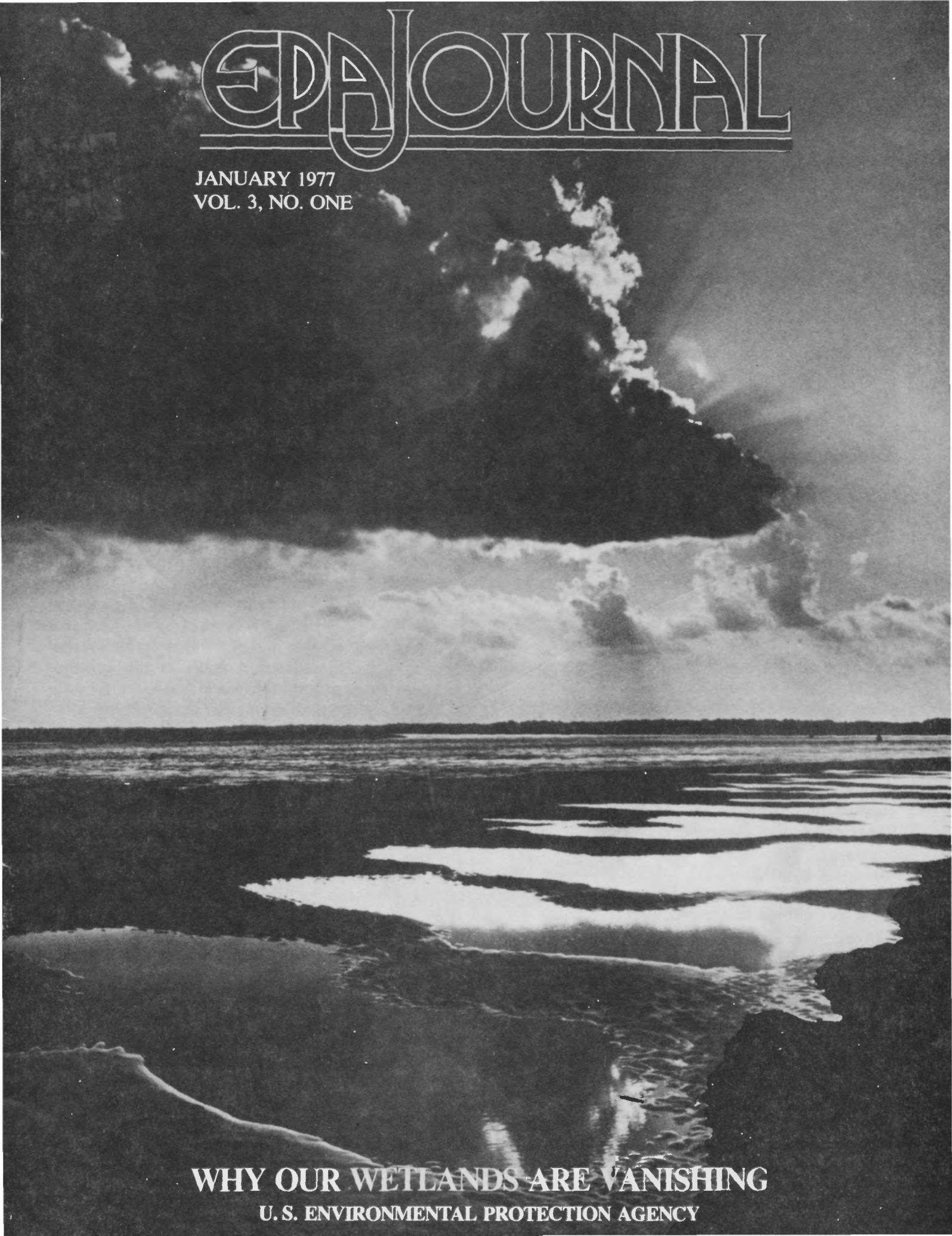


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WHY OUR WETLANDS ARE VANISHING
U. S. ENVIRONMENTAL PROTECTION AGENCY



WETLANDS IN JEOPARDY

Why America's valuable wetlands are in jeopardy is analyzed in a new study reported on in this issue of the EPA Journal.

Titled "Impacts of Construction Activities in Wetlands of the United States," the study makes a series of recommendations to help preserve the swamps, marshes, estuaries and other wetlands.

Scientists report that marshes and swamps contain some of the most productive environments on earth—twice as productive as ordinary farmland. It has been estimated that estuaries support two-thirds of the commercially valuable fisheries of the Atlantic and Gulf of Mexico coasts.

In another article, EPA Journal gives the views of President-elect Jimmy Carter on the environment as outlined in a campaign issue paper.

In an interview with EPA Journal, John R. Quarles Jr., Deputy Administrator, explains why planning under the 208 program has such a high priority. "This program," he emphasizes, "gives taxpayers and all citizens a great opportunity to participate directly in important community decisions affecting their environmental needs—decisions which might otherwise have been made without public input."

The inauguration of a new EPA program to test the effectiveness of emission controls on selected automobiles as they come off the assembly line is discussed in another article.

