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THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release

November 15, 1989

REMARKS BY THE PRESIDENT
TO
ENVIRONMENTAL YOUTH AWARD RECIPIENTS

Room 450
Old Executive Office Building

11:30 A.M. EST

Last Year

THE PRESIDENT: I told Administrator Reilly he looked a little lonely standing up here with all these about-to-be-filled places. But I am very pleased to be here. And let me, at the outset of these remarks, while we're talking about the Environmental Youth Awards, say how proud I am to have Bill Reilly, an outstanding environmentalist, heading this big agency, the EPA, and being at my side as we try to move forward legislatively and every other way our concerns and your concerns about the environment. We're lucky to have a man of his stature doing what he's doing.

Speaking of environmentalists, I don't want to embarrass Gil Grosvenor, but there he is -- head of the National Geographic Society. And I think of what they do, every single issue in one way or another, and in many other ways as well, to help in this crusade.

It's a pleasure to be about to meet so many young people who are deeply involved in protecting our environment. I am told that you come from as far away as Alaska, from every corner of this beautiful country of ours. And I want to thank you for what you've done and welcome you warmly to the White House.

Some people might ask: What can young people do to protect our environment? Well, we had five kids, and there were times when I thought that the kids could make a major improvement in the environment just by cleaning up their rooms. (Laughter.) But I realize now we have broader responsibilities. And anyone who has seen all of you at work knows just how much kids can do to protect and preserve this world that we live in.

And I've heard about your projects. I've been briefed on those -- everything from recycling to conservation to some very sophisticated environmental research. Impressive, all of them. But what impresses me the most is how many times you took an idea that began in the classroom out into the community.

And every one of your projects is making your communities a little cleaner, a little more pleasant, a little more aware of how much the environment matters. And that's a credit to each of you and to your schools and your teachers and your parents who gave you the necessary encouragement and support.

But your work has an impact even beyond your own communities. Your projects teach other kids that no one's ever too young to care about the environment -- and they tell us something else, too: that if kids can be environmentally aware, maybe a few more adults will join in.

The fact is that everyone can be an environmentalist, every one of us has got to be. What we're seeing today, not just here, but as Bill knows so well all around the world, is a new sense of urgency about the environment, about the state of our world.

MORE

Greater awareness that pollution and the destruction of our environment hurt all of us -- that everyone of us has a common interest in the fate and the future of this planet, and that it's simply not acceptable to continue to do environmental damage today and leave the cleanup for you and your children to worry about later on.

All of your projects are special, but I hope I don't offend anybody, I hope the rest of you won't mind if I mention two projects -- the ones done by our youngest environmentalists. There's last year's 4th grade class here from St. Joseph, Missouri -- I see them smiling away here -- (laughter) -- that decided to adopt a polluted river, adopt the river in their community and clean it up. For one full year, you picked up the litter, tested the water, stocked the river with all kinds of wildlife, and you planted willow trees along the bank, I'm told, to protect against the erosion. I can tell you that, years from now, when you sit on the bank beneath those willows -- maybe with some of your children, some of your grandchildren -- watching that river roll along, you're going to get a very special feeling, then, for what you've done today.

There's another group here today -- Marquette, Michigan. Where are they? Right over here, scattered -- all right, I see you guys -- who collected enough money to save an 80-acre stand of white pine trees from being cut down. And you knew how many trees there were and how much it would cost to buy the land -- so you did a little math and came up with a slogan: "Save a Pine Tree for \$155.28." (Laughter.)

I've tried to make a habit myself, in various events, of planting trees to call attention to the need to care for the future of this planet. Planting a tree is not an act that we do just for ourselves but for future generations, including future 4th graders from Marquette, Michigan and elsewhere, who haven't even been born yet.

Well, the people in your community who heard your slogan thought that saving those trees was worth every penny.

What's true about those trees is true about the rest of our environment -- our lakes and our rivers and our streams; our forests and our mountains; the very air we breathe. And nothing gives me more confidence in your generation than to see what you've already done to protect the gifts that nature has given us. Because "America the Beautiful" is more than just a song that we all sing. It's a treasured inheritance. And so together, we can keep it that way -- America the beautiful.

So I'm glad to join Bill Reilly in congratulating all of you. And now, with no further ado, he and I have the great pleasure of passing out these awards. Thank you all very, very much. (Applause.)

(The awards are presented.) (Applause.)

END

11:40 A.M. EST

our draft

OCT 31 1989

PRESIDENT'S ENVIRONMENTAL YOUTH AWARDS
CEREMONY
REMARKS BY PRESIDENT BUSH
NOVEMBER 15, 1989

Winner & teacher
go up to get
award

Rm. 450 180 expected
to attend

what did they do?
- clean room.

T.R. - Bush & T.R.
have both been
-- saw the same thing
- tree on lawn

winners - groups & individuals
teachers
some parents
EPA staff

Magnolias on S. Portico
10-15 yrs old when planted
White Oak - planted by Herbert Hoover by Oval Office

HELLO!

I AM VERY HAPPY TO SEE YOU ALL HERE
TODAY. THIS REALLY IS A VERY SPECIAL
OCCASION.

WE ARE HERE TO HONOR THE TEN WINNERS OF
THE PRESIDENT'S ENVIRONMENTAL YOUTH
AWARD FOR 1989. YOU YOUNG PEOPLE, AS
INDIVIDUALS, OR AS A CLASS OR OTHER
GROUP, HAVE MADE OUTSTANDING
CONTRIBUTIONS TO THE PROTECTION AND
PRESERVATION OF THE NATURAL ENVIRONMENT
IN YOUR COMMUNITY.

IT SEEMS ESPECIALLY FITTING THAT YOU
HAVE DONE SO - FOR YOUNG PEOPLE ARE THE
FUTURE, AND THE NATURAL ENVIRONMENT IS
THE GREATEST RESOURCE OF THIS GREAT
NATION.

I FEEL A SPECIAL, PERSONAL, PRIDE AND
SATISFACTION IN CELEBRATING WITH YOU
TODAY.

LAST YEAR, WHEN I WAS CAMPAIGNING FOR THE PRESIDENCY, I TALKED ABOUT TWO PARTICULAR GOALS THAT I WANTED TO ACHIEVE IN THIS OFFICE.

ONE WAS THAT I WANTED TO BE ABLE TO BE KNOWN AS THE "EDUCATION PRESIDENT," AND THE OTHER WAS THAT I ALSO WANTED TO BE KNOWN AS THE "ENVIRONMENTAL PRESIDENT."

THE PRESIDENT'S ENVIRONMENTAL YOUTH AWARDS PROGRAM, BY RECOGNIZING THE ACHIEVEMENTS OF STUDENTS WHO ARE HELPING TO PROTECT AND PRESERVE THE ENVIRONMENT, IS AN IDEAL MARRIAGE OF THESE TWO VERY IMPORTANT OBJECTIVES - NOT ONLY FOR MYSELF, BUT FOR THE ENTIRE NATION.

THE FACT THAT SO MANY OF THE WINNERS WERE SCHOOL CLASSES SHOWS THE VERY GOOD JOB THAT OUR TEACHERS AND ADMINISTRATORS ARE DOING OF INCORPORATING ENVIRONMENTAL LEARNING INTO THE WIDER EDUCATIONAL EXPERIENCE OF STUDENTS.

IT ALSO MEANS THAT THE SCHOOLS HAVE EMBRACED "THE ENVIRONMENT" AS A SUBJECT THAT CAN BE TAUGHT IN AN INTERDISCIPLINARY WAY - MEANING, FOR EXAMPLE, THAT AN ENVIRONMENTAL PROJECT MAY BE CARRIED OUT AS PART OF A SCIENCE OR CIVICS CLASS, AND MAY ALSO BE WRITTEN ABOUT IN AN ENGLISH CLASS AND / OR DOCUMENTED IN SPEECH, AUDIO-VISUAL, OR DESIGN CLASSES.

WE ARE NOW RECOGNIZING, FOR SEVERAL REASONS, THAT ENVIRONMENTAL EDUCATION AND TRAINING ARE IMPORTANT TO SUSTAINABLE DEVELOPMENT WORLDWIDE, AND TO THE FUTURE COMPETITIVENESS OF THE UNITED STATES.

WHILE WE HAVE MADE REAL, SIGNIFICANT PROGRESS SINCE THE FIRST "EARTH DAY," BACK IN 1970, NEW ENVIRONMENTAL PROBLEMS HAVE BECOME EVIDENT, AS HAS THE COMPLEXITY OF THEIR SOLUTIONS. WE HAVE BECOME MORE AWARE OF AMERICA'S ROLE AS IT AFFECTS THE INTERNATIONAL ENVIRONMENT.

PUBLIC AWARENESS OF ENVIRONMENTAL ISSUES IS HIGH. THERE IS A RENEWED SENSE OF URGENCY ABOUT THE THREATS TO THE ENVIRONMENT. THIS CONCERN IS THE DRIVING FORCE BEHIND PLANS FOR A NEW- AND GLOBAL - "EARTH DAY," ON THE TWENTIETH ANNIVERSARY OF THE FIRST ONE, IN APRIL OF 1990.

THE PUBLIC EDUCATION SYSTEM IN THIS COUNTRY IS BEING RESTRUCTURED, AND THIS PROVIDES AN OPPORTUNITY TO FURTHER ENHANCE ENVIRONMENTAL EDUCATION, AND INTEGRATE IT INTO THE LARGER CURRICULUM.

THE AMERICAN PEOPLE ARE CONCERNED ABOUT THE ABILITY OF THE UNITED STATES TO COMPETE IN WHAT IS INCREASINGLY A GLOBAL ECONOMY - AND ENVIRONMENTAL CONCERNS, FROM AIR POLLUTION AND ACID RAIN, TO WATER POLLUTION AND DEFORESTATION OF THE WORLD'S RAIN FORESTS, ALL AFFECT - AND ARE AFFECTED BY - ECONOMIC CHOICES AND NEEDS.

THE "STATE OF THE PLANET" IS NOW AS IMPORTANT TO THE HEALTH AND WELL-BEING OF THE PEOPLE OF THE UNITED STATES AS IS THE "STATE OF THE UNION."

WE ARE COMING TO REALIZE THAT ENVIRONMENTAL AND ECONOMIC CONDITIONS AND CIRCUMSTANCES DO NOT RESPECT INTERNATIONAL POLITICAL BOUNDARIES. THE RESULTS OF ACTIONS IN ANY NATION OF THE WORLD ARE LIKELY TO AFFECT MANY OTHER NATIONS, AS WELL AS THE NATION IN WHICH THEY TAKE PLACE.

YOU WINNERS HERE TODAY HAVE SHOWN ALL OF US SOMETHING IMPORTANT - SOMETHING EVEN MORE THAN CONCERN FOR THE ENVIRONMENT, AND THE IMPORTANCE AND VIABILITY OF ENVIRONMENTAL EDUCATION.

ev. YOU HAVE SHOWN US THE POWER THAT EXISTS IN THE VOLUNTEER "SPIRIT" - HOW VERY MUCH CAN BE ACCOMPLISHED WHEN PEOPLE WHO ARE INVOLVED AND COMMITTED PUT THEIR ENERGIES TOWARDS A PARTICULAR CAUSE. THIS ENERGY CAN OFTEN BE MORE EFFECTIVE THAN THE LAW IN ACHIEVING DESIRED GOALS.

SO, NOT ONLY HAVE YOU SHOWN US WHAT YOU HAVE LEARNED - BUT WE HAVE LEARNED FROM YOU. YOUR WINNING PROJECTS HAVE TAUGHT ALL THE REST OF US A VALUABLE LESSON IN INVOLVEMENT AND COMMITMENT. THESE PROJECTS SHOW WHAT WE CAN ACCOMPLISH WHEN WE REALLY WANT TO AND WHAT WE CAN ACCOMPLISH BY ALL WORKING TOGETHER.

THANK YOU, THE WINNERS, FOR GIVING US SO
MUCH. LET US NOW HONOR YOU AND PRESENT
THESE AWARDS TO YOU.

MR. REILLY, ADMINISTRATOR OF EPA....

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McGroarty/Blessey
November 9, 1989
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PRESIDENTIAL REMARKS: ENVIRONMENTAL YOUTH AWARDS
OEOB
NOVEMBER 15, 1989
11:30 AM

Barry McB...
X2800

Thank you, Bill [EPA Administrator Reilly]. [Introductory
acknowledgements.] It's a great pleasure for me to meet so many
young people so deeply involved in protecting our environment.
You've come from as far away as Alaska -- from every corner of
this beautiful country of ours -- and I want to thank you for
what you've done, and welcome you to the White House.

List of Winners
provided by
EPA
Melba Meador
362-4454
EPA

Now, some people might ask: what can kids do to protect our
environment? [I raised five children of my own -- with a
little help from Barbara, of course -- and there were times I
thought our kids could make a major improvement to the
environment just by cleaning their rooms.] //

Well, anyone who's seen all of you at work knows just how
much kids can do to protect and preserve this world we live in.
I've heard about your projects. Everything from recycling, to
conservation, to some very sophisticated environmental research.
Impressive -- all of them.

Descriptions of
honorees
provided by
EPA

But what impresses me most is how many times you took an
idea that began in the classroom out into the community. Every
one of your projects is making your communities a little cleaner
-- a little more pleasant -- a little more aware of how much our

environment matters. That's a credit to each of you -- and to your schools and teachers who gave you encouragement and support.

List of Winners

But your work has an impact even beyond your own communities. Your projects teach other kids that no one's ever too young to care about the environment -- and they tell us something else, too: that if kids can be environmentally aware, maybe a few more adults will join in.

The fact is that everyone can be an environmentalist -- and every one of us has got to be. What we're seeing today is a new sense of urgency about the state of our world. Greater awareness that pollution and the destruction of our environment hurt all of us -- that everyone of us has a common interest in the fate and future of this planet. That it's simply not acceptable to continue to do environmental damage today -- and leave the clean-up for you and your children to worry about.

Time Magazine
1/2/89
Planet of the Year

All of your projects are special, but I hope the rest of you won't mind if I mention two projects -- the ones done by our youngest environmentalists. There's a 4th grade class here from St. Joseph, Missouri -- that decided to adopt a polluted river in their community, and clean it up. For one full year, you picked up litter, tested the water, stocked that river with all kinds of wildlife -- and you planted willow trees along the bank, to protect against erosion. I can tell you, years from now, when people sit on the bank beneath those willows -- maybe some of your children or grandchildren -- watching the river roll along, you'll get a special feeling from what you've done.

List of Winners

Call Me/ Bob

5th

There's another group of 4th graders here today from Marquette, Michigan, who collected enough money to save an 80-acre stand of white pine trees. You knew how many trees there were -- and how much it would cost to buy the land -- so you did a little math and thought up a slogan: "Save a Tree for \$155.26." Pine

Well, the people in your community who heard that slogan thought that saving those trees was worth every penny.

What's true about those trees is true about the rest of our environment -- our lakes, rivers and streams. Our forests and mountains. The air we breathe. And nothing gives me more confidence in your generation than to see what you've already done to protect the gifts that nature's given us. Because "America the beautiful" is more than just a song. Together, we can keep it that way.

Once again, congratulations to all of you. And now -- with Administrator Reilly's help -- we'll present your awards.

#

list of winners
Melba Mendez
382-4454
EPP

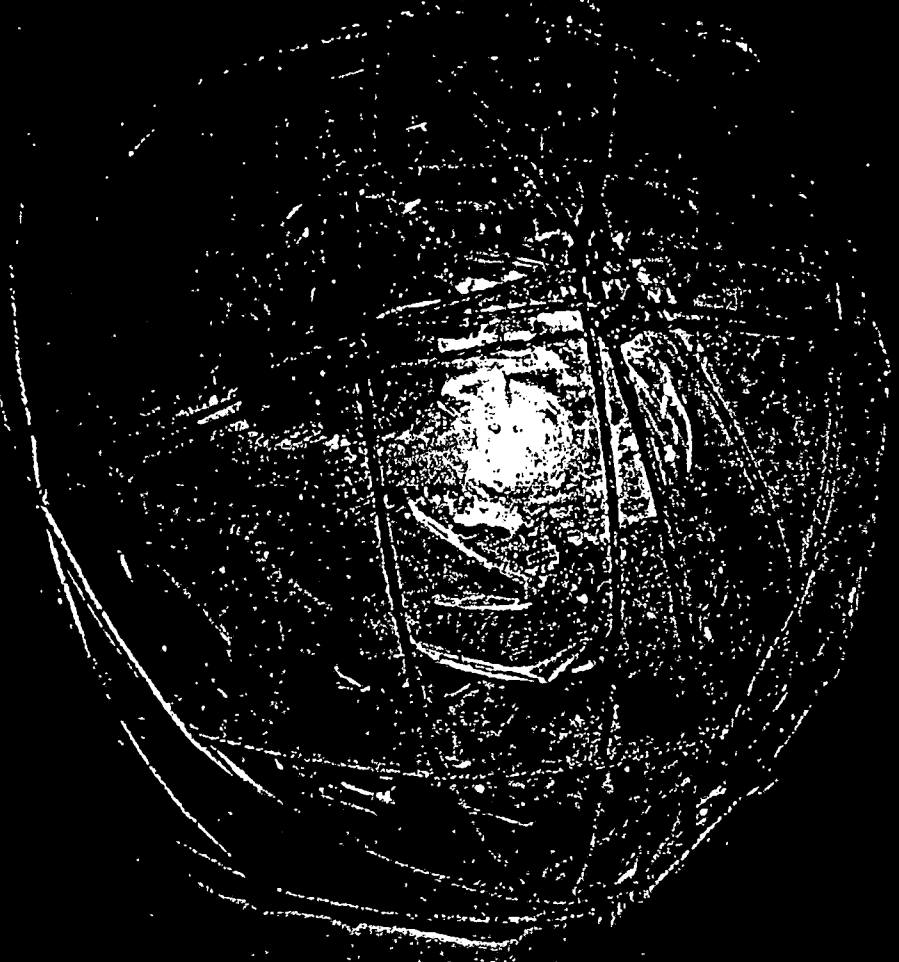
Bobby McBeck
x 2800

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725 17TH ST NW *022399
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WASHINGTON DC 20503

