospheric testing of nuclear warheads reduced traces of strontium 90 in human tissue by over 90 percent; taking the lead out of gasoline has had similar dramatic success. Dr. Commoner put it humorously—but perfectly—during the address he gave at the recent Chapel Hill SEAC conference: "*The first rule about pollution is this: if you don't let the pollutant into the environment, it isn't there.*"

Getting governments to acknowledge the importance of pollution prevention is a major goal of Earth Day 20 and Earth Week 1990. On April 18, 1989, just before last year's Earth Day, the Earth Day 20 Foundation delivered letters to President Bush, USSR Premier Gorbachev, China Premier Li Peng, and UN Secretary General De Cuellar. The letter, signed by Gaylord Nelson, Barry Commoner, Elliot Richardson, John O'Connor (National Toxics Campaign), Gene Karpinski (U.S. Public Interest Research Group), Peter Bahouth (Greenpeace), Cordelia Biddle, and me,

called on the leaders of the superpowers to convene an environmental summit under the auspices of the UN and immediately begin the process of implementing a five-point pollution-prevention program:

- A total ban on the production and use of chlorofluorocarbons and other chemicals that destroy the ozone layer and the establishment of a program to use safe alternatives.
- Introduction of energy-conserving power systems, such as cogenerators, fuel-efficient vehicles, and others as well as the use of solar-energy sources in order to reduce carbon dioxide emissions—the chief cause of global warming.
- Progressive reduction in the excessive use of pesticides, which are responsible for serious health hazards, by introducing integrated, biology-based pest management systems and other non-chemical techniques.
- Steps to eliminate toxic chlorinated chemicals—which are responsible for serious environmental hazards (for example, a phaseout of the use of chlorine in paper production).
- A global ban on production processes that threaten the extinction of species.

To address these environmental issues effectively, national and bilateral strategies will not be enough. Nothing will work short of unprecedented multilateral treaties and accords in which the rich nations of the Northern Hemisphere and the poor nations of the Southern Hemisphere agree to prevent environmental degradation and reverse the deterioration that has already occurred.

Something else has gone wrong over the last 20 years. In spite of the achievements and numbers of the environmental movement (some estimates are that 10 million Americans belong to some kind of environmental group), environmental organizations—without meaning to do so—have become primarily a group of elites; ordinary people tend to remain on the sidelines. "Environmentalism," as John O'Connor of the National Toxics Campaign likes to put it, "needs to become the issue of the hamburger and Budweiser crowd, not just the issue of the Brie and Chablis crowd." We need to move environmentalism an order of magnitude beyond where it has ever been.

In some ways, we are already as advanced in our planning as we were a few weeks before the first Earth Day, and there are still a couple of months to go.

As we began planning our 1990 program, the basic strategy we used during the first Earth Week seemed to make sense as much as ever. In other words, first create Earth Week 1990 events so riveting that the newsstands and airwaves become saturated with the message of pollution prevention and multilateral cooperation to reverse the environmental deterioration of the planet. Second, provide opportunities for ordinary people not merely to hear the messages and witness the events electronically, but also to participate directly in their communities.

This mass media/grassroots dual approach is the essence of the Earth Day 20/Earth Week 1990 program:

- An Earth Week Expo at the Columbia River Gorge will provide a full week of visually exciting exhibits, addresses by major political and environmental leaders, and appearances by scores of international celebrities, musicians, and performers. Many communities will hold their own local expos and use satellite dishes at local shopping centers or theaters to receive daily broadcasts of the addresses and performances from the Columbia Gorge site.

The national media are also expected to broadcast news of the Mount Everest Earth Day 20 International Peace Climb, in which American, Soviet, and Chinese climbers will rope together and attempt to reach the summit of Everest on Earth Day as a metaphor of international cooperation to ensure survival. These events in combination with the thousands of local Earth Day observations will attract millions of viewers and participants.

- Grassroots community organizations, led by National Toxics Campaign chapters in 1,000 communities will join with college, high school, and elementary school students and their faculties and get involved in community-focused programs and events that will reinforce the messages broadcast on the national media. The centerpiece of the local programs will be the "Good Neighbor" agreement program, in which private and public entities will be encouraged to sign agreements to reduce toxic-waste production. In addition, local newspaper-sponsored high-school essay contests as well as elementary school poster and letter-writing contests will be held; Girl Scout, and Boy and Cub Scout Earth Day merit badges will be awarded.

In some ways, we are already as advanced in our planning as we were a few weeks before the first Earth Day, and there are still a couple of months to go. The national media—the major magazines as well as the TV and radio networks—have already devoted an unprecedented amount of coverage to environmental issues; political leaders here and abroad are vying with each other for the "Who's the greenest public figure?" award; our mailbox bulges and the phones ring off the hook every time there is a new article about Earth Week or Earth Day.

It would be nice to think that this attention is somehow the result of the work of the various national Earth Day organizations, including ours, but I think it is not. Instead, it is obvious that this is finally an idea—this idea of *survival*—whose time has come. □

Editor's note: Readers who wish to obtain more information on Earth Day 20/Earth Week 1990 activities should contact:

Earth Day 20
10020 Main Street
Suite A-1990
Bellevue, Washington 98004
(206) 462-1990.

The Stars Take on the Environmental Crisis

by Roy Popkin

Spurred by growing concerns about global environmental problems, the entertainment industry is in the midst of a massive consciousness-raising effort on a variety of environmental issues. The environment is not the first social issue to be adopted by show business, but it may well be the catalyst for the most far-reaching public interest campaign yet launched by the industry.

Show business has had a long history of involvement in public affairs, dating back to World Wars I and II, when Hollywood actively promoted home-front activities. More recently, especially since the advent of television, the industry has fought illiteracy and drunk driving and taken on other social causes. TV images have aroused widespread concern for the starving in Africa, called attention to the homeless and hungry here at home, and helped the Red Cross raise $100 million for aid to the victims of Hurricane Hugo and the California earthquake. The entertainment business has a proud record of supporting civil liberties.

Until recently, entertainment industry environmentalism was associated largely with a small group of stars such as Robert Redford, Paul Newman, Joanne Woodward, Meryl Streep, and Judy Collins, the Ted Turner broadcasting interests, and occasional news or educational TV specials. But now Hollywood has gone green in a big way. Says Andy Spahn, president of one of the two major Hollywood organizations focusing on environmental issues: "We're in it for as long as it takes. They tell us we may have as little as 10 to 12 years to correct or reverse some of the most serious threats. You might say that length of time is our minimum commitment."

One indication of this commitment is a two-hour ABC-TV Earth Day special to be aired on the evening of April 22, starring Barbra Streisand, Kevin Costner, Bette Midler, Robin Williams, Michael Keaton, and others. Still other performers may be expected to appear at various Earth Day functions around the country.

Two Hollywood groups, the Environmental Media Association and the Earth Communications Office, are spearheading the entertainment industry's approach to creating national and international environmental awareness.

In general, their goal is to create a steady stream of environmental messages written into plot lines of regular programs and motion pictures, entertainment specials, and other outlets such as special events and new music and songs. These messages are intended to complement ongoing public service announcements, occasional news specials, and science programs on cable or public television. Stars and other industry leaders are also being asked to take the kinds of environmental leadership roles that Redford and Streep have assumed in recent years.

The communications industry is in a unique position in its ability to reach millions of people around the world . . . .

The EPA Office of Communications and Public Affairs has staff assigned to act as liaison to producers and writers working on scripts or treatments who need quick information about environmental problems related to the plot lines they are developing.

The burgeoning interest in environmental concerns is already reflected on the air and in current production plans. For example, a recent episode of "Murphy Brown" was devoted to recycling. From September to December of last year, CBS ran one-minute "Earthquest" reports during prime time. "Thirtysomething" is planning to deal with environmental problems on several programs. Several episodes of the ABC series "Head of the Class" will have environmental messages. There will be environmental themes on "ALF," "Baywatch," "LA Law," "My Two Dads," and other shows.

Turner Broadcasting System, long heavily into environmental programming—owner Ted Turner in 1985 co-founded the Better World Society to produce documentaries and air a weekly documentary, "Earthbeat"—is working on an animated cartoon series named "Captain Planet." Puppeteer Jim Henson is working on a children's series about nature entitled "W.I.L.D.," and the Children's Television Workshop, already doing special educational material on natural disasters, is also working on environmental programming. Olivia Newton-John is doing a special called "A Very Green Environment." Musical stars like Streisand, Quincy Jones, Belinda Carlisle, and Newton-John are having environmental messages printed on their records, tapes, and compact discs.

The Environmental Media Association—described by the *New York Times* as the brainchild of Norman Lear and his wife, Lyn—was formed in June 1989 by a group of industry leaders to complement the work of environmental groups by encouraging the creative community to incorporate environmental themes into its projects. Its Board of Directors includes top executives of major studios and other parts of the industry. According to its President, Andy Spahn, the organization "hopes to generate a climate of concern about our environment and give creative expression to the vision of a healthy future for the planet."

The aim of the Environmental Media Association, says Spahn, "is to do for the environment what the Entertainment Industries Council did for seatbelts and what the Harvard Alcohol Project is doing for designated drivers. Roseanne arguing with her family about the importance of recycling or the characters on 'thirtysomething' discussing cloth versus disposable diapers can have a tremendous impact. Hearing their favorite characters discuss environmental issues and watching their favorite shows grapple with environmental themes can encourage individuals to think about changing their lifestyles and becoming actively involved in environmental issues."

The association plays a coordination role—networking and outreach—by contacting hundreds of writers, producers, and others who may be interested in anything from endangered

(Popkin is a writer/editor in EPA's Office of Communications and Public Affairs.)

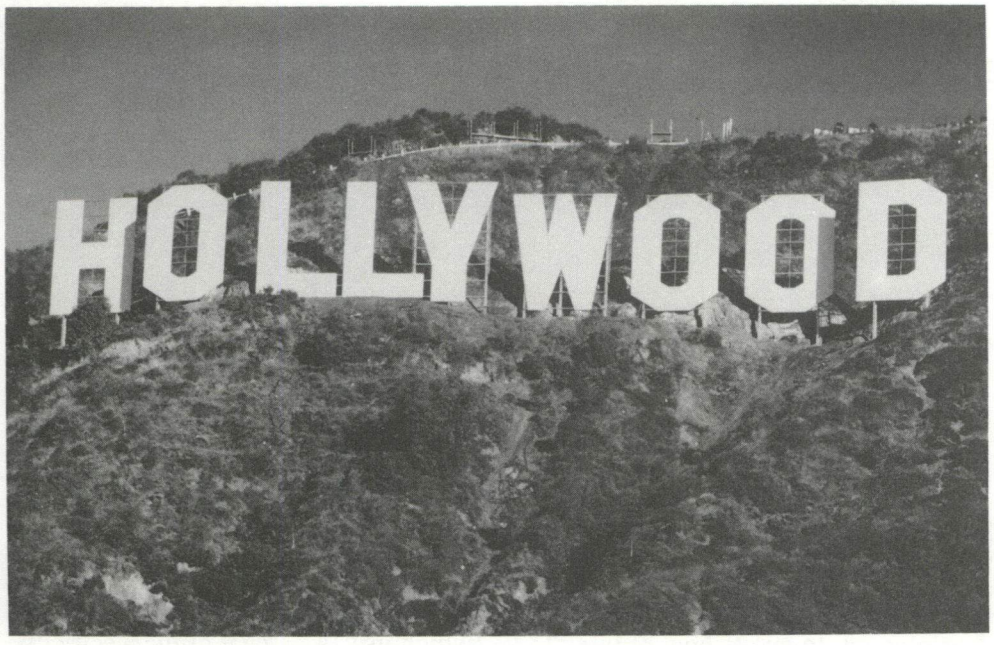


Photo courtesy of the Los Angeles Convention and Visitors Bureau

Hollywood and the rest of the entertainment world are taking a stance on behalf of the environment.

species to air, water, and land pollution. For instance, environmental experts have been brought to meet creative staffs at major motion picture and TV studios to give writers a sense of the environmental crisis and to help generate ideas for environmentally conscious characters or dialogue that could be written into plot lines.

The Environmental Media Association has also sponsored a variety of forums and other events where participants have included EPA Administrator William K. Reilly, U.S. Senators Al Gore, Tim Wirth, and Alan Cranston, Dr. Michael Oppenheimer, expert on global warming and senior scientist with the Environmental Defense Fund, Dr. Amory Lovins, co-founder of the Rocky Mountain Institute, Dr. Noel Brown of the United Nations Environment Programme, leaders of the 10 leading national environmental organizations, and the international representatives of the World Commission on Environment and Development.

This coming spring, the association will co-sponsor a day-long symposium on the environment with the Academy of Television Arts and Sciences. The group is also creating an environmental resource library for the creative community and will give annual Environmental Media Awards honoring exemplary television and film productions that deal responsibly and effectively with environmental themes.

Recognizing that preservation of the environment is a global problem, both the Environmental Media Association and the Earth Communications Office are encouraging the film and television industries in other countries to emulate their efforts. The International Council of the National Academy of Television Arts and Sciences has formed a new committee to serve as liaison with the Environmental Media Association. The Earth Communications Office is starting offices in Australia, West Germany, Brazil, and the USSR, hoping to organize media people in industrial countries around the world.

The Earth Communications Office was founded by Bonnie Reiss, who gave up her entertainment law practice to form the organization after attending a three-day global warming conference. The conference, she says, "transformed my perception of the world in which we live. I learned that we have an estimated 10 years to change our present course toward the irreversible destruction of our environment and its ability to support life. This shocking information led me to give up my entertainment law practice to form the Earth Communications Office, a non-profit organization dedicated to getting out environmental messages through the mass media.

"It is evident that the crisis at hand demands world attention, and action [must be] be galvanized. Scientific studies and political action are obviously necessary to the environmental movement, but education on a grand scale is just as crucial. Whatever the issue—global warming, deforestation around the world, poisoning of our water, acid rain, waste disposal, off-shore drilling, overpopulation—people must learn that they can make a significant difference as individuals," says Reiss.

This is where Hollywood comes in, Reiss and Spahn believe. The communications industry is in a unique position in its ability to reach millions of people around the world with environmental messages conveyed through TV, film, and radio, they point out.

The Earth Communications Office is an industry-wide grassroots, non-partisan organization. Its core is a Board of Directors made up of about 100 creative and concerned leaders from film, music, radio, art, literature, TV, and advertising. Says Reiss, "They are people of conviction who understand that our planet is critically threatened and that our industry can effectively educate people and get them to reexamine their values."

The organization's advisory board represents a broad spectrum of environmental leadership from the United Nations, major environmental organizations, and national, state, and local governments; the board is chaired by Dr. Thomas Lovejoy, Assistant Secretary for External Affairs at the Smithsonian Institution. The Earth Communications Office's hundreds of members channel their efforts through committees dealing with research and education, children's outreach, music and radio, literary and fine arts, events and fundraising, film and television, a newsletter, and industry action. The group has offices not only in Hollywood but in New York and Nashville.

"At the core of our philosophy," says Bonnie Reiss, "is the understanding that we in the communications industry must examine and change our own lifestyles before we have any real credibility in asking others to do the same. The Earth Communications Office is focusing initially on recycling and energy conservation, in which quantifiable progress can be measured. We are proud that in just 10 months all those involved in the Earth Communications Office are recycling, reducing energy consumption, and buying environmentally sound products. We hope the industry can get millions more Americans doing the same, thus benefitting the environment and creating a nationwide atmosphere of environmental concern and awareness."

Both organizations report a tremendous industry response. Spahn notes that when environmentalists see their favorite film and television characters involved in carpooling, recycling, reducing their use of chlorofluorocarbons and reliance on fossil fuels, and, in some instances, warring against polluters, they will know that the entertainment industry is right there with them. □

The Changing Agenda:

Re-Inventing the Refrigerator

by John S. Hoffman and Robert Kwartin

A home in Anytown, USA. The refrigerator is an unremarkable appliance in an American household: quiet, reliable, camouflaged in its exterior of white or burnt-almond. Virtually every household in the United States has one. Once it's plugged in, its owner barely spares the machine a thought. Who thinks about the careful engineering that makes the modern refrigerator so easy to take for granted?

Now change the scene to a small town in Guangdong Province in southeastern China. Here the arrival of a refrigerator is an event worthy of celebration. It means fewer trips to the market and less spoilage of the leftovers from a major holiday feast. And it symbolizes the wealth and status of a family that has made its way in the new economy of China. China produced 32,000 refrigerators in 1979; in 1987 it produced over 4 million, and production continues to grow. There are still several *hundred million* households in China that don't have a refrigerator. Yet.

But neither complacency nor celebration will greet the arrival of a refrigerator in the 1990s, in China or the United States. In the past few years the box in the kitchen corner has been implicated in two potential environmental catastrophes: stratospheric ozone depletion and global climate change.

The refrigerator will have to be re-invented within five years. The new refrigerator will have to maintain the quality that American consumers have come to expect, at the low price that Chinese consumers can afford.

(Hoffman is the Director of EPA's Global Change Division, and Kwartin is an Environmental Protection Specialist in the division.)

To meet these challenges, EPA has formed a partnership with the U.S. refrigerator industry and other federal agencies to massively increase investment in refrigerator research and development. In an offshoot of this program, EPA is working with the Chinese refrigerator industry to involve the Chinese in the research program so that they will be able to successfully adopt the progressive technology of the 1990s.

CFCs and the Refrigerator Industry

Before the 1930s, household refrigeration was either cumbersome (during ice deliveries), somewhat dangerous (where potentially hazardous refrigerants such as sulfur dioxide (SO_2) or methyl chloride were used), or non-existent. The invention of chlorofluorocarbons (CFCs) was the technical breakthrough that helped make household refrigeration possible on a wide scale.

CFCs are a group of non-toxic and non-flammable chemicals, one of which, CFC-12, has thermodynamic properties that closely match the requirements of household refrigerators. Another CFC, CFC-11, is an excellent agent for producing insulating foam for the refrigerator's shell; CFC-11 foam is a much better insulator than the fiberglass and mineral wool insulation previously used. With better insulation, less heat invades the refrigerator, yielding better energy efficiency.

The Refrigerator Takes Two Turns for the Worse

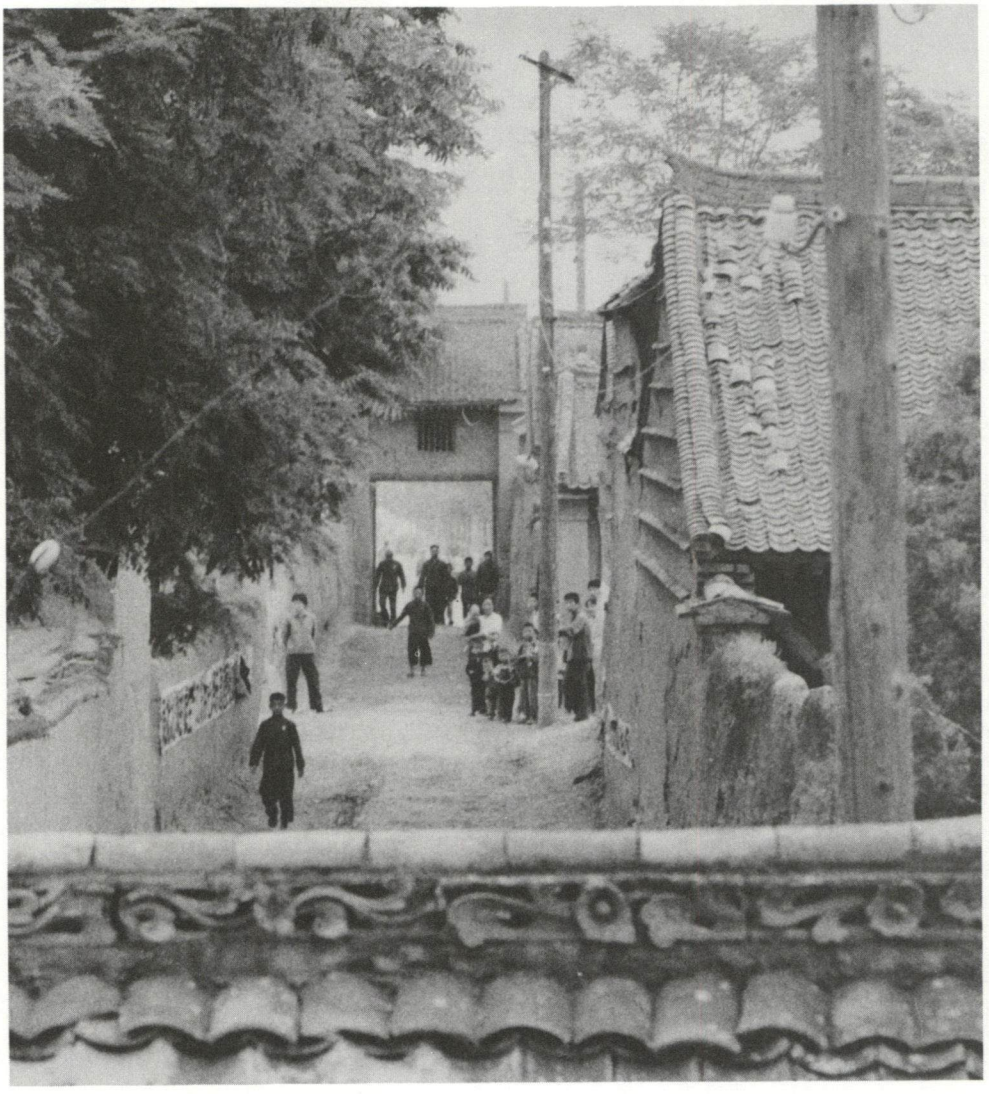
As refrigerators changed from a household luxury to an everyday appliance, their use boomed. And as the technology matured, reliability and convenience increased with no appreciable increase in price. But new concerns forced refrigerator manufacturers, governments, and consumers to take a new look at the refrigerator.

The first jolt came in the 1970s, when energy prices soared in response to the Arab oil embargo. To help the nation use energy wisely, the federal government mandated that refrigerators (which use 19 percent of the electricity consumed in the average household) carry labels to inform potential buyers about energy consumption and operating costs. Consumers were eager to avoid high electricity bills, and manufacturers responded by improving energy efficiency by 44 percent between 1972 and 1987.

Energy prices declined in the early 1980s, but new concerns kept public attention focused on the refrigerator. In 1974, two scientists—F. Sherwood Rowland and Mario Molina—proposed that CFCs were destroying an important constituent of the Earth's atmosphere, stratospheric ozone, which screens out certain kinds of harmful ultraviolet (UV) radiation from the sun. Enough UV radiation passes through even a normal ozone layer to induce millions of cases of skin cancers and cataracts. If the amount of ozone in the stratosphere were appreciably reduced, they proposed, dire consequences might follow: millions of additional skin cancers and cataracts, damage to crops and ecosystems, and possibly suppression of the human immune system.

Rowland and Molina's predictions eventually proved accurate. By 1987, CFCs had reduced the ozone over the Northern Hemisphere by 2 to 4 percent and torn a gaping hole in the ozone layer over Antarctica.

However, before this depletion was revealed through monitoring data, the United States, under the leadership of former EPA Administrator Lee Thomas, had proposed a phaseout of CFCs. Thus, as evidence of ozone depletion and its



Chinese villagers, like the rest of us, want modern refrigerators. The challenge is to develop a product that will satisfy demands without damaging the environment.

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expected consequences accumulated, it was possible to replace words with strong action. In September 1987, a landmark treaty was signed in Montreal (the Montreal Protocol) that bound its members to reduce their production and consumption of CFCs by 50 percent by 1998. The United States and every other industrial country joined the Protocol, which is being renegotiated to mandate a complete phaseout of CFCs by 2000.

A second global environmental threat—climate change—poses an even greater challenge for household refrigeration. A variety of gases in the atmosphere—such as carbon dioxide (CO_2) and water vapor—are transparent to the visible light energy that reaches the atmosphere from the Sun but are partly opaque to the infrared energy reradiated by the Earth. This phenomenon traps heat in the atmosphere (like the glass in a greenhouse), causing the Earth's surface to warm.

Greenhouse gas emissions have been increasing since the Industrial Revolution and threaten to substantially warm the planet to potentially dangerous levels. Two greenhouse gases are closely connected to refrigerator use: CO_2 (which powerplants release when fossil fuels are burned to generate electricity), and, yet again, CFCs. Pound for pound, CFCs are thousands of times as potent as CO_2 in causing greenhouse warming.

Although energy prices are low at the moment, we must focus public attention *now* on the energy efficiency of refrigerators. If future refrigerators use electricity more efficiently, then future powerplants will have to burn less fuel and will release smaller volumes of greenhouse gases. But it will take five to eight years to reinvent a refrigerator that uses much less energy than existing models. Fortunately, the process has begun.

By 1988, several states and the federal government had set minimum energy-efficiency standards for refrigerators (and for several other categories of household appliances). These standards will be revised before 1998. With increasing concerns about the greenhouse effect, energy-efficiency goals will inevitably become more and more stringent. *Now* is the time to start research and development of super-efficient refrigerators. Furthermore, given the enormous growth expected in the refrigerator markets of developing countries such as China, it is critical that new technologies be transferred to them as expeditiously as possible.

The Research Challenge

Refrigerator manufacturers now face two formidable challenges: They will have to completely eliminate the use of CFCs by the year 2000, and they must upgrade the energy efficiency of their products. Research and retooling time is short. Because CFC-based technologies are so well-established, basic refrigerator research and development have been thin in the United States over the past decade. Marketing has been dominated either by the sales-floor price or by attractive new features, not by energy efficiency or new refrigerator cycles. Consumers have come to expect an appliance that they could ignore for its 15-year lifetime.

EPA recognized the industry's need and also saw an opportunity to prevent vast quantities of pollution: This once-in-a-generation re-invention of a ubiquitous technology could reduce the Greenhouse Effect expected over the next 100 years by almost 2 percent. (By comparison, increasing the fuel efficiency of new cars in the United States from 27 to 40 miles per gallon by the year 2000 *and* increasing the fuel efficiency of cars worldwide to 50 miles per gallon by 2050 would reduce Greenhouse warming by about 7 percent over the next century.)

Some manufacturers wanted to use an

alternative to CFC-12 known as HFC-134a, which would have led to a *loss* in energy efficiency. EPA and other manufacturers saw things differently; together we recognized that a more deliberate investigation of many alternative chemicals and system designs could produce a refrigerator with far superior energy efficiency.

Consensus on the best replacement chemicals has not yet been forged, but a framework for research and cooperation is in place. Recently, the Association of Home Appliance Manufacturers, EPA, and the Department of Energy organized an industry-wide research consortium to undertake joint research on alternative refrigerants and foaming agents. By coordinating research among refrigerator companies and government agencies, the consortium eliminates wasteful duplication of effort and ensures that research results are disseminated rapidly.

The combined resources of the consortium allow exploration of ideas which no single manufacturer would have considered pursuing alone. For example, the use of HFC-152a, a refrigerant, has been limited due to concerns about its slight flammability. Recent tests demonstrate that HFC-152a would improve refrigerator energy efficiency by up to 10 percent, which would make it an attractive near-term option in the transition away from CFC-12. Since the amount of refrigerant used in refrigerators is very small (only 4 to 8 ounces), it is possible that the flammability of HFC-152a can be safely managed.