Stanley Legro, Assistant Administrator for Enforcement, calls the action "a real milestone for the enforcement of the Federal clean air program."

An account is also given in this issue of the development of pedestrian malls in the centers of major cities around the world.

One of the biggest municipal construction jobs in the country involves the building of a huge system to bottle up Chicago's rainwater until this storm water, which becomes polluted with silt and chemicals, can be cleaned at a later time, an article reports.

An intriguing article by a recent visitor to Greece reports that air pollution has forced the Greeks to remove some of the statues from the famed Acropolis to prevent their destruction. A U.N. study has concluded that if urgent measures are not taken to protect the precious buildings and sculptures "their complete destruction would be likely within the relatively near future."

In an attempt to increase awareness of the outdoor delights we are helping to protect, EPA Journal has started with this issue an Environmental Almanac which will give glimpses of the cityside and countryside as the seasons change.

The magazine ends with an article about a new study on how to protect airplanes from birds congregating at garbage dumps near airports.



U.S.
ENVIRONMENTAL
PROTECTION
AGENCY

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COVER: Sunset at low tide at
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"What do you think our reaction would be if somebody told us that we had—in our backyard—nature's own enormously productive food factory, incredibly efficient energy system, marvelously fertile and fecund feeding and breeding ground, and immensely effective wastewater treatment system that—on the side—also helps soften the flow of storm tides and flood waters and recharges ground water? One imagines our reaction would be that anything that great had to be either the pure invention of P.T. Barnum or the Eighth Wonder of the World. And if it did, in fact, turn out to be real—as, in fact, it has—we would, one supposes, count ourselves unusually fortunate to have such a wonder at our everyday service without having to lift a finger or spend a dime.

"If we did so imagine and so suppose, we would, of course, be wrong. For the nation's wetlands do, in fact, perform all the functions I have described. Yet, in this our Bicentennial year, roughly half of the original wetlands within the contiguous States are estimated to have been lost to dredging, draining, filling and other instruments of progress. A sizable share of our wetlands have vanished in this century."

—Administrator Russell E. Train in remarks at Falmouth, Maine, July 7, 1976.



Heron in the Florida Everglades.

WHY OUR WETLANDS ARE VANISHING

Human activities are ruining the wetlands of America at an alarming rate.

This is the opening sentence of a new comprehensive report just published by EPA's Environmental Research Laboratory at Corvallis, Ore.

The 424-page document, entitled "Impacts of Construction Activities in Wetlands of the United States," discusses the effect of such actions as the building of dams and canals, mining, and construction on shorelines and floodplains.

Reviewing the relative importance of the causes of wetland deterioration, the report states the most critical problem is loss of wetland habitat. "Construction of a dam automatically eliminates a stretch of river habitat upstream for the length of the reservoir and downstream to the limit of severe waterflow modification." Building of levees destroys the habitat of the "protected" floodplain, the report notes. The discharge of wastes from mining, major increases in the flow of silt stemming from construction activities, and excessive saltwater intrusion through man-made canals into coastal swamplands are some of the other factors that ruin the specific environment needed by particular species of birds or fish, for example.

The second most critical cause of wetland destruction is the damage from disruption of the flow of water in a river or stream. These flow changes caused by dams, dredging, and levee construction can alter the type of plant and animal species able to survive in the affected region.

The third cause listed is the severe impact of individual construction projects on local areas. "This type of problem," the report states, "would be of little over-all consequence if it were not for the fact that so many construction projects are currently in progress. A bridge, a local highway on a floodplain, a dredging project, a drainage ditch, a pier, a port—on and on. These little projects all over the country are pecking away at the Nation's wetlands and creating a massive cumulative general problem."

The fourth cause of wetland deteriora-

tion is pollution from such varying sources as mine wastes, industrial chemicals, and city street washings.

The report was written by Reznat M. Darnell of the Tereco Corporation, College Station, Tex., under a contract with EPA. Dr. Harold V. Kibby, a research biologist at EPA's Corvallis Laboratory, was the project officer. Collaborating with Darnell in preparation of the report were Willis E. Pequegnat, Bela M. James, Fred J. Benson, and Richard A. Defenbaugh.

Discussing the impact of dams, the report said that they have drastically changed the nature of many rivers and streams.

"For example, over 50 mainstream and tributary dams have transformed the mighty Columbia River into a series of pools. Reservoirs in the Great Plains and elsewhere are accumulating sediments at the rate of one million acre feet per year, and the average life of such reservoirs is estimated to be less than 50 years. To prolong the life of reservoirs and to maintain the depth of navigation channels about 450 million cubic yards of bottom materials are dredged each year, and much of the spoil is dumped on marshes, swamps and floodplains."

"... the Mississippi River," the report continues, "daily brings to its mouth about a million cubic yards of sediment, and this represents an annual soil loss of 290 tons for every square mile of watershed."

"As a result, the 35-foot depth contour at the river's mouth advances seaward about 100 feet per year. Normally, much of this sediment would have been deposited as a thick carpet over the floodplains, marshes, and swamps, balancing subsidence tendencies and increasing fertility. Yet, Louisiana is now losing coastal wetlands at the rate of 16.5 square miles per year (500 square miles during the past 30 years) through shoreline erosion, canal dredging, and deterioration and breakup of marshlands."