Endangered Earth



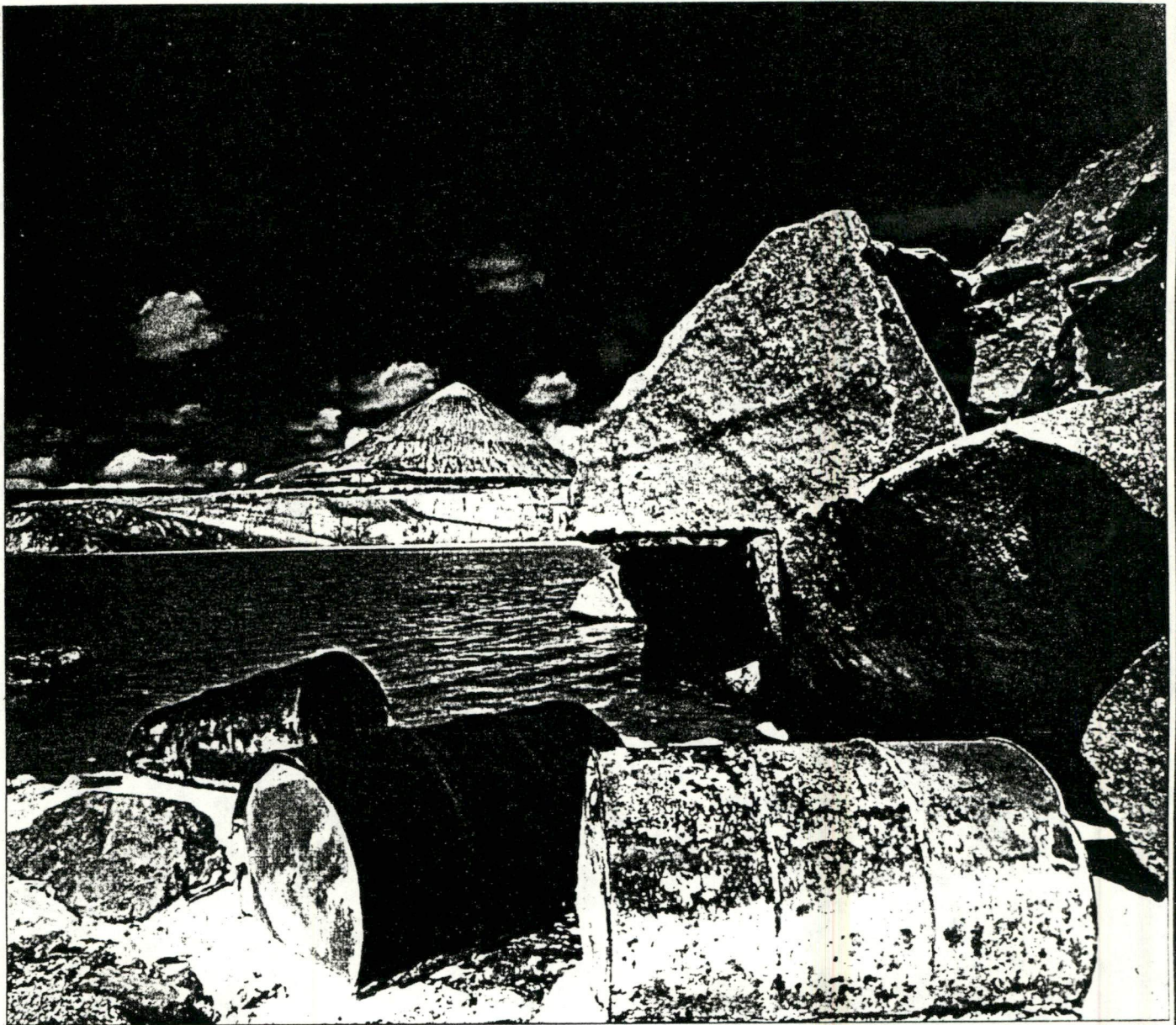
TIME

PLANET OF THE YEAR

JANUARY 2, 1988

\$2.00

FOVEA



PLANET OF THE YEAR: With drought, 24 famine and fouled beaches, the earth warns of environmental disaster

This wondrous globe has endured for some 4.5 billion years, but its future is clouded by man's reckless ways: overpopulation, pollution, waste of resources and wanton destruction of natural habitats. **TIME** analyzes the looming ecological crisis and provides an agenda for urgent action.

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81 World	100 Music
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90 Video	105 People

Cover:
Wrapped Globe, 1988 by Christo,
photographed by Gianfranco Gorgoni

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From the Publisher

This week's unorthodox choice of Endangered Earth as Planet of the Year, in lieu of the usual Man or Woman of the Year, had its origin in the scorching summer of 1988, when environmental disasters—droughts, floods, forest fires, polluted beaches—dominated the news. By August TIME knew it was no longer enough just to describe familiar problems one more time. "The new journalistic challenge," says managing editor Henry Muller, "was to help find solutions, and that by definition meant international solutions." So we invited a distinguished group of scientists, administrators and political leaders from five continents to a TIME conference charged with producing a tough but realistic action program. The conference was organized by Washington correspondent Dick Thompson. His proudest coup was to persuade a team of Soviet experts to participate. The group was led by Fyodor Morgun, Mikhail Gorbachev's hand-picked chairman of the state committee for environmental protection.

Even before Thompson's preparations were complete, our editors decided that the growing concern about the planet's future had become the year's most important story. Thus was born the idea of using the conference as the centerpiece of this week's 33-page package, which was coordinated by sciences editor Charles Alexander. It is not the first time the magazine has recognized something other than humans in its Man of the Year issue. In 1982 it named the computer Machine of the Year.

The Environment Conference was an extraordinary event, set in appropriately pristine surroundings: the foothills of Boulder, where the Great Plains meet the Rocky Mountains. For three days in November, 26 TIME journalists and 33 experts engaged in an interchange of ideas that was as freewheeling as it was productive. The meetings took place at the National Center for Atmospheric Research, whose staff helped plan the agenda. The Soviets were particularly open in what they revealed both about their country's environmental woes and on a personal level. At one point Thompson challenged Morgun to a game of eight ball on a barroom pool table in



Journalists and experts came together at the TIME Environment Conference in Boulder

Juanita's, a Mexican restaurant. To his shock, Thompson not only got his match, but was soundly beaten.

While a team of writers and researchers worked on the stories back in New York City, art director Rudy Høglund and deputy director Arthur Hochstein, who designed the layouts for the entire package, faced a difficult problem: how to create a strikingly original cover image. Their solution was to approach Christo, the famed Bulgarian-born environmental sculptor. In earlier works Christo had draped in plastic large sections of the earth—a stretch of Australian coast, a canyon in Colorado—but never the whole planet. This time Christo bundled a 16-in. globe in polyethylene and rag rope and drove more than 350 miles up and down New York's Long Island in search of the perfect combination of light, air and sea for a photograph. The result—*Wrapped Globe 1988*—is a fitting symbol of earth's vulnerability to man's reckless ways.



Christo with the world in his hands

Robert L. Miller

CONFERENCE PARTICIPANTS

Saad Baba Third Secretary, Nigerian Mission to the United Nations Robert Berg President, International Development Conference, Washington Lester Brown President, Worldwatch Institute, Washington José Pedro de Oliveira Costa Professor of Environmental Planning, University of São Paulo, Brazil John Eddy Director, Office for Interdisciplinary Earth Studies, University Corporation for Atmospheric Research, Boulder Christopher Gakahu Conservation Biologist, Wildlife Conservation International, Nairobi Murray Gell-Mann Professor of Theoretical Physics, California Institute of Technology Michael Glantz Head, Environmental and Societal Impacts Group, National Center for Atmospheric Research, Boulder Eric Goldstein Director, Urban Environment Program, Natural Resources Defense Council, New York City Albert Gore Jr. U.S. Senator, Tennessee Daniel Janzen Professor of Biology, University of Pennsylvania Brice Lalonde Under Secretary for the Environment, France Thomas Lovejoy Assistant Secretary for External Affairs, Smithsonian Institution, Washington Berrien Moore III Director, Institute for the Study of Earth, Oceans and Space, University of New Hampshire Fyodor Morgun Chairman, State Committee for Environmental Protection, U.S.S.R. Takahisa Nemoto Director, Ocean

Research Institute, University of Tokyo Paulo Nogueira-Neto Environmental Adviser, Ministry of Culture, Brazil Vasill Peskov Correspondent, *Komsomolskaya Pravda*, Moscow Kenneth Piddington Director, Environment Department, World Bank, Washington J. Winston Porter Assistant Administrator for Solid Waste and Emergency Response, U.S. Environmental Protection Agency David Rall Director, National Institute of Environmental Health Sciences, Research Triangle Park, N.C. Peter Raven Director, Missouri Botanical Garden, St. Louis Nicholas Robinson Professor, Pace University School of Law, White Plains, N.Y. Phillip Rooney President and Chief Operating Officer, Waste Management Inc., Oak Brook, Ill. Vladimir Sakharov Deputy Chief of International Cooperation, State Committee for Environmental Protection, U.S.S.R. Stephen Schneider Head, Interdisciplinary Climate Systems Group, National Center for Atmospheric Research, Boulder James Gustave Speth President, World Resources Institute, Washington Sir Crispin Tickell British Permanent Representative, United Nations Alvaro Umaña Minister of Industry, Energy and Mines, Costa Rica B.B. Vohra Vice Chairman, Himachal Pradesh State Land Use Board, New Delhi Bruce Wilcox President, Institute for Sustainable Development, Palo Alto, Calif. E.O. Wilson Frank B. Baird Jr. Professor of Science, Harvard University Timothy Wirth U.S. Senator, Colorado

PLANET OF THE YEAR

What On

EAR

Are We Doing?

TIME

THE

TORCHING THE BRAZILIAN RAINFOREST: Unprecedented profligacy in the name of progress

CHIP-HIRES—GAMMA-LIAISON



FLOODS IN BANGLADESH: This year the earth spoke, like God warning Noah of the deluge, and people began to listen

BY THOMAS A. SANCTON

*One generation passeth away, and another generation cometh:
but the earth abideth forever.*
—Ecclesiastes

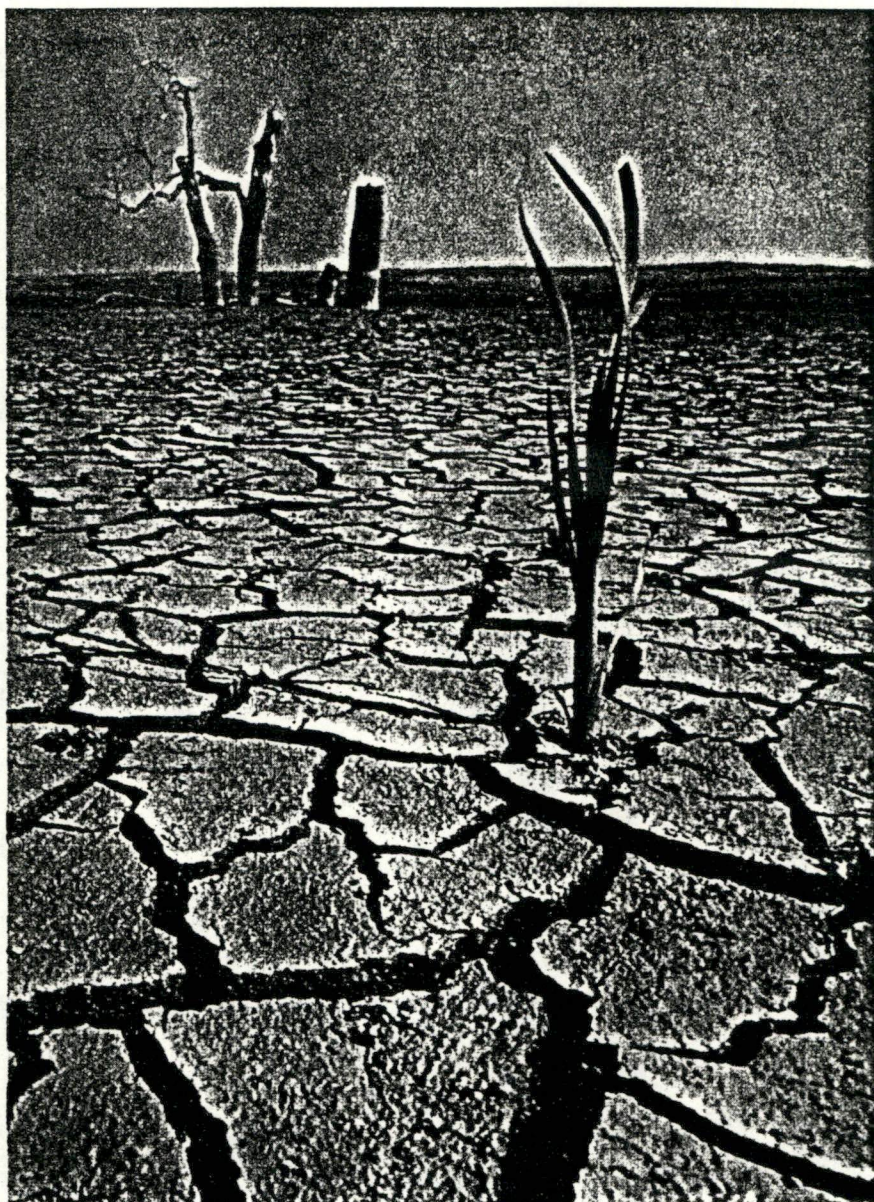
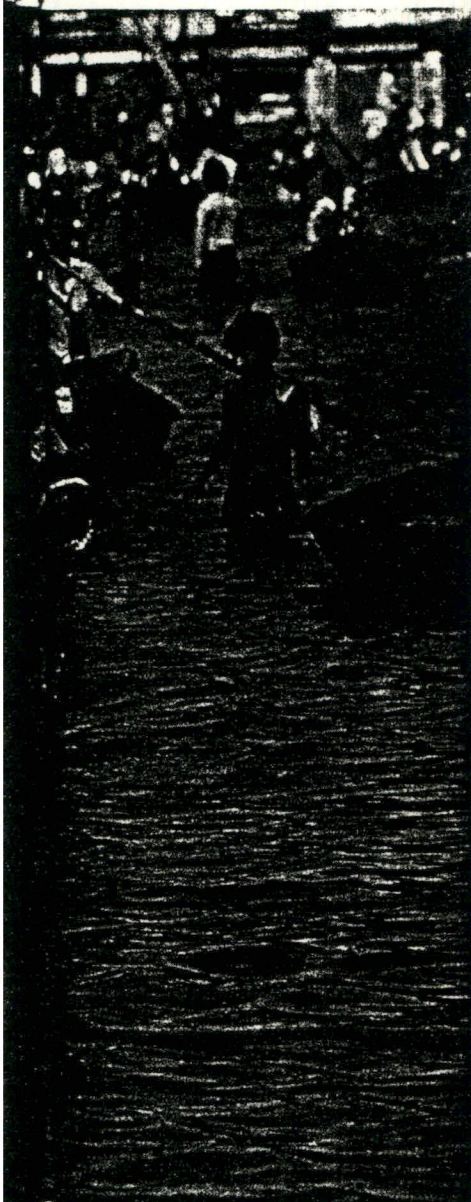
No, not forever. At the outside limit, the earth will probably last another 4 billion to 5 billion years. By that time, scientists predict, the sun will have burned up so much of its own hydrogen fuel that it will expand and incinerate the surrounding planets, including the earth. A nuclear cataclysm, on the other hand, could destroy the earth tomorrow. Somewhere within those extremes lies the life expectancy of this wondrous, swirling globe. How long it endures and the quality of life it can support do not depend alone on the immutable laws of physics. For man has reached a point in his evolution where he has the power to affect, for better or worse, the present and future state of the planet.

Through most of his 2 million years or so of existence, man has thrived in earth's environment—perhaps too well. By 1800 there were 1 billion human beings bestriding the planet. That number had

doubled by 1930 and doubled again by 1975. If current birthrates hold, the world's present population of 5.1 billion will double again in 40 more years. The frightening irony is that this exponential growth in the human population—the very sign of homo sapiens success as an organism—could doom the earth as a human habitat.

The reason is not so much the sheer numbers, though 40,000 babies die of starvation each day in Third World countries, but the reckless way in which humanity has treated its planetary host. Like the evil genies that flew from Pandora's box, technological advances have provided the means of upsetting nature's equilibrium, that intricate set of biological, physical and chemical interactions that make up the web of life. Starting at the dawn of the Industrial Revolution, smokestacks have disgorged noxious gases into the atmosphere, factories have dumped toxic wastes into rivers and streams, automobiles have guzzled irreplaceable fossil fuels and fouled the air with their detritus. In the name of progress, forests have been denuded, lakes poisoned with pesticides, underground aquifers pumped dry. For decades scientists have warned of the possible consequences of all this profligacy. No one paid much attention.

This year the earth spoke, like God warning Noah of the deluge



JEAN-LOUIS ATLAN—SYGMA

DROUGHT IN NORTH DAKOTA: Dry heat and fears of global warming

Its message was loud and clear, and suddenly people began to listen, to ponder what portents the message held. In the U.S., a three-month drought baked the soil from California to Georgia, reducing the country's grain harvest by 31% and killing thousands of head of livestock. A stubborn seven-week heat wave drove temperatures above 100° F across much of the country, raising fears that the dreaded "greenhouse effect"—global warming as a result of the buildup of carbon dioxide and other gases in the atmosphere—might already be under way. Parched by the lack of rain, the Western forests of the U.S., including Yellowstone National Park, went up in flames, also igniting a bitter conservationist controversy. And on many of the country's beaches, garbage, raw sewage and medical wastes washed up to spoil the fun of bathers and confront them personally with the growing despoliation of the oceans.