The consortium has organized manufacturers, Underwriters Laboratory, EPA, U.S. government safety agencies, and consumer groups to investigate the feasibility of using HFC-152a in household refrigerators. If HFC-152a turns out to be a viable refrigerant, the investment of consortium resources could have outstanding rewards. If 100 million U.S. refrigerators cut their electricity use by 10 percent, 10 billion kilowatt-hours would be saved every year. This would put $700 million back into consumers' pocketbooks and prevent the emission of 8 million tons of CO_2 and 60,000 tons of SO_2.

EPA and the Department of Energy have also invested millions of dollars in longer-term fundamental research on refrigerants and refrigerating systems. These investments are pushing the limits of refrigeration science: Old ideas long-buried have been dusted off and new ideas given a chance in the laboratory. Among the ideas being tested:

- *"Non-azeotropic" refrigerant mixtures*: Today's refrigerators all use a single refrigerant, CFC-12, which boils at exactly -30 degrees Celsius. (The boiling point of water, by comparison, is 100 °C.)

Most early discussions of replacing CFC-12 focused on finding a single "drop-in" replacement. However, certain *mixtures* (termed non-azeotropic mixtures) of non-CFC refrigerants boil over a range of temperatures. This property provides a number of thermodynamic advantages in designing a refrigeration system.

- *The Lorenz cycle*: The modern refrigerator/freezer has its evaporator in the freezer where a fan blows air over it. (See illustration.) This cools the air below the freezing point of water, which removes moisture from the airstream. The cold, dry air circulates through the freezer and then into the refrigerator, where it is likely to desiccate the vegetables.

A better system would use a non-azeotropic refrigerant mixture and have two evaporators (one in the

How Refrigerators Work

Simply put, refrigerators soak up heat from the inside of the box and squeeze it out into the kitchen. (See illustration.) Starting at the compressor, gaseous refrigerant at low pressure is compressed to a high pressure and passed into a heat exchanger outside the refrigerator (the condenser). The condenser transfers heat from the refrigerant to the kitchen, and the refrigerant changes from a hot high-pressure gas to a cooler high-pressure liquid.

The high-pressure liquid refrigerant then passes through a tube into the refrigerator and into another heat exchanger (the evaporator). The refrigerant is allowed to expand during this leg of the cycle, so that it absorbs heat from the interior of the box and boils into a low-pressure gas. (It may seem odd that a boiling fluid would be cold, but think of how rubbing alcohol feels as it evaporates from your skin, and you get the idea.) The gaseous refrigerant then passes through the compressor, where the cycle begins anew.

A refrigerator doesn't run continuously, only long enough to remove the heat that entered the box through the walls and during door openings. The refrigerator's walls are insulated to slow the passage of heat; better insulation means that the compressor runs less frequently and for shorter periods of time, reducing electricity consumption.

Different refrigerants have very different thermodynamic properties. The freezer should be kept around 5° Fahrenheit, so ideally, the refrigerant in the evaporator should boil at a temperature somewhat lower than that to ensure that heat will flow from the (relatively) warm interior of the freezer to the cold refrigerant.

However, only a few chemicals boil within the proper temperature range. Additionally, some chemicals absorb large amounts of heat per unit volume as they pass through an evaporator, while others absorb only a little (this is the measure of a refrigerant's *capacity*). A compressor has to pump a large volume of low-capacity refrigerant through an evaporator to achieve the same cooling effect as pumping a smaller volume of high-capacity refrigerant. Balancing efficiency and capacity makes the job of selecting refrigerants more difficult. There are also a number of safety considerations: even though the refrigerant is confined to a sealed system, in ideal circumstances it would be non-toxic, non-flammable, and non-corrosive. In reality, non-flammability may not be a crucial attribute; many of us use gas stoves and aerosol cans that contain much larger volumes of flammable materials that are *not* confined.

refrigerator, one in the freezer). Each compartment would be designed to chill to the correct temperature. This design, named after the German scientist who proposed it in 1975, could reduce electricity consumption by 20 to 23 percent and provide a "vegetable-friendly" refrigerator section.

- *Superinsulation*: The foaming agents that have been proposed as replacements for CFC-11 are likely to produce a foam with slightly poorer insulation properties, which will either degrade energy efficiency or require thicker refrigerator walls as compensation. A totally different approach, however, may work better: vacuum insulation.

Vacuum insulation has insulating properties far superior to foam (even CFC-11 foam), but manufacturers have not yet perfected a technique for making vacuum panels that will last for 30 years. One European manufacturer has been producing a commercially available vacuum insulation that, if adapted to refrigerators, could reduce electricity consumption by as much as 30 to 40 percent.

- *Advanced design concepts*: There are many other possible design technologies under investigation at EPA-supported facilities: machines with totally independent refrigerator and freezer loops; two-loop refrigerators with two compressors and one compressor motor; and others.

Theoretical predictions and computer simulations indicate that the next generation of refrigerators could use less than half the energy that the most energy-efficient model sold today uses. EPA's and industry's research programs have identified a number of tantalizing possibilities, but years of research, product testing, and product development are still required to determine which ideas are practical, and to retool production lines for the new products.

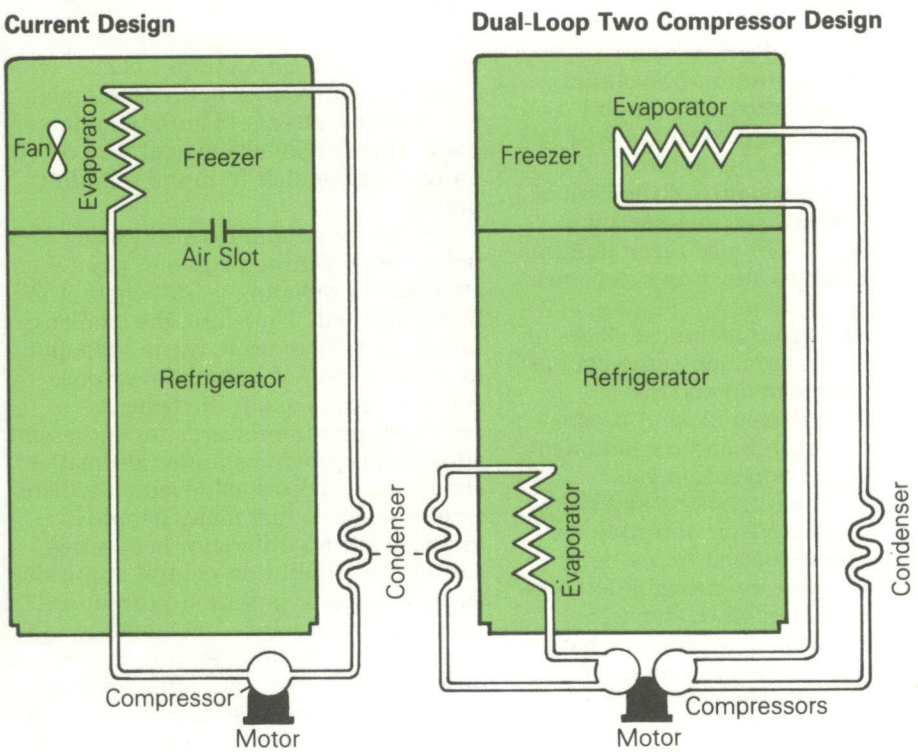
What Will China Do?

And what about the Chinese? The Chinese have not yet signed the Montreal Protocol, believing themselves too poor to afford major investments in research or alternative technologies. Many Chinese refrigerators are built with older technology. As a result, these refrigerators have low energy efficiency. What will happen if every household in China buys a CFC-filled refrigerator that uses two or three times more coal-generated electricity than it needs to? Fortunately, the Chinese recognize the consequences and want to explore alternatives.

EPA has opened negotiations with several Chinese institutions to explore the possibility of integrating the Chinese refrigerator industry into the U.S. research effort. In 1988, contacts were established with the Beijing Household Appliance Institute (a quasi-governmental body that conducts appliance research and sets appliance standards), refrigerator factories, and the government ministries responsible for refrigerators and CFC production. And in October 1989, a U.S. mission to China began hammering out the terms of cooperative projects, training missions, and sharing of research results.

It appears likely that the Chinese will contribute greatly to the process of inventing a better refrigerator; already, Wanbao Company is testing refrigerators with HFC-152a. And the Beijing Household Appliance Institute has indicated a desire to take the lead in investigating options like the Lorenz cycle. Since Chinese refrigerators usually have the two evaporators characteristic of the Lorenz cycle (but not some other design requirements), they may be easy to adapt.

Refrigerator Design Options



Conclusion

Stratospheric ozone depletion and the greenhouse effect are dangerous environmental problems, but solving them does not have to bleed U.S. industry and consumers of billions of dollars. In fact, through judicious use of government and private research funds, it is likely that the consumer will be able to buy a refrigerator (perhaps as early as 1995) that is ozone-safe, extraordinarily efficient, and does not dry out vegetables. The nation will benefit from lower electricity bills, and the refrigerator industry will improve its competitive position in the world economy.

And by pursuing a cooperative spirit with China during this difficult transition, the groundwork has been laid for hundreds of millions of Chinese families to participate in a better way of life at a lower cost to themselves and with a much smaller impact on the environment. In Chinese, the character for "crisis" also implies "opportunity." So it does in English too. □

The Changing Agenda:

Preventing Industry Waste

by Joel S. Hirschhorn

Pollution prevention offers industry an enormous opportunity, but its exact costs, benefits, and risks cannot be fully identified or quantified. The general proposition is this: By practicing pollution prevention, industry can obtain improved environmental protection *and* increased industrial efficiency, profitability, and competitiveness. But praising something is not the same as doing it.

Preventing pollution at its source, through changes in manufacturing processes or product design, is an ideal. At issue is not the ideal, but its practicality, the scope of its application, and the pace of its implementation.

There are numerous examples of successful waste-reduction initiatives and a smattering of impressive data, usually on a wastestream or plant basis. But no comprehensive company, industry, or national data demonstrate broad success at cutting industrial-waste generation. Indeed, enormous amounts of wastes, pollutants, and discharges continue to be generated.

It is not a matter of choosing between the traditional end-of-pipe or pollution-control approach and pollution prevention. Preventing pollution is like preventing disease by changing eating habits and lifestyle; pollution control is like using medicine and surgery to minimize ill effects.

Moreover, pollution control has often simply shifted pollution around. Air and water pollution-control equipment extracts harmful substances and generates enormous amounts of solid, hazardous waste for landfills, often resulting in ground-water contamination. Regulatory loopholes, regulatory noncompliance, the difficulty of responding to newly identified environmental problems, threats from very small residual levels of pollution, and continuing global population growth and industrialization: All these provide even more reason to pursue pollution prevention.

(Hirschhorn is a Senior Associate at the Congressional Office of Technology Assessment, where he has examined waste reduction for 10 years; the views expressed here are his and not necessarily those of the Office of Technology Assessment.)

Pollution prevention can help meet public demand for solutions to urgent and terribly complex problems, such as dealing with global warming and safely managing toxic and solid waste. This is why so many environmental activists advocate pollution prevention as a solution in contrast to so much they criticize.

Pollution prevention also makes sense in economic terms. The costs to government and industry of devising, enforcing, and complying with pollution-control regulations have become onerous, both nationally and on a company-by-company basis. Pollution prevention offers more environmental protection per dollar spent instead of less and less—as seems to be the trend now. To paraphrase Ben Franklin, a pound of cure costs a lot more than an ounce of prevention.

But the vision of universally used clean technology and commonplace, environmentally benign, low-waste products is not easily realized. Everyone needs a deeper understanding of the technical means of pollution prevention and the human, organizational, and social obstacles to it. A national commitment to pollution prevention will restyle our industrial economy. Practicing pollution prevention will mean more than changing the technological personality of the United States. Just as much as engineering improvement, it will also mean cultural and social changes affecting everyone's daily living.

Let me define four technical stages of waste reduction: common-sense actions; information-dependent actions; analysis-driven decisions; and progress that requires research and development (R&D). Pollution prevention gets increasingly difficult, costly, and risky as companies move from the simplest kinds of waste reduction to the most difficult. However, my research tells me that with successful R&D, about 75 percent of all current wastes, discharges, and emissions can be eliminated within 10 to 20 years, although this will vary greatly across industries, plants, and specific wastestreams. And stressing pollution prevention can keep industrial and population growth from creating large amounts of new pollution.

Stage One: Using Attention and Common Sense to Get Fast Results

Common-sense waste reduction means that people exploit readily visible, easily implemented, low-cost, and low-risk opportunities. Neither technology nor capital stands in the way. Studies, engineering analyses, and testing are unnecessary. It is possible, with pollution prevention in mind, to walk through industrial operations and spot opportunities for waste reduction that can be implemented in days or weeks. Actions generally involve changing procedures—not core production technology, major equipment, or products.

For example, industry people have described many such cases of waste minimization: reducing wastewater from cleaning operations involving toxic chemicals, covering vessels containing volatile chemicals, improving inventory controls to eliminate outdated chemicals that become hazardous waste, reusing off-specification products, and replacing water or solvent cleaning of equipment with other methods. Dow Chemical saves $20,000 a year because the company replaced a clumsy bucket with a precisely measured bottle to sample the chemical stream of an herbicide plant; this simple change cut way down on waste generated from the sampling process.

The key to common-sense waste reduction is getting people to pay attention to reducing waste where it is first generated. Therefore, the challenge to managers is to bring waste reduction to the attention of literally everyone, educate people about the benefits involved, provide rewards for successful efforts, and provide simple information about the successes achieved elsewhere. One problem is that many people in industry see no difference between an end-of-pipe, pollution-control approach and a front-end, pollution-prevention solution. For instance, incinerating hazardous waste and sending wastes off-site for recycling are often believed to offer the same benefits as true preventive actions. But they do not,

Mike Brisson photo.

A national commitment to pollution prevention will restyle our industrial economy.

because there are always risks when waste is handled and processed.

Corporate and government policy statements on the importance of waste reduction can effectively focus people's attention on waste reduction. Slogans, campaigns, speeches, buttons, and all the other paraphernalia of motivating and selling ideas to people are critical. People who have never considered waste generation their responsibility—which is most people—need to understand that waste is not something that someone else, such as environmental engineers or waste haulers, will take care of. Moving from the end-of-the-pipe mentality to pollution prevention will mean making waste reduction an intrinsic part of everyone's everyday thinking and responsibility, much as preventive health care is an individual responsibility.

Stage Two: Obtaining Information on Wastes and Reduction Techniques

The danger is that people and companies may not move beyond the first stage of waste reduction. To make further progress, it is necessary to have detailed information to assess opportunities that are more subtle and sophisticated. However, as with stage one, in stage two there are no major technological obstacles or major capital investments, and quantum reductions in waste generation are possible. The problem lies in discovering exactly where to use technology and deciding what technology to use.

A full range of information is needed on all wastes (e.g., on their quantity, chemical composition, hazards and liabilities, regulatory status, and the relationship between generation and production levels). Information on waste-reduction techniques from many external sources is also needed, such as information about new raw materials or manufacturing techniques available from vendors. More and more people are discovering that they can replace traditional chemical solvents with water or biological solvents.

Although costs and benefits are self-evident or easily calculated at this second stage, companies must build a framework for implementing waste reduction, including getting and distributing information and measuring progress. Getting detailed information on waste-generation and reduction techniques can cost millions of dollars for large facilities. Large companies typically are better able to handle this second stage than small- and medium-size firms, which may find it difficult to devote people and money to this kind of effort. Even in some large companies, maintaining interest in waste reduction may be hampered because costs of waste management and pollution control may seem relatively low. For example, automobile, aerospace, and electronics companies have intrinsically lower environmental costs than chemical companies.

The role of government becomes more evident at this point. Government agencies can distribute information about successful waste-reduction techniques in many different industries; state agencies can provide on-site technical assistance, which has been shown to be very effective and low-cost. Some government requirements for information on waste generation, as under the Resource Conservation and Recovery Act, help drive companies to obtain detailed information on waste generation. Information required of companies for the Toxic Release Inventory, under Title III of the Superfund Amendments and Reauthorization Act, provides a strong incentive to focus attention on waste

reduction. Many such requirements do not apply to small businesses.

Stage Three: Overcoming Concerns About Investment and Risks Through Analyses

Passing through the first two stages may take from one to five years for individual plants or companies. The next major obstacle to waste reduction is economic uncertainty associated with substantial changes in technology and equipment. For such changes may involve core process technologies and require an interruption in production.

At this stage, greater involvement of senior production people probably is necessary. The environmental impacts of changes made for waste-reduction purposes have to be analyzed. Major capital investment becomes necessary, and risk increases. Investment payback periods become longer, and capital needs compete with more traditional uses for capital. Testing and development needs increase. The imperative to consider changes in products—either to minimize manufacturing waste or to reduce post-consumer waste generation or toxicity—also increases. In other words, waste reduction is no longer simple and self-evidently feasible or profitable.

All of this leads to the need for the kind of formal analyses which are being called waste-reduction audits or assessments. These analyses must capture and identify costs, benefits, uncertainties, risks, schedules, and relationships to other company plans and programs, such as R&D, expansion, diversification, and marketing of new products.

For example, General Electric Medical Systems replaced a paint-stripping operation using methylene chloride with sand-blasting and mechanical sanding. The company had found that methylene chloride material and waste-management costs were $2,525 annually, whereas the sand-blasting replacement would cost only $2,000, offer a 0.8-year payback, and lower the company's liability. There are hundreds of such examples in the literature on waste reduction in virtually every industry.

Without formal analyses, people may incorrectly conclude that they have exhausted their waste-reduction opportunities or that the costs of implementing waste reduction are too high. On the other hand, they may pursue projects which are technically, economically, or environmentally ill-advised. Or they may miss opportunities to reduce non-regulated wastes or relatively small wastestreams which nevertheless pose substantial costs and liabilities.

Experience has shown that an important obstacle to success is the "feeling" of many engineers that they have already optimized their processes and products. Formal analyses can overcome such unintended prejudices against change.

Finally, a continuing problem, even when formal analyses are done, is that many economic benefits of waste-reduction options are not captured because they are difficult to quantify. Examples include reductions in future liabilities associated with any form of hazardous-waste management, spin-off technological innovations and businesses, and improvements in the public image of a company which could reduce public opposition to new company activities.

Small businesses may find this stage particularly difficult because it requires much more time and money than the previous two stages and because it is a continuing activity, at least for the next decade or two. The use of outside consultants becomes increasingly necessary. But even large companies may find this stage so burdensome that interest in waste reduction may wane. At the highest levels of corporate management, there may be less interest in pursuing uncertain, high-cost activities even if they are labeled waste reduction. Seasoned technical professionals and managers may feel that they have reached the limits of improving or fine-tuning processes.

The potential for this stage to become the "wall" that brings an end to a company's or plant's waste-reduction effort means that the role of government becomes more critical here. Government policies, national goals, jawboning, and performance requirements can maintain pressure on companies to maintain their commitment to waste reduction. Special economic incentives such as tax breaks, for example, may be useful to spur capital investment which may seem less attractive than other uses of capital (such as expansion and diversification). Government small business loans for waste reduction could be given special preference. And much more attention needs to be given to offering flexibility in compliance with current regulations, so that companies can channel their capital investment into pollution prevention instead of more pollution-control facilities.

Stage Four: R&D Creates New Technology and Products

Eventually, for both process and product changes, new technical solutions must be sought through R&D. Indeed, from the previous stages, many needs will have been identified. Completely new manufacturing processes and products can be considered, with waste reduction a primary goal. Designing, making, and marketing new consumer products pose the greatest challenge.

The idea of gaining competitive advantage through selling products which appeal because they offer environmental benefits is only now emerging, but it could be the major marketing breakthrough of the 1990s. Products free of toxic chemicals and products that generate little household waste could have the same kind of appeal to consumers as foods that help prevent disease and products which have higher quality. Conversely, more conventional products which contain hazardous substances and generate lots of garbage could be increasingly seen as being as dangerous as cigarettes and as unattractive as defective and short-lived products. U.S. manufacturers need to see international market opportunities for what are being called safe substitutes, toxic-free products, and "green" products.

But large-scale product change will require major R&D programs by manufacturers of consumer products, and eventually these efforts will affect

General Dynamics photo.

Thanks to a new electrical circuit board plating system that recovers virtually all copper from rinse water and process solutions, General Dynamics' Pomona Division no longer sends sludge to landfills. Instead, the byproduct, shown here, is a 30-pound slab of copper to be sold as scrap.

producers of primary chemicals and materials which are used by those manufacturers. For example, Polaroid Corporation spent years developing a battery for its film packs which does not contain toxic metals. In addition to helping reduce Polaroid's own hazardous waste, this is a real environmental benefit for municipal wastestreams.

Other industries have also developed new industrial processes. Union Carbide found a way to use carbon dioxide to replace between 30 and 70 percent of current organic solvents for spraying paints, particularly in large industrial operations; it took four years of research and millions of dollars for Union Carbide to develop the innovative process.

Clearly, many small, medium, and large companies will face problems in committing resources to R&D. Some industries already have problems with low levels of R&D, and others aim R&D at other objectives that have little to do with concerns about waste or pollution generation. Government could play a major role at this stage by funding R&D programs that could benefit large segments of industry, by providing assistance through tax breaks for company R&D, and by working with industries to establish R&D priorities to benefit all companies within them.

And of course government has sometimes applied the greatest pressure of all by banning chemicals or products. This is a potent tool to spur research and one which may be used with more frequency. The rapid apparent success in finding substitutes for CFCs is impressive. To spur development of new consumer products, the government could help develop special labeling to identify environmentally beneficial products for consumers. This is happening already in Canada and Europe.

Charting the Future

Maximizing pollution prevention is comparable to a national commitment to landing on the moon or limiting the spread of AIDS and finding a cure for it. Serious commitments of human and financial resources over the long term, accurate measurement of progress, and development of government policies and programs to assist and guide private-sector activities are necessary.

And as with other major national efforts, pollution prevention requires understanding and willingness to change on the part of many individuals. For example, engineering education could change so that every engineering effort automatically includes pollution prevention as a criterion for success.

Pollution prevention does not threaten our quality of life or standard of living, but it does ultimately require changes in the style of American industry and consumerism. Nations such as Japan and Switzerland, which generate much less waste than the United States, demonstrate that a high standard of living *is* possible without producing so much waste. For years, the American public has expressed idealistic positions in polls, such as a willingness to pay more for more effective environmental protection. Clean and low-waste manufacturing technologies and products require consumer actions in the marketplace.

Similarly, American corporate leaders have said that they have a commitment to environmental quality. The degree to which they embrace and implement pollution prevention and give consumers real alternatives will test that commitment.

This is just the beginning of a social experiment in pollution prevention. Public policy and government programs on pollution prevention have barely begun. If the technological personality of American industry changes for the better and American consumers translate their beliefs into actions, then the per-capita generation of hazardous and municipal waste in the United States will decrease demonstrably, and the waste that is generated will be easier to manage.

This is definitely a case where the United States should give up its number-one position—as the planet's leading generator of waste. We will have collected more than enough data to know in five years whether we are making progress and certainly to know in 20 years whether we—industry, government, and consumers—have made a serious commitment to pollution prevention. Success will depend more on genuine leadership than on technology. Leadership is needed now, especially to overcome inevitable anxiety and resistance to change as people correctly sense that there will be winners and losers as industrial processes and products change to prevent pollution.

Finally, if U.S. industry does not respond quickly, then foreign industries may begin selling clean technologies and products here, adding another dimension to the competitive threat. □

Thinking About Our Environmental Future

by Anne and Paul Ehrlich

It seems fortuitous that the far-reaching changes taking place now in the international arena coincide with the 20th anniversary of Earth Day . . . .

The 20th anniversary of Earth Day finds us facing a daunting array of environmental problems of global dimensions—problems linked more clearly than ever to unchecked human growth. The problems of 1990 are not only larger in scope and scale than those we confronted in 1970, but much more complex and entangled with our way of life. Moreover, the time and resources available to deal with them are much scarcer.

The responsibility of people in rich nations to help developing nations grapple with these problems is inescapable. Why? The answer is partly because we have the lion's share of resources and partly because much of the trouble can be laid at our doorstep.

This is not to say that people in rich countries have purposely brought on planetary degradation. Rather, we have failed to perceive the consequences of our actions and ignored warnings by those who did. But our purpose here is not to assign blame, but rather to shed light on causes and reveal ways to reduce or prevent impacts.

The environmental damage a society causes can be summed up in a simple equation: *Impact* (I) equals the number of *people* (P) times per-capita *affluence*, or consumption of resources (A), times the *technology* (T) used to create each unit of affluence. In short, I = PAT. This is an oversimplification, of course. Nevertheless, it is a useful approximation.

A rough measure of the environmental impact of each individual (A x T) in a society is average per-capita commercial energy use. Energy is closely connected to numerous environmental problems, from air and water pollution to acid precipitation and global warming.

While the affluence or consumption (A) factor is a major component of environmental impacts associated with energy, the technology (T) factor is also important. All energy technologies have environmental impacts, but these impacts differ widely in kind and degree. Just consider, for instance, the differing environmental risks of mining, transporting, and using coal, oil and natural gas, as compared with those associated with hydroelectric facilities, passive or active solar technologies, or nuclear power.

People in industrial nations comprise about 20 percent of the global population but account for about 80 percent of the world's commercial energy use today. By this measure, the average American has some 33 times the impact on the environment as the average Indian and more than 200 times that of a Tanzanian.

Moreover, the environmental consequences of rich nations' activities are global in scope. We obtain resources from around the world and emit huge amounts of industrial pollutants to the atmosphere and oceans. Human activities in poor countries usually cause only local environmental degradation—horrendous though that may be for the people affected. In short, developed nations tend to create global environmental problems, whereas the burgeoning populations in poor countries mostly impoverish their own resource bases and themselves.

Sometimes a technical (T) factor is the principal source of a problem, as in the depletion of the stratospheric ozone layer and significant contributions to global warming caused by the production and release of chlorofluorocarbons (CFCs). In such cases, focusing on that technological factor may be the most effective strategy. Indeed, the decision made by the United States to stop using CFCs in aerosol cans in 1977 may have delayed global warming effects by as much as 20 years, according to atmospheric scientists.