The report stated that the following steps could be taken to reverse "the nationwide trend toward wetland deterioration and destruction":

Establishment of wetland sanctuaries—Some wetlands are more valuable than others as habitat for endangered, economically important, or esthetically interesting species. The more sensitive wetlands in areas undergoing rapid development cannot be expected to survive without deliberate protective intervention.

Curtailement of the most environmentally destructive types of construction project—"Technology without reason is a monster. Not everything that is doable is worth doing. We are entering an age when the old cliches about 'progress,' 'development,' 'growth,' and so on simply do not hold water. . . . It is an age when individual projects must be justified on their own merit in light of the social, economic, and environmental costs. In such an atmosphere of public scrutiny it is important to consider all of the alternative means of achieving desirable social goals and to refrain from carrying out those construction projects whose environmental price is too high. It is worth noting here that the rarer a given type of wetland ecosystem becomes, the more valuable it becomes to society as a means of preserving components of a living system which may be of critical importance in preserving the options of future generations. Who will decide to destroy the last riffle (shallow stretch of rippling water)?"

Amelioration of the effects of necessary construction—"For those projects which are judged to be socially desirable, every effort should be made to ensure that the environmentally least damaging methods are employed, even if such methods are not always the most economical in the short run. A great deal of the present wetland problem stems from lack of incentive to protect the environment, rather than lack of technological capability. Adequate sedimentation basins (for example) should be built into storm sewer discharge systems."

Adoption of effective environmental quality criteria—Special criteria must be developed to assure minimum water flow rates, adequate peak flows, prevention of saltwater intrusion, and to

Continued on page 4

Continued from page 3

provide protection from dumping of dredged materials. "Protection of water quality is important, but it should be coupled with adequate attention to the other factors which make for favorable wetland habitats. Environmental protection involves sophisticated environmental management, not just pollution control."

Adoption of a requirement for post-construction environmental impact statements—"At the present time, once a construction project has been approved, the contractor may or may not meet the conditions predicted in the pre-construction environmental impact statement. Certainly, in many cases

there is far greater environmental damage than originally predicted. In order to increase the truth of predictions and to provide a firmer basis for future predictions, post-construction studies should be run to determine how accurate the predictions were and how much the predicted damage has been exceeded."

Devotion of special attention to sensitive or endangered habitat or ecosystem types—"As a supplement to nationwide minimal (water quality) standards, there should be recognition of the fact that certain types of wetland areas are now in trouble and that special precautions should be taken to

preserve environmental quality in those wetland types which are in jeopardy." Examples given of wetlands which require particular care include shallow ponds and marshes near urban developments, estuaries, springs in arid areas and small streams in general.

Restoration of degraded environments—"Many of the Nation's degraded wetland environments can be partially or fully restored through remedial action. Although there is much to be learned about the technology of environmental restoration, a great deal is now known, and this information should be put to use on a broad scale." Examples of remedial steps which might be taken include reestablishment of damaged marshlands through planting of marshgrasses, adding lime to waters damaged by acid wastes, and creation of new riffles by use of bulldozers.

Dissemination of knowledge about the effects of construction activities in wetlands and what can be done about them—Information must be gathered from specialists who are knowledgeable about the problems of wetlands in different regions of the Nation. The information could serve as the basis for effective environmental protection and restoration policies which can meet local requirements and be used by regulatory agencies, construction firms, and local environmental groups.

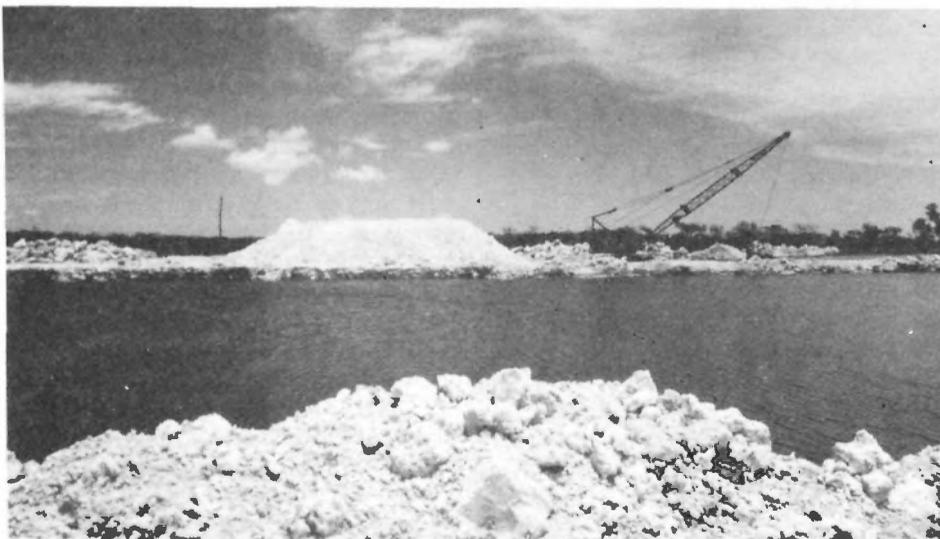
Discussing the long-range wetlands prospects, the report said:

"Practically everything that civilization does sooner or later affects the wetlands. Therefore, in the future wetland protection must be wedded to a total national program for environmental protection which begins in the uplands and carries through into the sea. The grand cycles of nature can help or defeat us, depending on whether we work with or against them." ■

A limited number of copies of the report "Impacts of Construction Activities in Wetlands of the United States" (EPA-600/3-76-045) will be available from the Public Affairs Office, EPA Environmental Research Laboratory, 200 S.W. 35th St., Corvallis, Ore., 97330, while the supply lasts.