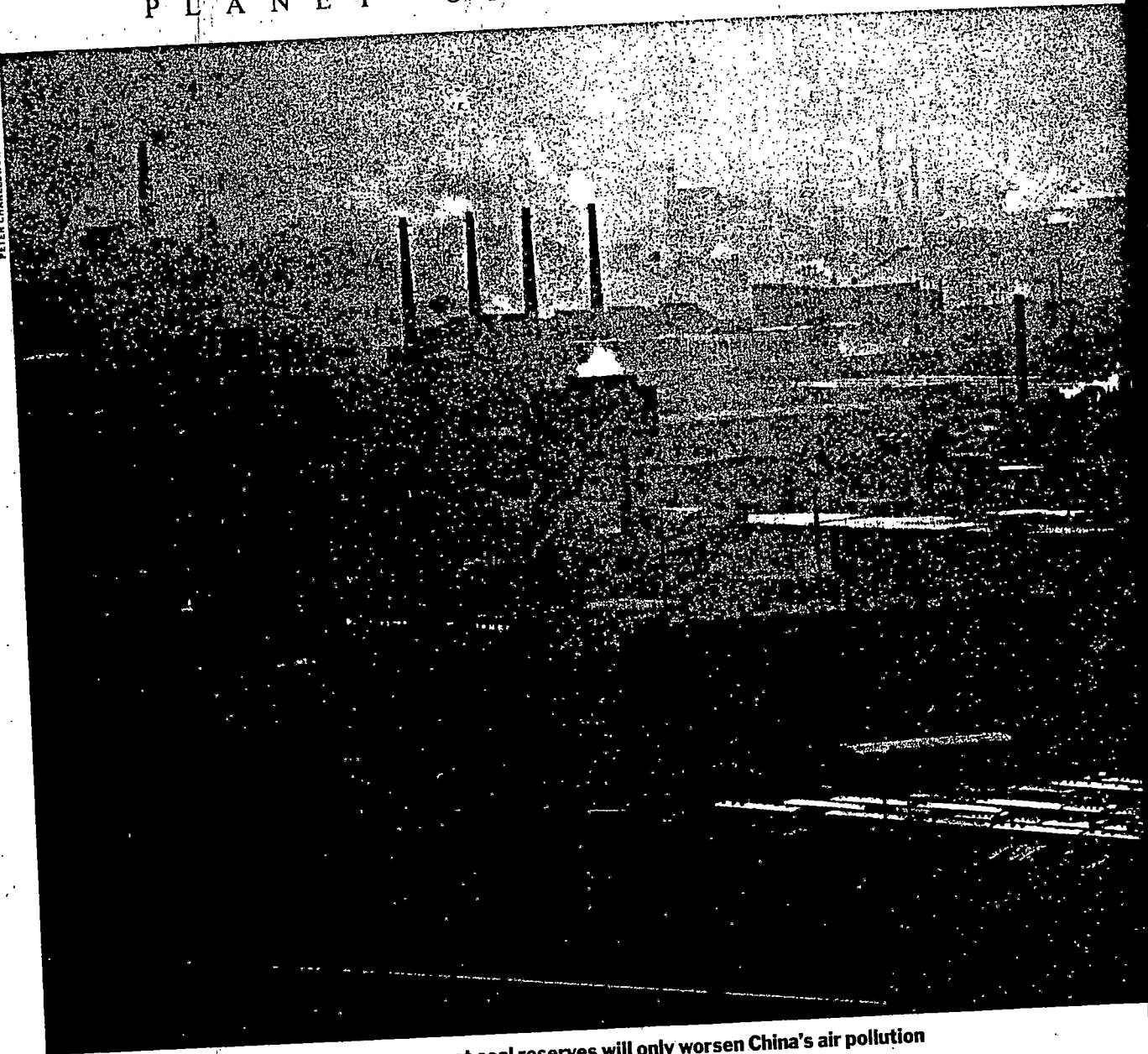
Similar pollution closed beaches on the Mediterranean, the North Sea and the English Channel. Killer hurricanes ripped through the Caribbean and floods devastated Bangladesh, reminders of nature's raw power. In Soviet Armenia a monstrous earthquake killed some 55,000 people. That too was a natural disaster, but its high casualty count, owing largely to the construction of cheap high-rise apartment blocks over a well-known fault area, illustrated

the carelessness that has become humanity's habit in dealing with nature.

There were other forebodings of environmental disaster. In the U.S. it was revealed that federal weapons-making plants had recklessly and secretly littered large areas with radioactive waste. The further depletion of the atmosphere's ozone layer, which helps block cancer-causing ultraviolet rays, testified to the continued overuse of atmosphere-destroying chlorofluorocarbons emanating from such sources as spray cans and air-conditioners. Perhaps most ominous of all, the destruction of the tropical forests, home to at least half the earth's plant and animal species, continued at a rate equal to one football field a second.

Most of these evils had been going on for a long time, and some of the worst disasters apparently had nothing to do with human behavior. Yet this year's bout of freakish weather and environmental horror stories seemed to act as a powerful catalyst for worldwide public opinion. Everyone suddenly sensed that this gyrating globe, this precious repository of all the life that we know of, was in danger. No single individual, no event, no movement captured imaginations or dominated headlines more than the clump of rock and soil and water and air that is our common

PETER CHARLESWORTH—JE PICTURES



SMOG IN BEIJING: Continued reliance on vast coal reserves will only worsen China's air pollution

home. Thus in a rare but not unprecedented departure from its tradition of naming a Man of the Year, TIME has designated Endangered Earth as Planet of the Year for 1988.

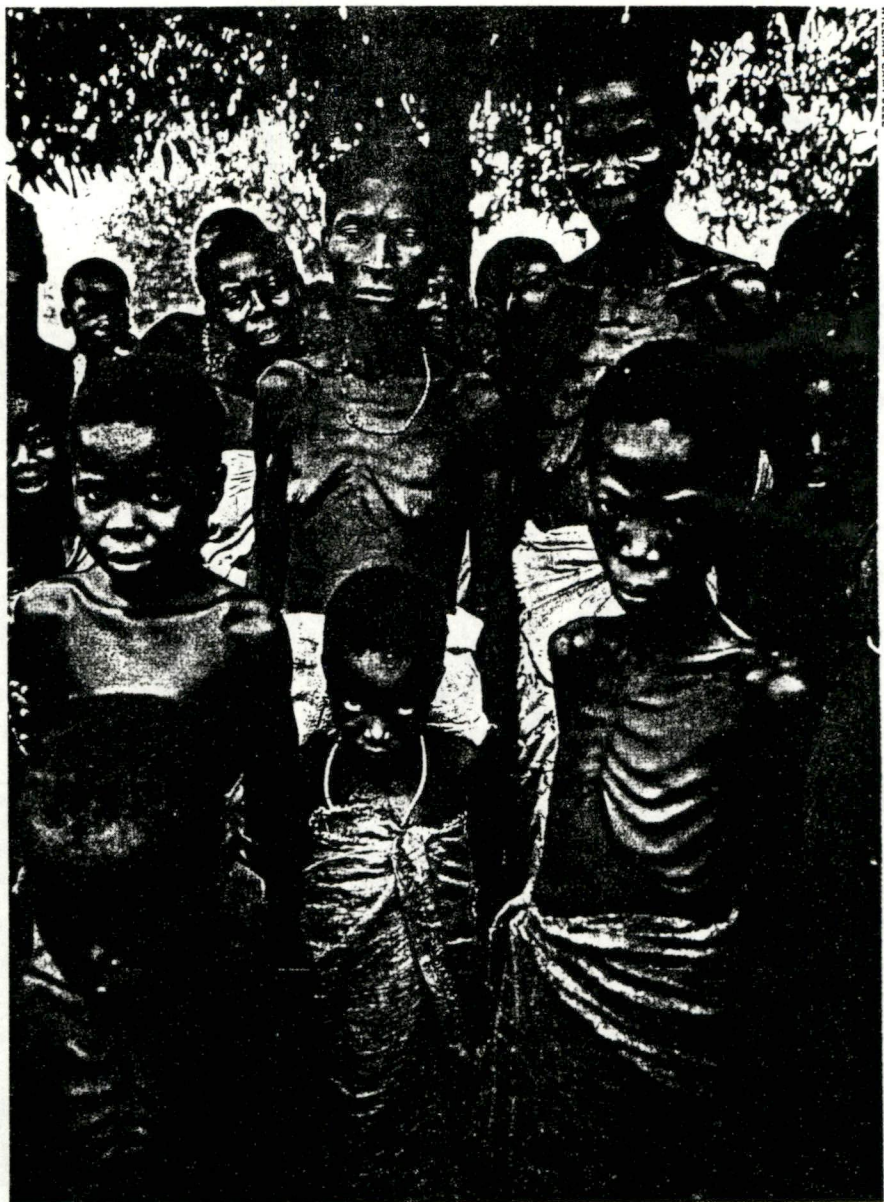
To help focus its coverage, TIME invited 33 scientists, administrators and political leaders from ten countries to a three-day conference in Boulder in November. The group included experts in climate change, population, waste disposal and the preservation of species. In addition to explaining the complexities of these interlocking problems, the specialists advanced a wide range of practical ideas and suggestions that TIME has fashioned into an agenda for environmental action. That agenda, accompanied by stories on each of the major environmental problems, appears throughout the following pages.

What would happen if nothing were done about the earth's imperiled state? According to computer projections, the accumulation of CO₂ in the atmosphere could drive up the planet's average temperature 3° F to 9° F by the middle of the next century. That could cause the oceans to rise by several feet, flooding coastal areas and ruining huge tracts of farmland through salinization. Changing weather patterns could make huge areas infertile or uninhabitable, touching off refugee movements unprecedented in history.

Toxic waste and radioactive contamination could lead to shortages of safe drinking water, the sine qua non of human existence. And in a world that could house between 8 billion and 14 billion people by the mid-21st century, there is a strong likelihood of mass starvation. It is even possible to envision the world so wryly and chillingly prophesied by the typewriting cockroach in Donald Marquis' *archy and mehitabel*: "man is making deserts of the earth/ it wont be long now/ before man will have it used up/ so that nothing but ants/ and centipedes and scorpions/ can find a living on it."

There are those who believe the worst scenarios are alarmist and ill founded. Some scientists contest the global-warming theory or predict that natural processes will counter its effects. Kenneth E.F. Watt, professor of environmental studies at the University of California at Davis, has gone so far as to call the greenhouse effect "the laugh of the century." S. Fred Singer, a geophysicist working for the U.S. Department of Transportation, predicts that any greenhouse warming will be balanced by an increase in heat-reflecting clouds. The skeptics could be right, but it is far too risky to do nothing while awaiting absolute proof of disaster.

Whatever the validity of this or that theory, the earth will no remain as it is now. From its beginnings as a chunk of molten



FAMINE IN MOZAMBIQUE: 40,000 babies starve to death each day

rock and gas some 4.5 billion years ago, the planet has seen continents form, move together and drift apart like jigsaw-puzzle pieces. Successive ice ages have sent glaciers creeping down from the polar caps. Mountain ranges have jutted up from ocean beds, and landmasses have disappeared beneath the waves.

Previous shifts in the earth's climate or topology have been accompanied by waves of extinctions. The most spectacular example is the dying off of the great dinosaurs during the Cretaceous period (136 million to 65 million years ago). No one knows exactly what killed the dinosaurs, although a radical change in environmental conditions seems a likely answer. One popular theory is that a huge meteor crashed to earth and kicked up such vast clouds of dust that sunlight was obscured and plants destroyed. Result: the dinosaurs starved to death.

Whether or not that theory is correct, an event of no less magnitude is taking place at this very moment, but this time its agent is man. The wholesale burning and cutting of forests in Brazil and other countries, as one major example, are destroying irreplaceable species every day. Says Harvard biologist E.O. Wilson: "The extinc-

tions ongoing worldwide promise to be at least as great as the mass extinction that occurred at the end of the age of dinosaurs."

Humanity's current predatory relationship with nature reflects a man-centered world view that has evolved over the ages. Almost every society has had its myths about the earth and its origins. The ancient Chinese depicted Chaos as an enormous egg whose parts separated into earth and sky, yin and yang. The Greeks believed Gaia, the earth, was created immediately after Chaos and gave birth to the gods. In many pagan societies, the earth was seen as a mother, a fertile giver of life. Nature—the soil, forest, sea—was endowed with divinity, and mortals were subordinate to it.

The Judeo-Christian tradition introduced a radically different concept. The earth was the creation of a monotheistic God, who, after shaping it, ordered its inhabitants, in the words of *Genesis*: "Be fruitful and multiply, and replenish the earth and subdue it: and have dominion over the fish of the sea and over the fowl of the air and over every living thing that moveth upon the earth." The idea of dominion could be interpreted as an invitation to use nature as a convenience. Thus the spread of Christianity, which is generally considered to have paved the way for the development of tech-



DEATH IN THE NORTH SEA: Their immune systems weakened by pollution, thousands of seals died of pneumonia

nology, may at the same time have carried the seeds of the wanton exploitation of nature that often accompanied technical progress.

Those tendencies were compounded by the Enlightenment notion of a mechanistic universe that man could shape to his own ends through science. The exuberant optimism of that world view was behind some of the greatest achievements of modern times: the invention of labor-saving machines, the discovery of anesthetics and vaccines, the development of efficient transportation and communication systems. But, increasingly, technology has come up against the law of unexpected consequences. Advances in health care have lengthened life-spans, lowered infant-mortality rates and, thus, aggravated the population problem. The use of pesticides has increased crop yields but polluted water supplies. The invention of automobiles and jet planes has revolutionized travel but sullied the atmosphere.

Yet the advance of technology has never destroyed man's wonder and awe at the beauty of the earth. The coming of England's Industrial Revolution, with its "dark Satanic mills," coincided with the extraordinary flowering of Romantic poetry, much of it about the glory of nature. Many people in this century voiced the same tender feelings on seeing the first images of the earth as viewed from the moon. The sight of that shimmering, luminescent ball set against the black void inspired even normally prosaic astronauts to flights of eloquence. Edgar Mitchell, who flew to the moon aboard Apollo 14 in 1971, described the planet as "a sparkling blue-and-white jewel . . . laced with slowly swirling veils of white . . . like a small pearl in a thick sea of black mystery." Photos of the earth from space prompted geologist Preston Cloud to write, "Mother Earth will never seem the same again. No more can thinking people take this little planet . . . as an infinite theater of action and provider of resources for man, yielding new largesse to every demand without limit." That conclusion seems all the more imperative in the wake of the environmental shocks of 1988.

Let there be no illusions. Taking effective action to halt the massive injury to the earth's environment will require a mobilization of political will, international cooperation and sacrifice

unknown except in wartime. Yet humanity is in a war right now, and it is not too Draconian to call it a war for survival. It is a war in which all nations must be allies. Both the causes and effects of the problems that threaten the earth are global, and they must be attacked globally. "All nations are tied together as to their common fate," observes Peter Raven, director of the Missouri Botanical Garden. "We are all facing a common problem, which is, How are we going to keep this single resource we have, namely the world, viable?"

As man heads into the last decade of the 20th century, he finds himself at a crucial turning point: the actions of those now living will determine the future, and possibly the very survival, of the species. "We do not have generations, we only have years, in which to attempt to turn things around," warns Lester Brown, president of the Washington-based Worldwatch Institute. Every individual on the planet must be made aware of its vulnerability and of the urgent need to preserve it. No attempt to protect the environment will be successful in the long run unless ordinary people—the California housewife, the Mexican peasant, the Soviet factory worker, the Chinese farmer—are willing to adjust their life-styles. Our wasteful, careless ways must become a thing of the past. We must recycle more, procreate less, turn off lights, use mass transit, do a thousand things differently in our everyday lives. We owe this not only to ourselves and our children but also to the unborn generations who will one day inherit the earth.

Mobilizing that sort of mass commitment will take extraordinary leadership, of the kind that has appeared before in times of crisis: Churchill's eloquence galvanizing his embattled countrymen to live "their finest hour," F.D.R.'s pragmatic idealism giving hope and jobs to Depression-ridden Americans. Now, more than ever, the world needs leaders who can inspire their fellow citizens with a fiery sense of mission, not a nationalistic or military campaign but a universal crusade to save the planet. Unless mankind embraces that cause totally, and without delay, it may have no alternative to the bang of nuclear holocaust or the whimper of slow extinction.



GREGORY DIMILIJAN—PHOTO RESEARCHERS

VANISHING FORESTS: Even Costa Rica's high-altitude cloud forests are now threatened by ranchers and farmers.

BIODIVERSITY

The Death of Birth

THE PROBLEM: Man is recklessly wiping out life on earth

BY EUGENE LINDEN

Before Brazil's great land rush, the emerald rain forests of Rondônia state were an unspoiled showcase for the diversity of life. In this lush territory south of the Amazon, there was hardly a break in the canopy of 200-ft.-tall trees, and virtually every acre was alive with the cacophony of all kinds of insects, birds and monkeys. Then, beginning in the 1970s, came the swarms of settlers, slashing and burning huge swaths through the forest to create roads, towns and fields. They came to enjoy a promised land, but they have merely produced a network of devastation. The soil that supported a rich rain forest is not well suited to corn and other crops, and most of the newcomers can eke out only an impoverished, disease-ridden existence. In the process, they are destroying an ecosystem and the millions of species of plants and animals that live in it. An estimated 20% of Rondônia's forest is gone, and at present rates of destruction it will be totally wiped out within 25 years.

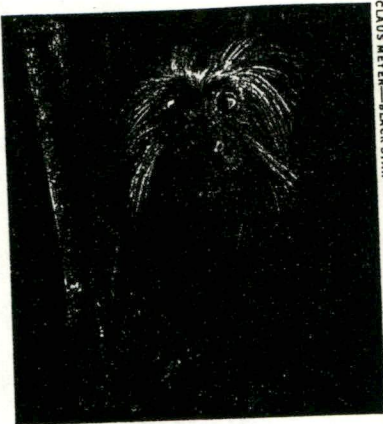
Around the globe, on land and in the sea, the story is much the same. Spurred by poverty, population growth, ill-advised policies and simple greed, humanity is at war with the plants and animals that share its planet. Peter Raven, director of the Missouri Botanical Garden, predicts that during the next three dec-

ades man will drive an average of 100 species to extinction every day. Extinction is part of evolution, but the present rate is at least 1,000 times the pace that has prevailed since prehistory.

Even the mass extinctions 65 million years ago that killed off the dinosaurs and countless other species did not significantly affect flowering plants, according to Harvard biologist E.O. Wilson. But these plant species are disappearing now, and people, not comets or volcanoes, are the angels of destruction. Moreover, the earth is suffering the decline of entire ecosystems—the nurseries of new life-forms. For that reason, Wilson deems this crisis the “death of birth.” British ecologist Norman Myers has called it the “greatest single setback to life’s abundance and diversity since the first flickerings of life almost 4 billion years ago.”

Nearly every habitat is at risk. Forests in the northern hemisphere have fallen to lumbering, development and acid rain. Marine ecosystems around the world are threatened by pollution, overfishing and coastal development. It is in the tropics, though, that the battle to preserve what scientists call biodiversity will be won or lost. Tropical forests cover only 7% of the earth's surface but they house between 50% and 80% of the planet's species.