Opportunities to solve environmental problems through straightforward technological changes are rare, however. Much more common and difficult to resolve are dilemmas arising from all

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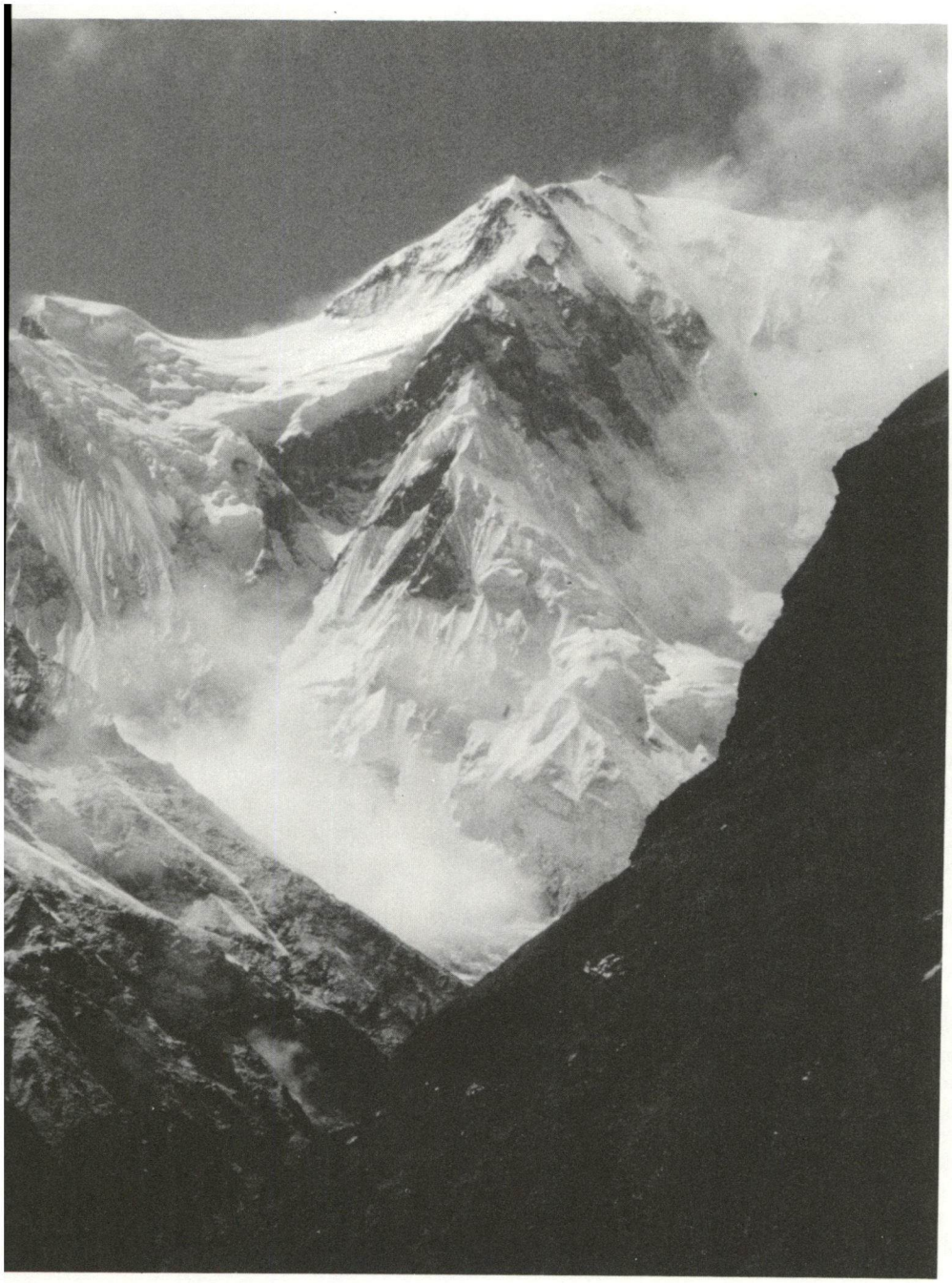


Ken Andrasko photo.

Can the planet endure the impact of the human race? Pictured is the peak known as Annapurna South in the Himalayas, one of the few relatively untouched areas of the Earth.

three factors acting in roughly equal measure, such as the contribution of carbon dioxide (CO_2) emissions to greenhouse warming. Because developed nations are responsible for four-fifths of the CO_2 injected into the atmosphere by fossil-fuel burning, the role of population in generating the problem has been largely overlooked. The vast potential for worsening the situation by industrial development in poor countries has also received insufficient attention.

To illustrate the impact of population (P) on total CO_2 emissions, consider the results if China were to use its abundant coal reserves to double energy use per person. Their per-capita energy use would thus increase from the equivalent of 7 percent of U.S. energy use to 14 percent of the U.S. level. For the purpose of this illustration, let's assume no further growth of the Chinese population (now approaching 1.2 billion)—an unrealistic assumption. The resultant increase in CO_2 emissions would completely offset an emissions reduction that the United States could achieve by ceasing to burn coal—which now supplies nearly a quarter of our energy—without increasing the use of other carbon-based fuels.

Or consider the case of India. The current Indian population of 840 million is still growing fast, and demographic projections indicate that it could reach two billion before growth can be stopped—even if India's now-languishing family planning program is revitalized. India also possesses rich coal deposits. India's per-capita commercial energy use today is less than half of China's. But if it were doubled per person, using coal, as the population increases to two billion, India also would produce as much additional CO_2 as the United States could save by giving up coal.

These examples suggest the power of very large and fast-growing populations to amplify the effects of quite moderate increases in development. Even if rich countries do not reduce their fossil-fuel use, the expansion of both population and energy consumption in developing nations guarantees that their proportional share of atmospheric CO_2 emissions will rise substantially in the next few decades. (This does not include the 25 to 35 percent of global CO_2 releases estimated to result from tropical deforestation.)

Dozens of other greenhouse gases are being released to the atmosphere besides CO_2 and CFCs. Within a few decades, methane may overtake CO_2 as the leading component of global warming. It is 20 to 30 times as effective in heat absorption as CO_2, and its atmospheric concentration is rising much faster. Methane comes from diverse sources, but several are closely tied to population size—notably emissions from rice paddies, flatulence of cattle, deforested soils, and garbage dumps. Again, technological adjustments may ameliorate some aspects of the methane problem, but affluence and population must also be factored into any long-term solution.

It is now widely recognized that population growth has played, and continues to play, a large role in the deepening human predicament. The economies of more and more poor nations are faltering. Food production has failed to keep pace with population growth in many regions. Agricultural land is deteriorating around the world. All these are persuasive clues. Each year it becomes more evident that continuing with business as usual means pursuing an increasingly unsustainable course.

Humanity in the last century or so has moved from depending predominantly on "income" (energy from the sun,

When the time is ripe, social changes can occur with breathtaking speed.

which warms the planet, drives climate and weather, and is the source of all food energy) to increasing dependence on "capital." The capital we are consuming today includes our Earthly inheritance of minerals (metals and fossil fuels). More critically, it also includes our ground-water supplies, agricultural soils, and the vastly diverse lifeforms that share this planet with us and are part of Earth's life-support system.

Human beings now occupy or use over two-thirds of Earth's land surface. As recent analysis has shown, human beings consume or somehow divert about 40 percent of net biotic productivity on land (the solar energy captured by green plants through photosynthesis and not used for their own life processes). This huge fraction includes a sizable and growing portion of potential production that is being lost as more productive systems (such as forests) are converted to less productive systems (such as farms and pastures), degraded through overcultivation or desertification, or simply destroyed by being paved over.

If capital accumulated over hundreds of millions of years must be depleted to sustain 5.3 billion people today, what are the prospects for supporting the 10 billion or more projected by demographers for the next century? How much more of Earth's biotic productivity can humanity co-opt without severely damaging the capacity of natural ecosystems to support us?

The trends just mentioned are grave enough, but the consequences of greenhouse warming will surely intensify them. If global warming causes flooding of coastal areas, disruption of once-dependable agricultural weather, and accelerated degradation of natural ecosystems, to what extent will Earth's carrying capacity for human life be still further diminished? What, if anything, can we do about all this?

The short answer is, human beings caused the problems, and human beings can solve them if they apply their collective wisdom to doing so. But it is essential to understand all interacting factors and to deal honestly with them.

While the global warming calculations cited above throw a spotlight on the role of population in the current human dilemma, they also glaringly display the disproportionate consumption and waste of resources in rich nations. Also revealed is the scale of change that will be required to avoid the worst consequences of global warming and still permit modest economic development for the poor majority of humanity.

Compared to what will be needed in the decades ahead, past efforts to reduce environmental impacts in developed nations, including the United States, have amounted to tinkering around the edges. This holds true despite seemingly endless arguments over economic disruptions and costs of pollution control.

In the 1970s, the environmental movement and the "energy crisis" led many Americans to re-examine our wasteful, resource-intensive way of life. In particular, alternatives to the prevailing urban/suburban lifestyle based on automobile commuting were seriously considered. But the "crisis" faded—partly because successful energy conservation programs reduced global demand, creating a temporary oil "glut"—and Americans resumed their old, bad habits. Between 1975 and 1985, the U.S. population increased about 9 percent, while the number of cars and trucks increased by 30 percent.

If anything, automobile commuting is more entrenched than ever today, despite some attempts to improve public transportation. Indeed, the vulnerability and inefficiency of auto commuting were spotlighted by the earthquake in California last October, but few noticed. While modestly increasing automobile fuel efficiency and curbing some emissions after 1974, Americans acquired tens of millions more cars and are driving billions more miles a year.

Small wonder air pollution is worse than ever. The population factor was ignored; consumption was addressed briefly, then forgotten; and most effort went into regulation through technology, sometimes making consumption worse by reducing energy efficiency. Until we tackle the difficult population and consumption questions in a serious way, we will make no real headway in solving the global problems now looming over us. And because the dilemma is global, solutions must be globally agreed upon and implemented.

Until very recently, such a course appeared politically impossible. But when the time is ripe, social changes can occur with breathtaking speed. The latest demonstration of this potential is the dramatic lowering of political tensions between East and West in the past year.

For two generations, the East-West confrontation has overshadowed and soured virtually all other international relations, including those between the rich nations of the Northern Hemisphere and the poor ones of the Southern Hemisphere. The recent transformation should bring profound changes in the economies of the two superpowers and their allies. If nothing else, it is likely to render their huge military establishments largely unnecessary and obsolete and free resources to address more compelling aspects of global security.

The political transformation of the Eastern Bloc nonetheless may hold rich irony, as 400 million Soviets and East Europeans rush to adopt the West's profligate consumerist lifestyle. While we wish them success in seeking political and economic freedom, as environmentalists we view with some concern the possibility that their economies will come to mirror ours. We hope they will embrace, along with free enterprise, a conservation ethic.

It seems fortuitous that the far-reaching changes taking place now in the international arena coincide with the 20th anniversary of Earth Day and a renewed commitment in the West to environmental goals. The economic and political shifts that will be demanded by the new relationships offer an unprecedented opportunity to make the sorts of changes in economic structure that are needed if civilization is to survive the challenges ahead. The way is open. Every day, the world is becoming more closely knit economically. We need only recognize that we are united in our problems as well. If 5 billion people tackle them, how can we fail? □

Cleaning Up the Auto: A Rough Ride

by Jerald F. terHorst

When President Bush sent his Clean Air bill to Congress early last year, one of the surprises came from the oft-maligned automobile industry.

"The automobile industry will do its share to help clean up the nation's air," said a joint statement by Detroit's Big Three.

"Chrysler, Ford, and General Motors support, and are willing to meet, the objectives of President Bush's clean air program. We support tighter tailpipe standards for cars and trucks, tighter controls on the evaporation of fuel when cars are parked or running, and a clean fuels program."

The industry's critics first were surprised by the statement, then turned suspicious and skeptical. What was Detroit up to? No less than this: America's automakers were openly acknowledging that clean air is something everyone needs to care about; not just parents concerned about the world their children will inherit, or biologists working to save forests in Brazil or New England, but also engineers designing motor vehicles. Isn't this what Earth Day 1990 is all about?

The skeptics and the cynics were caught off guard: You mean the Big Three auto companies and the hundreds of thousands of their U.S. employees are allies in the battle to clean up the environment? Naw, you can't be serious. (Hey, if they're not the enemy, who is?)

That's been the history of the clean air battle involving autos: lots of rhetoric but precious little reasoning. Or, as has been said, improving air quality has been more a political struggle for supremacy than a calm judgment based on scientific or technological evidence.

This Ford Taurus has been modified to run on methanol, ethanol, gasoline, or any combination of these fuels. Flexible-fuel cars may be a near-term means of alleviating the nation's air-quality problems. Shown is Roberta J. Nichols, who heads the company's Flexible Fuel Vehicle team.

(terHorst is the Director of National Public Affairs for the Ford Motor Company.)

It's a fact that motor vehicles contribute to smog. With 150 million cars and trucks on American roads, being driven almost 2 trillion miles annually, it's no wonder motor vehicles account for about 44 percent of the primary ingredient in smog—hydrocarbons. That's the bad news.

The good news is that clean-air equipment is standard on all cars sold today in the United States. Indeed, the auto industry has done more than any other to clean up America's air. Statistics from EPA prove it: Compared with cars built in the early 1970s or before, today's new cars eliminate 96 percent of the hydrocarbons, 96 percent of the carbon monoxide, and 76 percent of the nitrogen oxides that come out of the tailpipe. Can any other segment of the industry—or any government agency—claim a better record?

That's been the history of the clean air battle involving autos: lots of rhetoric but precious little reasoning.

Because emissions control systems on vehicles already are so effective, not much more can be accomplished by further tightening tailpipe controls, although even here the American automakers are willing to try. It won't be easy, technologically, to wring out the last few percentage points. And it won't be inexpensive for American car buyers either.

Senator David Durenberger, a member of the Senate Environmental Protection subcommittee, put it this way during a November 1989 session on even-tighter tailpipe standards proposed for the turn of the century: "There is no one who testified before the Committee who can tell us how these standards will be achieved. The Office of Technology Assessment says they are not technically feasible. The California Air Resources Board can't tell us how it will be done. The EPA can't identify any technology that reaches these levels."

Even if such superstringent vehicle controls were achievable, Durenberger went on to say, "It is doubtful that they

would be the most cost-effective way to clean up air." Also, he said, it was obvious that state and local governments are not doing enough under existing enforcement provisions of the federal Clean Air Act to ensure that *stationary* sources of air pollution are doing what's required to clean up their operations.

"The auto industry has achieved more to realize the goals of the Clean Air Act than almost any other sector of the American economy. I think the auto industry can do more. And I think they can do more than they think they can," Durenberger declared.

"But I won't vote for those standards to make life easier for state and local governments. For the Congress to now insist that the auto industry make up for the failures of governments of all kinds at all levels over the past 20 years just doesn't seem right to me."

What more can be done? We at Ford have identified some useful targets.

For example, air quality could be improved by 25 percent by reducing the evaporative emissions from millions of vehicles, new and old. Evaporation of hydrocarbons is a primary cause of smog.

Only recently has anyone in government or in environmental circles begun to pay serious attention to the fact that fuel evaporation from vehicles stalled in heavy traffic or parked on the streets and in shopping mall lots represents a heavy contribution to urban smog in Los Angeles and other metropolitan areas.

How to curb evaporative pollutants to achieve this potentially huge gain in air quality? Several methods are available.

One obvious way is to improve America's road network so that cars and trucks don't have to sit in daily gridlock. Environmentalists should rally behind public and auto industry efforts to eliminate clogged roads, because the payoff not only would help expedite traffic but would also improve air quality by a quantum leap.

Another avenue for reducing harmful evaporative emissions is to reduce the volatility of fuels that exude from parked and gridlocked vehicles. The petroleum industry could help significantly by finding ways to lessen fuel volatility. American and foreign auto manufacturers are working on ways to reduce evaporative emissions, and the research is promising.

But let's face it. The greatest automotive progress in cleaning up the air will not come from exotic new technology or tougher federal legislation but from the marketplace. It will be achieved as new cars and trucks with today's sophisticated emissions-control systems replace older cars currently in use.

Just from normal vehicle turnover in the next 10 years, average vehicle tailpipe emissions will decrease by about 38 percent, even assuming a normal 2-percent annual growth in total vehicle miles traveled.

There would be even greater improvement in air quality if older cars were replaced more quickly. The reason: Older cars, built to less stringent standards, account for 54 percent of all the cars on the road—but emit more than 80 percent of America's smog-producing exhaust! Clearly, upgrading America's vehicle fleet by eliminating older cars and trucks would result in tremendous improvement in the air we breathe. Yet the rate of vehicle turnover may in fact be slowed if a punitive mandate by Congress forces tomorrow's car prices even higher than the price tags of today's already air-friendly vehicles.

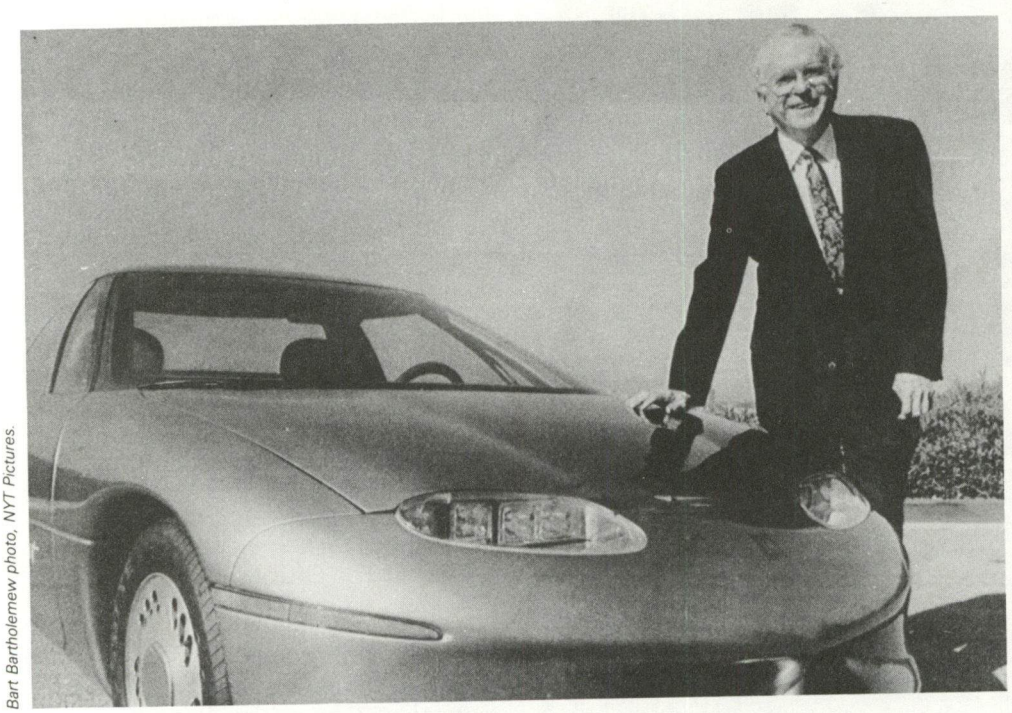
Despite the gains made in reducing automotive pollution in recent years, there still are some large urban areas of the country that can't meet national air quality standards every day of the year. That's why the industry has supported the objectives of President Bush's clean-air plan. It not only calls for tighter emissions standards for vehicles but also for sales of vehicles that can operate on less-polluting, alternative fuels in sprawling metropolitan areas with major smog problems such as Los Angeles, Chicago, Baltimore, New York City, San Diego, and Philadelphia.

Why alternative fuels? Precisely because the auto industry has made so much progress on reducing tailpipe pollutants that ever-tighter standards will result in scant improvement in air quality.

What comes out of the tailpipe is directly related to what goes into the fuel tank. In other words, the type of fuel can make a difference in reducing smog.

"Ford engineers see this [Bush] plan as an innovative and challenging move," according to Helen O. Petrauskas, Ford vice president for environmental and safety engineering. In a recent article in the *Environmental Forum*, she said:

> For the first time we would be looking at the vehicle and its fuel as an integrated system. This is a concept that expands engineering horizons and offers new potential for improving air quality. While there are many questions to be answered, such as what incentives are required to induce customers to buy cars that use new fuels, the concept provides a real opportunity for progress toward



Bart Bartholemew photo, NYT Pictures.

General Motors' Impact is a futuristic, electrically powered car. It is not yet in production, but may be within the next five years. Pictured is Roger B. Smith, chairman of the corporation.

these ambitious environmental goals through cooperative industry/government research and action.

Methanol, ethanol, natural gas, electricity—possibly other alternative fuels like reformulated gasoline—are prospects because emissions from these fuels are less likely to form smog.

Ford's research in this area has accelerated in the last 10 years. We have placed about 700 Ford demonstration vehicles in service since 1981, and they have provided valuable knowledge in resolving some of the technical and functional problems with alcohol and gaseous fuels as well as with electric cars. Each has advantages and disadvantages when compared with present-day gasoline. But achieving widespread public acceptance remains a conundrum until problems of limited driving range, fuel availability, and vehicle convenience can be solved.

Ford can commit to producing vehicles capable of operating on alternative fuels. Ford engineers have developed a "flexible-fuel vehicle" that is capable of using ethanol, methanol, gasoline, or any combination of these fuels with one common fuel tank. The driver isn't required to make any engine adjustments—the process is automatic—no matter which fuel or mix of fuels is in the tank. These vehicles have demonstrated excellent road performance in the last three years.

In those urban areas where clean fuels would help reduce the smog problem, such as in Los Angeles, a driver could use one of these alternative fuels, but use gasoline on a cross-country trip. Flexible-fuel vehicles are one possible solution to the problem of assuring an orderly transition while a new fuel delivery system is developing. It would be up to government, however, to create an environment that encourages the public to purchase and use such vehicles and fuels.

Electric vehicles are another prospect for improving air quality. Ford has been involved since 1982 in a $20-million research program with General Electric, several battery manufacturers, and the U.S. Department of Energy. Similar efforts have been launched by the Electric Power Research Institute in conjunction with Chrysler and General Motors.

What makes electric vehicles attractive, environmentally, is that there are no noxious motor emissions to foul the air. However, one has to take into account that electric cars must recharge their batteries by plugging into electric sockets. And smokestack emissions from electricity-generating plants fueled by coal, oil, and gas already have been targeted as major sources of air pollution, particularly acid rain.

Electric vehicles, advocates agree, will have only a modest impact for the foreseeable future (perhaps 100,000 vehicles in a 15 million annual vehicle market) and would mainly be used as delivery trucks and service vans required to travel only short distances each day. The batteries require six to eight hours recharging time during every 24-hour period, assuming 8 to 10 hours of daily vehicle operation. At present, the driving range of Ford's experimental electric Aerostar is 100 miles; the maximum speed is 65 miles per hour.

In all electric vehicle prototypes, major vehicle redesign is required to accommodate batteries and to power such things as power steering, brakes, and air conditioning. And the price of an electric vehicle, mainly due to battery cost, will be well above comparable vehicles using internal combustion engines and conventional fuels.

What the United States, indeed the world, must face is that correcting any single environmental concern, such as urban smog, hazardous waste disposal, or global warming, often creates a backlash that has a negative impact on other environmental concerns. This is not theory, but a conclusion based on the auto industry's experience of some 20 years during which well-intentioned environmental goals sometimes turned into inflexible mandates that proved costly and ineffective.

For example, the federal requirements to rush newly developed emissions-control systems into production in the late 70s resulted in serious degradation of vehicle performance and driveability. That, in turn, prompted customers either to disconnect their catalytic converters or to delay purchase of improved but more expensive new vehicles. Either way, air quality suffered.

Improvements in fuel economy can also affect safety and consumer preferences. Federal statistics show that large cars are safer than small ones in accidents. This is a simple matter of kinetic physics: Large cars are heavier and longer, so they offer more occupant protection against fatal or serious injury. Americans like safe cars, even if this means greater fuel consumption. Yet today's largest cars have better fuel mileage than the smallest cars 10 years ago. This is true across the auto industry.

Additionally, millions of people purchase large vehicles to accommodate their families or to meet particular business needs. An obvious question: Which is better for air quality—one large car capable of doing what a customer needs or two small cars? For environmental *and* safety reasons, one large car is preferred.

Let's consider both national and personal costs. Currently, clean-air, fuel-economy, and safety legislation under consideration in Congress would add as much as $1,200 to the price of a car or truck. And if some of the environmentally driven provisions affecting the auto industry become law, the result could signal the demise of family-size cars, farm-to-market trucks, and commercial vehicles across America.

Thousands of workers would face unemployment, surely a matter of social concern for state and federal welfare agencies, plus heavy tax losses for the U.S. Treasury, states, and cities—not to mention the degradation of America's vital transportation system.

Such prospects should be of tremendous concern to policymakers, lawmakers, and labor and business leaders worried about the nation's economic future. For one thing, there is no substitute national plan to offset this problem by providing adequate mass public transit systems or expanded railroad service to keep America working, moving, and competing in a very tough global market.

Many critical choices confront the U.S. government, industries, and workers in this laudable national campaign to improve the quality of the air we breathe. Much can be done and should be done. Ford Motor Company concedes that autos are part of the problem and it wants to be part of the solution: "At Ford, Quality Air is also Job One." The rest of the auto industry shares this objective.

The 20th anniversary of Earth Day, therefore, is a good time to note that tremendous air quality improvement already has been achieved by the auto industry, and the industry is willing to try to do more. But it is also time to note that there are complex, global interrelationships among differing environmental goals that require careful balancing and judicious tradeoffs by lawmakers, federal regulators, environmental crusaders, industry, and the public. □

The Greens of Europe: A New Environmentalism

by Konrad von Moltke

In all Western countries, the growing environmental movement has been an important political development over the past 20 years. Numerous environmental organizations have been created. Indeed, not just Western nations but virtually all countries now have indigenous environmental organizations that are helping to shape the perspective of governments on environmental issues.

While environmental organizations have become nearly universal, it is nevertheless important to recognize the differences among these organizations in different countries. Indeed, the structure of the environmental movement in the United States, France, or West Germany, for example, often more closely reflects the specific political system within which these organizations operate than the common agenda that unites them.

As environmental organizations have developed, they have faced the question whether to work with existing political parties or to create their own. While American organizations generally work through existing structures, in West Germany a new political party, the Greens, has emerged which is closely identified with the environmental agenda. As distinguished from environmental organizations, the need for a "Green" party is not evident in every country. Nevertheless, the West German Greens have been emulated in many countries, so that it is possible to speak of a "Green phenomenon."

Yet the rise of the Greens in West Germany is first and foremost a reflection of the West German political system. In assessing the Green phenomenon, it is important to keep the specific West German components versus the more universal issues in perspective. In Germany, political parties have programmatic identities: They are "Christian," "Social Democratic," or "Liberal." Traditionally, parties have also been associated with colors: Conservatives are *black*; socialists are *red*. But in the past few years, the West German political scene has been rocked by a political party which turned tradition around; it called itself Green before it had any clearly defined political identity.

Green has long been associated with *environmental*, and the new party sought identification with environmentalism. By taking a color for its name rather than a more traditional programmatic label, such as "progressive ecologists," it acquired a more traditional political advantage: The founders could avoid difficult choices between an "ecological" wing which rejected traditional ideologies and a "socialist" wing which came to environmentalism via traditional left-wing politics. Avoiding that choice was important because the Greens began life as a marriage of convenience between groups that had been neglected by West German politics of the 1960s and early 1970s.

During the 70s, being an environmentalist in West Germany meant being on the periphery of the political system. Official policy reflected a belief in technology and the assumption that the environment could be adequately protected without fundamental changes in social or economic practices. The traditional West German parties considered the environment no more than an irritant in the quest for continued economic growth. The West German government, for example, led the resistance against international measures to reduce acid rain in Europe.

The West German environmental movement was severely fragmented throughout the 70s; government policy tended to foster that fragmentation in the misguided belief that a divided movement would protect the authorities from public pressure. The structure of the West German political system reinforced this idea. While it is superb in representing major social and economic interests, it is also remarkably ineffective in articulating the views of small minorities. A complex system of apportionment of seats at all levels of government ensures that no party receiving less than 5 percent of the vote will be represented in any elected body. Votes cast for such a party are effectively "lost," creating an additional disincentive for voters to support marginal groups.

The most visible part of the environmental movement in the 70s was a loose coalition of local activist initiatives, the *Bund Burgerinitiativen Umweltschutz (BBU)*. The *BBU* organized some of the most massive public demonstrations in West German history. Many of these demonstrations

This dancing eagle is well-known as the logo of the politically active West German Greens.

AP/Wide World photo.

(Von Moltke is a senior fellow at The Conservation Foundation and adjunct professor of environmental studies at Dartmouth College.)

AP/Wide World photo.

West German Greens were elected to the Frankfurt City Parliament in 1981. Their poster translates, "Green protection against disasters inside and outside Parliament."

opposed nuclear power, and some of them degenerated into violent confrontations with the police. Most other environmental organizations were almost invisible compared to the BBU, and all of them were poorly funded and severely understaffed. But the BBU was the practical breeding ground of the environmental faction of the Greens, even though it was a non-partisan organization.