Dredging helps build new land in Florida.



Dragline at work at Florida's North Key Largo.



*Forest on St. Simon's
Island near
Brunswick, Ga.*

MY VIEWS ON THE ENVIRONMENT

By President-elect Jimmy Carter

When I was a boy growing up on the family farm in south Georgia, my friends and I, whenever we could escape from our chores and our schoolwork, lived in the woods and swamps. We fished, hunted, camped on the banks of Choctawatchee and Kinchafoonee creeks, gathered wild fruits and nuts, dug honey out of bee trees, and hunted for arrow heads in the field. We still do these things, but as children we took the environment—the outdoors we called it then—for granted.

By the time I entered public life, however, I realized that was no longer possible. When I served two terms in the Georgia Senate I learned that powerful special interests were willing to bulldoze and pollute and destroy our priceless and irreplaceable streams and rivers, forests and fields, marshes and coastlands, for their own personal gain.

One day in 1970, while I was campaigning for Governor, I was driving out of one of our Georgia cities, a city which then had serious air and water pollution problems, and I saw a flash of bronze in the air about twenty yards in front of my automobile. It was a wild turkey gobbler, and I asked myself as I watched him sail off into the swamp if my daughter and her generation would ever have a chance to see a wild turkey gobbler in Georgia.

Not, I knew, unless those of us who care about the environment are willing to fight for it against those who would destroy it. I became Governor, and in the next four years I had plenty of opportunity to fight for the environment.

We established the Georgia Heritage Trust to save our priceless historic sites from the bulldozers. We passed tougher anti-pollution laws. I vetoed, after much thought and much study and with much controversy, a major dam that the Corps of Engineers had for years been planning to build on the Flint river.

In announcing my veto, I called upon Congress to examine the Corps of Engineers' obvious bias in favor of dam construction, and to take a hard look at other Corps of Engineers projects across the country. As President, I intend to end the unnecessary construction of dams by the Corps of Engineers.

Too many Federal agencies are insensitive to environmental concerns. Agencies which should be serving the public interest are instead serving narrow special interests. They must either be gotten back on the right track or abolished. We need a President who is sensitive to environmental concerns and who will work hard for environmental quality. I intend to do that.

In the years just ahead, we must meet many challenges if we are to maintain and improve the quality of our natural environment.

One is the control of pollutants. What is at stake here is nothing less than the health of our people. We pay a heavy price for pollution. Health problems, lost work days, and damage to crops and physical property are only part of the price.

The other is paid with human lives.

The National Academy of Sciences has stated that air pollution causes the death of many thousands of Americans each year. Medical experts now estimate that 70% to 90% of human cancer is caused by environmental factors, and the cancer rate has been rising each year.

This cannot be allowed to continue.

We must vigorously enforce the pollution control and occupational health laws already on the books. We must preserve the nondegradation standards of the Clean Air Act. We must require the auto industry to meet the emission control standards. And we must enforce the Water Pollution Control Act, and reach our goal of making our lakes and streams suitable for swimming and fishing.

Now that we have the Toxic Substances Control Act we must see that it is vigorously implemented and enforced. Premarket screening of new chemicals intended for commercial use is essential to preventing human and environmental exposure to dangerous compounds.

Much of the environmental damage which now occurs can be prevented. The additional cost of responsible surface mining, or preventing oil spills, or cleaning auto and power plant emissions is low, compared to

the costs to society and future generations if we fail to act.

The greatest pollution threat of all is the spreading of plutonium among the nations of the world. Immediate action to stop this proliferation of atomic wastes should be led by our own country.

We need far more research to find environmentally sound ways to achieve economic goals without unacceptable pollution damage. My administration will support such research and will encourage a greater effort by the private sector. We have never put the best brains in this country to work in a concerted effort to find ways to live in greater environmental harmony. I intend to do that.

It is not possible to discuss environmental pollution without considering energy.

In many cases, pollution is a direct result of energy production or use. Obviously, we must use energy, and one of the most difficult challenges we face is to provide sufficient energy while maintaining environmental quality.

This task is made more difficult by the fact that we as a Nation do not have a comprehensive energy policy. It is time we had the leadership that will accept the great challenge of reconciling our energy needs with our environmental needs.