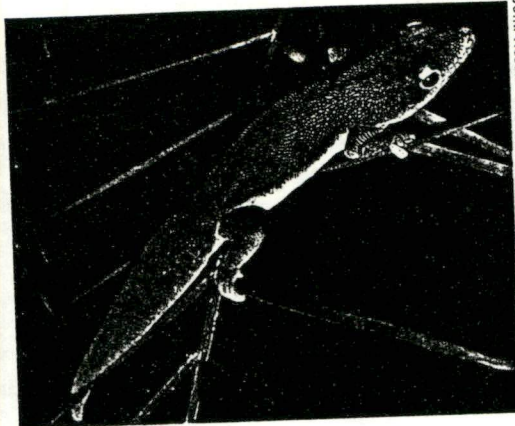
But should people in developed countries care about the survival of tropical species never seen outside a rain forest? They should. Variety is the spice of life, goes the saying. Biologists



CLAUS MEYER—BLACK STAR

**ENDANGERED:
Golden-Headed Tamarin**

No one knows how many of these primates remain in ragged remnants of Brazil's once vast coastal forests.



JOHN VISSER—BRUCE COLEMAN INC.

**ENDANGERED:
Day Gecko**

Native to an island near Mauritius, in the Indian Ocean, this type of gecko is losing its habitat.



JOE MCGONKLE—ANIMALS: ANIMALS

**ENDANGERED:
Snow Leopard**

Despite protection, the big cat is hunted in Central Asia for its soft, beautiful pelt.

would go further and argue that variety is the very stuff of life. Life needs diversity because of the interdependencies that link flora and fauna, and because variation within species allows them to adapt to environmental challenges. But even as the world's human population explodes, other life is ebbing from the planet. Humanity is making a risky wager—that it does not need the great variety of earth's species to survive.

Despite the alarm with which scientists view this trend, biodiversity has just surfaced on the world's political agenda. The troubles of high-profile animals such as the tiger and rhino grab public attention, while most people hardly see the point of worrying about insects or plants. But extinction is the one environmental calamity that is irreversible. As these lowly species disappear unnoticed, they take with them hard-won lessons of survival encoded in their genes over millions of years.

Only 1.7 million of the estimated 5 million to 30 million different life-forms on earth have been cataloged. Since hundreds of thousands of species may be extinct by the year 2000, the world has neither the scientists nor the time to identify the yet uncounted. "It's as though the nations of the world decided to burn their libraries without bothering to see what is in them," said University of Pennsylvania biologist Daniel Janzen at the TIME conference. Harvard's Wilson called this profligacy the "folly" that future generations are least likely to forgive.

Humanity already benefits greatly from the genetic heritage of little-known species. Some 25% of the pharmaceuticals in use in the U.S. today contain ingredients originally derived from wild plants. Hidden anonymously in clumps of vegetation about to be bulldozed or burned might be plants with cures for still un-

conquered diseases. "I know of three plants with the potential to treat AIDS," said Janzen. "One grows in an Australian rain forest, one in Panama and one in Costa Rica."

Nature's diversity offers many opportunities for agriculture, especially now that genetic mapping and engineering have given biotechnology firms the potential power to improve crops by transferring genes from wild strains. According to Wilson, biotechnology can transform a plant into a "loose-leaf notebook" from which scientists can select a particular page. Among the possible results: drought- and frost-resistant crops, and natural fertilizers and pesticides.

Diversity is the raw material of earth's wealth, but nature's true creativity lies in the relationships that link various creatures. The coral in a reef or the orchid in a rain forest is part of an ecosystem, a fragile, often delicately balanced conglomeration of supports, checks and balances that integrate life-forms into functioning communities. Given the complex workings of an ecosystem, it is never clear which species, if any, are expendable.

In the tropics the crucial question is how large a forest must be to sustain itself. If a park or protected area is too small to support some of its animal and plant life, the ecosystem will decline even with protection. As yet, no one knows the minimum critical size of a rain forest, but in 1979 Thomas Lovejoy, now at the Smithsonian Institution, set up a 20-year experiment with the cooperation of the Brazilian government to determine just that for the Amazon region. Among the findings: the smaller the forest, the faster the decline of insects, birds and mammals.

Biologists have identified numerous "hot spots" where eco-

What Nations Should Do

1. Develop local organizations and educational programs to impress upon people the value of genetic diversity and the irreversible damage that occurs when species are wiped out.
2. Establish comprehensive national zoning plans so that preservation goes hand in hand with development.
3. Set up projects to demonstrate that tropical forests and other endangered habitats can be developed—and yield economic returns—without being destroyed.
4. Make environmental review an integral part of lending procedures within nations so that local banks are prevented from providing funds for projects that destroy habitats.
5. Increase funding to develop zoos and other "gene banks" as places where species can be perpetuated.



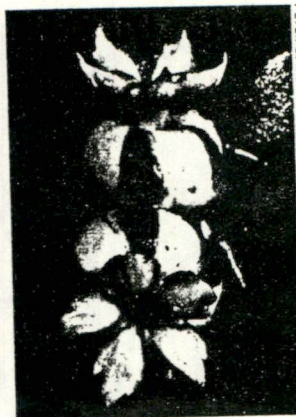
**ENDANGERED:
Bald Eagle**

The U.S. national bird has ever fewer refuges from hunters and poisonous pesticides.



**ENDANGERED:
Harlequin Beetle**

Found in Central and South American rain forests, the beetle breeds in trees that are fast disappearing.



**ENDANGERED:
Symphonia**

This plant clings to survival in Madagascar, where 90% of the original vegetation has been destroyed.

systems are under attack and large numbers of unique species face an immediate threat of elimination. Among the troubled areas: Madagascar, where more than 90% of the original vegetation has disappeared; the monsoon forests of the Himalayan foothills that are being denuded by villagers in search of firewood, building materials and arable land; New Caledonia, 83% of whose plants occur nowhere else; the eastern slope of the Andes, as well as forests in East Africa, peninsular Malaysia, north-east Australia and along the Atlantic coast of Brazil.

Since less than 5% of the world's tropical forests receive any protection, the stage is set for mass extinctions. Many plants and animals are doomed, no matter what measures are taken. Some researchers estimate that at least 12% of the bird species in the Amazon basin, as well as 15% of the plants in Central and South America, can be counted among what Janzen calls the "living dead." Many tropical mammals and reptiles face only bleak survival under what amounts to house arrest in game parks and zoos.

Why are so many species and environments threatened? The main reason is that throughout the tropics, developing nations are struggling to feed their peoples and raise cash to make payments on international debts. Many countries are chopping down their forests for the sake of timber exports. In Central America forests are giving way to cattle ranches, which supply beef to American fast-food chains. The pressures on forests have led Janzen, who has spent 26 years struggling to save Costa Rica's woodlands, to conclude that "everything outside parks will be gone, and everything inside the parks is threatened."

Efforts to stop the destruction run into moral as well as practical obstacles. How can developed nations demand onerous debt payments and ask the debtors to preserve their forests? How can countries worry about biodiversity when their people are concerned with feeding themselves?

To begin with, the rich nations must reduce the debt burden of the poor. But

just as important is a concerted campaign to convince the people of developing countries that it is in their own long-term interest to preserve their environments. Wiping out forests may make developing nations momentarily richer, but it is bound to produce a poorer future.

Experience has shown the Third World that destruction of forests can have disastrous consequences. Forests are vital watersheds that absorb excess moisture and anchor topsoil. Deforestation contributed to the recent droughts in Africa and the devastating mud slides in Rio de Janeiro last year. In Costa Rica topsoil eroded from bald hills has greatly shortened the life of an expensive hydroelectric dam. Alvaro Umaña, Costa Rica's Minister of Industry, Energy and Mines, estimated that the surrounding watershed might have been protected 20 years ago for a cost of \$5 million. Now the government must reforest the watershed at ten times that price.

Halting the assault on biodiversity will not be easy, but there are many actions that governments can take. First they should develop and support local scientific institutions that train professionals in conservation techniques. More money should flow into educational programs that alert people to the irreversible consequences of a loss of genetic diversity. An international, environmental version of the Peace Corps could spread conservation expertise to the Third World.

Throughout the developing nations there are encouraging stirrings of local environmental activity. In Malay blowgun-armed Penan tribesmen have joined forces with environmentalists in an effort to stop rampant logging. And in Brazil, which has some 500 conservation organizations, environmentalist José Pedro de Oliveira Costa organized a coalition of legislators, conservationists, industrialists and media barons to public support to preserve Brazil's remaining Atlantic forests. "The threat to the forests remain," said Costa, "but at least there is a network in place to scream when a threat arises."

But environmental protection is

Dividends From Diversity

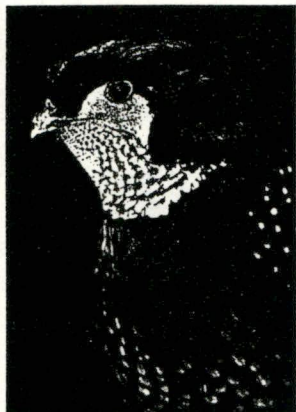
Few Americans realize how often exotic plants and animals yield unexpected benefits. Some examples:

■ Squibb used the venom of the Brazilian pit viper to develop Capoten, a drug for high blood pressure.

■ By transplanting genes from tropical tomatoes, the NPI biotech firm increased the density of U.S. tomatoes 2%, promising catsup manufacturers extra profits.

■ Scientists believe that arcelin, a natural protein in wild Mexican beans that repels insects, might protect some U.S. crops without poisoning soil and water.

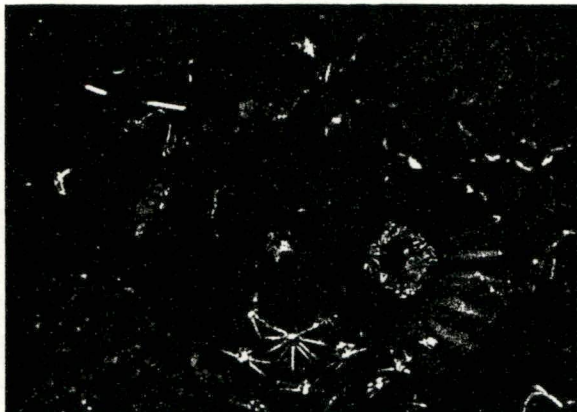
■ Future newspapers may be printed on paper from kenaf, an African plant that can produce five times as much pulp an acre than the trees normally cut for newsprint.



JOHN CHELMAN—ANIMALS, ANIMALS

**ENDANGERED:
Western Tragopan**

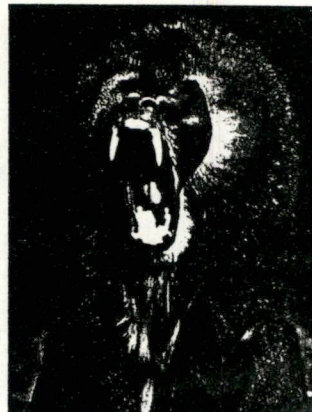
Native to Himalayan mountain forests, this bird is vulnerable to peasants who cut trees for fuel.



KENNETH HEIL—U.S. FISH AND WILDLIFE SERVICE

**ENDANGERED:
San Rafael Cactus**

One of many U.S. plants in jeopardy, the cactus is besieged by development and collectors.



Z LESZCZYNSKI—ANIMALS, ANIMALS

**ENDANGERED:
Drill**

Hunting and deforestation have reduced this monkey's territory to remote forests in Cameroon.

make economic sense, and development must go hand in hand with preservation. Development should be sustainable, meaning that it should use up resources no faster than they can be regenerated by nature. Governments and private firms should organize projects to show that forests can be used without being obliterated. If trees are cut selectively, forests can yield profits and survive to produce more money in the future. Another way to harvest cash from forests and other habitats is to set up tours and safaris to attract animal lovers and photography buffs. Long a moneymaker in Africa and the Galápagos Islands, this "ecotourism" is spreading to such places as Costa Rica.

For sustainable development to work, observed Paulo Nogueira-Neto, environmental adviser to the Brazilian Ministry of Culture, governments will have to devise comprehensive national zoning plans so that their countries can achieve the right mix of preservation and economic growth. Local residents can be encouraged to earn a livelihood in the more robust areas, while habitats that are fragile can be protected. Sustainable development can proceed, noted Kenneth Piddington, director of the environmental de-

partment of the World Bank, "right up to a park's boundary."

Financial as well as political leverage can be used in the cause of preservation. Governments should force local lending institutions to review the environmental consequences of proposed loans. No bank, for example, should be allowed to lend a company money to set up a cattle ranch if the operation would destroy too large a section of an endangered forest.

Finally, the unfortunate reality is that many habitats are not going to be saved. To prevent the genetic legacy of those areas from being extinguished, as many species as possible should be preserved in zoos, botanical gardens and other "gene banks." There, scientists can study a small percentage of threatened organisms and have the options of later returning them to the wild or transplanting some of their genes into other species.

But the best place to preserve the earth's biodiversity is in the ecosystems that gave rise to it. Man must abandon the belief that the natural order is mere stuff to be managed and domesticated, and accept that humans, like other creatures, depend on a web of life that must be disturbed as little as possible. ■

The Good News: Costa Rica Guards Its Forests



When a fungal disease began ravaging Levy Bryant's four-hectare cacao farm a decade ago, the landowner could have done what other besieged farmers have done. He might easily have picked up an ax and begun cutting down more tropical rain forest around his land on Costa Rica's Caribbean coast. He could have sold the timber from the tall laurel trees that shade the cacao bushes, then burned the dense virgin forest on the hill behind his farm. Then Bryant, like so many financially strapped small farmers in Latin America, could have sown pasture and sold the land to a cattle rancher. Within three or four years, one more small piece of the tropics would have vanished.

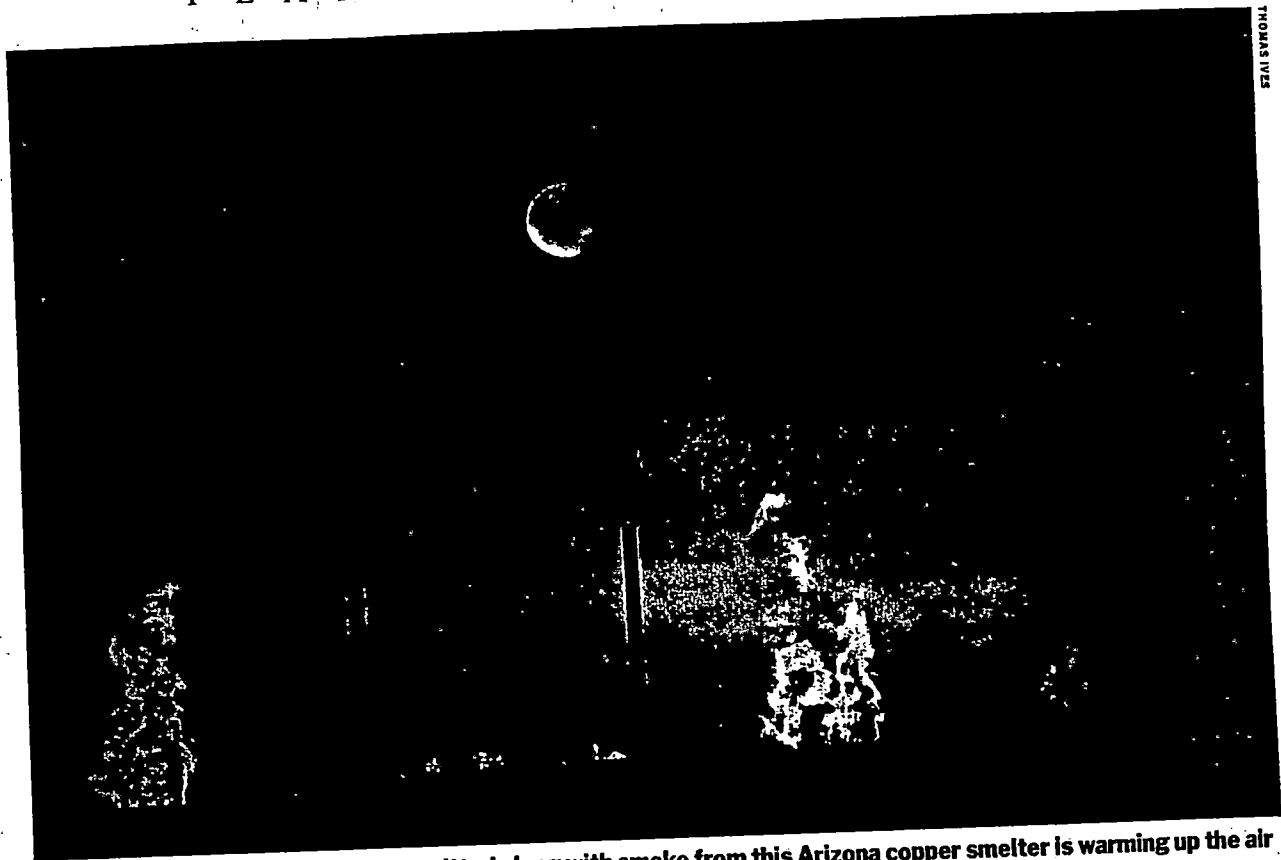
That Bryant did not rush headlong down this slippery ecological slope is in part testimony to Costa Rica's commit-

ment to its dwindling natural resources. The country has more than 20 national parks, wildlife preserves and other protected areas covering 2,577 sq. mi., or 13% of the land. Moreover, the nation's stable democracy has attracted hundreds of scientists and ecologists, making Costa Rica a laboratory for finding out what is possible in terms of sustainable development in the tropics.

One of the major reasons Bryant's plantation is not a fast-eroding cow pasture is that he got help from an environmental group called Anai (which means "friend" in the language of the local Bribri Indians). "We probably wouldn't still be farming if it wasn't for these guys," admits Bryant. Anai provided him with new kinds of crops, including vanilla plants and a different variety of cacao tree, which is less likely to die from fungus. Over the past five years, Anai has brought

dozens of new varieties of cash crops to more than 20 communities in the Talamanca region, set up plant nurseries serving 1,500 people, and helped establish a 10,000-hectare wildlife refuge.

The encroachment of cow pastures on the cloud forest at Monteverde spurred another of Costa Rica's efforts to save its natural heritage. In 1972, 350 hectares of land owned by American Quakers who had settled the region in the 1950s were set aside as a private reserve. Over the years that has grown to 10,500 hectares. One key to preserving this huge area was to allow local people to develop a tourist business. In five years the annual number of visitors has gone from 6,000 to 15,000, and could climb to more than 30,000 when a new road up from the plain is built. That success shows that forests can produce income without being destroyed.