In the West Germany of the 1970s, the environmental movement and political parties on the far left of the political spectrum had something in common: Both had little or no representation in the West German political system. The Greens began as an electoral alliance of these groups to overcome the minimum requirement of 5 percent. Their initial program was consequently more than just an ecological manifesto; it focused on the concerns of the peace movement, which had not succeeded in stopping the introduction of cruise missiles on the continent, and other interests of these marginal groups. So the Greens' first success in the West German political system was getting elected at all.

Over the past decade, the West German Greens have struggled with their divisive legacy. For several years a debate raged between "realists" and "fundamentalists" concerning their willingness to assume executive responsibility in coalition with other parties. This question has now been settled in favor of participation, involving acceptance of the inevitable compromises this will entail. Even participation in the West German national government is no longer inconceivable. It appears possible that a future West German government could be formed by a coalition of Social Democrats and Greens.

Thus the Greens have made important contributions to West German politics in promoting broad opposition to nuclear energy and in achieving acceptance of the peace movement or in identifying more sharply the dangers of nationalism and racism in West German society. They forced the traditional parties to confront rampant abuses in their fund-raising. Paradoxically, the Greens have had less impact on West German environmental policy than most outside observers might expect.

And while public support for environmental protection is now broadly based in West Germany, as in all other Western countries, it can hardly be attributed to the Greens. Instead, the foundations for this support were laid by the environmental movement of the 70s—the same movement the Greens have drawn upon for support.

In the 80s, environmental policy became a major item for both conservative and left-wing parties in most countries—later in the United States than elsewhere. In West Germany, this shift occurred in 1982 following recognition of serious forest damage widely attributed to acid rain. Forest owners and forest managers, traditionally a very conservative part of the electorate, may ultimately have had more to do with the change in government policy than the Greens.

The Greens are an outgrowth of unique West German political conditions. They have, however, been emulated in other countries, taking on new forms all across Europe as the advantage of the non-ideological color label—Green—continues to allow a wide range of interpretations, depending on local conditions. Thus the Green phenomenon in Europe is a heterogeneous mix of fledgling political parties whose future is tied closely to their ability to articulate issues which go far beyond the environmental agenda.

The small West European countries of Denmark, Sweden, and the Netherlands are widely known for their strong commitment to environmental protection. All three have Green parties, but they have fared differently. Perhaps most striking is the weakness of the Greens in the Netherlands, the country with arguably the most environmentally aware electorate in Europe. Even in the most recent elections, which were fought in large measure on environmental issues, the Dutch Greens emerged with only 4.1 percent of the vote.

But this does not mean environmental issues are not represented. The Dutch political system is based on pure proportional representation; any group which attracts 1 percent of the vote will also receive 1 percent of the available seats. As a result, traditional Dutch political parties are highly sensitive to minority interests and much more open to the issues which provided a focus for the Greens in West Germany: disarmament, minority rights, and environmental protection.

Similarly in Denmark, a country where aggregate membership of

environmental organizations exceeds the total population (due to overlapping memberships), the local incarnation of the Greens has not had a major impact because the political system is sensitive to minority interests.

In neighboring Sweden, however, the Greens emerged from recent elections as a major political force despite the government's vigorous and long-standing commitment to environmental protection. The reasons presumably lie not in environmental policy but in voters' desire to protest against a consensus-oriented, policy-making process in which traditional parties did not appear to offer realistic alternatives. Sweden illustrates the extent to which the Green phenomenon may be divorced from specific environmental issues.

Three other major European countries—Italy, France, and the United Kingdom—have tended to approach environmental issues with more reserve than the smaller countries. In these three countries, Greens have been having an impact on the political scene, but in ways that differ widely from one country to another.

In Italy and France, the Greens have been remarkably successful in local and regional elections but have not yet penetrated at the national level. In Italy, this is presumably a matter of time, provided the relationship with the Radical Party—a traditional forum for protest voters and a long-standing champion of Green issues such as disarmament, women's rights, and pro-choice positions on abortion—can be worked out. In France, the electoral system creates serious impediments to small-party representation without prior electoral alliances with the large parties. Such alliances risk limiting the ability of the Greens to attract protest voters. Thus, the French Greens were more successful in the European Parliament elections, which use a different form of seat apportionment than the national elections.

No electoral system is harder on minorities than the one shared by the United Kingdom and the United States, in which elections are based on electoral districts in each of which a plurality elects an individual representative. Yet the outcomes in the two countries are quite different. U.S. Congressional representatives find it necessary to cultivate their electoral districts and to respond to minority interests at that level; such an imperative exists to a much lesser extent in the United Kingdom, where party-line voting in Parliament is an accepted fact of political life.

While Greens exist in both the United Kingdom and the United States, there is little sign that they will be able to elect representatives in significant numbers. They are ultimately victims of the political system within which they work. In the recent European Parliament elections, the British Greens obtained 15 percent of the vote nationwide but failed to elect a single member because they could not muster a majority in any one electoral district.

Perhaps the most fascinating aspect of the Green phenomenon is the role environmental interests have played in the current transformation of Eastern Europe. For many years, environmental concerns were under-represented in official government policy. Paradoxically, this created a vacuum in which informal environmental groups could form since they did not conflict with official structures. In many instances, both inside the Soviet Union and its republics and in Eastern Europe, these nascent environmental groups have found themselves at the very center of a transforming political system. They are one of the few organized groups which are not identified with the previous regime, not only because the environment is a severely neglected policy area but also because they are politically neutral.

Environmentalists have been a moving force in the Baltic provinces, for example, and were organized in Hungary at a time when citizen participation was still officially frowned upon. In Poland, representatives of the ecological movement sat at the roundtable negotiations which led to the transformation of that country's political system. And in Bulgaria, small environmental demonstrations triggered the process of change.

Ultimately, the Greens are a visible incarnation of a challenge to governments around the world. Electors are seeking more energetic protection of the environment, and traditional parties are struggling to accommodate this new interest.

The message of the Greens in this situation is quite simple: If you do not succeed in adopting vigorous environmental policies, your voters will turn to new parties. In West Germany the result may even be a change of government. □

Is there room for specifically Green politics in the United States? At first sight the outlook is cloudy. Unlike those European countries where Green parties flourish on small percentages of the popular vote because of proportional representation, the United States has a simple-majority, winner-take-all system of elections. This tends to freeze out third-party projects.

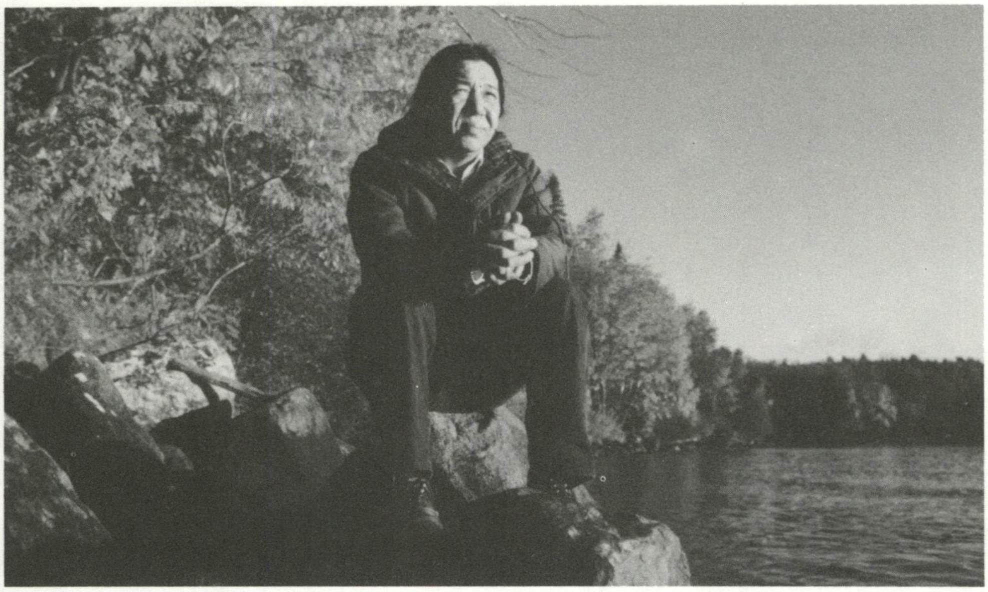
Also, the need for a specifically Green party is arguably less here than elsewhere because of a strong American tradition of freedom of association and the correspondingly characteristic American knack for forming pressure groups. Thus, environmental issues are pushed by a veritable throng of local pressure groups and by strong environmental lobbies centered in Washington and state capitals.

Nevertheless, there are organized Green political formations all over the country. Perhaps the best organized and the most ambitious of these are the Green Committees of Correspondence, which operate in the tradition of the committees of correspondence that helped build momentum for the American Revolution. Organized in 250 local communities, in 34 regions, with an Inter-regional Committee headquartered in Kansas City, the Greens are serious about building—from the grassroots up—a strong, locally and regionally based national political movement. In addition to supporting citizen actions on a range of issues, such as anti-incineration and pro-recycling campaigns, save-the-forest campaigns, and various conservation projects, Greens have run for political office in many localities and state legislative districts—getting as little as 1 percent and as much as 44 percent of the popular vote.

(Rensenbrink, a political scientist, teaches courses in ecology and politics and in political theory at Bowdoin College in Brunswick, Maine, and is active with the Green Committees of Correspondence. He is writing a book, due to be published this fall, on the Greens and the transformation of American politics in the 90s.)

Do the Greens Have a Future Here?

by John Rensenbrink



Walt Bresette, above, is a founder of the Lake Superior Green Party, which worked successfully to elect an environmentally sympathetic Commissioner of Bayfield County, Wisconsin. Most U.S. Green groups focus their energies on public forums and lobbying rather than elections.

Yet the question remains: What is the rationale for these Green groups over and above what they as individuals might be doing as members of already-existing organizations and lobbies?

An answer may be found along the following lines. If, as argued elsewhere in this issue of *EPA Journal*—by Administrator Reilly, for example—a major aim of environmental action is prevention of pollution, and not just its cleanup or reduction, then there may be a need for a more coherent and multi-faceted social and political force in this country than is presently available.

Pollution prevention requires a comprehensive capacity to think ahead and a steady political will. But local pressure groups tend to focus on single issues; they usually react to problems only after-the-fact. In many cases, they are driven by an attitude of "not in my back yard," the NIMBY syndrome. NIMBY feelings are easily stirred up, but they also dwindle fast.

The big lobbies often possess a forward-looking capacity and may be more comprehensive than local pressure groups in their approach, but they are immersed in particular legislative politicking, and they are unable to focus effectively on the larger, long-term issues. They don't have the steady political clout for a comprehensive program of pollution prevention because their social and political base is weak or non-existent. Basically, they are as effective as the direct-mail money raisers and wealthy donors they depend on enable them to be.

As for the Republican and Democratic parties, their politics are very short-term oriented and have become exercises in brilliant sloganeering and ingenious negative campaigning via ever-more-expensive TV advertising. They seem therefore to lag in their capacity to formulate and follow through on broad-based and long-term policies of prevention.

Furthermore, environmental problems are very likely to get worse. The effects of gradual global warming, for example, could be a series of continuing disasters. Swift, sure action will be necessary—a kind of action that does not come easily to large, ponderous institutions like the federal government or large corporations, where relative inertia often prevails over efforts to deal effectively with ecological problems.

The present extra-governmental response mechanism—NIMBY-minded local groups, centralized lobbies, and political parties whose anxiety for money to pay for costly TV propaganda overwhelms even their strongest and best intentions—seems insufficient. What is needed is something they can't supply: the goad and vision to stir government, business, and citizens to more effective action.

There may well be, therefore, a niche for the kind of movement and party the Greens are trying to develop. A Green movement would point public policy in a problem-solving direction, as distinct from problem-tinkering and crisis-management politics. It would be a catalyst for translating knowledge into actual policy. It is not as if Greens would have to displace the Republicans or Democrats, or the central lobbies, or the NIMBY-minded local groups. But they are needed as a creative, catalytic force.

The Greens I rub shoulders with are dedicated, practical visionaries who have committed themselves to being a steady force for the prevention of pollution and the development of sustainable communities, for a sustainable country and world based on efficiency, justice, and freedom.

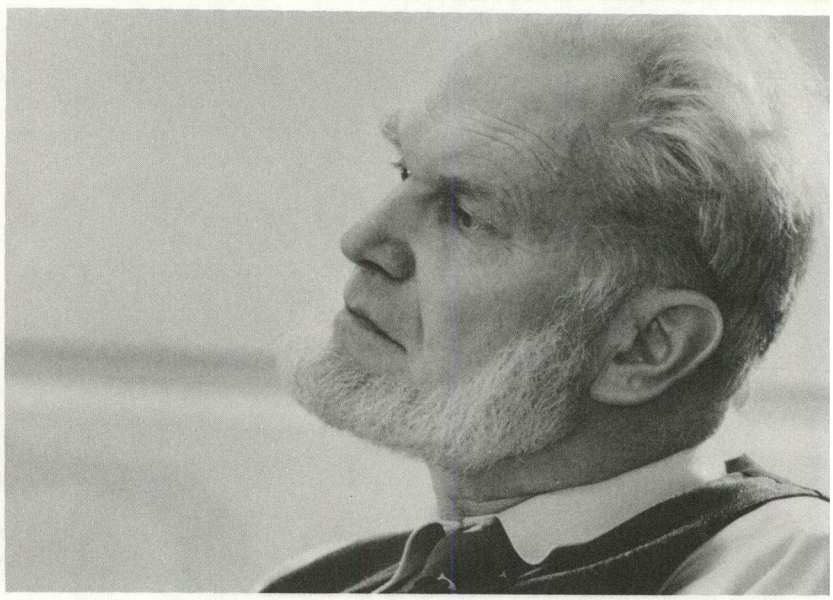
They are a minority, of course. But suppose their numbers were to increase by a factor of three or four (as I think they will). Suppose they were able to supply just that degree and kind of vision, wisdom, and will without which the government and society at large probably would not respond effectively to the dire threats of ecological and economic disintegration. Wouldn't that be a boon?

I believe such a catalytic force is needed and that it has already taken root in our society and politics. Thus there is good reason for concerned Americans from all quarters—government officials, business men and women, labor leaders, grassroots organizations, big environmental lobbies, and worried citizens—to contribute their help and support to an indigenous Green movement. □

A Perspective from Another Country: The Soviet Task

by Alexei Yablokov

Alexei Yablokov, pictured below, is a key Soviet environmental official. Like many other countries, the Soviet Union is becoming acutely aware of its serious pollution problems.



William Campbell/TIME Magazine.

As the Soviet Union moves toward the year 2000, Soviet environmentalists and ordinary citizens are becoming more and more active. They have no choice. The natural resources in our rich country are being wasted and misused to an extent that the country now faces ecological crisis. Problems of toxic and radioactive wastes, polluted air and water, and agricultural pollution have reached extremely serious levels.

The policy of *glasnost* is allowing us to learn more and more about environmental disasters in the USSR, but more must be done. As members of the Supreme Soviet, my colleagues and I are committed to making *perestroika* permanent in the environmental sphere.

The problems cannot be underestimated. In nearly every area of the environment, Soviet citizens are facing real threats to their health and the health of their children:

- Last year the release of harmful substances into the atmosphere reached 100 million tons. In 103 cities, with a total population of about 50 million people, at least 10 times the permissible concentrations of harmful substances were emitted.
- Much of our water is extremely polluted and violates sanitary and ecological norms. In 600 cities, normal purification of water sources is not provided. At installations of the present Ministry of Water Works, up to 21 percent of the water being gathered in reservoirs for consumer use is wasted.
- More than 5 million hectares of the most productive land have been removed from agricultural production due to water-logging and salination. About 10 million hectares of the most valuable farm land have been flooded as a result of newly built reservoirs and hydroelectric projects.
- For each unit of production, several times more raw materials, energy, and water are used in the Soviet Union than in Western nations.
- The pesticide problem is also acute. Dangerous levels of pesticides have been found in 42 percent of children's milk products, and residues can even be detected in mother's milk.
- Declining environmental quality has fostered a rise in illness. We share the 47th or 48th place in average life expectancy and occupy 44th place in infant mortality in the world.
- We now have "ecological refugees." The Aral Basin, the Caspian Basin, the southern Ukraine, the Kuzbass region, many areas of great natural beauty, and a series of other regions are at the edge of ecological catastrophe.

This alarming ecological situation is one reason for the rise in social tensions in the country. We are also losing immense economic potential. Many of these environmental problems are, in fact, the result of incompetent economic management.

This is quite a catalogue of problems. The most difficult matter to face is that, as we begin our efforts to clean up the environment, we cannot expect to see real improvement in the situation in the next year. In the immediate prospect, we cannot expect to achieve noticeable improvement in the quality of our water or air.

The Supreme Soviet—An Organ of Change

Nonetheless, we will not lose hope. Both the new Supreme Soviet and the public are devoting new energies and resources to solving these problems. During the most recent Supreme Soviet session, we worked from morning to night analyzing the draft Government plan on economic and social development and the 1990 national budget.

We held hearings with all national agencies dealing with environmental protection—first of all *Goskompriroda* (the State Committee for the Protection of Nature) and *Goskomhydromet* (the State Committee on Hydrometeorology). We heard testimony from all national industries which pose the greatest threat to the environment: metallurgical, lumber, and chemical and gas-processing industries. We even brought in the USSR State Planning Commission (*Gosplan*), the USSR Ministry of Finances, and the State

(Yablokov is Vice-Chairman of the USSR Supreme Soviet Committee on Environmental Protection and Rational Use of Natural Resources. He is also a Corresponding Member of the USSR Academy of Sciences, Environmental Advisor to the International Foundation for the Survival and Development of Humanity, and President of Greenpeace USSR.)

—Translated by Edward B. Hodgman

Lake Baikal in Siberia is one of the deepest in the world. U.S. and Russian scientists are studying many aspects of life in the lake.

Committee on Science and Technology to get their views on what should be done to improve the environmental situation.

In order to save the health of the earth we must change our legislation. An "ecologization" of thinking has already taken place among the majority of Soviet people. The laws must become "ecologized" just as quickly. After all, the laws reflect the interrelationship among people, and also between people and property. All these interrelationships must now be examined through the ecological prism. The environment has become a burning political issue, a problem of health and life itself.

Environmental activism is a healthy reaction to the technocratic development of civilization. In essence, environmental action has sprung from the worldview of all people who are worried about the present environmental situation.

At the Congress of People's Deputies, every second or third Deputy spoke about ecological disasters. Several candidates for ministerial posts were rejected by the Supreme Soviet in part because their past activity had been marked by, to put it mildly, environmental "shortsightedness."

The Supreme Soviet must be the legislative guardian of our environment. In the first session, our committee demanded (and our demands were satisfied) an accounting of the potential environmental danger of the techniques and technology purchased and used in the Soviet Union. It is no secret that many foreign firms would like to use our country as a testing ground for ecologically harmful production. Many are succeeding at the present time.

Independent Environmental Groups

The growth of independent environmental groups in the USSR is inspiring. We are "turning green" quickly. In our country, the mass ecological movement is very young, but it is growing and maturing.

There are real "Greens" in Lithuania, Latvia, Estonia, the Ukraine, and a number of areas of Russia, and numerous ecological clubs, groups, organizations, and societies. Not long ago, the Soviet division of the world-renowned organization "Greenpeace" was founded. It is best that, for now, all these different environmental groups are working on their own. The ecological movement must have a whole range of colorations and directions.

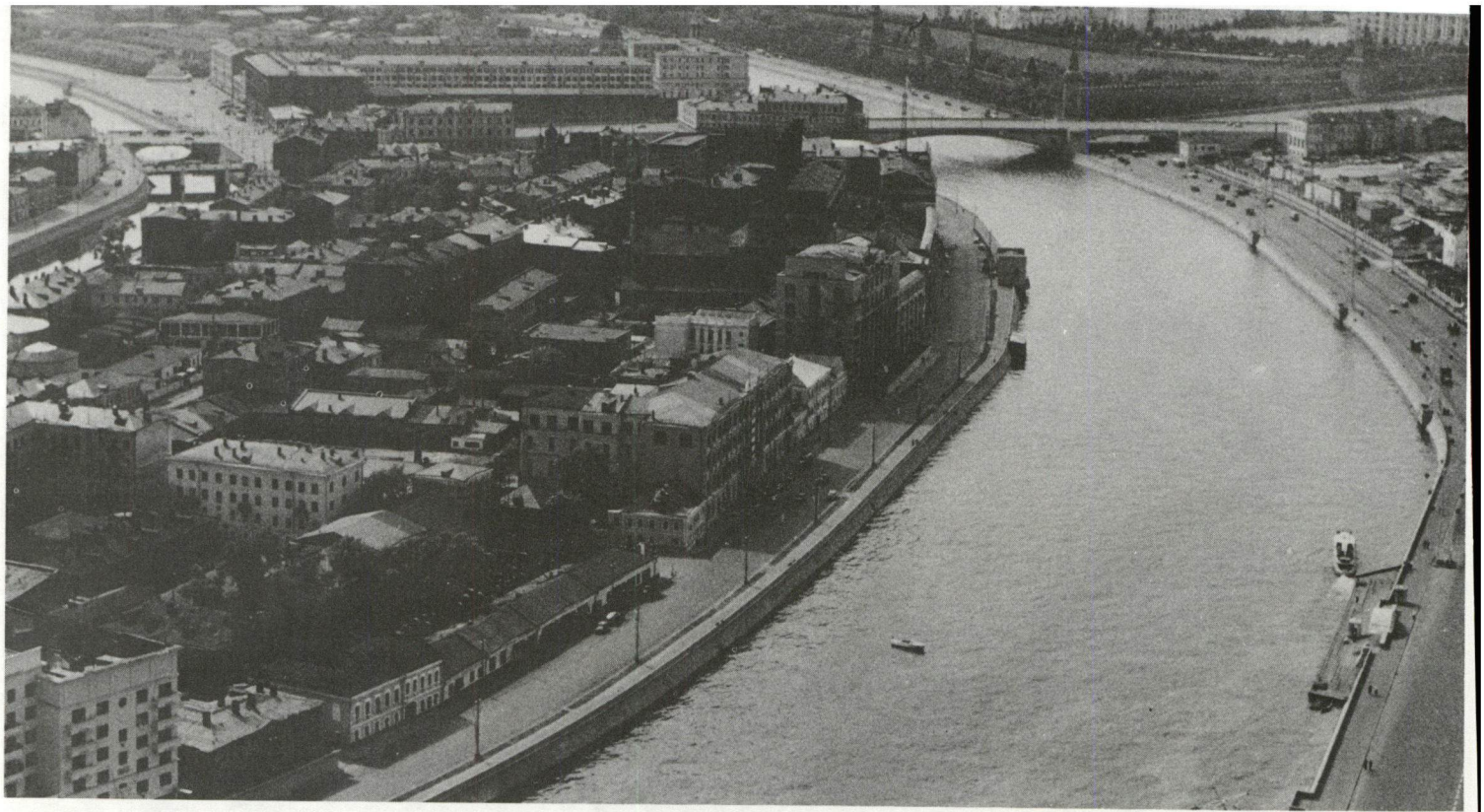
But there must also be joint actions, combining the efforts of all these groups for specific, concrete actions. There are examples of such actions in our country and around the world. Here in the USSR we have battled to stop a canal planned to connect the Volga and the Chograi rivers. Around the world we see the efforts to save tropical forests and the Indian Tiger, the efforts to stop the slaughter of whales, seals, and other marine mammals. All groups must join together to stop the threat to our seas—the widespread use of plastic nets and the release of plastic and toxic wastes into world oceans.

Economics and the Environment

Protecting the environment depends, in large part, on economic policies and incentives. Proper use of economic incentives will allow us to implement new technologies.

A well thought-out system of taxation is crucial. Prohibitive taxes must be levied on any firms that are using dangerous technology or releasing harmful wastes into the environment. This "polluter pays" principle must be introduced into the Soviet system. This means the polluter pays for the full extent of harm inflicted: not only a fine, but the total sum necessary for the restoration of full health to the environment and the citizens affected.

This principle has not been applied in our country thus far. Conversely, firms using environmentally safe technologies should be given some relief from taxation.



Flowing through the center of the capital, the Moscow River carries discharges from many industries.

Goskompriroda—the Soviet EPA

Last year, the government ruled that more than 500 million rubles should be confiscated from industries that caused environmental destruction. But this money did not go for the restoration of the destroyed environment; it was simply swallowed back into the budget. This situation must change, so that the conservation of natural resources becomes advantageous for government on the local level; these funds must be used for specific environmental projects.

We will not be able to manage without economic mechanisms for improving the environment. These mechanisms must be part and parcel of the laws on regional economic management, on local self-government and self-financing, on property, and on taxes. *Goskompriroda* must search out and support types of production that are good for the environment.

In developed countries, industry is actively moving toward waste-free technology (in which the waste from one type of production becomes a raw material for another type of production). This means increased production and economic benefit. For example, one cubic meter of lumber in Canada or Sweden ends up producing five to six times more products than in our country.

What Is to Be Done?

All citizens of the country must be involved in plans for protecting the environment. New environmental laws must be based on a nationwide discussion.

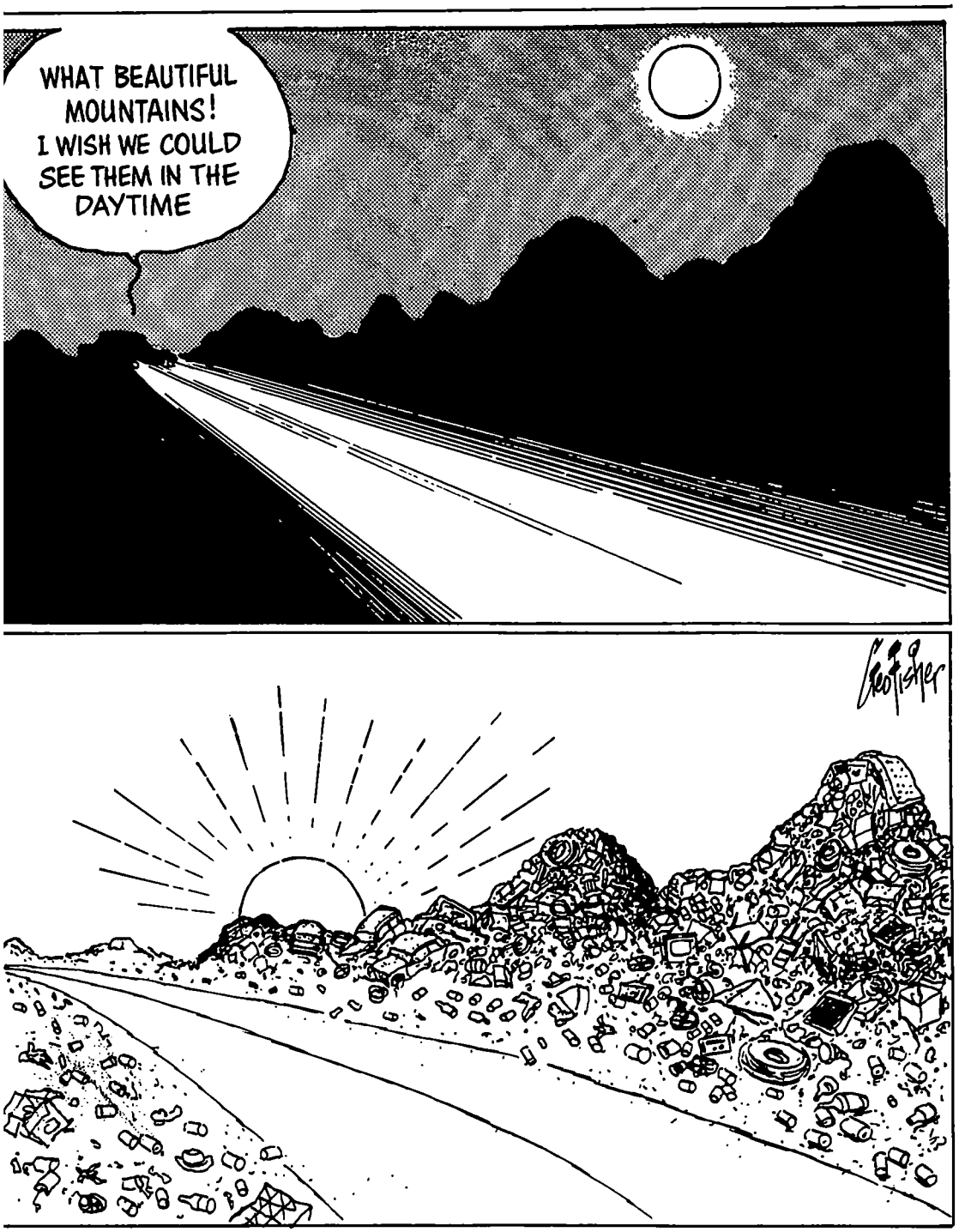
The Supreme Soviet and *Goskompriroda* can take concrete steps. For example, in the future, cars must use only two to three liters of gasoline per 100 kilometers instead of today's eight to nine. It is time not only to reduce, but to stop completely the release of chlorofluorocarbons in order to stop depletion of the protective ozone layer. And it is time to reassess the necessity of the immense amount of energy now being produced.