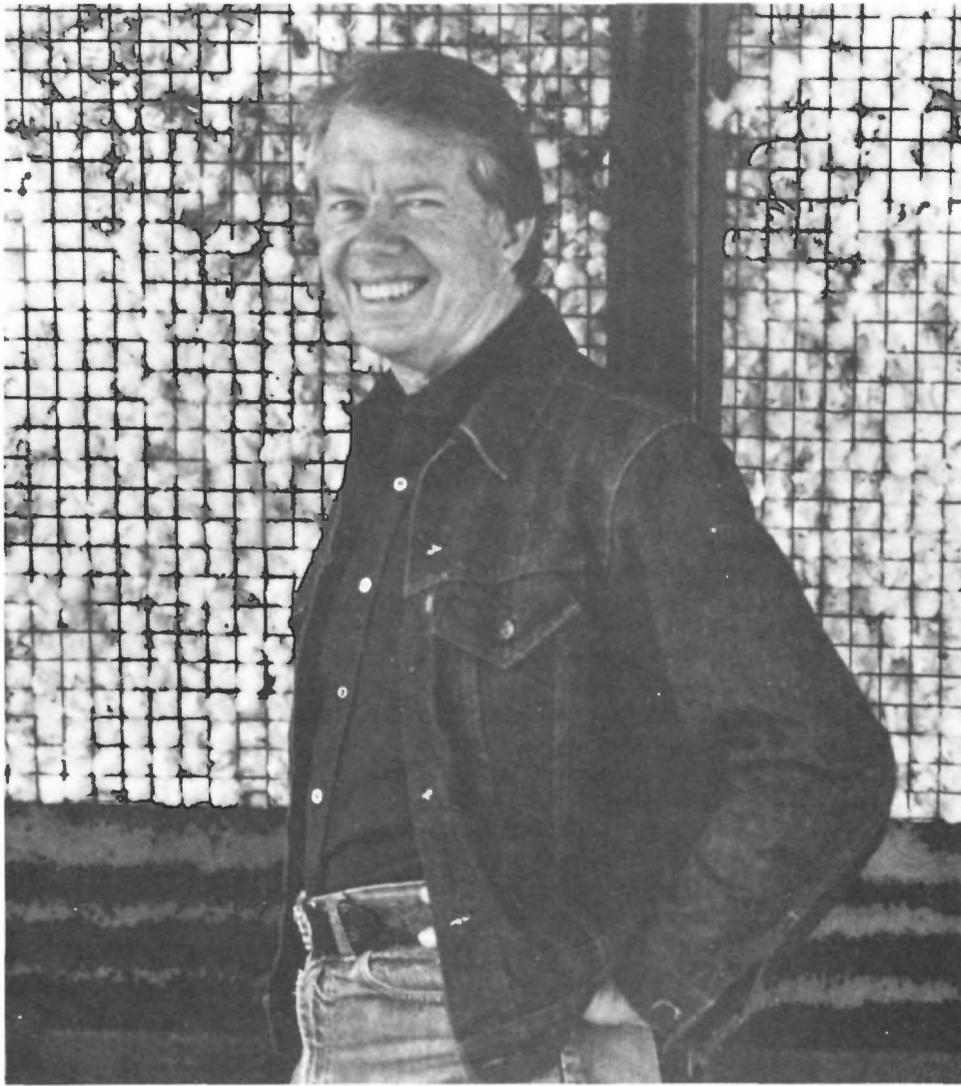
Several elements of my energy policy relate directly to the environment. One is the need for an aggressive program of energy conservation. We need to make our automobiles more fuel-efficient, and we also need to reduce automobile exhaust emissions.

We need to make better use of recycled materials, to better manage our solid wastes, and to realize the fuel savings which recycling offers.

We need national leadership in finding more efficient uses of our conventional energy resources. It makes environmental sense and it saves money if we can save oil and coal in the ground rather than to extract and waste these valuable energy sources.

We must do more to find alternative energy sources. We need to recognize that our oil supplies are limited, and we need to rely more on our coal resources. Also,

Excerpted from a campaign issues paper by the President-elect.



solar energy has already begun to provide us with new energy at little environmental costs, and holds the promise of a far greater contribution in the future.

Promising as it is, solar energy research and development has received little attention or money. Excessive emphasis has been placed on development of atomic power, and particularly the breeder reactor.

In developing a national energy policy, the government should not try to do the job alone. The energy boom-town cycle, which threatens the quality of life in our coastal and western states, must be broken by an adequate program of planning and Federal assistance to local communities. With the energy crisis, as with other crises we have met as a Nation, government, industry, and the public must all do our part. And make no mistake about it, it is still a crisis which threatens our economy, our national security as well as our environment. The gas lines may have disappeared. The problems have not.

Another of my top priorities as President will be to reverse the deterioration and systematic neglect of parks, refuges, forests, and the public lands.

These areas offer priceless opportunities for us to refresh ourselves amid the tensions of our fast-paced world.

On weekends when I was Governor, my wife and I often rode the wild rivers of Georgia in rafts, canoes, and kayaks. We panned successfully for gold in a remote north Georgia stream. We visited wildlife programs on isolated game preserves. Our favorite place was Cumberland Island, off the southeast Georgia coast, where you can watch sea turtles coming ashore to lay their eggs in the early summer. I want future generations to be able to have those same experiences.