HIDDEN MENACE: Invisible CO₂ emitted along with smoke from this Arizona copper smelter is warming up the air

GLOBAL WARMING

Feeling the Heat

THE PROBLEM: Greenhouse gases could create a climatic calamity

BY MICHAEL D. LEMONICK

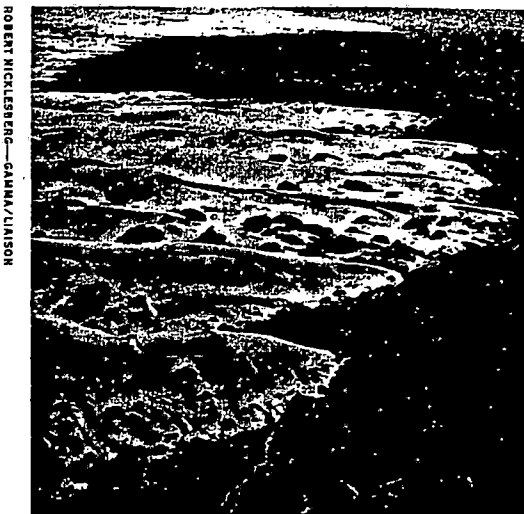
For more than a decade, many scientists have warned that cars and factories are spewing enough gases into the atmosphere to heat up the earth in a greenhouse effect that could eventually produce disastrous climate changes. But until recently, the prophets of global warming garnered about as much attention as the religious zealots who insist that Armageddon is near. When Colorado Senator Timothy Wirth held congressional hearings on the greenhouse effect in the fall of 1987, the topic generated no heat at all. "We had a very, very distinguished panel," Wirth recalled at the TIME Environment Conference, "and who was in the cavernous hearing room? Six or seven people, and two or three of them were lost tourists."

So Wirth decided to schedule another hearing in the summer, hoping hot weather would make people pay attention to the greenhouse issue. Sure enough, when the hearing convened last June 23, the thermometer read 99° F, a Washington record for that day. The room was packed when James Hansen, head of NASA's Goddard Institute for Space Studies, turned global warming into front-page news at last. "It is time to stop waffling so much," he declared. "The evidence is pretty strong that the greenhouse effect is here."

Hansen thus became perhaps the most prominent scientist willing to say straight out that the earth-warming effect of excess carbon dioxide (CO₂) and other gases generated by industry and agriculture had crossed the line from theory into fact. By itself, Hansen's bold assertion was dramatic enough. But the unusual string of weather-related disasters that struck the world last summer could not have been better timed to drive his point home. The heat waves, droughts, floods and hurricanes may be previews of what could happen with ever increasing frequency if the atmosphere warms 3° F to 8° F by the middle of the next century, as some scientists predict.

On the other hand, the summer's disasters may have had nothing to do with the greenhouse effect. They could have been random events—all part of the natural year-to-year variations in weather. Many climatologists called Hansen's remarks premature and feared that if this summer happens to be cool, public worries about the greenhouse effect will quickly fade.

Unfortunately, scientists cannot agree on how much global warming has occurred, how much more is on the way and what the climatic consequences will be, giving policymakers an excuse for delay. But no one disputes the fact that the amount of CO₂ in the atmosphere has risen and continues to increase rapidly and that the human race is thus conducting a dangerous experimenter



GAS GUZZLING: A Bangkok tie-up symbolizes growing Third World energy demands, which hurt efforts to cut fossil-fuel use

IOWA'S FUTURE? Climate change could erode land into dunes like these in Somalia

on an unprecedented scale. The possible consequences are so scary that it is only prudent for governments to slow the buildup of CO₂ through preventive measures, from encouraging energy conservation to developing alternatives to fossil fuels.

Some forecasters have suggested that the impact of global warming will not be uniformly bad around the world. After all, Canada would not complain if the productive corn-growing lands of the U.S. Midwest shifted north across the border, and the Soviet Union might welcome a warmer, more hospitable Siberia. But while the broad outlines of a hotter world are easy to draw, more specific projections are riddled with uncertainty, since the regional weather patterns that would prevail are largely unpredictable. If Canada becomes much dryer than it is now, for example, higher temperatures will not help much.

Moreover, while some nations will probably end up with a more benign climate than they now have, the pace of change could be so jarring that the benefits would be lost. "We're talking about rates of climate change perhaps 100 times faster than at any time in human history," said Stephen Schneider of the National Center for Atmospheric Research. Ecosystems will not be able to adjust so quickly, he said, "and the faster things change, the more likely it is that the impact will be negative." Warned Thomas Lovejoy of the Smithsonian Institution: "There will be no winners in this game of ecological chairs, for it will be fundamentally disruptive and destabilizing, and we can anticipate hordes of environmental refugees dwarfing the numbers of the Dust Bowl era or the boat people."

Ironically, the same greenhouse effect that may be so dislocating made earth hospitable to life in the first place. Without a heat-trapping blanket of naturally occurring CO₂, the planet

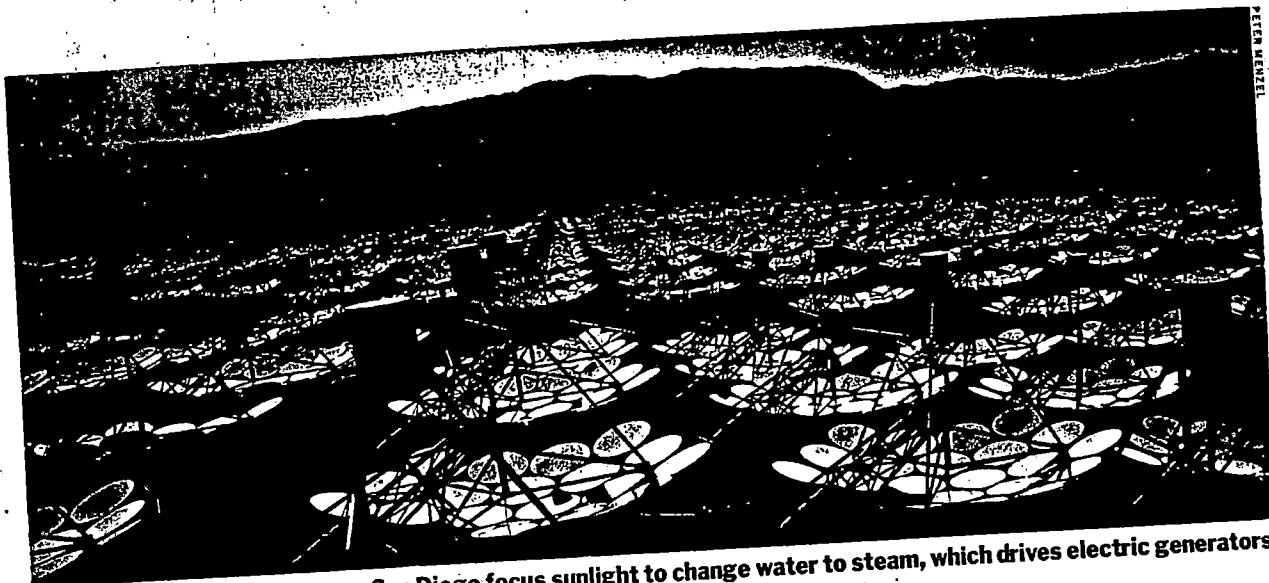
would have an average surface temperature of only 0° F instead of 59° F. Reason: like the glass panes of a greenhouse, CO₂ molecules are transparent to visible light, allowing the sun's rays to warm the earth's surface. But when the surface gives off its excess heat, it does so not with visible light but with infrared radiation. And since CO₂ absorbs infrared rays, some of the excess heat stays in the atmosphere rather than escaping into space. How much heat is retained depends on how much CO₂ is in the air.

Recent research has confirmed that this is more than just theory. By drilling deep into Antarctic and Arctic ice, scientists have been able to measure the amount of CO₂ in air bubbles trapped in ancient layers of snow. They have also looked at fossilized plant tissues for clues as to how warm the air was during the same period. The conclusion: CO₂ levels and global temperatures have risen and fallen together, over tens of thousands of years. And there is evidence from space: Mars, which has little CO₂ in its atmosphere, has a surface temperature that reaches -24° F at best, while Venus, with lots of CO₂, is a hellish 850° F.

The ebb and flow of CO₂ on earth was caused by only natural processes until less than 200 years ago. With the arrival of the Industrial Revolution in the early 1800s, man suddenly threw a new factor into the climatic equation. Carbon dioxide is released in large quantities when wood and such fossil fuels as coal, oil and natural gas are burned. As society industrialized, coal-burning factories began releasing CO₂ faster than plants and oceans, which absorb the gas, could handle it. In the early 1900s, people began burning oil and gas at prodigious rates. And increasing

What Nations Should Do

1. Impose special taxes on carbon-dioxide emissions, which would encourage energy conservation.
2. Increase funding for research on alternative energy sources, including solar power, and safer designs for nuclear reactors.
3. Provide financial aid to enable developing nations to build high-efficiency power plants rather than conventional facilities.
4. Launch a mammoth international tree-planting program.
5. Develop techniques for recovering part of the methane that is given off by landfills and cattle feedlots.



CLEAN POWER: Mirrors near San Diego focus sunlight to change water to steam, which drives electric generators

population led to the widespread cutting of trees in less developed countries. These trees are no longer available to soak up excess CO₂, and whether they are burned or left to rot, they instead release the gas. By the late 1800s atmospheric CO₂ had risen to between 280 and 290 parts per million. Today it stands at 350 p.p.m., and by 2050 it could reach 500 to 700 p.p.m., higher than it has been in millions of years.

But carbon dioxide, once thought to be exclusively responsible for the greenhouse effect, is now known to cause only half the problem. The rest comes from other gases. Chlorofluorocarbons, or CFCs, are not only destroyers of the stratosphere's ozone layer but powerful greenhouse gases as well. So are nitrogen oxides, which are pollutants spewed out of automobile exhausts and power-plant smokestacks. Another greenhouse gas is methane, the primary component of natural gas. Methane is also generated by bacteria living in the guts of cattle and termites, the muck of rice paddies and the rotting garbage in landfills. Each of these sources is fostered by human activity—even the termites, which thrive in the clearings left after tropical rain forests are cut down. Humanity's contribution to the greenhouse effect comes from so many basic activities that man cannot realistically expect to stop the process, only slow it down.

A first step toward doing that is to ban the production of CFCs, which are used to make plastic foam and as coolants in refrigerators and air conditioners. These gases account for an estimated 15% of the greenhouse effect. Another strategy is to burn as much methane as possible. That adds CO₂ to the air, but getting rid of the methane is well worth it. Both gases trap heat, but as a greenhouse gas, methane traps 20 times as much heat as carbon dioxide, molecule for molecule.

Methane from cattle feedlots will be very difficult to collect, but the gas in garbage landfills is already being tapped and burned at many sites around the U.S. At the Fresh Kills landfill on New York City's Staten Island, for example, methane that would otherwise have escaped into the air is being collected by a gas company and used to heat thousands of homes. The technique essentially involves driving a pipe into the depths of the garbage, then trapping the gas that rushes out. This should be done at all landfills.

Another step that could be taken to counteract global warming is to slow—and ideally stop—deforestation. But that is an enormously complex task, and so a simple companion strategy should be adopted at the same time: the planting of trees, and plenty of them, to absorb CO₂ from the air. "It surely has to be one of the most benign things we can do," said Gus Speth of the

World Resources Institute. Tree planting can be encouraged at all levels of society, from individuals putting an extra tree or two in their backyards to local communities and private organizations planting an acre at a time to provincial and national governments reforesting on a more widespread basis.

Admittedly, trees are just a stopgap. Unless a tree is used for lumber, it eventually dies and rots or is burned, releasing whatever CO₂ it has absorbed. But since the rapid pace of change may be the greatest danger posed by global warming, stopgaps could be important. If nothing else, reforestation will buy time to put other preventive measures into place.

Tree planting will have negligible impact, however, if people continue to pump CO₂ into the atmosphere at current rates. While wood and fossil-fuel burning will never be eliminated, they can be cut down significantly. An immediate way to do so is through conservation. When oil prices soared in the 1970s, industries responded by becoming much more energy efficient. But the plunge in the price of oil from \$36 per bbl. in 1982 to less than \$12 per bbl. this fall has cooled the enthusiasm for conservation. Governments must rekindle that interest and boost energy saving by setting or raising minimum efficiency standards for automobiles, appliances and other machinery.

Although developed countries waste the most energy, there are plenty of opportunities for conservation in the developing world, where energy-using equipment tends to be older and more inefficient. Third World conservation would not only help slow greenhouse warming but also let countries save money by reducing dependence on energy imports. If the industrialized countries expect cooperation, though, they should make available at minimal cost the most advanced energy-saving technology, especially for power plants, and help finance the purchase.

By far the most efficient and effective way to spur conservation is to raise the cost of fossil fuels. Current prices fail to reflect the very real environmental costs of pumping carbon dioxide into the air. The answer is a tax on CO₂ emissions—or a CO₂ user fee, if that is a more palatable term. The fee need not raise a country's overall tax burden; it could be offset by reductions in income taxes or other levies.

Imposing a CO₂ fee would not be as difficult as it sounds. It is easy to quantify how much CO₂ comes from burning a gallon of gasoline, a ton of coal or a cubic yard of natural gas. Most countries already have gasoline taxes; similar fees, set according to the amount of CO₂ produced, could be put on all fossil-fuel sources. At the same time, companies could be given credits against their CO₂ taxes if they planted trees to take some of the CO₂ out of the air.

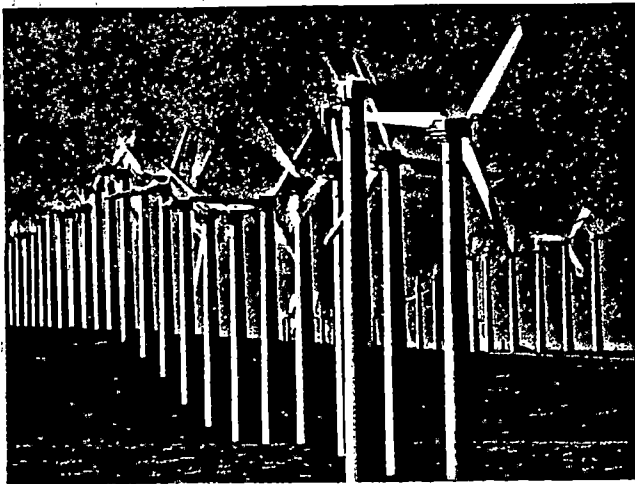
A user fee would have benefits beyond forcing a cut-back in CO₂ emissions. The fuels that generate carbon dioxide also generate other pollutants, like soot, along with nitrogen oxides and sulfur dioxide, the primary causes of acid rain. The CO₂ tax would be a powerful incentive for consumers to switch from high-CO₂ fuels, such as coal and oil, to power sources that produce less CO₂, notably natural gas. When burned, methane generates only half as much CO₂ as coal, for example, in producing the same amount of energy.

Ultimately, though, the world must move away from fossil fuels for most of its energy needs.

Said Berrien Moore, director of the Institute for the Study of the Earth, Oceans and Space at the University of New Hampshire: "Even if you cut emissions of CO₂ in half, the atmospheric concentration will keep going up. You're still adding CO₂ faster than you're withdrawing it, so the balance keeps rising."

Of all the known nonfossil energy sources, only two are far enough along in their development to be counted on: solar and nuclear, neither of which generates any greenhouse gases at all. Solar power is especially attractive. It produces no waste, and it is inexhaustible. Not all solar power comes directly from the sun: both wind and hydroelectric power are solar, since wind is created by the sun's uneven warming of the atmosphere and since the water that collects behind dams was originally rain, which in turn was water vapor evaporated by solar heating.

But wind and hydroelectric power can be generated at only a relatively few sites, and so governments should redouble financing for research to develop efficient, low-cost photovoltaic power. Photovoltaic cells, which produce electric current when bathed in sunlight, were briefly in vogue during the energy crises of the 1970s, and while public attention and Government funding have waned, research into the technology has continued. "The capital costs have come down from about \$50 a peak watt to \$5," said



CHUCK O'NEAR—WEST LIGHT

SMALL WONDER: Wind farms like this one in Livermore, Calif., slow global warming only a little, but every bit helps

Speth. If they drop to \$1, solar power will become competitive. That could happen without significant Government research support—but it will happen sooner with it.

Sometime early in the next century, solar enthusiasts hope to see vast tracts of photovoltaic collectors providing cheap electricity that can be transmitted over long distances. Alternatively, the electricity could be used to produce hydrogen from water. That could open up all sorts of possibilities. Cars, for example, could be redesigned to run on hydrogen, and that would produce a dramatic reduction in CO₂ emissions.

Nuclear power is more controversial; until recently the mere mention of it made environmentalists blanch. They had good reason, considering the accidents at Three Mile Island and Chernobyl, the problem of radioactive waste and the horror stories about U.S. weapons plants. But the greenhouse effect is forcing some antinuclear activists to rethink their position. "I was a strong opponent of the nuclear program in France," said Brice Lalonde, France's Environment Under Secretary and a former presidential candidate on the Ecologist Party ticket. "Now I am reassessing the whole thing." France gets more than 70% of its electricity from nuclear plants and has an impressive safety record.

Reactors in France, like all conventional reactors, depend for their safety in part on the skill and alertness of their operators. To minimize the risk of human error, engineers have developed designs for much safer types of nuclear reactors. But while these reactors, like experimental solar cells, show great promise, they are not yet economical enough to go on-line in significant numbers. It should therefore be a priority of governments to spend more money on research aimed at lowering the cost of safe nuclear and solar power and making them primary energy sources. Otherwise the global warming that results from overreliance on fossil fuels could produce an increasingly uncertain and potentially bleak future. ■

The Good News: Osage, Iowa, Counts Kilowatts



The houses and businesses in Osage, a town of some 3,600 people in northern Iowa, seem just like buildings anywhere else in small-town America.

Only a close look reveals the difference. Examine, for example, the new insulated roof on the local hospital that shaves utility bills 20%. Or venture into the basement of Steele's Super Valu grocery to see the wall that owner Everett Steele built around his cooling compressors to capture heat, which is then pumped into the store. Osage's model conservation program saved the town an estimated \$1.2 million in energy costs in 1988 and made a modest but worthwhile contribution toward slowing down global warming.