We must endorse extraordinary short-term programs for quick repair of the environment in regions of ecological disaster. This is the first step. Following this, we must simply stop the construction of huge industrial and energy projects that are environmentally irresponsible.

Among other things, it will be essential to develop a mobile ecological assessment capability; to register ecological "passports" for existing industry in order to define the degree of danger to the environment of various technologies in use; and to develop concrete measures for replacing dangerous technologies with new, less dangerous ones.

Complete *glasnost* about and access to information about the condition of the environment and all forms of pollution—including radiation—are very important and will help us concentrate on the most urgent problems in every region. In general, the plan of action is clear. We must bring it to life. Unfortunately, we still face the problem of ignorance about severe problems on the part of people who are making decisions. At the first Congress of People's Deputies, a group of deputies—dozens of them—demanded the passage of a special resolution about the environment. It did not work out. Finally, with enormous effort, it was possible to include in the agenda of the present Supreme Soviet session a discussion of the draft decree entitled "Urgent Measures for Improving the Country's Environment." Even if it was the 34th and last question on the agenda, it was an enormous symbolic victory all the same.

It was a legislative victory as well, as the Supreme Soviet passed the decree on the last day of its session in December 1989. This decree is vitally important: It gives the government a plan of action, supports the people who are desperately trying to save the environment, and shows the rest of the world that the Soviet Union is serious about improving its own ecological record and the health of nature around the world. □



Reprinted with permission of the Arkansas Gazette.

Back Cover: Spring, a time of hope. Photo by Bill Weems, Woodfin Camp.

EPA

United States
Environmental Protection
Agency
Washington, DC 20460

Official Business
Penalty for Private Use
$300

Bulk Rate
Postage and Fees Paid
U.S. EPA
Permit G-35

To lay the groundwork for the five-member operating commission provided in the legislation worked out by Mayor Lindsay and Governor Rockefeller as part of a $469-million revenue package for the city, the Mayor named Mr. Cavanagh, Deputy Mayor Richard R. Aurelio, Budget Director Frederick O'R. Hayes and Corporation Counsel J. Lee Rankin.

Restrictions Are Listed

As currently envisioned, the plans call for a morning-to-midnight network of parlors to take bets on daytime thoroughbred racing and nighttime harness racing.

The number and nature of the betting parlors would not be decided firmly until the city operating commission makes its decision, Mr. Cavanagh said. Norman Redlich, first assistant corporation counsel, who helped in the Albany negotiations that led to the offtrack legislation, said that the city intended to limit itself to restrictions it had written into its original betting proposal. Among these restrictions were requirements that the bet parlors be a distance from churches, schools, unem-

Continued on Page 59, Column 7

EARTH DAY GOALS BACKED BY HICKEL

1,000 Attend Rally Here in Prelude to Today's Events

By GLADWIN HILL

Earth Day activities got off to an early start across the country yesterday, with Federal officials, industrialists, housewives and students contributing to a kaleidoscope of environmentally oriented activities.

Secretary of the Interior Walter J. Hickel, the top Government official to take formal cognizance of today's mass contemplation of ecological problems, said:

"I am optimistic about Earth Day and I hope it will not be the finale following one year of increased environmental awareness."

In New York City, a youthful crowd of about 1,000 gathered at noon in a pre-Earth Day rally at Broad and Wall Streets.

The main speaker, Senator Jacob K. Javits, Republican of New York, praised antipollution efforts but said that the ecological campaign should not become "something of a diversion" from such problems as poverty and racial tensions.

Disregarding the White

Continued on Page 36, Column 1

NEWS INDEX

'Neither a Whitewash Nor a Witchhunt' Is the Goal of Judiciary Committee

By MARJORIE HUNTER
Special to The New York Times

WASHINGTON, April 21—Promising "neither a whitewash nor a witchhunt," the House Judiciary Committee created today a subcommittee to study impeachment charges against Justice William O. Douglas of the Supreme Court.

The five-member subcommittee—three Democrats and two Republicans—will be headed by Representative Emanuel Celler, Democrat of Brooklyn, who is chairman of the committee.

The move, taken behind closed doors, apparently sidetracked, at least temporarily, efforts of 110 House members to create a select committee to investigate possible impeachment of the controversial Associate Justice, who has been on the Court for 31 years.

Panel Members Listed

There were strong indications today that the House Rules Committee, to which the resolution for a special study was sent, would not act while the Celler panel's investigation was under way.

The predominantly liberal make-up of the Celler panel would indicate that it would be far more reluctant to approve impeachment than would the six-member select committee proposed by the 110 conservative Republicans and Southern Democrats.

Serving with Mr. Celler will be the ranking Republican on the Judiciary Committee, William M. McCulloch of Ohio; Byron G. Rogers of Colorado and Jack Brooks of Texas, both Democrats, and Edward Hutch-

Continued on Page 22, Column 3

Musicians' Strike Cancels City Ballet

By ANNA KISSELGOFF

After nearly eight months of fruitless labor talks, members of the New York City Ballet's orchestra went on strike yesterday, causing cancellation of last night's opening of the company's spring season at the New York State Theater.

The strike was called by Local 802 of the American Federation of Musicians eight hours before the performance. In a statement to the press and to ticketholders, the company announced it was canceling all performances until further notice. Patrons were asked to hold their tickets until notice could be given regarding refunds and exchanges.

Although the box office was open yesterday to allow distribution of the statement, the State Theater will be

ments be ended to make the new lottery system work more smoothly and to make all men equally susceptible to the draft.

No one at the White House would comment on the details of the President's draft announcement.

The White House confirmed last week that there would be an announcement on the draft this week. Today Gerald L. Warren, the deputy press secretary, would say only that there was a "possibility" there would be a message to Congress later this week on the draft.

But other sources said there were clear indications that a message would be sent tomorrow or Thursday.

May Act on Students

In a related development today, Donald Rumsfeld, director of the Office of Economic Opportunity, said that his agency would no longer request job deferments for VISTA volunteers. He contended that such deferments shifted the burden of the draft to others, often the poor.

In January, Defense Secretary Melvin R. Laird said he had recommended to the President that job deferments be ended and added that Mr. Nixon "wants to move in the direction so that all young men are treated equally and fairly."

These deferments are now granted at the discretion of the local draft board. The applicant must show that he is irreplaceable "because of a shortage of persons with his qualifications or skill" and because his leaving the job "would cause a material loss of effectiveness on

Continued on Page 5, Column 1

RIOTS IN TRINIDAD

2 Reported Killed in Troop Clash — Stores Looted and Police Open Fire

By Reuters

PORT OF SPAIN, Trinidad, April 21 — Policemen opened fire today on rioting mobs that went on a looting rampage in this Caribbean capital in defiance of a state-of-emergency proclamation issued to cope with black-power demonstrations.

The police fired after a mob threw stones and bottles at firemen fighting a fire in a shoe shop. Several persons, including some policemen, were reported injured.

The Government, which earlier had ordered troops into Port of Spain, ordered a dusk-to-dawn curfew for the country.

Several Clashes Reported

There were reports that a soldier had been killed in a clash between black-power members of the army and troops loyal to the Government of Prime Minister Eric Williams. [United Press International reported that an army private and a 16-year-old bystander had been killed when about 50 rebel soldiers tried to rescue 14 black-power advocates being taken to prison.]

Policemen clashed with the demonstrators several times, using tear gas and batons. But as soon as they restored order in one section the demonstrators carried on with their smashing sprees in other parts

Continued on Page 8, Column 1

By BERN
Special

MOSCOW, April 21—L
I. Brezhnev, the Comm
party leader, marking the
anniversary of Lenin's
tomorrow, called anew t
for renovation of the S
economy and for unity in
Communist world.

At Kremlin ceremonies
tended by most of the wo
leading Communists and
entire Soviet Politburo,
Brezhnev paid glowing tri
to the "gigantic figure"
Lenin.

The Soviet party's Ger
Secretary mixed his expe
praise of Soviet accomp
ments with reminders

Peking Says Sovi Has Betrayed Le

Special to The New York Times

HONG KONG, April 21
Communist China today de
ered a major attack on
Soviet Union to mark the
tenary of the birth of the
to whom both countries
allegiance.

Peking charged that Vladi
Ilyich Ulyanov, better kno
as Lenin, had been betrayed
the present Soviet leaders.

"Like the U.S. imperialist
it said, "the handful of
garchs of Soviet revisior
social-imperialism have beco
another arch-criminal prepar
to start a world war."

These charges were made
an article ascribed to the e

Continued on Page 7, Colum

The 14th Street buses will run on 12th and 13th Streets from noon to midnight.

Extra trains will be run on the 14th Street-Canarsie subway line.

PARKS

Central Park in Manhattan, Silver Lake Park on Staten Island, Forest Park in Queens and Prospect Park in Brooklyn will be closed to auto traffic.

Hickel Backs Earth Day Goals; 1,000 Attend Wall Street Rally

Continued From Page 1, Col. 1

House's posture of detachment from Earth Day activities, Mr. Hickel continued, in a statement prepared for The Associated Press:

"It should be the first step in educating the public and providing a broad base of support for environmental improvement programs.

"It should be a time for setting general goals and demonstrating public support for obtaining those ends."

Department Participation

Secretary Hickel said that more than 500 representatives of the Interior Department would participate in today's nationwide "teach-in" activities, promoted by Congressional conservation leaders and an organization of youthful volunteers.

Gerald Warren, assistant White House press secretary, said President Nixon approved of the Earth Day activities but had no plans to join in them himself.

Mr. Warren added that the President "feels the activities show the concern of people of all walks of life over the dangers to our environment, and feels this should be more than a one-day event—should be the beginning of a new and sustained effort."

Denis Hayes, the 24-year-old national coordinator of the campaign, said at a news conference in Washington yesterday that the organization, Environmental Action, Inc., would continue, particularly as a spearhead of political action, litigation and corporate pressure to help improve the environment. He said he did not expect public interest to evaporate because "things are getting worse, and it's going to involve more and more people."

A shrimp trawler left yesterday from Charleston, S.C., for Washington, according to news agency reports, with a petition to Secretary Hickel. The petitions, signed by 35,000 South Carolinians, protests the planned construction of a chemical plant on a choice part of the South Carolina coast.

Pickets in Detroit

In Detroit, about 40 women picketed the Great Lakes Steel Corporation on Zug Island in the Detroit River, protesting industrial discharges into the river.

The Interlake Steel Company in Chicago joined a growing number of industrial concerns announcing plans for cleaning up their production processes. The company said a water pollution abatement program that began in 1964 would be augmented with a two-year, $3-million project aimed at cleaner water and air.

At Lake Ozark, Mo., in a three-and-a-half-hour prelude to Earth Day, students collected refuse along a stretch of U.S. Route 54 and left it in five piles more than 10 feet high along the roadside.

"Polluted countryside represents the antithesis of freedom," Senator Gaylord Nelson, originator of the Earth Day idea, said in a talk to the Massachusetts Legislature in Boston. The Wisconsin Democrat urged support of his proposed constitutional amendment that would give citizens new legal rights to demand environmental reforms. His appearance was the 11th in a 17-speech cross-country tour pegged to the observances.

Senator Nelson returned late yesterday to Madison, Wis., his home town, and found that the City Council, fearing another outbreak of violence similar to the distrubance that occurrred in an antiwar march last Saturday, had canceled a permit for an Earth Day parade.

Gov. Deane C. Davis of Vermont announced in a speech that he was looking into the possibility of a state ban on nonreturnable bottles and cans.

In Ohio, state officials scrambled to find the source of a new oil slick that suddenly appeared on the Maumee River.

'Teach-In' Canceled

Among the plans for Earth Day activities by schools, colleges and community organizations in New York, one of the few unexpected notes was the reported cancellation of a "teach-in" program at the Brooklyn Technical High School.

The office of Jerome Kretchmer, administrator-designate of the city's Envoronmental Protection Administration, who was scheduled to participate in the program, said yesterday that a telephoned notification of the cancellation attributed the change to fear of possible disorder. School officials could not be reached for confirmation.

The Wall Street rally was sponsored by the Lower Manhattan Environment Council, composed of students at New York University's Graduate School of Business Administration.

Pete Seeger, the folk singer who also spoke at the rally, said the environmental problem "is a lot worse than we think it is" and that the country "is being destroyed by the people who control the country."

Hickel Pledges Federal Efforts To Clean Up Lakes and Rivers

to the poor?" asks Herman Wrice, the head of the Young Greats, who have won wide respect for their work in such fields as rehabilitating slum houses and delinquent orphans.

Mr. Wrice is by no means the only skeptic about the environmental cause. At a recent dinner in Washingron, Richard G. Hatcher, the black Mayor of Gary, Ind., observed:

"The nation's concern with environment has done what George Wallace was unable to do: distract the nation from the human problems of the black and brown American, living in just as much misery as ever."

A Widely Shared View

That view is widely shared by students of urban and minority problems, but they are deeply divided as to how best to reassert the urgency of those problems.

One strategy is to use the environmental cause. This "piggyback" strategy is openly pursued by Saul Alinsky, the noted community organizer, working in Chicago.

"The environmental thing

A second strategy s
al and urban environ
having common ro
combination is what
ment really means, s
ald Canty, a Washing
writer and editor.

Mr. Canty edited
publication of Urban
until the group's recer
with the National Urb
tion. Now he is deve
new publication for t
tion, City—A Maga
Urban Life and Enviro

"Urban problems
problems that result fr
people do to slums ir
he says. "They come fr
the slums do to peo
environment of an i
child is not merely bou
the walls of his schoolr
merely the demeaning r
hood, but also the qu
the teaching he gets,
spect he is accorded.

"We need to help
broaden their concern
vironment to cover t
bination of urban as we
physical environment."

Clifford L. Alexander

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
INTERNATIONAL ACTIVITIES

Fax # (202) 382-4470
(Canon FAX-730)
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ORGANIZATION OFF. OF RESEARCH
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FAX# 456-6218

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FROM NAME CAROL DECK

PHONE# 475-8199

DATE:

No. of Pages to follow: 8

OFFICE OF
POLICY, PLANNING AND EVALUATION

May, 1989

The attached report provides a summary presentation of how the United States compares with other countries in emissions of greenhouse gases and conventional air pollutants. In order to give a concise reference, the focus is on presenting the comparative data. There are however a few key conclusions to highlight:

GREENHOUSE GASES

The United States has the largest total and per capita emissions of most greenhouse gases. The Soviet Union and the countries of the European Community (EEC) typically rank second or third in these regards. Although its emissions are not the highest, Japan is a major source of CFC's. India has the highest methane emissions, while China and Brazil are major methane and CO2 sources.

Given the size of the United States economy, the greenhouse gas emissions are relatively modest. The economies of the Soviet Union and the developing countries produce greater emissions per dollar of national income, and are in this sense, less efficient. Japan and the EEC are more efficient, with the exception of one CFC in the case of the EEC.

The greatest rate of growth in CO2 emissions has been in developing countries and the Soviet Union. Based on fossil fuel and cement sources, CO2 emissions grew by 52% in India, 37% in China and 14% in the Soviet Union from 1980 to 1986. During this time, US emissions fell 4%.

CONVENTIONAL POLLUTANTS

The United States has the highest total emissions of nitrogen oxides (NOx), sulfur dioxide (SO2) and hydrocarbons. The US has the highest per capita emissions of NOx and hydrocarbons and is second to Canada in per capita emissions of SO2.

The United States is relatively inefficient in generating income while also generating NOx, SO2 and hydrocarbons, compared to Japan and selected European countries. The US generates six to seven times more NOx and SO2 per dollar of national income than Japan. Among the countries considered, only Canada and the United Kingdom are less efficient with respect to SO2.

The United States has made moderate gains in NOx reductions. The US had no increase in NOx emissions from 1975 to 1983 while France, the Federal Republic of Germany and Canada had increases of 49%, 8% and 6% respectively.

The United States has made the smallest reductions in SO2 emissions. From 1975 to 1983, the US reduced its emissions by 20% but the other five countries considered achieved larger reductions. The US also had the smallest reduction in terms of emissions relative to national income.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
POLICY, PLANNING AND EVALUATION

(Report Summary)

May, 1989

The attached report provides a summary presentation of how the United States compares with other countries in emissions of greenhouse gases and conventional air pollutants. In order to give a concise reference, the focus is on presenting the comparative data. There are however a few key conclusions to highlight:

GREENHOUSE GASES

The United States has the largest total and per capita emissions of most greenhouse gases. The Soviet Union and the countries of the European Community (EEC) typically rank second or third in these regards. Although its emissions are not the highest, Japan is a major source of CFC's. India has the highest methane emissions, while China and Brazil are major methane and CO2 sources.

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PREPARATION FOR G-7 SUMMIT 7/89

→ VERY ROUGH DATA

Highlights on US Programs and Comparisons

- Our programs stress strict enforcement--including the imposition of civil and criminal penalties. We know of no other G-7 country with a similar emphasis.

- Between 1977 and 1986, ambient levels of lead decreased in the U.S. by 87%, due to a regulatory phase-down in leaded gasoline.

- Auto exhaust emission standards required a 90% reduction in carbon monoxide (CO) and hydrocarbon (HC) from 1971 to the mid-1980s and a reduction over the same period of 75% of nitrogen (NOx) for oxides.

- The U.S. had consistently better national composite averages of ambient levels of SO2 until the mid-1980s, when Japan and Canada reached similar levels.

- The U.S. banned most aerosol uses of CFCs in 1978, has led in advocating stratospheric ozone protection, and has called recently for further tightening of the Montreal protocol.

- We have established a comprehensive and stringent framework for regulating hazardous waste generators, treatment, storage and disposal.

- We are first among the G-7 countries in establishing a major program and committing funds to identifying and cleaning up hazards from past mismanagement of wastes, through the Superfund program.

- EPA has issued a municipal waste "Agenda for Action" and adopted a national goal of achieving a 25 percent recycling of nonhazardous wastes at their source by 1991.

- Water pollution control programs have led to dramatic improvements in water quality in several areas. Examples include

the Great Lakes, Potomac River, and Willamette River.

- We have banned ocean dumping of sewage sludge and adopted a natural goal of no net loss of wetlands.

- Full or partial bans on a number of dangerous pesticides have resulted in declines in levels of several persistent, bioaccumulating pesticides in humans and wildlife.

AIR QUALITY

Statutory Scheme:

The US has a comprehensive program to protect and improve air quality. Under the Clean Air Act, last amended in 1977, EPA sets national ambient air quality standards for conventional pollutants (particulates, hydrocarbons, CO, NOx, SO2, lead). States must develop and implement plans to achieve these standards under guidance and oversight of EPA. Uniform technology based standards are required of automobiles, trucks and buses, as well as new sources in 48 industrial categories. Controls for individual existing sources are imposed by states to assure that the ambient standard is attained. The Act calls for development of national standards to control toxic air pollutants.

President Bush's proposals to Congress: *The President's proposal addresses urban smog, acid rain, and air toxics. The proposal will reduce SO2 emissions by the year 2000 to a level 10 million tons below 1980 levels and will limit the expected growth in NOx emissions. As part of the proposal to reduce urban smog, new restrictions on car emissions through technical controls will assist US cities in meeting clean air standards by 1995. The President calls for a new technology-based approach to regulating air toxics.*

SEE NEW CLEAN AIR ACT

Program Highlights:

Expenditures: US expenditures for air pollution control in 1985 amounted to some $21.4 billion annually, or about .54% of US GDP, according to data reported to OECD.

Conversion to Unleaded Fuels: Between 1977 and 1986 ambient levels of lead decreased in the US by 87%. This dramatic reduction is primarily due to the regulatory phase-down of leaded gasoline. The lead content of gasoline was reduced in 1985 from an average of 1.0 grams/gallon to 0.1 grams/gallon in 1986. Seventy percent of gasoline currently sold is unleaded.

Reductions in Ambient Levels: Between 1977 and 1986 ambient particulate levels decreased by 23%. Ambient levels of sulfur dioxide decreased by 37%. Levels of carbon monoxide fell 32% over the same period.

High Rates of Compliance: Based on 7,048 inspections of 10,000+ facilities in areas with air pollution problems in the US in 1988, 88 to 95% were in compliance with established control limits, depending on the pollutant of concern.

Mobile Source Emission Standards:
US exhaust emission standards required a 90% reduction in carbon monoxide (C0) and hydrocarbons (HC) from 1971 to the mid-1980's and a reduction over the same period of 75% for oxides of nitrogen (NOx)

The US. and Japan, (with an eye towards the US export market) have been well ahead of the others since the early 1970's Canada recently adopted standards comparable to ours. Europeans still appear to be much less stringent than the US. [1]

Emissions and Ambient Levels [2]:

NOx and SO2 reductions:
From 1975 through 1983, the US reduced NOx emissions per unit GDP by 17%, exceeded only by Japan at 35%.[3] In the same period, our performance was comparable to Germany and the UK in reducing SO2 emissions by 34% per unit of GDP. Japan, Canada, and France performed better (54%,46%, and 42% respectively).

SO2 levels:
The US had consistently better national composite averages of ambient levels of SO2 until the mid-1980's when Japan and Canada reached similar levels.From 1975 to 1980, Canada made a 75% reduction, relative to its 1980 level. The UK, Japan and the US made reductions in the 30 to 40% range on the same basis during that time. Japan made a 34% reduction from 1980 to 1984. [4]

Greenhouse Gases and Ozone Depleters

Until recently countries had not contemplated controls on greenhouse gases, and no emission limits in a traditional pollution control sense are likely in the near term. However, for perspective, there are some important differences among emission levels from country to country.

In absolute terms, the US accounts for 21% of the warming, considering all gases, the EEC 14%. The US has the largest absolute and per capita emissions of most greenhouse gases. Although its emissions are not the highest, Japan is a major source of CFCs, which are both a greenhouse gas and depleters of the protective ozone layer . The US banned most aerosol uses of CFCs in 1978, took a leadership position in advocating stratosperic ozone protection, and has called recently for a further tightening of the Montreal Protocol -- to substitute a phase-out for a phase-down. US emissions of CO2, the primary cause of global warming, have been

growing very slowly over a period of years, in spite of tremendous economic expansion, while LDC and East Bloc emissions have climbed dramatically.

Cautions:

1 Mobile Source Standards: The comparison is not clearcut. For example, the standards are not directly comparable because of differences in testing procedures (with the exception of Canada). In-depth comparisons of US and Japanese standards have shown they are comparable once differences in testing procedures are considered.

Exhaust Emission Standards for NOx
New Gasoline Powered Automobiles

	Model Year	Test Procedure	NOx std (g/mile)
USA	1983	USA 1975	1.0
Europe	1988-91	European	1.3 - 2.4
Japan(max limits)	1978	10-mode	0.8
Canada	1987	USA 1975	1.0

2 The US has the highest emissions, in absolute terms as well as per capita and per unit of GDP, among G-7 countries for hydrocarbons, NOx, and SO2. The exception is SO2 emissions from Canada, which are higher on a population basis and unit of GDP basis.

The performance in emission reductions should be weighed against the resulting ambient levels. Japan had consistently higher national composite averages for ambient levels of NOx for the entire period than the US. Canada was consistently lower. From 1980 to 1984, the US made a 13% improvement. Japan made a 5% improvement during that time. Canada fluctuated between making improvements and returning to 1980 levels.

The United States has made the smallest reductions in SO2 emissions. From 1975 to 1983, the US reduced its emissions by 20% but the other five countries considered achieved larger reductions. The US also had the smallest reduction in terms of emissions relative to national income.

3 The US had no increase in NOx emissions from 1975 to 1983, as our economy expanded -- accounting for the improvement on a unit of GDP basis. France, the Federal Republic of Germany and Canada had increases of 49%, 8% and 6% respectively, in absolute emissions.

4 Emission Standards: SO2

Based on the numerical standards and the extent of flue gas desulphurization (FGD) use, Japan appears to be more stringent than the US in controlling S02. Based on the OECD comparisons, this conclusion is credible for Japan given its relatively strong performances in terms of emission reduction. Given coal use patterns the effective US standard for solid fuels is approximately 0.60 lbs/MMBtu. Germany appears to be slightly more stringent but its use of FGD relative to generation from coal is currently comparable to that of US. Canada has only guidelines for the provinces and is not more stringent at the federal level. These are only guidelines. The United Kingdom has had no formal emission restrictions until recently.

CEQ Annual Report 1971

"A Better Environment" as its theme for the next 2 years. On June 5, 1971, 3½ million Americans, under the auspices of the Boy Scouts of America and in league with industry's antilitter effort—Keep America Beautiful—conducted what was probably the largest 1-day litter cleanup project in history. The League of Women Voters has been active in environmental activities for years—at both the State and National levels.

These and many other civic groups have found answers to the question that puzzled many individuals only a year ago: "What can I do?" Many people have translated a simple idea into a major effort to solve an environmental problem. For instance:

—A scientist in a small Maryland suburb worked after hours with schoolchildren to mount a communitywide campaign to pass the first municipal ordinance in the Nation banning nonreturnable beer and softdrink containers. The campaign succeeded, although the ordinance is being challenged in court.

—Two women talking at a party in Washington, D.C., invited five friends to join them in forming Concern, Incorporated. The organization has mailed out more than 400,000 copies of *ECO-TIPS*, a housewife's guide to environmental buying, and has answered more than 90,000 unsolicited letters and inquiries.

—A biology teacher in Lewes, Del., conducted a door-to-door campaign with his students to save nearby beaches from pollution and development. His efforts wrought major changes. Planned sewage and industrial facilities were relocated. And some of the few remaining natural dunes along the Atlantic coast were saved. The State government has since adopted the strongest coastal land use legislation in the country.