Our public lands, representing an enormous national investment, are being badly mismanaged. Significant advantages can accrue to our people, including substantial employment opportunities simply by improving, preserving, and enjoying this great national heritage.

We must maintain and restore the parks, forests, refuges, wilderness areas, and other public lands already held in trust for all of us, and we must step up our

acquisition of other natural and recreational areas.

Wildlife is a prime indicator of the health of our environment. We must recognize that habitat destruction and pollution are the major threats to wildlife today. Endangered species pose particular problems. Once they disappear we can never bring them back. We must deal with all of them, from the great whales to the most minute plant, wisely and reverently.

As a former naval officer, and as a saltwater fisherman, I am deeply concerned about our oceans. The oceans are a major source of food and recreation. But the oceans are also the ultimate repository for most of our pollutants. We do not have even a basic understanding of their full impact on ocean life. The ocean floors offer rich mineral resources, but we do not know what the environmental problems are. Our country should take the lead in international cooperation to preserve the oceans for future generations.

To maintain environmental quality, and to improve the quality of life for our people, is an essential goal, and in its pursuit we must act responsibly. The population explosion around the world must be addressed by effective family planning programs, to make every child a wanted child.

It makes little sense, if we are concerned about the quality of life, to talk about having to choose between employment and the environment or between enough energy and environmental quality.

Pollution control does not prevent economic progress. This is a tremendous new industry which can give us many new jobs and a better quality of life at the same time. We must have all three: employment, energy, and a decent environment.

I will work to achieve this goal. I will direct our Nation's great technological know-how toward finding solutions to our urgent problems.

The President has a responsibility to the people who elect him. But he also has a responsibility to future generations. The President is their steward. I intend to be a worthy steward and to see that we pass on to our children, and our children's children, an environment and a country of which we can be proud. ■

SHAPING THE FUTURE

An interview with John R. Quarles Jr., Deputy Administrator, on the planning program authorized by Section 208 of the Federal water pollution control law.

Q: *In laymen's terms, how is 208 planning best described?*

A: The 208 planning process helps communities across the country to develop action programs for dealing with their local water pollution problems. When Congress passed the Federal Water Pollution Control Act Amendments of 1972, it recognized that the talents of both State and local governments would be needed to deal with water pollution. Section 208 of the Act provides for areawide planning to control water pollution. The planning process begins when a State Governor designates a Statewide or a regional area as a 208 planning area. The Governor also designates a single agency within that area to lead in the planning. The regional areas selected are those with severe or complex water pollution problems. EPA makes grants available to help offset the costs of the planning bodies.

Although planning is essential to controlling pollution, it is meaningless unless the plans are carried out. To help implement the plans the Act calls for broad public participation, as well as the participation of local governments and, in particular, elected officials.

Q: *What do you mean by "public participation"?*

A: The Act itself uses that phrase, saying that public participation must be provided for, encouraged, and assisted.

It's really a question of who will decide the issues. We have all been to hearings where it seems unlikely that the hearing would have any effect on the government's actions. The last Presidential campaign highlighted the fact that the public is concerned about the bureaucracy, the red tape in regulatory programs. Almost all of the Presidential candidates expressed concern about this aspect of our government. Their remarks were a response to a deep-seated feeling throughout the country. But despite the criticism, people still regard government as a tool that must be used to solve problems.

Public participation in the 208 program lets EPA officials and local officials learn what the public wants, what the public objects to, and what the public will support.

We in Washington live in a limited world. That is less true for those who work in the Regions, and thank goodness, EPA is a highly decentralized organization. But even in the Regions, it may be a long way from the Regional Office to the 208 planning site. If pollution control programs are to succeed, there has to be some give and take between government administrators and the public. That is what the public participation element of 208 planning hopes to accomplish.

Q: *What does 208 do for the taxpayers? What's in it for them?*

A: This program gives taxpayers and all citizens a great opportunity to participate directly in important community decisions affecting their environmental needs—decisions which might otherwise be made without public input. Hearings are held on proposals as they are developed, and then a network of advisory committees and other means for public involvement are created in each of the 208 planning areas, so that the public will have a full chance to participate in these decisions. And it should participate, since the decisions will affect the public.

It is important to remember that the environmental movement

arose out of widespread, spontaneous public demand that the government do something about pollution. The 208 program hopes to provide on-the-spot public contributions to the decision-making process.

Q: *If 208 had been in full operation at the time, could you have avoided the recent controversy about the siting of a new waste treatment plant in the Washington D.C. area?*

A: That's exactly the type of controversy that 208 is designed to deal with. The problem you mention was that basic questions of future community growth were not considered in deciding where to put the treatment plant. 208 is not going to solve all problems for all times. In each case certain specific problems will be addressed. The controversy in Washington, D.C. is one example of the type of problem which we hope this program will deal with successfully.