The folks in Osage save energy the old-fashioned way: they plug leaky windows, insulate walls and ceilings, replace inefficient furnaces and wrap hot-water heaters in blanket insulation. Since 1974, the community has cut its natural-gas consumption some 45% and reduced its annual growth in electricity demand by more than half, to less than 3% a year.

Much of the town's energy saving can be traced to the zeal of Weston Birdsall, general manager of Osage Municipal Utilities. Looking back to 1972, when he took over the utility company, Birdsall recalls, "That's about the time OPEC reared its ugly head. We had to do something." Birdsall preached conservation door to door, offering to give every building a free

thermogram, a test that pinpoints places where the most heat is escaping. More than half the town's property owners accepted the offer.

Birdsall's conservation campaign still flourishes long after similar efforts elsewhere have flagged. The utility recently decided to give customers \$15 fluorescent light bulbs, which use far less energy than incandescent models. While Birdsall's strategies are based on simple, widely known techniques, few cities or towns apply the methods as diligently as Osage does. "Why aren't more people doing this?" Birdsall asks. Maybe more of them will if they come to realize that conserving energy not only saves money but also helps save the environment.



MICHAEL WOLFF—AP/WIDE

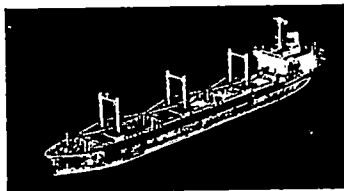
GLASS LANDSCAPE: Bottles piled at a dump in West Germany, where up to 15% of landfills are deemed dangerous

WASTE

A Stinking Mess

THE PROBLEM: Throwaway societies befoul their land and seas

BY JOHN LANGONE



M. NAVTORT—BLACK STAR

The notorious *Pelicano* at sea

would accept its cargo. Permission was denied and for good reason: the *Pelicano's* hold was filled with 14,000 tons of toxic incinerator ash that had been loaded onto the ship in Philadelphia in September 1986. It was not until last October that the *Pelicano* brazenly dumped 4,000 lbs. of its unwanted cargo off a Haitian beach, then slipped back out to sea, trailing fresh reports that it was illegally deep-sixing the rest of its noxious cargo. A month later, off Singapore, its captain announced that he had unloaded the ash in a country he refused to name.

The long voyage of the *Pelicano* is a stark symbol of the environmental exploitation of poor countries by the rich. It also represents the single most irresponsible and reckless way to get rid

of the growing mountains of refuse, much of it poisonous, that now bloat the world's landfills. Indiscriminate dumping of any kind—in a New Jersey swamp, on a Haitian beach or in the Indian Ocean—simply shifts potentially hazardous waste from one place to another. The practice only underscores the enormity of what has become an urgent global dilemma: how to reduce the gargantuan waste by-products of civilization without endangering human health or damaging the environment.

Scarcely a country on earth has been spared the scourge. From the festering industrial landfills of Bonn to the waste-choked sewage drains of Calcutta, the trashing goes on. A poisonous chemical soup, the product of coal mines and metal smelters, roils Polish waters in the Bay of Gdansk. Hong Kong, with 5.7 million people and 49,000 factories within its 400 sq. mi., dumps 1,000 tons of plastic a day—triple the amount thrown away in London. Stinking garbage and human excrement despoils Thailand's majestic River of Kings. Man's effluent is more than an assault on the senses. When common garbage is burned, it spews dangerous gases into the air. Dumped garbage and industrial waste can turn lethal when corrosive acids, long-lived organic materials and discarded metals leach out of landfills into groundwater supplies, contaminating drinking water and polluting farmland.

The U.S., with its affluence and industrial might, is by far the most profligate offender. Each year Americans throw away 16 billion disposable diapers, 1.6 billion pens, 2 billion razors and blades and 220 million tires. They discard enough aluminum to rebuild the entire U.S. commercial airline fleet every three months. And the country is still struggling to clean up the mess created by the indiscriminate dumping of toxic waste. Said David Rall, director of the National Institute of Environmental Health Sciences: "In the old days, waste was disposed of anywhere you wanted—an old lake, a back lot, a swamp."

How to handle all this waste? Many countries have made a start by locating and cleaning up acres of landfills and lagoons of liquid waste. But few nations have been

able to formulate adequate strategies to control the volume of waste produced. Moreover, there are precious few methods of effective disposal, and each has its own drawbacks. As landfills reach capacity, new sites become scarcer and more expensive. Incinerators, burdensome investments for many communities, also have serious limitations: contaminant-laden ash residue itself requires a dump site. Rising consumer demands for more throwaway packaging add to the volume.

Few developing countries have regulations to control the output of hazardous waste, and even fewer have the technology or the trained personnel to dispose of it. Foreign contractors in many African or Asian countries still build plants without including costly waste-disposal systems. Where new technology is available, it is too often inappropriate. In Lagos, Nigeria, five new incinerator plants stand idle because they can only treat garbage containing less than 20% water; most of the city's gar-



ALON REINISBERG—CONTRACT PRESS IMAGES

HAZARDOUS DUTY: Cleaning up toxic chemicals in New Jersey

bage is 30% to 40% liquid. Even in highly industrialized countries, there are formidable social obstacles to waste management: not-in-my-backyard resistance by many communities to new disposal sites and incinerators is all too common. In the U.S. 80% of solid waste is now dumped into 6,000 landfills. Their number is shrinking fast: in the past five years, 3,000 dumps have been closed; by 1993 some 2,000 more will be filled to the brim and shut. "We have a real capacity crunch coming up," said J. Winston Porter, an assistant administrator of the Environmental Protection Agency. In West Germany 35,000 to 50,000 landfill sites have been declared potentially dangerous because they may threaten vital groundwater supplies.

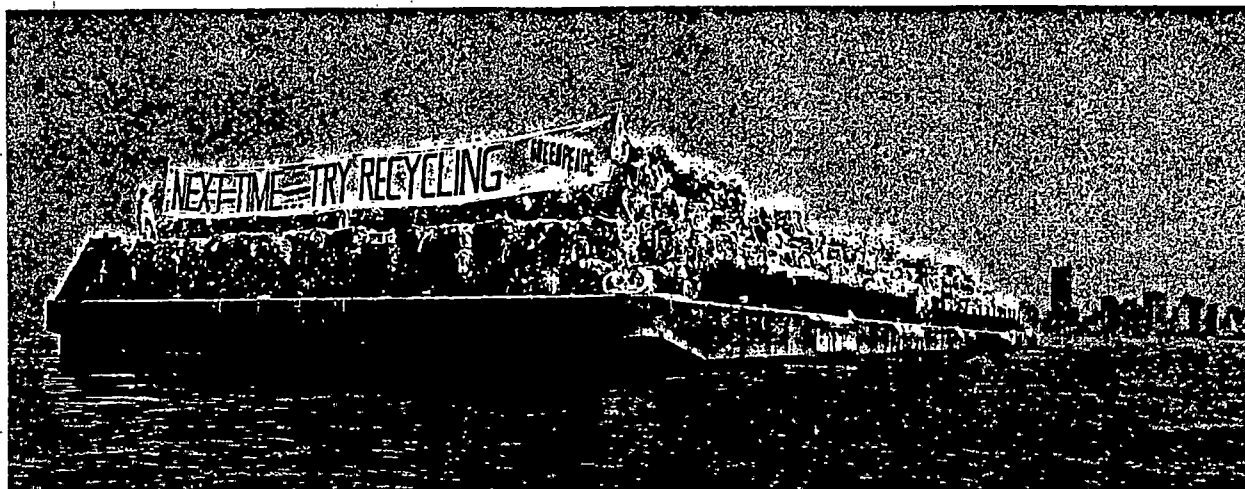
What can be done to prevent the world from wallowing in waste? Most important is to reduce

trash at its source. At the consumer level, one option is to charge households a garbage-collection fee according to the amount of refuse they produce. Manufacturers too need more prodding. Higher fines, taxes and stricter enforcement might force offending industries to curb waste. Industry must also re-examine its production processes. Such an approach already has a successful track record. The Minnesota Mining and Manufacturing Co. has cut waste generation in half by using fewer toxic chemicals, separating out wastes that can be reused and substituting alternative raw materials for hazardous substances. 3M's savings last year: an astonishing \$420 million. In the Netherlands, Duphar, a large chemical concern, adopted a new manufacturing process that decreased by 95% the amount of waste created in making a pesticide.

Recycling, of course, is perhaps the best-known way to reduce waste. Some countries do it better than others. Japan now

What Nations Should Do

1. Raise the price of garbage collection and toxic-waste removal and the penalties for improper disposal as incentives for companies and households to curb the problem at the source. Households should be charged according to the amount of garbage they produce.
2. To encourage recycling, sharply increase the variety of containers that can be returned to stores or other collection points for cash. Raise the reward for returned items. Require households to sort garbage into recyclable and nonrecyclable items.
3. Increase funding for the testing of chemicals to determine their toxicity and cancer-causing potential.
4. Ban ocean dumping.
5. Ban the export of waste.



DENNIS CAPOLONGO—BLACK STAR

LOOKING FOR A HOME: Draped with a protest banner, an unwanted garbage barge floats off New York

recycles more than 50% of its trash, Western Europe around 30%. The U.S. does not fare nearly so well: only 10% of American garbage—or 16 million tons a year—is recycled, and only ten states have mandatory recycling laws.

Some experts believe local governments should hike cash refunds to people who return disposable items. Said Nicholas Robinson, who teaches environmental law at Pace University School of Law: "If we could persuade legislatures to increase the recycling price for a bottle from, say, a nickel to maybe a quarter or 50¢, then that bottle would be a very valuable commodity."

But even with more efficient recycling, there will still be refuse. That means landfills and incinerators, however harmful their emissions, will be needed as part of well-managed waste-disposal systems for the foreseeable future. Where possible, landfills should be fitted with impermeable clay or synthetic liners to contain toxic materials, and with pumps to drain liquid waste for treatment and disposal elsewhere. Landfill waste can also be burned to generate electricity, but the U.S. uses only 6% of its rubbish to produce energy. By comparison, West Germany sends more

than 30% of its unrecycled wastes to waste-to-energy facilities.

Knowledge of the whole refuse cycle is imperative. Of the more than 48,000 chemicals listed by the EPA, next to nothing is currently known about the toxic effects of almost 38,000. Fewer than 1,000 have been tested for acute effects, and only about 500 for their cancer-causing, reproductive or mutagenic effects. Funding must be increased for such research.

In the last analysis, the waste crisis is almost always most effectively attacked close to the source. There should be an international ban on the export of environmentally dangerous waste, especially to countries without the proven technology to dispose of it safely. In the past two years, some 3 million tons of hazardous waste have been transported from the U.S. and Western Europe on ships like the *Pelicano* to countries in Africa and Eastern Europe. Observed Saad M. Baba, third secretary in the Nigerian mission to the U.N.: "International dumping is the equivalent of declaring war on the people of a country." And if such wastes continue to proliferate, man will have all but declared war on the earth's environment—and thus, in the end, on his own richest heritage. ■

The Good News: Japan Gives Trash a Second Chance



With a barely audible whoosh, the large doors at the entrance open to a spacious glass-walled hall filled with lush green plants and the soothing sound of a trickling miniature waterfall. But the sleek municipal building in Machida, a bustling city in central Japan, is not a pristine botanical garden. The enticing entrance is merely the façade of a \$65 million facility built to handle a dirty job: recycling the wastes of the city's 340,000 residents. "We collect roughly 100,000 tons of garbage a year and convert it back into valuable materials," says a smiling Kenichi Usui, a city waste-management official. He has good reason to be boastful. Japan, which is fast becoming the world's premier industrial power, is also in the forefront of effective waste management.

The country has made "waste not,

want not" a national policy. Last year 50% of Japan's wastepaper, 55% of its glass bottles and 66% of its beverage and food cans were recycled. Much of the remaining trash was turned into fertilizers, fuel gases and recycled metals.

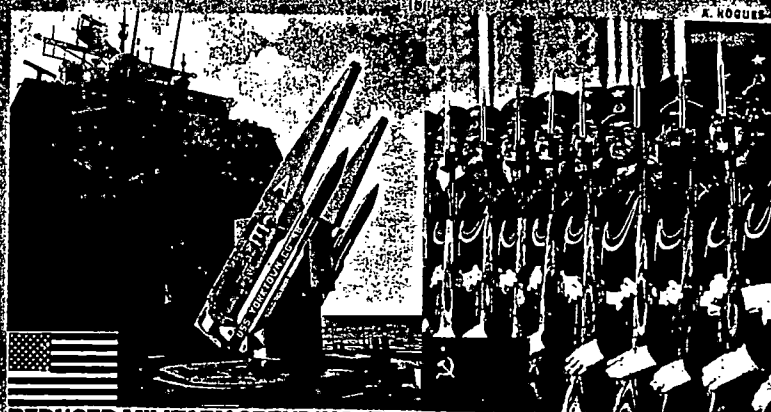
Behind the success are Japan's recycling technology and systematic garbage collection. The Machida plant can deal with almost any category of recyclable refuse: burnables, nonburnables, bottles, cans, durables such as furniture and refrigerators, and "harmfuls" like batteries. Depending on their category, the castoffs are filtered, burned, crushed or otherwise treated on their way to becoming reusable materials. Steel scrap is separated from other garbage by huge magnets. Much of the recycling is computer-controlled: only 45 people work in shifts to run the round-the-clock operation.

Prudent waste management would not be possible without the disciplined cooperation of the Japanese people. Before putting out their garbage, they religiously follow such requirements as separating bottles from cans and burnables like paper from nonburnables such as glass and hard plastic. People who want quick disposal of old refrigerators or TV sets need only make a phone call to the sanitation department for a special pickup. Observes Yumimaru Nakada, a senior official in Tokyo's public sanitation bureau: "Living in a crowded situation, the Japanese have come to learn that garbage recycling is no laughing matter."

And it certainly pays to recycle. From 100,000 tons of typical Japanese garbage comes enough wood pulp to make a roll of toilet paper that would wrap around the earth ten times.

A Global Bargain

It is more difficult than signing international treaties will be finding the money to make them work. The impoverished Third World countries, burdened with debt, cannot afford expensive environmental projects without outside help. Nor is the U.S. in a position to fund a new ecological Marshall Plan on its own. Here are the elements of a north-south deal that could pool the financial resources of the industrialized world and channel them into sustainable development plans for the poorer countries.



REDUCED MILITARY SPENDING: The U.S. and the Soviet Union could cut back their nuclear and conventional forces, shrinking their defense budgets and freeing funds for domestic and foreign environmental programs.

Hands Across the Sea

Rich and poor, north and south, nations must get it together or face common disaster

BY THOMAS A. SANCTON

It is easy to draw up a plan of action for protecting the earth. But that plan will fail unless it is forged with international fellowship and carried out on a global scale. How much good can one country do by reducing carbon-dioxide emissions if another nation offsets that with an increased output of CO₂? How can one country keep its beaches clean if its neighbor down the coast dumps sewage or syringes into the sea? "On most environmental questions, the nation-state is obsolete," said Pace University's Nicholas Robinson. "We have to talk about multinational cooperation."

The first goal of that cooperative effort should be to gather the information needed to fashion effective policies. "We've got to get the earth in intensive care, to start to monitor the vital signs of the planet," said John Eddy of the University Corporation for Atmospheric Research in Boulder. This could be done by launching an International Earthwatch Program, possibly under the aegis of the United Nations, to coordinate multinational research projects and centralize essential data on the state of the world. Such an umbrella program could pool the results of hundreds of existing research efforts. A prime candidate for this program would be the Mission to Planet Earth, recommended by former astronaut Sally Ride, which would use NASA facilities to study the earth from space. In addition to improving knowledge of the earth's ills, an International Earthwatch Program could provide the basis for a widespread awareness-building campaign aimed at preparing public opinion for the sacrifices and life-style changes that will be necessary in the coming decades. Environmental education programs should be immediately introduced into schools and workplaces around the world, and government leaders should bring these issues into the heart of political debate.

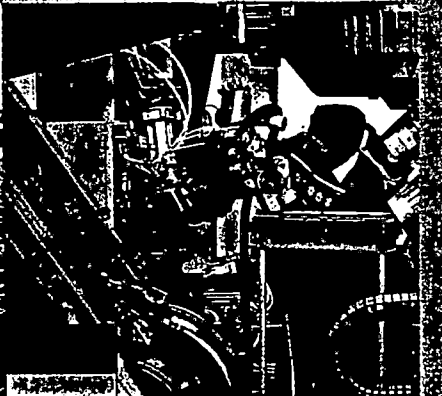
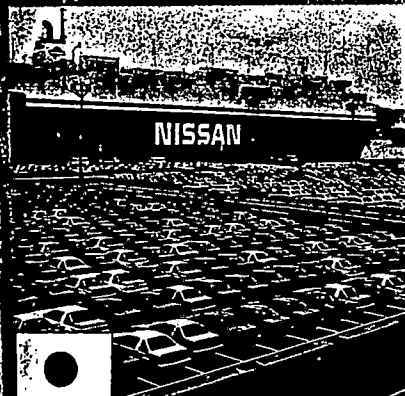
But research and education are no substitutes for concrete action. The world community must move promptly toward comprehensive treaties to protect the air, soil and water. A framework for the effort exists within the U.N., which has already tak-

en some important initiatives. In 1972 the U.N. organized the landmark Stockholm conference, which set up the United Nations Environment Program. It was under UNEP's sponsorship that 24 countries signed the 1987 Montreal Protocol, calling for a reduction in the output of ozone-destroying chlorofluorocarbons. There have also been proposals to enhance UNEP's role as a sort of intergovernmental superagency on environmental questions.

Paralleling the U.N.'s efforts, multilateral financial institutions have a crucial role to play. The World Bank, which lends money for Third World development projects, was long criticized by environmental groups for backing large, ecologically unsound programs—a cattle-raising scheme in Botswana that led to overgrazing, for example. During the past few years, however, the World Bank has been seeking to factor environmental concerns into its programs. One product of this new approach is an environmental action plan for Madagascar. The 20-year plan, which will be drawn up jointly with the World Wide Fund for Nature, aims at heightening public awareness of environmental issues, setting up and managing protected areas and encouraging sustainable development. Similar aims should also guide the lending policies of the International Monetary Fund, regional development banks and bilateral assistance programs.