—Two young university professors spent their summer sampling the polluted waters in the Pittsburgh area from a canoe. The evidence they collected was used by a U.S. attorney to prosecute a number of companies for pollution. The first conviction was handed down in June 1971. It was the first Refuse Act conviction based on citizen-supplied information.

—An airline captain defied threats to his job and refused to jettison accumulated flight fuel from his aircraft. His act has pressured the airlines to take steps to stop the procedure.

These few examples are dramatic evidence of the effectiveness of citizen—sometimes only single citizen—activity. Throughout the Nation, people are working together to solve the environmental problems that face their communities:

—Ecology centers are now operating in many cities. They are focal points for environmental education and a place for concerned citizens to meet.

Citizen action after Earth Day 1970

—Recycling centers have been established in many cities, often with the support of container manufacturers.

—Many citizens have organized to identify polluters and to monitor land development activities. Pollution factfinding tours and photo contests have worked well.

—Litter cleanup efforts have cleared roadsides, parks, and beaches of bottles, cans, paper, and tires.

—Stockholders are challenging the environmental practices of major corporations by letter and at shareholders' meetings.

summary

American industry's progress in meeting environmental quality standards is difficult to pinpoint because of limited data and disparities in the scope of different industry expenditure analyses. However, a comparison of available information on industry's past, current, and planned expenditures for pollution control shows a steady increase. The extent to which investment levels must rise to meet pollution control goals set for the mid 1970's is not yet clear, in part because estimates of needs are also imprecise. Some firms have organized to deal with pollution problems, although a recent study indicates that only half of the pollution-intensive industries have done so. The extent to which pollution control and other environmental enhancement activities become part of conducting business—as part of organization, policies, and cost decisions—will be a significant measure of the Nation's ability to achieve a high quality environment.

The American citizen is becoming better informed on the major issues of pollution, recycling, land use, and other environmental matters. His variety of activity is considerable—and growing. He is lobbying legislators, enforcing environmental standards in court, and swaying elections on the basis of environmental issues.

As he becomes more knowledgeable about the impact of the action of public bodies and private interests, the citizen will participate with still more success in the political processes that are essential to upgrading environmental policy and quality.

The private sector remains the key arena for environmental improvement. The stimulus for such improvement must come from the citizen. His approval must be won for necessary public expenditures, such as those for sewage treatment. Much of the ultimate responsibility for action—to meet pollution control standards and to take the environment into account in a wide variety of decisions that will affect it—falls upon individuals and firms in the private sector.

Throngs jamming Fifth Avenue yesterday in response to a call for the regeneration of a polluted environment. View is north from 43d Street, with Central

The New

U.S. CONCERN SUED WITH 2 IN JAPAN

Westinghouse and Mitsubishi Companies Are Accused in a Federal Trust Action

By EILEEN SHANAHAN
Special to The New York Times

WASHINGTON, April 22—The Justice Department, in the first action of its kind in 20 years, filed an antitrust suit today charging the Westinghouse Electric Corporation and two major Japanese companies with illegally conspiring not to sell certain products in each other's countries.

The alleged agreement not to compete on each other's home grounds was made as part of an agreement under which the companies exchanged patents and other technical information, according to the suit. The case was filed in United States District Court in San Francisco and was simultaneously announced by the Justice Department here.

Statement by Westinghouse

According to the complaint, a wide range of industrial and consumer products, ranging from transformers to television sets, were covered by the agreements.

Westinghouse immediately issued a statement in which it said that the Justice Department was trying to write a new antitrust law.

If the department wins the case, Westinghouse said, the Japanese companies, the Wi

Mood Is Joyful as City Gives Its Support

NYT 4-23-70

By JOSEPH LELYVELD

Huge, light-hearted throngs ambled down autoless streets here yesterday as the city heeded Earth Day's call for a regeneration of a polluted environment by celebrating an exuberant rite of spring.

If the environment had any enemies they did not make themselves known. Political leaders, governmental departments and corporations hastened to line up in the ranks of those yearning for a clean, quiet, fume-free city.

For two hours, except for crosstown traffic, the internal-combustion engine was barred from Fifth Avenue between 59th and 14th Streets; the only wheeled vehicle to go down the avenue during this period was a horse-drawn buggy carrying members of a Harlem block association.

Fourteenth Street between Third and Seventh Avenues, left free for pedestrians between noon and midnight, became an ecological carnival.

The Consolidated Edison Company, identified by many environmentalists as a prime enemy, draped orange and blue bunting from the lampposts. And balloons stamped with the slogans of the peace and popu-

Continued on Page 30, Column 7

Activity Ranges From Oratory to Legislation

4-23-70

By GLADWIN HILL

Earth Day, the first mass consideration of the globe's environmental problems, preempted the attention and energies of millions of Americans, young and old, across the country yesterday.

Congress stood in recess because scores of its members were participating in Earth Day programs.

The activities ranged from huge demonstrations to the passage of environmental legislation.

Rallies involving up to 25,000 persons took place in New York, Philadelphia, Chicago and other big cities. The National Education Association estimated that 10 million public school children participated in "teach-in" programs.

Organizers of Earth Day said more than 2,000 colleges, 10,000 grammar and high schools, and citizen groups in 2,000 communities had indicated intentions of participating.

Ten thousand persons joined in a rally at the Washington Monument that was embellished with a rock-music concert and the distribution of litter bags.

There was a minimum of disorder, despite the fact that the unprecedented event owed its format in some degree to the

Continued on Page 30, Column 1

BACKERS OF ROJAS THREATEN REVOLT

But Colombian Government Appears in Full Control—Fraud Charge Renewed

By JOSEPH NOVITSKI
Special to The New York Times

BOGOTA, Colombia, April 22—As the Colombian Army enforced calm in the country today, leaders of the movement trying to return Gen. Gustavo Rojas Pinilla, the former dictator, to power, insisted that they were ready to provoke civil war in the general's cause.

However, President Carlos Lleras Restrepo, under the provisions of the state of siege that he decreed last night, appeared firmly in control of Colombia.

Today was the first calm working day since last Sunday's presidential elections. With the official count of the returns almost complete, General Rojas trailed his leading opponent, Misael Pastrana, by 50,000 votes.

Declaration Due Sunday

The winner will not be declared until Sunday, but the general has maintained the counting is fraudulent.

The general himself and his family were effectively under house arrest today. A four-block area around the Rojas home was closed off by troops, but telephone communications were maintained.

"This can't go on indef-

U.S. Plane Flies As Trinidad Figh

By TAD SZULC
Special to The New York Ti

WASHINGTON, April 22—The U planeload of weapons, including mort to Trinidad today at the urgent reques ment there, which is seeking to put down a mutiny inspired by black-power elements.

The black-power militants contend that the economy of Trinidad and Tobago—two islands that make up one state—is controlled by whites who make up only 2 per cent of the population.

Simultaneously, a six-ship squadron was dispatched to Trinidad waters on President Nixon's orders to be ready to evacuate American citizens if their safety appeared to be endangered. [In London, The Associated Press reported, the British Defense Ministry said two guided-missile frigates were in the Caribbean on standby alert.]

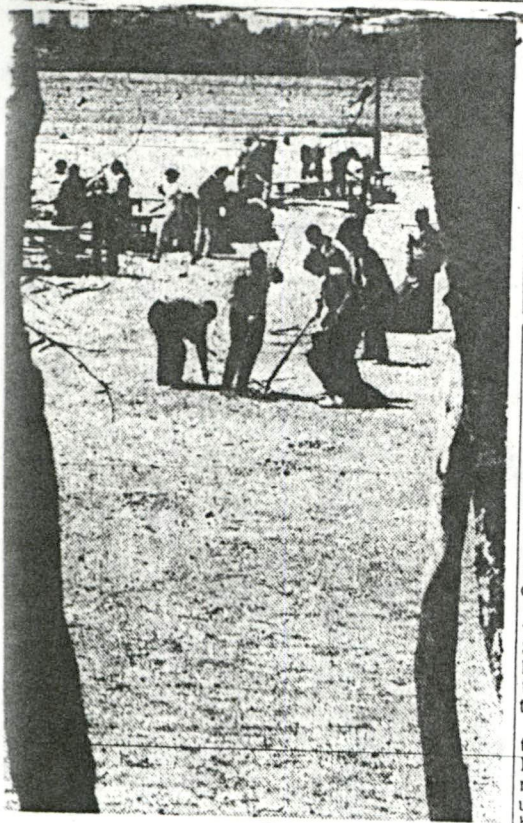
Arms Sold for Cash

The arms were urgently requested yesterday by the Government of Prime Minister Eric Williams to equip the national police and the loyal members of the 800-man Trinidad Army. State Department officials said the request came after the mutineers had seized the only arms depot at Chaguaramas, a one-time United States Navy base.

[At least 58 persons were arrested in Port of Spain in raids on known offices and homes of black power mili-

Witness Tells Court That Seale Ordered Black Panther Kill

riety of Activities Across the Country



The New York Times (by Jack Manning)

lyn, cleaning up and painting benches on Plumb Beach

Mood Is Joyful Here; Union Square Thronged

Continued From Page 1, Col. 3

lation-control movements — "War is the worst pollution" and "Stop at two"—drifted over the crowds.

Union Square, the focus for scores of Earth Day observances and teach-ins throughout the metropolitan area, saw the kind of crowds it had rarely seen since the turbulent days of the thirties, when it was a favorite arena for leftists.

At any given time there were probably 20,000 people in the square, but the crowds were constantly on the move, so it was likely that many more than 100,000 passed through the square in the course of the day.

One section of the crowd was content to stand on 14th Street in front of a huge, brightly painted rostrum and listen to talks on the urgent crises of the day.

It was here that the festivities were officially ended at 10:40 P.M., with a brief announcement to that effect by an unidentified speaker, followed by the dousing of the floodlights.

The crowds continued to stroll along the traffic-free streets of the area until midnight, when the police barriers began coming down, and cars and trucks once more swept along 14th Street and the surrounding streets.

Earlier, other visitors had rambled through the booths around the square where particular causes were stressed—clean airan d peace, urban planning and voluntary sterilization, conservation and wildlife preservation.

Each visitor to the square had to improvise his own Earth Day, by deciding where to spend his time. Some resolved the range of choices by taking part in a nonstop Frisbee game on Union Square Park's piebald lawns. Thousands crowded into a block-long polyethylene "bubble" on 17th Street to breathe pure, filtered air; before the enclosure had been open to the public for a half an hour the pure air carried unmistakable whiffs of marijuana.

Mayor States the Theme

Mayor Lindsey, in a brief speech, helped set the general theme of the day. "Behind the complex predictions and obscure language," he said, "beyond words like ecology environment and pollution there is a simple question: Do we want to live or die?"

The Mayor was among those who brought up the war in Vietnam as an environmental concern. "Pure water will not wash away the stain of an immoral war," he declared.

Indeed, there was hardly a subject that has aroused demonstrators in the last five years that was not recapitulated in the course of the day.

At midafternoon, the full range in mood of protests was reflected in a musical counterpoint: On 14th Street the folk singer Odetta was singing "We Shall Overcome" while at the other end of the square a rock group was chanting, "Power to

speech called for harsher enforcement procedures by Federal agencies concerned with the environment.

Governor Rockefeller was greeted in Union Square with scattered cries of "Fascist pig!" Earlier he spoke in Prospect Park and rode a bicycle there.

Before he left Albany he signed by Gov. William T. Capollution activities under a Department of Environmental Conservation; a similar bill was signedby Gov. William T. Cahill in New Jersey.

But mostly the politicians were greeted by inattention. Organizers in the Environmental Action Coalition said they had been under pressure from candidates for Governor here—Mr. Rockefeller, Arthur J. Goldberg, Howard J. Samuels and Robert M. Morgenthau—to make room for them on their platform, but refused because they did not want the day to take a political cast.

An exception was made for Representative Richard L. Ottinger, who is seeking the Democratic nomination for the Senate, on account of this support of conservation groups seeking to clean up the Hudson River.

Mr. Ottinger denounced Governor Rockefeller and his new department, saying the Governor was merely "putting a new name on the same old door," behind which "you will find the same tired bureaucracy that protects the exploiters and polluters."

Con Edison Wary

Con Edison braced itself for demonstrations outside its headquarters at Irving Place and 14th Street, imposing elaborate security precautions at the one entrance it left open. But the biggest crowd near there was the line forming across the street at Luchow's restaurant for the bratwurst on sale at a sidewalk cafe.

The first schoolchildren arriving in Union Square early this morning for a special Earth Day cleanup were fourth-graders from the Sacred Heart School at Fifth Avenue and 91st Street. They were handed brooms, shovels and rakes, all with the compliments of Con Edison.

Mayor Lindsay stopped by the square to chat with the schoolgirls, then left in an electric-powered bus, also compliments of Con Edison.

"The coalition people are delighted with us," a Con Edison spokesman aid. Actually, the coalition organizer were complaining that the utility company and others were spending more on advertising their support of Earth Day than they were on Earth Day itself.

Bear and Fish

On 14th Street a "guerrilla" theater group acted out a skit portraying the plight of a hibernating bear who awakes to find a Con Edison nuclear reactor had been built above his cave.

On Fifth Avenue, a youthful group of demonstrators called attention to the utility company's connection with fishkill

House Panel Votes Plan For Clean Air Standard

By RICHARD D. LYONS
Special to The New York Times

SHINGTON, April 22—se subcommittee unani- approved today a bill d to reduce air pollution viding national quality rds and strict enforce- rocedures for the foulers tmosphere.

bill, reported out by the mittee on Public Health lfare of the House Com- on Interstate and For- mmerce, would do the g:

ghen existing laws gov- pollution from motor ve- power plants and planes.

plify and strengthen the of the Secretary of Education and Welfare ement national clear air ds.

the H.E.W. Secretary y to regulate fuel ad-

e the Federal Govern- self to stop its own air practices.

le the amount of money tely available for the ministration and double funds for cleaner auto

sentative Paul G. Rog- nocrat of Florida, the thor, said: "I think it icant that the bill was on Earth Day." Sev- committee witnesses in- sponsors of the event, Denis Hayes, the na- mpaign coordinator.

sentative Peter N. emocrat of Maine, said he bill was enacted "it ut the Federal Gov- in the permanent

models to ensure that they were meeting the standards, would require the testing of imported cars, and would force auto makers to give warranties to a buyer attesting that his car met Federal standards.

Subcommittee members explained that the last point would give consumers legal leverage that could be applied against auto makers if their products were found to be falling below standards.

Mr. Nixon's message also urged that the H.E.W. Secretary be given authori to regulate fuel additives, another point that is contained in the bill.

The Presi also had asked for increased research on pol lution-free cars, and new Fed eral standards that would equalize local minimum air pol lution standards. Provisions for both of these points are includ ed in the bill.

Mr. Rogers said he believed its chances of passage were good, except for the money provisions. The $45-million a year now authorized for pollution-free engine research would rise in steps to $125-million by fiscal year 1973. Grants in aid to help states improve their standards would also rise in steps from $45-million a year now to $200-million by 1973.

Mr. Rogers noted that under the Aid Quality Act of 1967 the H.E.W. Secretary had been authorized to set up air quality regions. But the Florida Congressman said that the machinery enabling the department to

23 APR

The

By McCANDLIS

There was a r during Earth Da when it was per ble for a man in the center of and not be hit by

There was an or perhaps it wa —quiet on the sound of thousa steps was like poured on paper.

Three children banner with a earth on it. "Leave it," the le it said.

Earth Day was even a contradic sion. There were bent to the symb bing of patches pavement. For protest against po the more specializ dumping symboli rubbish on the alleged pollution-

At that, it was the bad guys fro guys. Members of —Students for Env Action and Envi went to the Colise onstrate against ing industry exhib American Manage ciation. But they their protesting un quee that read: " lutes Earth Day."

"I had to go in Edison building Place," one bear man said, "but the just let you walk body had to identi

The Ne

Arthur Luken of Queens, donned dramatize air

But once you were was great. Everyb wearing an Ear button."

The Sanitation De caught up in the spi day, threw open facilities to the publi Day—Welcome!" a l read at a truck entr incinerator plant 74th Street at Fra Roosevelt Drive.

A pedestrian wa and came to a lock door marked "kee Several men gazed

APR 23

owing:

Toughen existing laws gov-
ng pollution from motor ve-
s, power plants and planes.

Simplify and strengthen the
ers of the Secretary of
lth, Education and Welfare
nplement national clear air
dards.

Give the H.E.W. Secretary
ority to regulate fuel ad-
es.

Force the Federal Govern-
t itself to stop its own air
ution practices.

Triple the amount of money
ediately available for the
administration and double
rch funds for cleaner auto
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ent in the permanent
ess of providing clean

presentative James F.
ngs, Republican of upstate
York, said that passage
l "serve notice on the
makers that Congress is
to club them into clean-
p their problems."

everage for Consumrs

ne of the bill's provisions
ail with portions of the
ge on the environment
President Nixon sent to
ess in February.

example, the President
that Federal auto emis-
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Mr. Rogers noted that under the Aid Quality Act of 1967 the H.E.W. Secretary had been authorized to set up air quality regions. But the Florida Congressman said that the machinery enabling the department to do this was so complicated that only one area, extending from southern New Jersey to Delaware, had been set up in three years.

The current bill would cut through much of this red tape for creating such areas on a statewide or multi-state basis.

Coeds Throw Pills at Rally

BLOOMINGTON, Ind., April 22 (AP)—Participants in an Earth Day rally at Indiana University were pelted today with birth control pills thrown by coeds dressed as witches. The girls danced in a circle and chanted, "Free our bodies, free our minds." The demonstration was conducted by about 20 members of the campus Women's Liberation Movement.

ble on 17th Street to breathe pure, filtered air; before the enclosure had been open to the public for a half an hour the pure air carried unmistakable whiffs of marijuana.

Mayor States the Theme

Mayor Lindsey, in a brief speech, helped set the general theme of the day. "Behind the complex predictions and obscure language," he said, "beyond words like ecology environment and pollution there is a simple question: Do we want to live or die?"

The Mayor was among those who brought up the war in Vietnam as an environmental concern. "Pure water will not wash away the stain of an immoral war," he declared.

Indeed, there was hardly a subject that has aroused demonstrators in the last five years that was not recapitulated in the course of the day.

At midafternoon, the full range in mood of protests was reflected in a musical counterpoint: On 14th Street the folk singer Odetta was singing "We Shall Overcome" while at the other end of the square a rock group was chanting, "Power to the people!"

But for its sponsors and its youthful participants, Earth Day was less a demonstration than a secular revival meeting. The hope was that citizens would pause and consider what they could do as individuals to fight pollution. To this end, the Environmental Action Coalition sold a "New York Pollution Survival Kit" with a list of 40 actions that individuals could take to fight noise, waste and dirt.

A quotation from Pogo on one of the booths caught this side of Earth Day: "We have met the enemy and they is us."

Senator Charles E. Goodell was greeted at a rally at New York University with a leaflet calling his speech "the biggest cause of air pollution." The

this morning for a special Earth Day cleanup were fourth-graders from the Sacred Heart School at Fifth Avenue and 91st Street. They were handed brooms, shovels and rakes, all with the compliments of Con Edison.

Mayor Lindsay stopped by the square to chat with the schoolgirls, then left in an electric-powered bus, also compliments of Con Edison.

"The coalition people are delighted with us," a Con Edison spokesman said. Actually, the coalition organizer were complaining that the utility company and others were spending more on advertising their support of Earth Day than they were on Earth Day itself.

Bear and Fish

On 14th Street a "guerrilla" theater group acted out a skit portraying the plight of a hibernating bear who awakes to find a Con Edison nuclear reactor had been built above his cave.

On Fifth Avenue, a youthful group of demonstrators called attention to the utility company's connection with fishkills in the Hudson River by displaying several dead fish. "You're next, people! You're next!" they cried.

The holiday mood on Fifth Avenue was exemplified by members of the architectural firm of Warner, Burns, Toan & Lunde, who spread a yellow-and-white quilt on the asphalt near 57th Street, put a tulip in a wine bottle for a centerpiece and enjoyed a picnic in the sun. A laughing crowd gathered around them and sang, "Happy Earth Day to You."

But a handful seemed to be irritated; among these was Katherine Duffy, a secretary for the American Standard Plumbing Company, who surveyed the crowds and said: "This is terrible, especially if you have only one hour for lunch."

Mayor Lindsay liked the transformation. "This is the first time I've walked down Fifth Avenue without getting booed half the distance," he said, pausing in front of St. Patrick's Cathedral.

Some of the most fervent Earth Day activities took place in areas remote from crowds. To name only a few of many, there were the students of John Dewey High School in Brooklyn who borrowed Park Department tools to clear off Plumb Beach near Flatbush Avenue; the community group that planted shrubs in Carl Schurz Park on East End Avenue and the group of Finch College students who washed the windows of a Lexington Avenue local subway train on their way to Union Square.

And in the Suburbs . . .

Similar activities attracted enthusiastic cleanup squads in the suburbs. Students from the Highlands Junior High School in White Plains painted the city's ramshackle railroad station and landscaped its grounds. In Rockland County, Pearl River students cleaned a public park and a stream that runs through the village.

Mayor Lindsay, who put in a full Earth Day moving tirelessly from one event to the next in his electric bus, returned to Union Square in the evening for a second speech. After that the speeches stopped and the platform was taken over by amateur rock groups. The side-streets and park emptied, but a large crowd remained on hand on 14th Street.

ike Mother's, Pulls Capital Together

re were speeches and about the earth, unspoiled espoiled, at the Agricul-Department. Screenings of l films at the Rayburn Office Building included a beautiful bird the n was" before pesticides it.

retary of the Interior r J. Hickel was in his state of Alaska at a teach-Transportation Secretary A. Volpe, whose bailiwick hways, airways and wa-ys, was taking the heat ns Hopkins University in ore at another environ-l teach-in.

kesman for Mr. Volpe said "The past sins of the ortation industry have to rest on this Adminis-n and on his head."

es Farmer, Assistant Sec-of Health, Education and e, took the symbolic and planted a tree at 's main building. Then corded a 20-second in-onal "actuality state-that people could dial telephone.

Are Off and Talking

Myron Tribus, the Com-Department's Assistant ary for Science and Tech-also delivered his en-ental message by tele-In a conference call to iana high school, he sug-that the students might the noise pollution of

rock 'n' roll music and hot rods with acoustical meters.

Senators and Representatives were scurrying from one "clean-it-up" speech to another.

"Everyone I've talked to is making a speech somewhere," said Representative Paul N. McCloskey Jr., Republican of California. Mr. McCloskey, along with Senator Gaylord Nelson, Democrat of Wisconsin, thought up the idea for today's nationwide environmental happening and spoke at three colleges in his home state today.

Senator Nelson hopped from the University of Wisconsin to Denver and Berkeley, Cal. Senator Edward M. Kennedy was at Yale. Senator Barry Goldwater was at Adelphi University in Garden City, L.I. Clifford Case was at Princeton; Ralph W. Yarborough was at Rice University in Houston; and Edmund S. Muskie, one of the Senate's long-term experts on pollution, was at the University of Pennsylvania.

Representative John Brademas, Democrat of Indiana, stayed in Washington but took a swipe at the Nixon Administration by charging "big talk — no action" on environmental problems.

Representative John B. Anderson of Illinois, chairman of the House Republican Conference, countered with another paper missile in the battle of the press release. He called on Democrats to "get down to earth" after Earth Day and begin Congressional action on seven environmental quality bills introduced by President Nixon two months ago.

"Only one committee—Interstate and Foreign Commerce—in this Democratic-controlled House has bestirred itself enough to hold hearings on the President's proposals," he said.

Meanwhile, Lawrence F. O'Brien, chairman of the Democratic National Committee, issued a statement, too. It welcomed Mr. Nixon's expressed concern with problems of the environment and went on: "Now we must hope that this concern will be translated into a serious and sustained commitment to attack these problems."

Of those Senators out on the stump, Senator Thomas J. McIntyre, Democrat of New Hampshire, may hold the speechifying record. By tomorrow he will have delivered 14 addresses in his state, all on environment, within the week.

The Justice Department here was under strict security today, with tours of the Federal Bureau of Investigation canceled. At first it was thought there was some connection with Earth Day. It turned out, however, that the department had received its fourth bomb threat in six weeks, apparently not related to the demonstrations.

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Millions Observe Earth Day With a Variety of Ac

Oratory and Legislation Mark Drive on Pollution

Continued From Page 1, Col. 4

fractious antiwar protests of recent years.

In one of the day's few disturbances, 15 young people were arrested at Boston's Logan International Airport for blocking a corridor in a protest against the development of supersonic transport planes and their threat of "noise pollution."

The Earth Day idea originated with Senator Gaylord Nelson, Democrat of Wisconsin, and other conservationists in Congress. It was organized by Environmental Acton, Inc., a small cadre of young people based in Washington, and by ecologically minded persons in thousands of schools, colleges and communities.

The purpose of the observance was to heighten public awareness of pollution and other ecological problems, which many sicentists say urgently require action if the earth is to remain habitable.

Amid a spate of oratory in hundreds of places, one prominent voice was that of former Vice President Hubert H. Humphrey. In a speech at a high school in Bloomington, Minn., Mr. Humphrey urged that the United Nations establish a global agency to "strengthen, enforce and monitor pollution abatement throughout the world."

"We can do things internationally and we must," Mr. Humphrey said amid repeated bursts of applause. "We've got to do it. That's what this nation must lead toward."

President Nixon informally expressed approval of the Earth Day program but took no active part in it, spending a routine day in his White House office.

But nearby, in front of the Department of the Interior, about 2,500 young people staged a demonstration that was keyed to the department's controversial oil leases. They chanted, "Off the oil!" "Stop the muck!" and "Give earth a chance!"

Secretary of the Interior Walter J. Hickel, the principal Administration official to endorse Earth Day, returned to his home state of Alaska for an appearance at the state university.

'Environmental Revolution'

Senator Edmund S. Muskie, a frequent critic of President Nixon's environmental proposals and a leading contender for the Democratic Presidential nomination in 1972, said that Earth Day indicated the need for "an environmental revolution."

Addressing a crowd of 25,000 in Philadelphia, the Maine Democrat said: "A cleaner environment will cost heavily in forgone luxuries, in restricted choices, in higher prices for certain goods and services, and in hard decisions about our national priorities.

"We are spending 20 times as much on Vietnam as we are to fight water pollution, and twice as much on the supersonic transport as we are to fight air pollution."

In a speech at Georgetown University in Washington, Senator Birch Bayh, Democrat of Indiana, called for the creation of a "National Environmental Control Agency to conquer pollution as we have conquered space."

In no two communities in the country were the patterns of the day's activities just alike.

In Tacoma, Wash., 100 high school students rode down a freeway on horseback, demonstrating against automobile fumes.

A San Francisco group, calling itself "Environmental Vigilantes," dumped oil into a reflecting pool at the offices of the Standard Oil Company of California in a protest against oil slicks.

In West Virginia, five tons of trash were picked up along a five-mile stretch of U. S. Route 50 and dumped on the Harrison County courthouse steps in Clarksburg.

In Buffalo, most of the members of the Common Council paraded through the square at City Hall with brooms, shovels and a sanitation cart, symbolizing a community clean-up campaign.

Stewart L. Udall, former Secretary of the Interior, spoke at Michigan State University in Lansing and endorsed his $1,000 fee to the sponsoring campus ecology group.

No Observance in Earth

One of the few communities where Earth Day passed without observance was Earth, Tex., where the Chamber of Commerce said the occasion "just slipped up on us" before there was time to plan an observance.