Q: *You mentioned "community growth" in your answer. How will 208 affect growth and land development?*

A: As a Nation we have been going through a long and difficult debate over patterns of growth and whether or not there should be some direction given to patterns of growth in this country. The historic approach, of course, is that free enterprise prevails. People are free to use their property the way they want to, and growth occurs wherever anyone wants it to grow. Against that has been a recognition of environmental and other types of damage that can result from unrestricted growth. In short, people are grappling for the answers. They are saying, "We've got a problem here and we really don't know what to do about it." The 208 program provides a vehicle for solving these real-world problems through the involvement of the people who are affected.

In some cases the 208 planning work will come to grips with questions of future growth, and some of the actions decided upon will undoubtedly influence pattern of future growth. It may restrict growth in some cases, encourage it in others.

Q: *Since 208 is regarded as a State and regional program, what is EPA's role in it?*

A: EPA will constantly be reviewing the technical work, the public participation activities, and all other parts of the work of a 208 planning agency. If that agency is not doing the job right, we can and will withhold funds for its continued operation. We are developing a much closer relationship between 208 and 201 planning, and will issue permits in accordance with the approved 208 plans. But I regard these things as our part in participating in the over-all process rather than our standing up above the process and exerting sanctions upon it.

EPA's data and analyses of water quality conditions should be widely used in the 208 planning process. There is a continuity between previous EPA planning studies and this new program.

Furthermore, all of the other EPA programs—solid waste, drinking water, air, noise, radiation, pesticides—have a stake in the 208 process. At headquarters there has been active participation by program officers other than the water people, and in most of the Regional Offices there also has been this type of active participation.

I believe that the participation should be greater than it has been because the 208 process can provide a vehicle to achieve the goals of the solid waste program and those of a number of other programs, such as the construction grants program. If the program offices do not use the 208 process as a method of achieving their goals, both they and the 208 people will fall short of their objectives.

Q: What kind of a priority do you give the 208 program in EPA?

A: The highest priority. It is important not only to solve water pollution problems but also because it represents the interaction with local community groups which EPA must develop and use in all our work.

Q: What has happened to EPA's past planning efforts in water pollution control?

A: I think they are largely useless, largely a waste of money.

Q: Why was this so?

A: Earlier planning efforts resulted in studies and reports that gathered dust on shelves. There was not enough emphasis on developing the plans within a political process that would provide support for their implementation.

In many types of planning, the planners do their thing and the rest of society goes ahead and does its thing, and there is no connection between the two. In the 208 program, we are attempting to change that. We are attempting to achieve planning that will be implemented. If plans aren't implemented, the whole thing is a waste.

“This program gives citizens a great opportunity to participate directly in important community decisions affecting their environmental needs. . . .”

We have some unusual advantages for trying to crack through this historic problem. We can see the mistakes that have been made. Our statutory authority places a special emphasis on implementation. It also authorizes enough money to provide proper leverage if used wisely. Finally, and perhaps most significantly, there is EPA itself. We are decentralized. We have experience in the practical realities. We have a lot of people of high caliber. And we are a can-do Agency. We have accomplished results in a number of areas, and I think we can do it in this area.

Q: Don't the permit program and the construction grants program adequately address water pollution problems?

A: I think we have dealt quite successfully with many types of water pollution, and we are making impressive progress. Most of our efforts so far, however, have focused on the big industrial discharge areas or on municipal sewage treatment plants.

Yet a whole new generation of problems remain. They include the non-point sources: runoff from farmland, runoff from city streets, return flows from irrigation projects, runoff from feed

lots. They include the problems of achieving pretreatment of industrial wastes discharged into municipal systems. Successes that emerge in the 208 program will help us to develop national approaches and apply them on a widespread basis.

Q: Why haven't we heard more about the work in 208 agencies with regard to such dramatic water pollution problems as the James River, the Chesapeake Bay or the Great Lakes?

A: The reason is timing. Those problems were on the front pages of the newspapers before the 208 program was up and running. In fact, we are still in the very early stages of the 208 program. None of the 208 plans are finished; most of them are only beginning.

Q: Couldn't there be a Catch-22 aspect of the 208 process in that the involved public might be opposed to certain pollution control measures and could frustrate achieving the goals of the Federal Water Pollution Control Act?

A: Yes, this is a very real danger. The 208 planning efforts are certainly going to attract attention in communities where they are undertaken and in States where it's being done on a statewide basis.

We know that industry and others concerned about the cost will come into the political process and in many cases seek to hold down the cost or limit the ambitious proposals that may be required to achieve clean water.

The only hope for this process to work depends on the active participation of citizens, environment groups, and other organizations dedicated to the public interest and sensitive to environmental needs.

In other words, through the 208 program, we at EPA will not be dictating water pollution control efforts. We are subjecting these efforts to the democratic process in local communities, to the local political process. Unless public support is strong in that process, the effort could fail.

However, several encouraging results have already been accomplished by 208 agencies. I think there is a clear resurgence of public support. Once again we're seeing the type of specials on the networks and speeches in the newspapers that signify a rising public interest. This was seen most dramatically in the growing public understanding of and concern over the toxic substances control legislation.

Q: What happens after the 208 plans come due in 1978?

A: Well, that deadline is to complete the plan itself, but the key, as I said earlier, is to implement the plan. We are making every effort to start the implementation process while the planning is still going on. Rather than delaying implementation until the plan is complete, the two should go along together.