Much of the current environmental crisis is rooted in, and exacerbated by, the widening gap between rich and poor nations. Industrialized countries contain only 23% of the world's population, yet they control 80% of the world's goods and are also responsible for the bulk of its pollution. On the other hand, it is the developing countries that are hardest hit by overpopulation, malnutrition and disease. As these nations struggle to catch up with the developed world, a vicious circle begins: their efforts at rapid industrialization poison their cities, while their attempts to boost agricultural production often result in the destruction of their forests and the depletion of their soils.

The greatest obstacle to economic and environmental improvements in the developing countries is their mammoth foreign debt. Collectively, the Third World owes \$1.2 trillion to the



BURDEN SHARING: U.S. allies like Japan and West Germany would no longer be under pressure to raise military spending and could contribute to global security by increasing aid to the developing countries.

AID FOR THE THIRD WORLD: In exchange for foreign funds, the developing nations would agree to curb deforestation and adopt other responsible environmental policies.

banks and governments of industrialized countries. A new World Bank report estimates that in 1988 the developing countries made net payments of \$43 billion to the industrial nations, up from \$38 billion in 1987. How can the rich nations expect poor countries to launch environmental programs while struggling to pay off those crippling loans? Clearly, the Third World's debt payments will have to be lightened or postponed. The best way of doing that seems to be using debt forgiveness as leverage for winning environmental concessions.

One approach that has already been pursued successfully on a small scale is the so-called debt-for-nature swaps. Conceived by the Smithsonian Institution's Thomas Lovejoy in 1984, these innovative deals often involve the cooperation of governments, bankers and conservation groups. In a typical debt-for-nature swap earlier this year, the World Wildlife Fund, a nonprofit organization based in Washington, bought \$1 million worth of Ecuadoran debt held by Bankers Trust at the discounted price of \$354,500. The bank was happy to get the troublesome loan off its books, while the World Wildlife Fund gained the power to improve that country's environment. The fund accomplishes this by transferring the loan payments to Fundación Natura, a conservation group in Ecuador. Fundación Natura, in turn, uses the money to protect and maintain national parks and wildlife preserves.

However it is accomplished, a greater share of the world's capital will have to flow into developing countries. What they need, said Senator Albert Gore, is a new Marshall Plan for economic development and environmental preservation. But where will the money come from? For starters, the U.S. and the Soviet Union could reduce military spending in order to boost aid for environmental programs. Nobel laureate Murray Gell-Mann, a professor of theoretical physics at the California Institute of Technology, argued that the superpowers should redefine "global securi-

ty" to include "the issues of population, environment and sustainable development." Yet the U.S., the world's largest debtor, can no longer supply the bulk of aid to the Third World. Nor can the economically strapped Soviet Union provide much financial help.

That leaves Japan, now the world's most financially powerful country, with a heavy responsibility for taking a leading role in bankrolling solutions to the environmental crisis. Japan has long shied away from assuming a major place in international affairs because of its militaristic adventures of the 1930s and '40s, but as Prime Minister Noboru Takeshita has made clear, his country realizes its international duty and is willing to shoulder it.

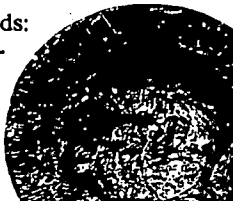
Japan's foreign aid appropriations of more than \$10 billion in 1988 outstripped U.S. outlays, and Tokyo has increased its contributions to the World Bank and other environment-conscious lending institutions. The Takeshita government is willing to give more, but its efforts have ironically been hampered by the U.S., which is reluctant to give the Japanese a greater say in running these international groups. One solution might be to set up a new financial entity, an International Bank for Environmental Protection, in which the Japanese could have a major responsibility for both funding and management.

America, for its part, is at a turning point. The Reagan Administration, with its poor record on environmental issues, is coming to a close. President-elect Bush, who turned the pollution of Boston Harbor into a successful campaign issue, has an opportunity to show that he is serious about saving the planet—even after the election. He sent out an encouraging signal last week by naming veteran conservationist William Reilly to head the Environmental Protection Agency. Reilly, 48, president of the World Wildlife Fund, promised a "new and constructive course" on environmental problems. It is none too soon. —Reported by Barry Hillenbrand/Tokyo and Richard Hornik/Washington

Nobel for a Noble Cause

Physicists and chemists can earn the ultimate recognition: a Nobel Prize. Why not accord the same honor to environmental scientists? At the TIME conference, the proposal was backed by everyone from U.S. Senator Albert Gore to Vasilii Peskov, a correspondent for the Moscow newspaper *Komsomolskaya Pravda*. Peskov suggested that the first environmental Nobel be given posthumously to Rachel Carson, whose 1962 book *Silent Spring* helped alert the world to the pollution threat.

Alfred Nobel's will set up five awards: physics, chemistry, medicine or physiology, literature and peace. But that limitation was overcome in 1968, when Sweden's Central Bank financed a separate economics prize in memory of Nobel.



What The U.S. Should Do

The U.S. has made significant strides in pollution control and energy conservation during the past 15 years, but the country remains the world's biggest user of natural resources and a major despoiler of the global environment. Because of the size of its economy, the U.S. consumes one-fourth of the world's energy each year. Yet, for a given amount of energy, the U.S. produces less than half as much economic output as Japan and West Germany. Meanwhile, the commitment to reduce pollution has flagged. Although the U.S. accounts for less than 5% of the global population, it generates 15% of the world's sulfur dioxide emissions and 25% of nitrogen oxides and carbon dioxide. Each American produces an average of 3½ lbs. of trash a day.

When energy was expensive, Americans treated it that way. Between 1973 and 1985, when the price of oil surged, U.S. per capita energy consumption fell 12% and the average amount of goods and services generated per person rose 17%. In the past few years, however, energy use has risen as the price has declined. Americans, who own more than 135 million cars, or about one-third of the world's total, have been driving more and have resumed their love affair with large gas-guzzling cars.

Because of its sheer size and influence, the U.S. must be in the vanguard of the effort to solve the earth's environmental crisis. Even before international bodies come up with global strategies, the U.S. can take many steps, unilaterally and immediately.

1. Raise the Gasoline Tax

A gallon of unleaded gasoline, which costs roughly 95¢, is nearly a third cheaper now than it was eight years ago. When inflation is taken into account, the price decline is closer to 50%. Raising the federal gasoline tax by 50¢ per gal., from 9¢ to 59¢, over the next five years would renew drivers' interest in fuel conservation.

2. Toughen Auto Fuel-Efficiency Requirements

Federal regulations require that automakers produce fleets of cars with an average fuel efficiency of 26 m.p.g. The Government originally set a fuel-efficiency target of 27.5 m.p.g. for 1986, but the Reagan Administration allowed the car companies to postpone that goal. The new Administration should institute the 27.5 m.p.g. requirement and then gradually raise it to 45 m.p.g. by the year 2000.

3. Encourage Waste Recycling

The Federal Government should set national goals and standards for recycling programs but leave their implementation to state and local agencies. As an immediate first step, the President and Congress should require federal agencies to increase steadily their use of recycled paper products.

4. Promote Natural-Gas Usage

Far more abundant than anyone thought a decade ago, natural gas is the cleanest hydrocarbon fuel available. But in many cases, utilities that wish to switch from coal-fired power generation to gas-fired must go through a lengthy process to obtain a federal permit. Such regulations, which inhibit the increased use of natural gas, should be eased.

5. Encourage Debt-for-Nature Swaps

The U.S. opposes all government-subsidized debt relief for Third World countries. At a minimum, federal regulators should encourage U.S. banks to participate in programs that reduce debt in exchange for steps taken by debtor nations to protect tropical rain forests and other resources.

6. Support Family Planning

In 1984 the Reagan Administration cut off U.S. aid to the two major international family-planning organizations. Reason: the United Nations Fund for Population Activities and the International Planned Parenthood Federation have been accused of assisting some local population agencies that provide or pay for abortions. Unless the growth in the world population is slowed, it will be impossible to make serious progress on any environmental issue. The U.S. should immediately restore the aid it withdrew.

7. Ratify the Law of the Sea

The U.S. has never ratified the 1982 U.N. Convention on Law of the Sea, which sought to regulate mining and other commercial development. The Administration argues that the treaty interferes with private exploitation of the sea. That ideological issue should be put aside so that the U.S. can exercise global leadership and clear the way for international pacts aimed at protecting the atmosphere.

8. Make the Environment a Summit Issue

When the leaders of the major industrial nations gather next June in Paris for their 15th economic summit, George Bush should push to make environmental problems the No. 1 agenda item. Ronald Reagan's success at previous summits stemmed from his insistence on dealing with only one major topic. Should Bush take that approach in Paris, global environmental issues stand a better chance of getting the attention they deserve.

our draft

OCT 31 1989

PRESIDENT'S ENVIRONMENTAL YOUTH AWARDS
CEREMONY
REMARKS BY PRESIDENT BUSH
NOVEMBER 15, 1989

HELLO!

I AM VERY HAPPY TO SEE YOU ALL HERE
TODAY. THIS REALLY IS A VERY SPECIAL
OCCASION.

WE ARE HERE TO HONOR THE TEN WINNERS OF
THE PRESIDENT'S ENVIRONMENTAL YOUTH
AWARD FOR 1989. YOU YOUNG PEOPLE, AS
INDIVIDUALS, OR AS A CLASS OR OTHER
GROUP, HAVE MADE OUTSTANDING
CONTRIBUTIONS TO THE PROTECTION AND
PRESERVATION OF THE NATURAL ENVIRONMENT
IN YOUR COMMUNITY.

IT SEEMS ESPECIALLY FITTING THAT YOU
HAVE DONE SO - FOR YOUNG PEOPLE ARE THE
FUTURE, AND THE NATURAL ENVIRONMENT IS
THE GREATEST RESOURCE OF THIS GREAT
NATION.

I FEEL A SPECIAL, PERSONAL, PRIDE AND
SATISFACTION IN CELEBRATING WITH YOU
TODAY.

LAST YEAR, WHEN I WAS CAMPAIGNING FOR THE PRESIDENCY, I TALKED ABOUT TWO PARTICULAR GOALS THAT I WANTED TO ACHIEVE IN THIS OFFICE.

ONE WAS THAT I WANTED TO BE ABLE TO BE KNOWN AS THE "EDUCATION PRESIDENT," AND THE OTHER WAS THAT I ALSO WANTED TO BE KNOWN AS THE "ENVIRONMENTAL PRESIDENT."

THE PRESIDENT'S ENVIRONMENTAL YOUTH AWARDS PROGRAM, BY RECOGNIZING THE ACHIEVEMENTS OF STUDENTS WHO ARE HELPING TO PROTECT AND PRESERVE THE ENVIRONMENT, IS AN IDEAL MARRIAGE OF THESE TWO VERY IMPORTANT OBJECTIVES - NOT ONLY FOR MYSELF, BUT FOR THE ENTIRE NATION.

THE FACT THAT SO MANY OF THE WINNERS WERE SCHOOL CLASSES SHOWS THE VERY GOOD JOB THAT OUR TEACHERS AND ADMINISTRATORS ARE DOING OF INCORPORATING ENVIRONMENTAL LEARNING INTO THE WIDER EDUCATIONAL EXPERIENCE OF STUDENTS.

IT ALSO MEANS THAT THE SCHOOLS HAVE EMBRACED "THE ENVIRONMENT" AS A SUBJECT THAT CAN BE TAUGHT IN AN INTERDISCIPLINARY WAY - MEANING, FOR EXAMPLE, THAT AN ENVIRONMENTAL PROJECT MAY BE CARRIED OUT AS PART OF A SCIENCE OR CIVICS CLASS, AND MAY ALSO BE WRITTEN ABOUT IN AN ENGLISH CLASS AND / OR DOCUMENTED IN SPEECH, AUDIO-VISUAL, OR DESIGN CLASSES.

WE ARE NOW RECOGNIZING, FOR SEVERAL REASONS, THAT ENVIRONMENTAL EDUCATION AND TRAINING ARE IMPORTANT TO SUSTAINABLE DEVELOPMENT WORLDWIDE, AND TO THE FUTURE COMPETITIVENESS OF THE UNITED STATES.

WHILE WE HAVE MADE REAL, SIGNIFICANT PROGRESS SINCE THE FIRST "EARTH DAY," BACK IN 1970, NEW ENVIRONMENTAL PROBLEMS HAVE BECOME EVIDENT, AS HAS THE COMPLEXITY OF THEIR SOLUTIONS. WE HAVE BECOME MORE AWARE OF AMERICA'S ROLE AS IT AFFECTS THE INTERNATIONAL ENVIRONMENT.

PUBLIC AWARENESS OF ENVIRONMENTAL ISSUES IS HIGH. THERE IS A RENEWED SENSE OF URGENCY ABOUT THE THREATS TO THE ENVIRONMENT. THIS CONCERN IS THE DRIVING FORCE BEHIND PLANS FOR A NEW- AND GLOBAL - "EARTH DAY," ON THE TWENTIETH ANNIVERSARY OF THE FIRST ONE, IN APRIL OF 1990.

THE PUBLIC EDUCATION SYSTEM IN THIS COUNTRY IS BEING RESTRUCTURED, AND THIS PROVIDES AN OPPORTUNITY TO FURTHER ENHANCE ENVIRONMENTAL EDUCATION, AND INTEGRATE IT INTO THE LARGER CURRICULUM.

THE AMERICAN PEOPLE ARE CONCERNED ABOUT THE ABILITY OF THE UNITED STATES TO COMPETE IN WHAT IS INCREASINGLY A GLOBAL ECONOMY - AND ENVIRONMENTAL CONCERNS, FROM AIR POLLUTION AND ACID RAIN, TO WATER POLLUTION AND DEFORESTATION OF THE WORLD'S RAIN FORESTS, ALL AFFECT - AND ARE AFFECTED BY - ECONOMIC CHOICES AND NEEDS.

THE "STATE OF THE PLANET" IS NOW AS IMPORTANT TO THE HEALTH AND WELL-BEING OF THE PEOPLE OF THE UNITED STATES AS IS THE "STATE OF THE UNION."

WE ARE COMING TO REALIZE THAT ENVIRONMENTAL AND ECONOMIC CONDITIONS AND CIRCUMSTANCES DO NOT RESPECT INTERNATIONAL POLITICAL BOUNDARIES. THE RESULTS OF ACTIONS IN ANY NATION OF THE WORLD ARE LIKELY TO AFFECT MANY OTHER NATIONS, AS WELL AS THE NATION IN WHICH THEY TAKE PLACE.

YOU WINNERS HERE TODAY HAVE SHOWN ALL OF US SOMETHING IMPORTANT - SOMETHING EVEN MORE THAN CONCERN FOR THE ENVIRONMENT, AND THE IMPORTANCE AND VIABILITY OF ENVIRONMENTAL EDUCATION.

YOU HAVE SHOWN US THE POWER THAT EXISTS IN THE VOLUNTEER "SPIRIT" - HOW VERY MUCH CAN BE ACCOMPLISHED WHEN PEOPLE WHO ARE INVOLVED AND COMMITTED PUT THEIR ENERGIES TOWARDS A PARTICULAR CAUSE. THIS ENERGY CAN OFTEN BE MORE EFFECTIVE THAN THE LAW IN ACHIEVING DESIRED GOALS.

SO, NOT ONLY HAVE YOU SHOWN US WHAT YOU HAVE LEARNED - BUT WE HAVE LEARNED FROM YOU. YOUR WINNING PROJECTS HAVE TAUGHT ALL THE REST OF US A VALUABLE LESSON IN INVOLVEMENT AND COMMITMENT. THESE PROJECTS SHOW WHAT WE CAN ACCOMPLISH WHEN WE REALLY WANT TO AND WHAT WE CAN ACCOMPLISH BY ALL WORKING TOGETHER.

THANK YOU, THE WINNERS, FOR GIVING US SO
MUCH. LET US NOW HONOR YOU AND PRESENT
THESE AWARDS TO YOU.

MR. REILLY, ADMINISTRATOR OF EPA....

Handwritten draft

DRAFT REMARKS BY PRESIDENT BUSH
PRESIDENT'S ENVIRONMENTAL YOUTH AWARDS
NOVEMBER 15, 1989

GOOD MORNING.

WHEN I LOOK OUT ACROSS THIS ROOM, I SEE
AMERICA'S FUTURE. AND WHAT A BRIGHT
FUTURE IT IS!

I SEE AMONG YOU THE ENGINEERS AND
SCIENTISTS, THE COMMUNITY LEADERS, THE
JUDGES, THE EDUCATORS AND ENTREPRENEURS,
AND, YES, THE ENVIRONMENTAL ACTIVISTS
WHO WILL MAKE SURE OUR PLANET EARTH
REMAINS HABITABLE AND PRODUCTIVE FOR
GENERATIONS TO COME.

THAT'S THE CHALLENGE, CONSERVATION, TO
PROTECT OUR ENVIRONMENT AND TO USE
WISELY OUR NATURAL RESOURCES, THE
FORESTS AND FARMS AND RIVERS AND LAKES.

CONSERVATION WAS AN IDEA CHAMPIONED BY ONE OF MY HEROES, TEDDY ROOSEVELT. IF YOU KNOW YOUR U.S. HISTORY, YOU KNOW HE WAS PRESIDENT EARLY IN THIS CENTURY. HE CREATED THE FOREST SERVICE SO THAT ALL THE BENEFITS FORESTS PROVIDE ARE AVAILABLE -- TO HIS GENERATION, TO OUR GENERATION, TO FUTURE AMERICANS. THE TIMBER FOR HOMES AND OTHER CONSTRUCTION, JOBS, RECREATION, WATER QUALITY, WILDLIFE HABITAT, AND THE LIKE.

THE CHALLENGE OF CONSERVATION IS NOT JUST HERE IN THIS COUNTRY. IT'S ALL OVER THE EARTH. TODAY WE FACE A WHOLE SERIES OF GLOBAL ENVIRONMENTAL PROBLEMS, IN THE EARTH'S ATMOSPHERE, THE SO-CALLED GREENHOUSE EFFECT WHICH COULD CHANGE OUR CLIMATE AND AFFECT DIFFERENT COUNTRIES IN DIFFERENT WAYS, THE LOSS OF REMARKABLY RICH TROPICAL FORESTS TEEMING WITH LIFE, THE LOSS OF COUNTLESS SPECIES OF WILDLIFE NOT YET EVEN NAMED LET ALONE CATALOGUED BY MODERN SCIENCE.