The Reynolds Metals Company sent trucks to colleges in 14 states to pick up aluminum cans collected in "trash-ins," with a bounty of one-half a cent for each can.

At the University of New Mexico in Albuquerque, students collected signatures on a big plastic globe to present as an "enemy of the earth" award to 28 state Senators accused of weakening a recent anti-pollution law.

Earth Day enthusiasm even overflowed across the border to Canada. Observances in the Place Bonaventure in downtown Montreal included a fashion show that featured putative feminine antipollution garb of 1984. Girls wore jumpsuits, heavy vinyl gloves and plastic face masks.

Not all the day's activities were in a negative vein.

In Ohio, Gov. James A. Rhodes lifted a partial ban on commercial fishing in Lake Erie. The ban had been imposed because of the discovery of concentrations of mercury in the water. Governor Rhodes said the move was warranted by "new and more complete tests of fish samples."

Gov. William T. Cahill of New Jersey signed a law creating a state environmental protection agency, and Governor Rockefeller signed a measure coordinating pollution abatement and conservation activities.

The Michigan House of Representatives overwhelmingly approved a bill assuring citizen groups of legal standing in court to press environmental grievances.

The Massachusetts Legislature enacted preliminary approval of a state constitutional "environmental rights" amendment to facilitate citizen action against pollution. The measure is subject to approval by the next legislature and the electorate.

Gov. Marvin Mandel of Maryland signed 21 bills and legislative resolutions dealing with environmental controls.

A House Commerce subcommittee approved a bill that would nearly triple the current annual Federal spending of $45-million on clean air research and bolster the now skimpy factory testing of auto fume control equipment.

Besides antipollution activities, attention also was focused on the question of population control, to which many environmentalists give paramount priority.

"Even a relatively pollution-free technology will be swanped by an unchecked birth rate," Senator Marlow W. Cook, Republican of Kentucky, said in a speech in Louisville.

Some caution also was expressed in the day's oratory. Calling for "rational and thoughtful" activity, Senator Gordon Allott, Republican of Colorado, suggested that "some extremists want to use the environment issue as one more club with which to beat America."

Cites Recent Oil Spills

An official of the Department of the Interior warned oil industry executives that they would have to demonstrate conclusively that marine oil spills would be averted or "the pressure on an aroused public will make it virtually impossible to continue exploration and development of the petroleum industry on the continental shelf."

POSITIVE ACTION: Students from John Dewey High School, Brooklyn, cleaning up and painting be

Anti-Earth Day Wires Cost Official $1,600

ATLANTA, April 22 (AP)—Comptroller General James L. Bentley, who sent out $1,600 worth of telegrams at the taxpayers' expense charging that Earth Day might be a Communist plot because it fell on Lenin's birthday, says he has changed his mind and will pay for the wires himself.

"I don't want to do anything like that in which there would be the slightest doubt," Mr. Bentley, a candidate for the Republican nomination for Governor, said yesterday.

Mr. Bentley said he decided to pay for the telegrams to President Nixon and others after some taxpayers expressed doubt about the wisdom of his earlier action.

House Panel Vo For Clean Air

By RICHARD D. LY

Special to The New York T

WASHINGTON, April 22—A House subcommittee unanimously approved today a bill designed to reduce air pollution by providing national quality standards and strict enforcement procedures for the foulers of the atmosphere.

The bill, reported out by the Subcommittee on Public Health and Welfare of the House Committee on Interstate and Foreign Commerce, would do the following:

¶Toughen existing laws governing pollution from motor vehicles, power plants and planes.

¶Simplify and strengthen the powers of the Secretary of Health, Education and Welfare to implement national clear air standards.

¶Give the H.E.W. Secretary authority to regulate fuel additives.

¶Force the Federal Government itself to stop its own air pollution practices.

¶Triple the amount of money immediately available for the bill's administration and double research funds for cleaner auto engines.

Representative Paul G. Rogers, Democrat of Florida, the bill's author, said: "I think it is significant that the bill was approved on Earth Day." Several subcommittee witnesses included sponsors of the event, including Denis Hayes, the national campaign coordinator.

Representative Peter N. Kyros, Democrat of Maine, said that if the bill was enacted "it would put the Federal Government in the

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Angry Coordinator of Earth Day

Denis Allen Hayes

THE RAVAGED EARTH

It seems the curse of modern man continually to confront new possibilities of self-destruction. He emerged from World War II armed with nuclear weaponry that soon gave him the power to obliterate all human life. His population has since grown at a rate that could threaten disaster on a global scale. And now he has come face to face with a new man-made peril, the poisoning of his natural environment with noxious doses of chemicals, garbage, fumes, noise, sewage, heat, ugliness and urban overcrowding. Nearly unnoticed, the scourge of pollution has already spread so far that a few scientists say only a drastic cure can prevent devastation as thorough as that of nuclear holocaust. Even to less doleful prophets, the danger seems sufficient to warrant a sudden boom in the science of ecology, which examines the precarious relationships between living things and their surroundings. Most important of all, the general public has been seized with such anger and alarm as to goad political leaders into proclaiming conservation of the environment the chief task of this decade —and perhaps of the rest of the century.

For every American, environmental decay has become a personal experience—a glass of water bitter with impurities, a mountain view obscured by haze, the acrid smell of industrial smoke or automobile exhaust, the boom of jet or the rumble of truck piercing the 85-decibel level beyond which noise can do damage to the ear. What he cannot see, hear, smell, taste or touch for himself, he discovers in a grim new sort of obituary dotting the daily press. A few years ago—nobody was paying close enough attention to tell exactly when—Lake Erie died: acidic wastes from the surrounding factories have strained its water of virtually every form of life except a mutant of the carp that has adjusted to living off poison. Louisiana's state bird, the brown pelican, has vanished from its shores (600 of the birds remain in an island colony off the California coast, but last year they produced only five chicks; the rest of their eggs collapsed with weakened shells that contained high concentrations of DDT). Cleopatra's Needle, the Egyptian obelisk brought to New York in 1881, has been vastly more worn and scarred by its last 90 years of existence than by its first 3,000.

Man has always been a messy animal. Ancient Romans complained of the sooty smoke that suffused their city, and in the first century Pliny described the destruction of crops from climate changes wrought by the draining of lakes or deflection of rivers. But in the past, man could always leave his own depredations behind and move on to some part of the planet still unspoiled. Today, there is no escape. Thor Heyerdahl, navigating the mid-Atlantic in a papyrus boat last year, discovered plastic bottles, oily blobs and other detritus of civilization adrift on huge patches of ocean far from the nearest ship or shore. The tissues of coastal wildlife in Antarctica harbor traces of pesticides that have never been used on the continent.

Rachel Carson pointed the way; later the Torrey Canyon and the Santa Barbara Channel thrust environment into the headlines. Now, with a suddenness that prompts some conservationists to fear the whole thing may be one of America's periodic fads, the country is raising a clamor about pollution and its perils. In Houston, a television station that invited residents to send in comments on local pollution was swamped with 80,000 responses in a month. The tiny coastal town of Trenton, Maine, which stood to gain much-needed jobs and huge revenue from a proposed aluminum-reduction factory and nuclear power plant, rejected the project last year by a vote of 144 to 77. Just last week the Federal government, under pressure from conservation groups, arranged with Florida authorities to ban construction of a jetport near the Everglades which would have imperiled flora and fauna in the national park.

American college students have seized on the antipollution drive with nearly the same degree of fervor that they brought to the civil-rights campaign and the antiwar movement (they will hold a nationwide teach-in April 22). Research scientists seem anxious to join the fray. Even some leaders of U.S. industry, the most massive befoulers of the nation's air, water and land, have pledged themselves to reform. Last week, General Motors president Edward Cole echoed the heads of Ford and Chrysler in committing his company "to eliminating the automobile as a factor in the nation's air-pollution problem," if necessary by abandoning the gasoline engine itself.

"Ecology," says Jesse Unruh, Democratic leader of California's Assembly, "has become the political substitute for the word 'mother'," and Unruh himself is locked with Gov. Ronald Reagan in a battle for the governorship that features claims and counterclaims as to who can do most to preserve the state's considerable natural splendor. President Richard Nixon has embraced the environment as a major project for the '70s: much of his State of the Union speech this week will be devoted to a program to enhance "the quality of life," and he has already declared that this must be the decade "when America pays its debt to the past by reclaiming the purity of its air, its waters and our living environment. It is literally now or never."

Even the ponderous mechanisms of international cooperation are beginning to come to bear on the issue. The United Nations has arranged a World Conference on the Human Environment, to be convened in Sweden in June 1972. Every nation, large and small, is confronted with environmental hazards. The Rhine River may be even more polluted than the Ohio. The archipelagoes of the South Pacific are threatened by a plague of starfish that consume their vital barrier reefs.

Man has already paid a fearsome price for his carelessness: the lung disease emphysema is the fastest-growing cause of death in the United States; unborn babies, some medical researchers suggest, may be damaged by excessive noise from everything from power mowers to rock bands; the sheer aggravation of crowded city life is taking an ever-higher

National

The brown pelican vanishes fro Louisiana

toll in nervous and psychic afflictions. How has it all been allowed to happen? What explains man's extraordinary brutality toward his environment?

Perhaps the fundamental problem, ecologists believe, has been man's own view of himself. Outside of primitive societies, he has rarely regarded himself as part of nature, as one cog in a giant system that controls him as much as he controls it. "Civilized" man has liked to think of himself as a bit above that. For those raised in the Judeo-Christian tradition, the Book of Genesis taught that man was created in the image of God, who gave him "dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth." Man was the lord and nature was his subject; all too often life seemed a struggle of man against nature, not a joint venture between the two.

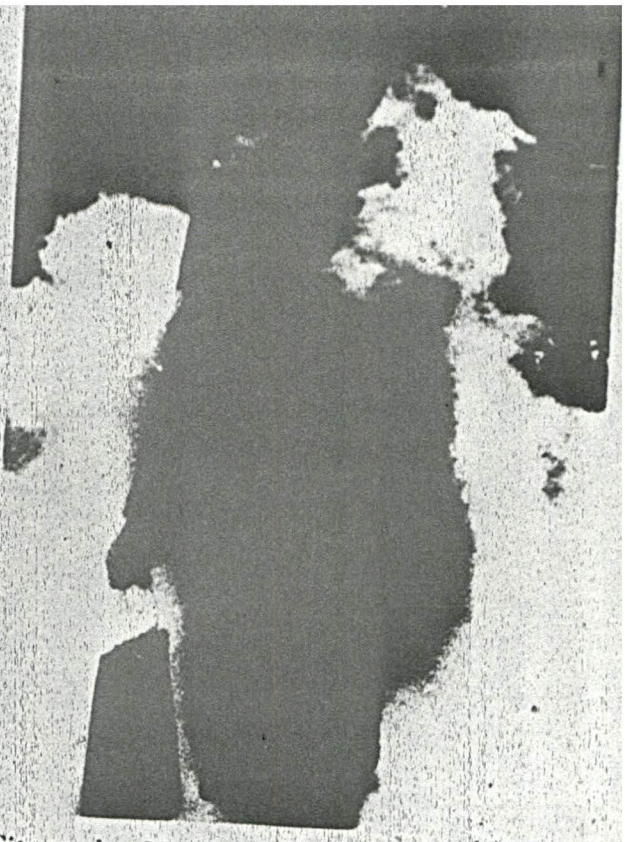
With the coming of the Industrial Revolution, man developed formidable new skills in the exploitation of nature—and also new excuses for deploying them. For as technology grew, so did the need for sources of energy to run it; as affluence expanded, so did population. Man began to overpower his environment not only with ingenuity but with sheer numbers. According to Stanford biologist Paul Ehrlich, the world's population, about 500 million in 1650, doubled around 1850, doubled again only about 80 years later, and now seems to be doubling at the rate of every 35 years.

An Everglades jetport banned

But growth has traditionally been considered a blessing, and nowhere has this been truer than in the United States. America offered its colonists natural resources in wild profusion and vast spaces to move around in. Abundance encouraged prodigality; if you happened to exhaust the riches of one spot, you simply moved on to another. What's more, the society's system of rewards favored the man who produced more, who found new ways to exploit nature. There were no riches or prestige for the man who made a deliberate decision to leave well enough alone—in this case, his environment. This worship of growth is one of the critical obstacles to the replenishment of the environment. "If real changes are to occur," says Interior Under Secretary Russell Train, the government's top conservationist, "we are talking about changing attitudes Americans have had bred into them since the Jamestown colony and Plymouth Rock—the frontier ethic, the pioneer drive, the striving for more and better."

Before these attitudes are changed, most reformers believe, a new set of rewards must be established, because at the moment pollution control simply doesn't pay. "Incentives to produce better paints, fibers and insecticides are built into the economy," says Harvard biology Prof. Frank Westheimer. "But there are no incentives for better ways of avoiding pollution. The government will have to provide them through bonuses and penalties."

Highly technological societies such as the U.S., of course, feel a powerful temptation to call upon new technology to cure the ills wrought by the old. Many scientists are hopeful of finding technical solutions for many pollution problems: cleaner fuels for automobiles, for example, with more efficient engines to make up for the loss in volatility, and recycling systems to make use of the wastes that are currently pumped into streams or thrust into the sky. But there is a danger here. Often these technological solutions have a way of creating new environmental problems of their own: nuclear power plants avoid smoke pollution but introduce heat pollution (temperature rises that upset the balance of life) in the rivers they use for coolants; detergents used to disperse oil slicks do more damage to marine life than the oil itself.



Arthur Tress

City smoke: Man has always been a messy animal

For this reason, a number of today's environmental reformers conclude that mankind's main hope lies not in technology but in abstinence—fewer births and less gadgetry. Paul Ehrlich, president of a group called Zero Population Growth, Inc., tries to persuade couples that it is irresponsible to have more than two children. The West Coast has also spawned a fledgling "zero GNP growth" movement. Harvey Wheeler, of Santa Barbara's Center for the Study of Democratic Institutions, believes the U.S. may reach a point—perhaps in ten years—when "the present rate of growth is absolutely disastrous and economic growth may well have to be eliminated altogether."

Photo Researchers

Natural splendor

Short of some catastrophe, of course, neither a stable population nor a zero growth rate is very likely to be achieved. But what the environmentalists may accomplish, if the current swell of national concern does not turn out to be a passing billow, is to persuade the public that the pollution problem is not one that can be readily solved by legislation or treaty or high resolve. For the villain of the piece is not some profit-hungry industrialist who can be fined into submission, nor some lax public official who can be replaced. The villains are consumers who demand (or at least let themselves be cajoled into desiring) new, more, faster, bigger, cheaper playthings without counting the cost in a dirtier, smellier, sicklier world. To paraphrase Walt Kelly's adaptation of Lt. Oliver Perry's famous battle report from—appropriately enough—Lake Erie: "We have met the enemy, and he is us."

The Politicians Know an Issue

Gaylord Nelson of Wisconsin and fellow Senate Democrat John Stennis of Mississippi have never had much to say to each other before. Nelson, chairman of the poverty subcommittee, is a progressive, environmental activist, the leader of an attack in the Senate on the perils of the internal combustion engine. Stennis is a conservative who runs the Senate Armed Services Committee like a doomsday machine. Recently, however, the two lawmakers had a rare meeting. "I've been thinking, Gaylord," drawled Stennis, "you know, you are right. I am getting concerned about environment, too. We've been lax. It's time to do something."

Old Washington hands have been sensing for some time that environment may well be the key issue of the '70s, for the nation and for their political futures. They freely concede that no other cause has moved so swiftly from the grass roots into the arena of public policymaking. As early as 1968, environment had surpassed law and order, and in 1969 was gaining on Vietnam in total linage in the Congressional Record. And by now, nearly everyone on Capitol Hill seems to be actively against pollution, causing a veritable stampede for stage center in the crusade to save America's land, air and water. Senators Nelson and Edmund Muskie of Maine, who is chairman of the Senate Public Works Subcommittee on Air and Water Pollution, are both preparing major bills for the coming months. Early this week, before President Nixon puts heavy emphasis in his State of the Union Message on the Quality of Life, Gaylord Nelson will propose a constitutional amendment guaranteeing every American "an inalienable right to a decent environment." In what was surely the opening gun of partisan warfare over the issue, Muskie lashed out at the Administration's "slogan-rich and action-poor" antipollution effort last week at a Chicago meeting of the Magazine Publishers Association. "Rhetoric," Muskie said, "has taken us in one direction, while inaction has taken us in another."

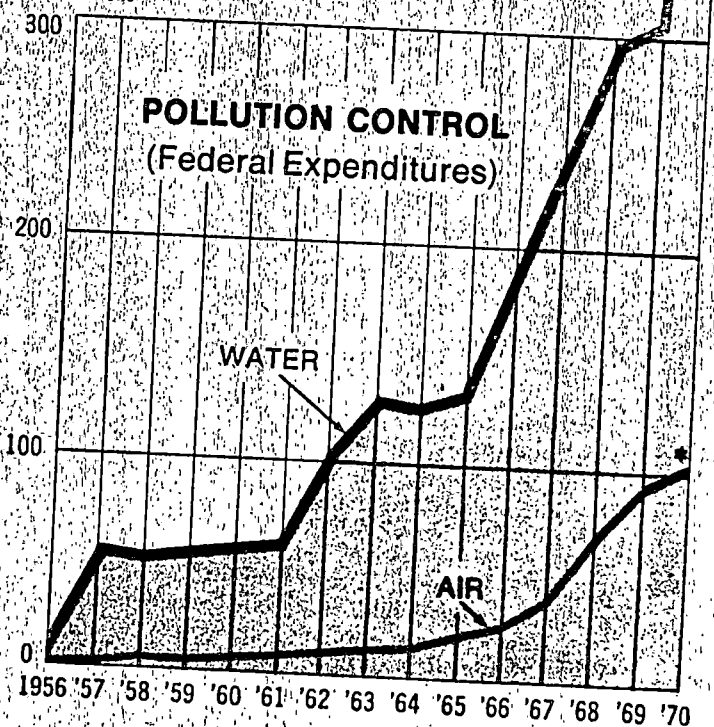
There is no doubt that the President has been a Johnny-come-lately on the environmental bandwagon. Critics like Muskie correctly point out that he opposed Democratic Sen. Henry M. Jackson's bill that sets up a permanent three-member White House Council on Environmental Quality. And though he ultimately signed the bill into law on New Year's Day and referred to the fight against pollution as a "now or never" effort, Mr. Nixon's position on environmental control is still not altogether clear. He is known to have bridled when Congress appropriated $886 million for water pollution last year in the teeth of his own budget-conscious request for only $214 million. Now there seems to be a strong possibility that the President will refuse to spend the difference. "Indications are," said Muskie, "that nearly $600 million of these funds will be impounded" by the President.

Neither Richard Nixon nor any modern President since Theodore Roosevelt has stood out as a great environmentalist. Indeed, the Federal government as a whole has always dealt with the environment piecemeal and with comparatively paltry sums (chart). Since the mid-'50s, Federal spending for water has risen slowly from $1.2 million to about $300 million, while the outlays for air-pollution control rose from $2.7 million to $88.7 million. By contrast it will take $20 billion a year to start reversing the course of pollution.

"We can lick the problem," says Ken Biglane, senior pollution expert at the Department of the Interior, "if only we are allowed to plan the way NASA planned the moon program. We need goals and money." But the President's environmentalist Under Secretary of the Interior Russell Train cautions against false hopes that the Federal government can do the whole job: "No central environmental machinery, no Big Brother in Washington can remake the environment. It's impossible."

At the moment, though, there is not much danger of a monolithic Federal adventure in environmental control. No less than thirteen Congressional committees now have a piece of the environmental action. In addition, there are 90 separate Federal environmental programs, plus 26 quasi-governmental bodies and fourteen interagency committees already at work on special aspects of environment that—incidentally—create waste of their own, in the form of red tape and conflicting goals. Until the Everglades jetport project was killed last week, the National Park Service had been fighting to save the area, while the Corps of Engineers was building canals that lowered the area's water levels and bilked its ecosystems of crucial waterflow.

"We must eliminate some of these conflicts," says a high White House science adviser, "but we can't eliminate them all. Each agency is a good guy from its constitutents' point of view." Ironically, there are already several White House groups each designed



*Passed by House, now before Senate

Newsweek—Fenga & Berkovitz

Fred Ward—Black Star

Edmund Muskie

Don Carl Steffen

Gaylord Nelson

to give a "unified" direction to Federal environment programs. Last May, President Nixon formed a Cabinet-level Council on Environmental Quality to head off Congressional action on the Jackson bill, which included a similar council. The Jackson bill passed by acclamation in both houses and thus foisted a second environment council on the President. Last summer, moreover, when Mr. Nixon first became aware of popular pressure for action on environmental control, he organized a special project group to develop a legislative and budgetary package. Simultaneously, he appointed Roy Ash, president of Litton Industries, to do an efficiency study on the way the government now tackles environmental problems.

If official Washington ever does put its own environmental house in order and smooths out the conflicts between the groups formed to smooth out the conflicts, it will still have a major administrative snag to untangle: the issue of its own jurisdiction in local problems. Under present law, Federal intervention is limited to pollution that results from interstate commerce or pollution that crosses state lines. If the smell of boiling chicken offal had not wafted across the nearby Delaware line from Maryland, the first prosecution under the Federal Clean Air Act of 1963 never would have come to trial. Four states and Canada border Lake Erie, where gas and oil drilling may further pollute already foul water if a central decision is not made. And in the conurbation centering around Portland, Ore., there are 423 separate government units, each with its own plan for raising its total assessed real-estate valuation—and the added pollution that unsupervised development brings to a region.

The fact is, though, that state and local governments are waking up fast to the political potential of pollution. Roughly one quarter of the bills now before the California Assembly deal with pollution control, and, by declaring in his State of the State address last Jan. 6 that "there is no subject more on our minds than the preservation of our environment," Gov. Ronald Reagan was acknowledging that environmental pollution will be the top issue in his state's elections this year.

In Illinois, young Attorney General William J. Scott has made a name for himself by going after Chicago's electric utility, Commonwealth Edison, and other polluters, using a tough new package of laws he pushed through the legislature last year. And in New York City, Mayor Lindsay's newly created Environmental Protection Administrator Dr. Merrill Eisenbud has been capturing headlines and making political capital with his efforts to streamline the city's performance in sewage disposal and air-pollution control.

The central arena, however, remains in Washington, and so far the evidence suggests that neither major party has managed to claim the cause as its own. The Nixon Administration curbed the use of DDT, but has seemed reluctant to attach a higher priority to pollution in the face of all its other costly problems. Meanwhile, says one Senate strategist, "the Democrats are circling like wolves around the White House. If Nixon doesn't come up with leadership and programs and money, he's going to see them crammed down his throat."

Among those ready to do the cramming are seasoned Senate antipolluters Gaylord Nelson and Edmund Muskie. In addition to his constitutional bill of environmental rights, Nelson will call this week for an almost pollutionless auto, the elimination of all hard pesticides, the immediate installation of antipollution devices on jet aircraft and elimination of all nonreturnable bottles, cans and jars. His Senate speech this week, Nelson told NEWSWEEK's James Bishop Jr., will say: "Progress—American-style—adds up each year to 200 million tons of smoke and fumes, 7 million junked cars, 20 million tons of paper, 48 billion cans and 28 billion bottles."

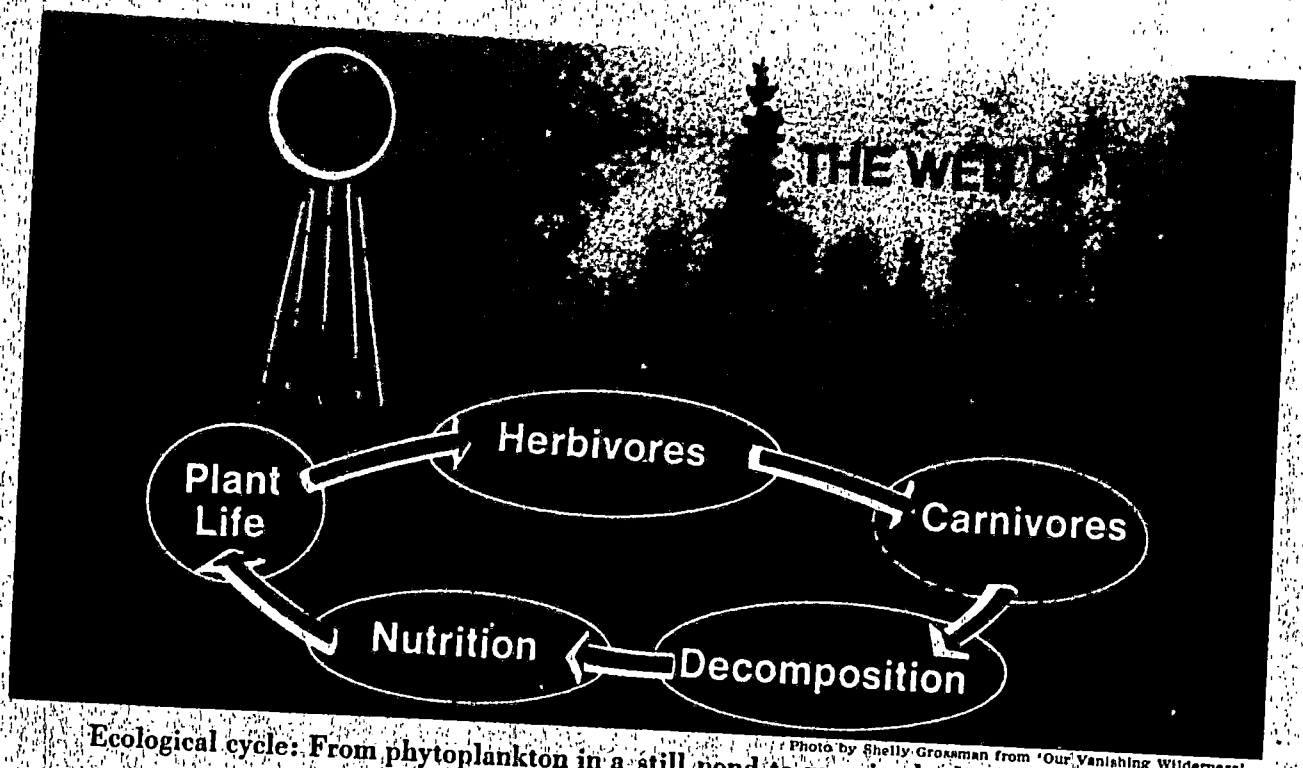
In an even more thoroughgoing program to be announced in the coming months, Senator Muskie will call for an extension of the Clean Air Act to cover pollution from all moving vehicles, including planes and used cars; for the creation of an office of noise pollution at HEW (instead of under the Federal Aviation Administration, where the airline industry wants it); and for the extension of water-pollution control to cover all navigable waters, not just interstate waters. Muskie also wants to have part of the huge Federal highway fund reallocated to pollution control and mass transit, to require all factories under construction to install the latest antipollution equipment and to push industry into producing more disposable bottles and containers. Later in the year, Muskie will hold hearings on the possible pollution caused when oil companies pump drilling waste deep into the ground where it may contaminate underground streams.

In the Nixon camp, there are plans afoot, too, but they are more closely guarded. White House advisers tend to see a longer timetable for such reforms as the pollution-free auto, and Russell Train warns that improving the quality of life will entail unpopular cutbacks on luxuries. "People have shown no inclination," he points out, "to give up the products of affluence—TV sets and gadgets."

Cautiously, then, Mr. Nixon does seem ready to endorse three concrete antipollution moves in his State of the Union address this week.

- Under a new kind of financing plan $5 billion to $10 billion is expected to be directed at water pollution over the next ten years, state and municipal bond issues would raise the money, and the Federal government would pay back the principal in $500 million annual appropriations.
- New legislation will be aimed at shortening the current sixteen- to eighteen-month lag in enforcing antipollution statutes.
- It is quite likely that Mr. Nixon will discuss reorganizing the entire, jerry-built Federal ecology structure. Aides predict a gradual process of amalgamation that may lead ultimately to a new Cabinet department.

No one in Washington is willing to predict what all the snowballing debate on ecology will finally produce for the nation—except that it will certainly generate even more discussion in weeks to come. "Ecology," says Dr. Harvey Wheeler of Santa Barbara's Center for the Study of Democratic Institutions, "is the most perishable item to come along in years. We've got a program to invent a new name for ecology, so we can keep it alive after it's been talked to death. We're thinking of calling it politics."



Ecological cycle: From phytoplankton in a still pond to men in the heavy air of cities

Photo by Shelly Grossman from 'Our Vanishing Wilderness'

Dawn for the Age of Ecology

The science of ecology embraces all forms of life and their natural settings—from the earthworm in the rich loam of a meadow to the redwood in a California forest, from phytoplankton in a still pond to men crowded together in the blackened, heavy air of cities. More important, ecology is an attempt to describe how the worm, the tree and man function in their distinctive environments, both alone and together, an attempt to describe and analyze the "web of life."

"Academically, it is an old, old subject," says Dr. Eugene P. Odum, director of the University of Georgia's Institute of Ecology and author of the standard college textbook on the subject. The word "ecology" derives from the Greek *oikos*, meaning house. Ecology, therefore, is translated as the study of houses or, in a broader sense, environments.

Although ecological implications can be found in the writings of Plato and Aristotle (they discussed the impact of population sizes on political institutions), ecology did not really become a full-fledged science until the end of the last century. Darwin's findings that species survive by adapting to their habitats had a tremendous impact on science. There was, in Odum's words, "a simultaneous recognition throughout the world that the whole is not just the sum of its parts, that the forest is more than a collection of trees." Still, for the first half of the twentieth century, ecology to the public often smacked of stuffed animals, bird-watching and other seemingly irrelevant nature studies. But in the disfigured lands, the sullen waterways and the poisoned air of the century's latter half, the science is undergoing a renaissance. "Now that man has gotten himself into so much trouble," Odum says wryly, "ecology has become a practical, political and vital issue."

To understand ecology—and the present dilemma that man has created for himself—one must first understand the concept of "ecosystem." An ecosystem is the sum total of all of the living and nonliving parts that support a chain of life within a selected area. The four primary links in the chain:

- **Nonliving matter:** the sunlight, water, oxygen, carbon dioxide, organic compounds and other nutrients used by plants for their growth.
- **The plants:** ranging in size from the microscopic phytoplankton in water up through grass and shrubs to trees, these organisms convert carbon dioxide and water, in a process called photosynthesis, into carbohydrates required both by themselves and other organisms in the ecosystem.
- **The consumers:** those higher organisms that feed on the producers. Herbivores, such as cows and sheep, are primary consumers. Carnivorous man and such animals as the wolf feed upon the herbivores and are secondary consumers.
- **The decomposers:** these tiny creatures—bacteria, fungi and insects—close the circle of the ecosystem when they break down the dead producers and consumers and return their chemical compounds to the ecosystem for reuse by the plants.

Although growth and decay are going on simultaneously and continuously in an ecosystem, they tend to balance each other over the long run—and thus the chain is said to be in equilibrium. Nonhuman environments have a remarkable resiliency; as many as 25 or even 50 per cent of a certain fish or rodent population might be lost in a habitat during a plague or disaster, yet the species will recover its original strength within one or two years. It's man-made interference—or pollution—that can profoundly disturb the ecosystem and its equilibrium.

An example:

- In the shallow waters of the Pacific Ocean off Los Angeles, sea urchins—a small sea animal—are enjoy-

Clate Sanders

Eugene P. Odum

ing a population boom, thanks to the organic materials in sewage being washed out to sea. Normally, the sea urchins' population levels are tied to the quantity of kelp on the ocean bottoms; the animals die off when they have eaten all the kelp, thus allowing new crops of the seaweed to grow. But now that the sewage is available to nourish the sea urchins, the kelp beds have not had a chance to recover. In many places the kelp, for which man has found hundreds of uses (it is an ingredient of salad dressing and beer) has disappeared altogether.

There is, of course, no way of calculating the exact effects of the loss of kelp on its particular ecosystem. This has been one of the disadvantages of ecology: there have been precious few quantitative measurements to support the ecologists' empirical observations. But this is rapidly changing. At scores of universities across the nation, there are projects under way to determine just what happens in a fresh-water ecosystem or a coastal estuary. Perhaps the most comprehensive and exhaustive of these is the International Biological Program, a five-year, 57-nation cooperative effort to study distinctly different environments (for example: grassland, three types of forests, desert and arctic tundra) and the life web of each. The scientists, working at instrumented field sites, are trying to determine not only who eats what and with what effect, but also are attempting to measure the total energy flow in each system, starting with the sunlight and rain falling on the designated site and ending with the total amounts of herbiage and animal weight growth.

U.S. ecologists also are conducting a series of studies of environmental programs that focus on man —Eskimos, migrant people, American Indians and nutritional adaptations to specific climatic zones.

Scientists look at the Eskimo ecosystem

Right now some ecologists are worried about the possible effect on the Eskimo of the great oil race on Alaska's remote North Slope. Oil spills in the ever-frozen sea, they fear, would be trapped in the narrow space between water and ice, killing first the plankton, then the fish, and mollusks that feed on the plankton, then the polar bears, walrus, seals and whales that feed off sea life, and finally threatening the Eskimos who live off these animals.

The net outcome of the current research, hopefully, will be a better understanding of the potential consequences of man's tampering with any ecosystem. But understanding is only the beginning. Some environmentalists, such as Odum, Ian L. McHarg of the University of Pennsylvania and Kenneth E. Boulding of the University of Colorado, believe that a value system for assessing the various parts of the environment should be established. "We've got to preserve air and water as well as bald eagles," Odum says. "We've got to fix an economic and legal value on open space."

What worries ecologists is that people now upset about the environment may ultimately look to technology to solve everything—to fall back on the comforting belief that ever-thicker copies of city and regional planning reports or air-conditioned, geodesic domes encapsulating the cities will be the answer. "A belief in the ability of technology to solve almost any problem," says zoologist Dr. Kenneth E.F. Watt of the Institute of Ecology of the University of California at Davis, "leads people to expect a solution where none is possible."

National Audubon Society

ecological victim?

From Sea to Shining Sea

Seen from the black depths of space, the earth is a lovely blue and white stippled island in the archipelago of the planets. It is unique, with its surface wetted by water, cushioned by greenery and fanned by air. Close up, the earth—and particularly that part of the land mass occupied by the United States—presents a far different picture. For example, fishermen in Colorado cast for trout among the beer cans, and debris falling into the Eagle River from an open dump on the bank; American women carry in their breasts milk that has anywhere from three to ten times more of the pesticide DDT than the Federal government allows in dairy milk meant for human consumption; the Cuyahoga River in Ohio is so overrun with volatile industrial discharges that last summer it caught fire and burned two railroad trestles. Such is the home of the most technically advanced population on earth.

How did man go so wrong? As the experts see it, there is a link between population, productivity and pollution. As more people demand ever-greater quantities and varieties of goods, industry digs more voraciously into the environment for the resources from which to fashion those goods. The consequence of this self-enlarging system can only be massive pollution. "Unless you stop population growth," says Rep. Paul (Pete) McCloskey, a California Republican and staunch conservationist, "there is no way you can control pollution in the environment."

The U.S. population now is approximately 206 million people. Despite a modest birth rate, compared with other nations (17.4 births vs. 9.6 deaths per 1,000 people), the U.S. is expected to gain half again as many citizens by the end of this century. That kind of expansion clearly worries thoughtful observers, who fret not only about the increased pollution but the kind of neon-lighted urban glut that large numbers of people produce. "For the first time in the earth's history," said Dr. Lee A. DuBridge, Presidential science adviser, in a recent speech, "there has emerged one creature for whom fertility is not a blessing, but a curse. That creature is man."

DuBridge, along with many of the family planning organizations that are proliferating across the nation today, suggests that the U.S. stabilize its population growth at zero, with total births and deaths canceling each other out. President Nixon, meantime, has asked Congress to establish an Advisory Commission on Population Growth and the American Future. Population control, of course, is an extremely sensitive matter, involving deeply felt personal and religious convictions on the part of individuals.

Although population pressures have a direct relation to the spread of pollution, ecologists say that the nation cannot wait before attacking the problems of water, air, land and other contamination.

In the cities of medieval Europe, people routinely dumped their garbage and human wastes into the

Smokestacks at a Florida cracking plant turn the night into a shimmering orange inferno

David Muench

center of their streets, making them open sewers. In the U.S. today, people use their rivers and lakes for the same purpose. "In the past decade, we have spent $30 billion for agricultural subsidies and $35 billion for space exploration," complains Sen. Joseph Tydings, Democrat from Maryland, "yet we haven't been willing to spend much more than $4 billion on water pollution." That is no small sum, but it has been only a drop in a very dirty bucket of water.

Each year, the U.S. uses about 25 trillion gallons of water from its vast reservoir. Industry uses 3.7 trillion gallons for various manufacturing processes and 9.4 trillion gallons for cooling, while agriculture consumes 6 trillion to 7 trillion gallons for irrigation. The people of the U.S. use about 5 trillion gallons for drinking, bathing and waste disposal. Only a very few people are fortunate enough to drink water that someone else hasn't used for other purposes farther upstream.

In the meantime, the pollution goes on. America's ten filthiest rivers are the Ohio, the Houston Ship Channel, the Cuyahoga, the Rouge River, the Buffalo, the Passaic and the Arthur Kill, both in New Jersey, the Merrimack on the border between New Hampshire and Massachusetts, the Androscoggin in Maine and the Escambia in Florida. They are poisoned by a variety of man-made toxins: mine and manufacturing acids, oil and municipal sewage. The Houston Ship Channel, a 57-mile-long waterway that links the southwest port to Galveston Bay and the Gulf of Mexico, has so little natural flushing that, as one official put it, "virtually everything that keeps the channel wet is industrial effluent." A Houston resident puts it more pungently: "That water's not fit to wash a creosoted railroad crosstie in."

Whether a particular river or lake qualifies as "polluted" depends on the use to be made of the water. Potable water, of course, demands the highest standards, and recreation almost as much. Industrial use is on the bottom. In 1967, the six-year-old Delaware River Basin Commission decided to save the Delaware River from the festering sink it had become and to bring it up to recreational standards. It was no easy task: in the 16-mile stretch between Trenton, N.J., and Wilmington, Del., 100 industries and municipalities had been dumping about 1 million pounds of wastes into the river every day.

Commission hydrologists calculated that if the Delaware was to be reclaimed for recreational purposes, its water had to contain at least 3.5 parts of dissolved oxygen for every million parts of water—a sevenfold increase from its present rating (the purest drinking water contains eight parts per million of dissolved oxygen). When the plan goes into effect in 1973 or 1974, this requirement will mean that the amount of oxygen-consuming sewage will have to be reduced to a daily discharge of 330,000 pounds. The commission allotted each factory and city on the river a certain fraction of this quantity; one Philadelphia sewage-treatment plant, for example, may discharge every day into the Delaware only the treated waste that would eat up 29,000 pounds of dissolved oxygen. When that limit is reached, the city must stop dumping. The excess waste will have to be buried, burned or barged out to the open sea.

The Delaware plan is admittedly ambitious and it remains to be proved workable. If it does, it may provide hope for other waterways.

Too many people living too close together pile high the earth with worn-out junk and trash

Camera Press—Pix

Las Vegas: Wasteful consumption

Smog, a wit once remarked, is the Air Apparent. And the waste in U.S. air cripples cattle in Florida, discolors the paint on houses and automobiles in Lincoln, Maine, kills pine trees 60 miles away from Los Angeles, and ruins orchids in Texas and Illinois as well as spinach in southern California. "Americans," says John T. Middleton, commissioner of the National Air Pollution Control Administration, "are paying billions of dollars each year as the price of contaminated air." Some Americans are paying with their lives; respiratory ailments such as asthma, bronchitis, lung cancer and emphysema are growing at alarming rates.

On Thanksgiving Day 1966, an inversion layer—a band of warm air, capping cool air below—settled above New York City and trapped all of the choking, gagging fumes that would otherwise have risen up out of the city. By the time it cleared, 168 had died, most of them elderly people with a history of respiratory troubles. It cannot be proved, of course, that this smog was the direct cause of their death, but similar patterns noted in other instances of exceptionally bad air pollution are persuasive: for four days in 1952, London was shrouded in a soupy, sulphurous fog. Before the skies cleared, 4,000 more people than normal had died and the rate of illness among cardiac and respiratory sufferers was twice what it had been before the pollution.

Automobile exhaust and sunlight equal smog

Of some 200 million tons of waste poured into the air each year, automotive vehicles contribute 94.6 million tons. What flows out of an automobile exhaust pipe is a mixture of five principal gases and chemicals, none of them good: carbon monoxide, sulphur oxide, hydrocarbons, various oxides of nitrogen and tiny particles of lead. When the exhaust products of 4 million cars are trapped in a basin such as Los Angeles and acted upon by strong sunlight, the result is photochemical oxidant, better known as smog. Arie Hagen-Smit, a Caltech biochemist, identified in 1950 the most harmful ingredients in the whisky-

Bette Bauer

Pollution control

brown air as ozone, PAN (peroxyacl nitrate) and nitrogen dioxide. Ozone, a form of oxygen, is very reactive chemically, bleaching anything it touches, causing dead spots on leaves, cracking rubber and deteriorating cotton fabrics. PAN causes the eye irritation without which no smog would be complete, as well as the acrid odor; nitrogen dioxide provides the color—and damage to lung tissue.

Smog in one form or another can be found just about anywhere in the U.S. today. Arizona's copper industries spew tons of sulphur dioxide on Phoenix and Tucson, where it combines with automobile exhausts. In Florida, not far from Tampa and St. Petersburg, fluorides emitted from phosphate plants are absorbed by cattle; the chemicals affect the bone structure of the animals so severely that they can not bear to stand and, instead, sink to their knees.

There are, of course, other producers of air pollution. Factories and electric-power generating plants fire some 50 million tons of fly ash and 26 million tons of sulphur oxides into skies that now seem permanently gray. This type of emission, from burned coal or fuel oil, generally contains carbon, oil, grease and microscopic pieces of metals and metal oxides. Some of these, while small to the unaided eye, are so large that they quickly fall back to earth. In Houston, a paper company is neighbor to a city water-treatme plant. "When the wind is right," says Dr. Wal Quebedeaux, director of the Harris (Housto County Air Pollution Control District, "the stuff fr those smokestacks falls into the water. And tha treated water. Its next step is your drinking glas

The Air Quality Act of 1967, which calls for co bined Federal, state and local efforts to curtail contamination through 57 air-quality regions th cross present political boundaries, is just going in effect. But no one is sure just how vigorous the Fe eral government will be, if the states fail to tak maximum advantage of the law's provisions.

Some states like Illinois are taking no chance That state now is studying a proposed series of ai pollution-emergency situations—green, amber an red. When green, everything is fine. When pollu tion-control boards declare an amber situation, som activities, such as backyard burning of trash an city incinerators, would be halted. In a red emer gency everything in the area would come to a grind ing halt—industry, automobiles, schools and stores Only hospitals and food and drug stores would be permitted to continue operating.

As the population mounts, unspoiled land becomes an increasingly precious resource. And unlike

Gary: A Game of Pin the Blame

Within a 15-mile arc along the southern shore of Lake Michigan squats what many ecologists regard as the most concentrated pollution factory in the world. Packed into the stretch between Hammond, East Chicago and Gary, Ind., are dismal expanses of long, gray steel mills, petroleum cracking towers and tank farms. The landlords are such industrial giants as U.S. Steel, Inland Steel, Republic Steel, Youngstown Sheet and Tube, American Oil and Cities Service. The city of Gary, home of U.S. Steel's largest complex, probably capsulates the area's pollution crisis best. Last week General Editor Harry Waters journeyed west to assess the not-so-good Gary life.

You drive only five minutes out of the Loop on the Chicago Skyway before the huge, gray, flame-flecked cloud mushrooms into view to the southeast. Then the sulphuric fumes hit, overriding the stench from the Chicago stockyards, forcing you to hastily wind up all windows. "Welcome to Gary, Ind—City on the Move" proclaims the grimy green sign off Exit 2. Dingy, three-story buildings slide by, each coated with a curious rusty tinge. The Tivoli movie house ("Gary's Only Adult Theater . . . Police On Duty at All Times") gives way to a soot-blotched replica of the Statue of Liberty (an appurtenance of all U.S. Steel towns) and finally to a gate where a burly guard glares suspiciously at the press credentials. The sign says Gary Sheet and Tin Works. The guard says, "Gonna be here long?"

Not likely, officer. The only visitors who stay very long in this drab steel city are duty-bound relatives of the inhabitants. Gary was even conceived by an act of despoliation. In 1906 the U.S. Steel Co., desirous of a mill location midway between Minnesota iron ore and West Virginia soft coal, carved out some 2,500 acres of open-hearth furnaces and slag heaps on what had been the starkly beautiful Lake Michigan sand dunes. Today the steel mill provides take-home pay for more than 30,000 Garyites, but it also dumps 36,000 tons of soot on the city each year.

There are no especially well-dressed people on the streets of downtown Gary; wearing good clothes is as impractical as hanging a clean wash on a backyard line. New cars become old not long after arrival. The aging agent is the same encrusted grime that forces homeowners to paint their dwellings at least once a year. Outdoor recreation? "There ain't a decent beach or fishing hole left," says one steelworker, who in summer inflates a plastic backyard pool—and skims the scum off it daily. "The most frightening thing," says a young lawyer, "is how you don't notice how bad things are as long as you can see a few feet ahead. Then you go somewhere else for a vacation and it suddenly hits you. My God, I've been living in a fog! And then you finally ask yourself . . . Why do I stay?"

Most Gary residents seem surprised when that question is put to them. "It's the bread, man," says Thomas Parker, a black steelworker. "Hell, I'm getting $5.50 an hour. Why else would anyone want to stay in this place?" Certainly the lure of a hefty paycheck is a major reason why Gary keeps a hold on its 188,000 citizens, while many cities of its size are slowly shrinking. But it goes deeper than that. The Slovaks, Hungarians, Poles, Swedes, Greeks and Irish who originally settled in the Hammond-East Chicago-Gary steel complex at the beginning of the century took as much pride in their jobs as in their stamina and brawn. They boiled big fish lunches in tin cans over pieces of molten steel, washed it down with coffee made from sludge water and topped off ten-hour shifts exposed to thousand-degree blasts with a night of wenching in Calumet City. No sissy

the air and water, land has no internal currents to dilute its pollutants; soil, once polluted, stays that way long after the source of pollution is removed. Thus DDT and other pesticides that threaten animals and people, as well as pests, appear in substantial quantities in cows' milk, fluorides from phosphate plants settle on pasture lands and harm cattle, and vegetation succumbs to the noxious effects of smog from distant cities.

The worst fears of land conservationists concern not the accidental spoilage of land by wastes, but its exploitation by man to build mines, roads and cities. In time he may encroach so far on his greenery that he reduces the amount of air he has to breathe. "We cannot afford to give up a million acres of photosynthesizing [oxygen producing] vegetation each year by paving and building factories that consume more oxygen," warns Cornell biologist LaMont Cole.

To date the growth of cities has been an unplanned urban sprawl. The classic example is Los Angeles, which in helter-skelter fashion (the city is scheduled to adopt a master plan for development only this year) has doubled its population since World War II. Much of the burgeoning population found its way into the formerly sleepy San Fernando Valley, which accommodated 112,000 people in 1940. Today more than a million cram the valley. The new Los Angelenos have brought with them into the city's 450 square miles some of the worst air pollution and land violation the nation has known.

Frighteningly, Los Angeles may be the harbinger of the future urban scene. Many observers forecast that unplanned development will inevitably concentrate the nation's population in one of three broad megalopolises—Boswash, stretching along the east coast from Boston to Washington, Sansan, following the western coastline from San Francisco to San Diego, and Chipitts, straddling the grimy industrial centers of Chicago and Pittsburgh.

Loud noise can kill furry animals

Land spoilage is not restricted to the urban developers. More than 20,000 strip mines are cutting ugly scars across the landscape at an estimated rate of 153,000 acres annually. By 1980, according to a White House study, more than 5 million acres of America the Beautiful will have been defaced in this way. Before it passed stiff reclamation laws, the lush green state of Kentucky was gorged by strip mines to the extent of 119,000 acres. In Florida, a process described as "surface mining" in which carloads of ore and earth are scooped up from the land, has stripped some 150,000 acres.

By now, ecologists warn, the environment is too frissin' thing like pollution was going to bug this breed.

Their names can still be found in the Gary directory, but not all the present-day Bokicks, Cerajeskis, Polomchaks and Donahues toil in the mill. Gary is no longer a one-industry town and it is from this new, non-steel populace that a protest against the sorry quality of life is finally stirring. An incident last summer did as much as anything to galvanize this sentiment. On the July weekend when Neil Armstrong stepped onto the moon, the sulphur-dioxide rate in the East Chicago-Gary area soared to ten times the legal limit. Late Sunday it rained, and the SO_2 and the rainwater combined into a reasonable approximation of sulphuric acid. Lawns turned a charred brown, leaves developed ulcerous holes and birds lost their feathers. The hosts of local radio talk shows quickly discovered that the only gripe on anyone's tongue was pollution.

Like anywhere else, however, the name of the pollution game in this region is to pin the blame on somebody else. Gary blames East Chicago, which blames Hammond, which in turn blames East Chicago and Gary. At least all three agree that the over-all onus falls on the steel industry, which accepts half of the blame but pins the other 50 per cent on the communities for their own pollution producers.

Reform is finally in the acrid wind, however, and the steel firms can sniff it. The language of their anti-pollution measures seems as technically obscure as the processes that produce their steel. U.S. Steel points to its new "BOP shop" (a basic oxygen process that scrubs the waste gases with water) and its "flocculator-clarifier" (a device that removes emulsified oil wastes from water before returning it to the lake). Theoretically, at least, enough such installations should be able to nullify 90 per cent of a steel mill's pollutants—but the cost makes that unlikely to happen. U.S. Steel has, however, promised the city of Gary to clean up most of the mess by 1972. In the meantime, Lake Michigan has been given nine years to live—and one pollution expert calls that prognosis "optimistic."

In the grimy Blackhawk bar on Broadway, the 8-to-4 shift queues up to rinse out their insides with "depth charges." The shot of whisky—glass and all—is simply dropped into a huge schooner of beer and the concoction is consumed in one gulp. Somehow it's a depressing scene and you hasten to your car and drive north. Through the rear window, the sky smolders in an eerie false sunset, as if a nuclear holocaust were subsiding. You recall that the god of steel towns like Gary is Vulcan, who was banished from his seat on Olympus for being the only ugly immortal. He never made it back.

Newsweek—Jeff Lowenthal

Gary: The mill's breath stains everything

Too many decibels

Pictorial Parade

despoiled to allow haphazard development of cities and industries. To a man they maintain that a national population plan must be invoked, primarily through a national land-use plan. "At one time," says Frank Tysen of California's Environmental Quality Study Council, "it was in the national interest to give the land away. Today it is in the national interest for the government to buy land like mad. Ultimately, the Federal government has to be the major controller of the land."

The land, water and air are not the only areas of pollution. In the past sixteen years, the level of noise assaulting the ears of city dwellers has doubled, and the increase shows little sign of abating. Last week, a seventeen-member task force reported to New York Mayor John Lindsay that noise in Fun City has "reached a level intense, continuous and persistent enough to threaten basic community life." In other words, it is no longer funny.

According to the panel, noise in the city regularly exceeds 85 decibels, a level widely regarded by doctors as the threshold above which continuous noise can cause deafness. (Conversational speech measures about 60 decibels, a typical subway train 95 decibels, a power mower 110 decibels and a jet aircraft at take-off 150 decibels.) Nor can the harried urban inhabitant seek silence indoors. He merely substitutes the clamor of rock music for the beat of the steam hammers, the buzz of the air conditioner for the steady rumble of traffic. The modern kitchen, with its array of washing machines, garbage-disposal units and blenders, often rivals the street corner as a source of unwanted sound.

Yet the dangers of noise go beyond deafness. According to former Surgeon General William H. Stewart, "it has been demonstrated that noise can cause physiological changes. These include cardiovascular, glandular and respiratory problems reflective of a generalized stress reaction." One study has shown that steelworkers in particularly noisy environments become increasingly argumentative on the job and at home, another that workers in noisy jobs show more signs of fatigue and have more neurotic complaints than other workers. Even babies in the womb are not immune from noise pollution: evidence presented at the meeting of the American Association for the Advancement of Science in Boston last December suggested that sharp sounds such as sonic booms can cause stress in human fetuses. And when it reaches a level of 165 decibels, sound can kill animals such as rats and cats—the energy of the sound waves is converted to heat in the animals' bodies.

In their more apocalyptic moments, some scientists like to play with the notion that global disaster may result if environmental pollution continues unchecked. According to one scenario, the planet is already well advanced toward a phenomenon called the "greenhouse effect." Concentrations of carbon dioxide are building up in the atmosphere, it is said, as the world's vegetation, which feeds on CO_2, is progressively chopped down. Hanging in the atmosphere, it forms a barrier trapping the planet's heat. As a result, the greenhouse theorists contend, the world is threatened with a rise in average temperature which, if it reached 4 or 5 degrees, could melt the polar ice caps, raise sea level by as much as 300 feet and cause a worldwide flood. Other scientists see an opposite peril: that the polar ice will expand, sending glaciers down to the temperate zone once again. This theory assumes that the earth's cloud cover will continue to thicken as more dust, fumes and water vapor are belched into the atmosphere by industrial smokestacks and jet planes. Screened from the sun's heat, the planet will cool, the water vapor will fall and freeze, and a new Ice Age will be born.

These fanciful notions aside, conservationists are worried that the hour grows late, and not much has been done. "All of us," admits Stewart Udall, the former Secretary of the Interior and ardent environmentalist, "me, former President Lyndon Johnson, Walter Hickel [the current Interior Secretary] Nelson Rockefeller [the governor of New York State], we all talked a much better game in recent years than we actually played. Across the nation, our rivers, lakes and the air are all more polluted than they were five years ago."

To restore quality to American life is going to cost the nation dearly; the environment, as President Nixon observed, must be repaid. How much will it cost? Although projections of billion-dollar programs are tossed about, the fact is that no one really knows for sure exactly what the nation will have to pay for purified water, scrubbed air, quieter surroundings and rational land use. But Rep. Morris Udall, Democrat of Arizona and brother of Stewart, suggests a more realistic assessment. "The price of a decent environment," he says, "may be cars with 60-horsepower engines instead of 360, and fewer gadgets and higher taxes. But there will be more fishing streams. We might have fewer supersonic transports, but nicer beaches and forests."

Several years ago, philosopher Lewis Mumford made an observation about the space program that today seems more appropriate for this troubled environment: "Any square mile of inhabited earth has more significance for man's future than all of the planets in the solar system."

Growing up with garbage: Playing a dangerous game

Michael Evans—Nancy Palmer