THESE PROBLEMS ARE TAXING OUR BEST MINDS TODAY AND THEY WILL TAX THE BEST MINDS

OF YOUR GENERATION. THEY WILL REQUIRE OF ALL OF US TO BE MINDFUL OF OUR RESPONSIBILITIES FOR STEWARDSHIP OVER THE LAND AND FOR INDIVIDUAL CHOICES THAT RESPECT THE ENVIRONMENT AND KEEP IT HEALTHY AND PRODUCTIVE.

YOU ALL ARE AN IMPORTANT PART OF CREATING THIS NEW ETHIC OF INDIVIDUAL RESPONSIBILITY. FOR THE WORK YOU ARE DOING ON THESE ENVIRONMENTAL PROJECTS, I SALUTE YOU. I COULDN'T BE PROUDER OF ALL THE HARD WORK AND THE ACHIEVEMENTS. AND I KNOW YOUR PARENTS, YOUR TEACHERS, AND YOUR COMMUNITY SHARE IN THIS PRIDE.

ies

NOT ONLY DO WE SALUTE YOU FOR YOUR CONTRIBUTIONS TO THE ENVIRONMENT BUT FOR YOUR GOOD, CREATIVE USE OF SCHOOL TIME AND THE EDUCATIONAL OPPORTUNITIES YOU ARE FORTUNATE TO HAVE. ENVIRONMENTAL EDUCATION IS SO CRITICAL. IT'S THE FOUNDATION ON WHICH OUR ETHIC OF RESPONSIBILITY WILL BE BUILT.

AND THERE'S ANOTHER ELEMENT IN THE PRESIDENT'S ENVIRONMENTAL YOUTH AWARDS

THAT DESERVES PRAISE. VOLUNTARY SERVICE. THAT IS AN AMERICAN TRADITION WORTH CARRYING ON. AND YOU'RE DOING IT.

DON'T STOP NOW. THE OPPORTUNITIES ARE ENDLESS. YOU KNOW, WHEN PRESIDENT JOHN KENNEDY STARTED THE PEACE CORPS IN 1961(?), HE HAD IN MIND SENDING ABROAD THE BEST YOUNG PEOPLE AMERICA HAD TO HELP OTHER COUNTRIES HELP THEMSELVES IMPROVE LIFE FOR THEIR PEOPLE.

WELL, JUST A FEW WEEKS AGO, THE PEACE CORPS AND THE ENVIRONMENTAL PROTECTION AGENCY STARTED A PROGRAM TO GIVE EACH PEACE CORPS VOLUNTEER ENVIRONMENTAL TRAINING, IN WATER AND WASTE MANAGEMENT, IN PESTICIDE USE, AND OTHER AREAS THEY'LL BE CALLED ON TO HELP WITH.

SO KEEP UP YOUR GOOD WORK AND KEEP UP YOUR VOLUNTARY SERVICE.

IT SERVES AS AN INSPIRATION FOR US ALL. YOU ARE FOLLOWING IN THE BEST TRADITION OF WHAT THIS COUNTRY'S ALL ABOUT. CONGRATULATIONS AND KEEP IT UP.

NOW, WE'LL ASK YOU TO STEP UP FOR WHAT
IN WASHINGTON WE CALL THE PHOTO-
OP...WHILE YOU'RE HERE, YOU MIGHT AS
WELL LEARN THE LINGO.

George's draft

DRAFT REMARKS BY PRESIDENT BUSH
PRESIDENT'S ENVIRONMENTAL YOUTH AWARDS
NOVEMBER 15, 1989 ~~1150~~

GOOD MORNING.

WHEN I LOOK OUT ACROSS THIS ROOM, I SEE
AMERICA'S FUTURE. AND WHAT A BRIGHT
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I SEE AMONG YOU THE ENGINEERS AND
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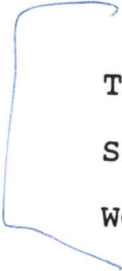
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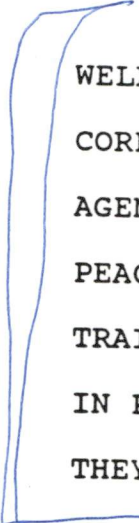
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IN WASHINGTON WE CALL THE PHOTO-
OP...WHILE YOU'RE HERE, YOU MIGHT AS
WELL LEARN THE LINGO.

11/2/89

Enric.

11:15

Rully
POTUS

11:30

POTUS help present awards

11:50

Kids

11/7/89 Environmental Awards
TO DO

Have Take Pride in America

Lib. Time Magazine - Year of the Globe

Lib. Reader's Guide

Call Ad Council

everyone can be an environmentalist

~~5th~~ - 10th grade

Applications to Aug. 31
won in Sept.

Here JFK. Peace Corps speech



US ENVIRONMENTAL PROTECTION AGENCY
Office of Community and Intergovernmental Relations
WASHINGTON, DC 20460

FACSIMILE REQUEST AND COVER SHEET

PLEASE PRINT IN BLACK INK ONLY

TO

Stephanie Blessey

OFFICE PHONE

456-6218 White House Speechwriter

REGION/LAB

White House

FROM

Melba Meador

PHONE

382-4454

MAIL CODE

EPA - A 108

OFFICE

Office of Communications & Public Affairs

DATE

11/7/89

NUMBER OF PAGES TO INCLUDE THIS COVER SHEET

12

Please number all pages

**INFORMATION FOR SENDING FACSIMILE
MESSAGES TO EPA HEADQUARTERS**

EQUIPMENT

FACSIMILE NUMBER
NUMBER

VERIFICATION
NUMBER

PRESIDENT'S ENVIRONMENTAL YOUTH AWARDS - 1989 WINNERS

NOTE: ALL SCHOOL GRADE INDICATIONS REFER TO THE 1988-89 SCHOOL YEAR. STUDENT REPRESENTATIVES ARE NOW IN GRADE LEVELS ONE YEAR HIGHER THAN WHEN THEIR PROJECTS WERE UNDERTAKEN.

Region 1
Tracy Adams
Hopkintown, MA

Region 2
Sixth Grade Class
Mountain Park School
Berkeley Heights, NJ
Class representative: Nicole Henggeler

Region 3
Media Production and Science Classes
Eastern Intermediate School
Silver Spring, MD
Class representative: Kara Blond

Region 4
Shanon Hays
Clemson, SC

Region 5
Fourth Grade
Vandenboom Elementary School
Marquette, MI
Class representative: Brad LaFave

Region 6
Future Farmers of America
Raton Chapter
Raton, NM
Representative: David Phillips

Region 7
Fourth Grade Class
John Glenn Elementary School
St. Joseph, MO
Class representative: Eric Runde

Region 8
Seventh Grade - Life Science Class
Dunstan Junior High School
Lakewood, CO
Class representative: Josh Hanley

Region 9
Allen Graves
North Hollywood High School
North Hollywood, CA

Region 10
Mat-Su Valley Young
Scholars Program
Anchorage, AK
Class representative: Gary
Howell

Region 1

Tracy Adams

Hopkinton, Massachusetts

Sponsor: Valerie Lechtanski

Household hazardous waste was the topic of this public awareness project, which resulted in a waste collection day for Tracy's community as well as two nearby communities. Tracy managed the effort by designing a display, preparing an information packet which included tips on proper disposal and alternative non-hazardous products, and publishing three articles in the local paper. Her report will be used by EPA's Region I office to respond to public inquiries.

Region 2

Sixth Grade Class of Mountain Park School
Berkeley Heights, New Jersey
Sponsor: Rebecca Johnsen

This project, entitled HOW (Help Our World), was a nine month effort to raise the environmental awareness of the school and local community. Class members initiated a letter writing campaign, along with other efforts to become informed themselves and to inform others. They addressed a local township meeting as well as the New Jersey State Assembly on plastics recycling and on HOW's activities. An "Environmental Awareness Night," which drew 125 citizens and was covered by local television, was also carried out by HOW members.

EPA Region 3

Media Productions and Science

Eastern Intermediate School

Silver Spring, Maryland

Sponsor: Mrs. Sarah Menke-Fish

The class members are honored for the research, scripting, interviewing, videotaping and editing they performed in producing "Trash: What A Waste!" This student-produced video has begun being used to educate Montgomery County, Maryland citizens about their solid waste disposal problem and what they can do to reduce that problem. This was an interdisciplinary project that was carried on in science, world studies, English, and media production courses. Research carried out included identifying types and volume of garbage, the types and amounts of trash produced by each person in a home, and the services and locations involved in handling the county's disposal of waste. The students also shared their environmental expertise by developing lesson plans and teaching all of Eastern's science classes on Earth Day 1989, and by improving their school's exterior with a clean-up and planting effort on Beautification Day in May 1989.

Region 4

Shanon Ashley Hays
Clemson, South Carolina
Sponsor: Dr. John Morse

Shanon's "Monumental Project" studied the effects of acid deposition on marble and granite, two materials commonly used as monument materials. Her studies consisted of lab work and a field study of tombstones which over a two-and-one-half year period determined the effects of acid deposition on marble and granite. Her findings showed a clear correlation between acid deposition and the deterioration of these materials. Shanon found that marble is harmed more by nitric acid than sulfuric acid (at a low pH), while granite is generally harmed by more sulfuric acid than nitric acid. Shanon has received the Young Researcher Grant from Clemson University and Sigma XI to continue her study.

EPA Region 5

Fourth Grade Class - 1988-89

Vandenboom Elementary School

Marquette, Michigan

Sponsor: Mrs. Deborah Vezzetti

The class is recognized for the innovative and successful fund raising campaign it planned and carried out to conserve a stand of virgin white pine trees--some as old as 225 years--that was threatened to be cut down for lumber. The students organized their school's campaign "to save a pine tree for \$155.28" (the cost of the entire parcel of land divided by the number of pine trees on the property) and motivated several other schools in their vicinity to each save a tree. Together, those schools saved 20 endangered pine trees. Fund raising by those fourth-grade students was reported six times on the area's television station, in the Michigan Nature Association's newsletter, in the Marquette Mining Journal, plus two other newspapers, The Milwaukee Journal and the Detroit Free Press. The day after a story about the young conservationists appeared in the Free Press, over \$10,000 flowed into the Michigan Nature Association. The Association had to raise \$100,000 to purchase the 80-acre stand of trees. It credits the class's strategy for helping the Association to raise \$241,000, which has been used to purchase the land and will be used to take care of the students' pines and other trees it preserves.

Region 6
The Future Farmers of America Chapter
Raton, New Mexico
Sponsor: Ray Chelewski

"Operation Wilderness" was a comprehensive effort that included several activities. A primary project was a mine reclamation project to remove the signs of human abuse and to control erosion in the Sugarite Mine area. To do this, the group conducted experimental revegetation, built rock dams and diversion channels, and terraced the steepest areas. If this effort proves to be successful, it could serve as a model for similar activities throughout the United States. Another activity was the introduction of populations of turkey and antelope, which are found in abundance in the Raton area, to the northwest area of New Mexico. This area, although well suited for these animals, had no populations living there. Additional activities that the FFA Chapter conducted were a city wide community clean up, and the building of cross-country ski trails and a nature trail for the disabled.

Region 7

Fourth Grade Class of John Glenn Elementary School
St. Joseph, Missouri
Sponsor: Sherri Strating

The Aquatic Pollution Extermination (APE) project was a 12 month effort to stop pollution in the Missouri 102 River. The APE team planted willows for soil bank stabilization, cleaned litter in and around the river, and improved wildlife habitats by constructing bird boxes and breeding habitats for Missouri Catfish. The students also raised a number of animals, including catfish, bass, salamanders, snakes, and land and aquatic turtles and toads to release in and around the river. Before the animals were released, the students tested the water for contamination. To do this, they compared water samples from the 102 River to water taken from their homes, school and the Missouri River. Samples were tested for pH, copper, ammonia, nitrate, coliform and hardness. The class found that the main source of the waste was coming from farm waste, and talked to farmers in the community to request their participation to help stop pollution. Lastly, they designed and distributed a bumper sticker to help fight water pollution.

EPA Region 8

Seventh Grade - Life Science Class

Dunstan Junior High School

Lakewood, Colorado

Sponsor: Mr. James Mundell

Students are recognized for the Adopt-A-Wetland project, which has allowed them and will enable the school's future Life Science course members to appreciate and support the maintenance of a wetland in their own urban environment. In addition to learning about wetlands and their benefits to the environment, the students created and produced a brochure to acquaint younger students and visitors--to the wetland and the park in which it is located--with wetland values. Besides cleaning up the wetland area, the students raised funds to help pay for signs--which will explain aspects of the wetland ecosystem--as well as nesting boxes--for certain bird species.

Region 9**Allen Graves****North Hollywood High School****North Hollywood, California****Sponsor: Mr. Edward Kaz**

Allen Graves is saluted for his determination in winning his board of education's approval for his school's establishment of a long-term recycling project and a plan for gathering, storing, and disposing of waste materials generated by his high school and community. Allen, along with classmates, formed the North Hollywood High School Environmental Conservation Core, dedicated to preserving the environment and raising public consciousness of environmental concerns. The club's first project was to initiate an in-school program to recycle paper, cardboard, and aluminum waste products, and to establish a recycling center to which the community's people could bring their recyclable waste. The project required identifying a recycling contractor, selecting a location where materials could be brought for recycling and placing bins for waste collection within the school. Both special education students and the high school's booster organizations have supported the project. The community response has been excellent, as demonstrated by the 1,000 pounds of newspapers turned in weekly by residents for recycling. Proceeds from the program--about \$150 a month--are split between the School Student Body Fund and the North Hollywood High School Environmental Conservation Core. The latter uses the money for environmental awareness campaigns.

Region 10

Mat-Su Valley Young Scholars Program

Anchorage, Alaska

Sponsor: Mr. Ken Klunder

These fifteen sixth and seventh graders are recognized for beginning a scientific, several year project to systematically evaluate the effects of the Alaskan oil spill on marine life in three areas along Prince William Sound. The goals of the first year's work were to develop beach research sites where comparative data can be gathered year after year, to generate written and audio-visual materials about the research and the study trip, and to develop a study question and test design using the same principles that adult investigators are using in their research on the Sound. The question the students developed is: What is the impact on animal populations in inter-tidal areas of three different locations in Prince William Sound and on muddy, cobblestone, and gravel beaches and rocky shores. Three research sites were selected, each in a different location. At each site, students marked off their examination areas by laying down transectional lines to form 1 1/2 by 5 foot squares. Each square was numbered and everything found within it was tagged with that same number for identification and data collection purposes. That effort is the foundation for continuing evaluation of the oil spill's impact. The project's written and audio-visual materials will be shared with other students through youth-targeted media.

McGroarty/Blessey
November 9, 1989
5:00 pm
[ENVIR]

PRESIDENTIAL REMARKS: ENVIRONMENTAL YOUTH AWARDS
OEOB
NOVEMBER 15, 1989
TIME? 11:30 a.m.

Thank you, Bill [EPA Administrator Reilly]. [Introductory acknowledgements.] It's a great pleasure for me to meet so many young people so deeply involved in protecting our environment. You've come from as far away as Alaska -- from every corner of this beautiful country of ours -- and I want to thank you for what you've done, and welcome you to the White House.

Now, some people might ask: what can kids do to protect our environment? [[I raised five children of my own -- with a little help from Barbara, of course -- and there were times I thought our kids could make a major improvement to the environment just by cleaning their rooms.]] ///

Well, anyone who's seen all of you at work knows just how much kids can do to protect and preserve this world we live in. I've heard about your projects. Everything from recycling, to conservation, to some very sophisticated environmental research. Impressive -- all of them.

But what impresses me most is how many times you took an idea that began in the classroom out into the community. Every one of your projects is making your communities a little cleaner -- a little more pleasant -- a little more aware of how much our

environment matters. That's a credit to each of you -- and to your schools and teachers who gave you encouragement and support.

But your work has an impact even beyond your own communities. Your projects teach **other kids** that no one's ever too young to care about the environment -- and they tell us something else, too: that if kids can be environmentally aware, maybe a few more **adults** will join in.

The fact is that **everyone can be an environmentalist** -- and **every one of us has got to be**. What we're seeing today is a new sense of urgency about the state of our world. Greater awareness that pollution and the destruction of our environment hurt all of us -- that everyone of us has a common interest in the fate and future of this planet. That it's simply not acceptable to continue to do environmental damage today -- and leave the clean-up for you and your children to worry about.

All of your projects are special, but I hope the rest of you won't mind if I mention two projects -- the ones done by our youngest environmentalists. There's a 4th grade class here from St. Joseph, Missouri -- that decided to adopt a polluted river in their community, and clean it up. For one full year, you picked up litter, tested the water, stocked that river with all kinds of wildlife -- and you planted willow trees along the bank, to protect against erosion. I can tell you, years from now, when people sit on the bank beneath those willows -- maybe some of your children or grandchildren -- watching the river roll along, you'll get a special feeling from what you've done.

There's another group of 4th graders here today from Marquette, Michigan, who collected enough money to save an 80-acre stand of white pine trees. You knew how many trees there were -- and how much it would cost to buy the land -- so you did a little math and thought up a slogan: "Save a Tree for \$155.26."

Well, the people in your community who heard that slogan thought that saving those trees was worth every penny.

→ And they we're right -- because the truth is, every tree is priceless. /// You know, normally, we hold ceremonies like this one over in the Rose Garden, but I brought you out here for a reason. This tree right here was planted 30 years ago -- by Ike, President Eisenhower. And this one over here -- the small one, ~~but~~ it's coming along fine, don't you think? This tree I planted {xx} weeks after I became President. I hope it looks as good as Ike's does 30 years from now.

What's true about these trees is true about our environment -- our lakes, rivers and streams. Our forests and mountains. The air we breathe. Nothing matters more than preserving our environment -- and nothing gives me more confidence in your generation than to see what you've already done to protect the gifts that nature's given us.

Once again, congratulations to all of you. And now -- with Administrator Reilly's help -- we'll present your awards.

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To S.B
Date 11/13 Time 1:50

WHILE YOU WERE OUT

M Melba Meador
of EPA
Phone 382-4454
Area Code Number Extension

TELEPHONED	PLEASE CALL	
CALLED TO SEE YOU	WILL CALL AGAIN	
WANTS TO SEE YOU	URGENT	

RETURNED YOUR CALL

Message _____

Operator [Signature]