Q: What do you see as the primary barrier to the success of the 208 program?

A: The biggest obstacle is the difficulty of obtaining widespread support to implement the proposals. Implementation can occur only through actions by city councils, county governments, and State agencies. Those units of government and the political leaders who direct them must be brought into the development of the proposals so that they will be willing to implement them.

Q: Do you think people are ready for total environmental planning that crosses the lines of conventional jurisdictions?

A: I think we're still on the frontier in this regard. There is growing recognition of the need, but in big metropolitan areas the units of government are so complex that people in the system find it difficult to exert their influence. We are making progress, but we have a long way to go. ■

ENVIRONMENTAL ALMANAC

JANUARY

One of the occupational hazards of working for the Environmental Protection Agency is that you could get your head stuffed so full of Federal Register notices, regulations, and administrative memos that you forget about the wonders of the environment we help protect.

Indeed there is a fashionable tendency now to regard thinking about the outdoors and nature as primitive, simplistic and old fashioned.

Mathematical models, milestone reports, and option papers are the current vogue.

While we certainly wouldn't deny the importance of these scientific and management tools, we still feel that an occasional unabashed look at the outdoors is useful and instructive.

With this purpose we conceived the idea of an Environmental Almanac where we would take a look at the seasons and report on our findings while acting as a self-appointed inspector of the environment.

So we begin with a review of winter, a

sky and give us fresh and bracing air. If we can't prevent air pollution, there's no better cure for it than a good stiff wind to sweep it away.

In the city a good way to keep in touch with the outdoors on a daily basis is to bicycle to work. While this will not be feasible for everyone, hundreds do so in the Washington area and thousands more could manage to if properly motivated.

Men were not meant to hibernate. Winter is a time to go out and enjoy the uncrowded countryside or beach.

Deserted ocean beaches offer magnificent wild waves rarely seen in summer. The winter shoreline provides a privacy that only the enormously rich can buy in the more popular seasons. You can often walk on the sands and hear nothing but the crashing of the waves and screaming of an occasional gull.

Visiting the countryside, you find the gnats, flies, wasps, snakes and other pests of warmer seasons are all gone—dead or hibernating.

a dog, and the groaning of a truck climbing a hilly highway over the ridge.

It's time to cut firewood for burning in a city fireplace. Incidentally, whoever said firewood warms you twice—once when you cut it and once when you burn it—didn't really understand the situation. He completely overlooked the third warming—when you lug the logs out of the woods.

In searching for firewood we usually look for windfalls—trees or branches which have been knocked down by storms. Winter provides us with a generous supply. After cutting the wood into appropriate lengths we pick it up and stumble through the underbrush and thorny greenbriar vines to a bank where we can roll the logs down to the road for later pickup by truck.

We try to get a good mix of pine and hardwoods for our fireplace. Pine because it blazes so quickly and with such intensity and oak and hickory for their long-lasting and steady flame.

Resting from our chores, we can see a red-tailed hawk sailing overhead. He utters his shrill cry as he passes looking for an unwary rabbit or some other prey.

Meanwhile, dusk has set in and the blazing stars of winter are starting to appear in the night sky. Free of the mist and dust of summer, the stars in the black velvet country sky are so startlingly close and large you feel you could almost reach them by standing on tiptoe.

The winter constellations are in their places. The Dipper is leaning on its handle. Cassiopeia, the Queen, relaxes in her chair far overhead. Orion, the hunter, can be seen above the southern horizon. Above Orion is Taurus, the bull. Still higher are the Pleiades, the seven pale sisters. In the west is Pegasus, the Winged Horse.

The mounting chill of the evening reminds us that we are passing through one of the darkest and coldest months of the year. Yet we are comforted by knowing that each day from now on the dawn will arrive a little earlier. Winter is welcome as a visitor but not as a permanent resident. Spring, obeying the timeless rhythms of the seasons as it has for thousands of years, will be returning. Not right away but soon.—C. D. P.



season which we feel has been too much maligned.

Winter helps meet our craving for variety and change. It presents us with a stimulating new world.

Winter strips the deciduous forest trees of their foliage. From many a hillside stunning new vistas are opened which had previously been blocked by the leafy screens of summer.

The blustery winds of winter scour the

Another advantage is that the grass in the country is no longer growing. We are relieved of the mowing chores which eat up such a large chunk of our precious weekend time in spring and summer.

Winter rain has gouged deep ruts in the dirt road leading to the house. But that's all right. A bad road will help keep the vandals and hunters out.

The only sounds are the tolling of a distant church bell, the faraway barking of

POLLUTION THREATENS GREEK TREASURES

By David Ryan

Air pollution has caused more damage to the historic Acropolis in Athens, Greece, in the last 40 years than has civil war, Turkish invasion, and the blistering Mediterranean sun over the centuries.

This is the grim conclusion of a United Nations report released early this year on the destruction wrought by atmospheric contaminants on some of the greatest treasures of Western culture—the ancient temples on the Acropolis of Athens.

The Acropolis, located on a rocky plateau 260 feet high, was the heart of ancient Athens. It was surrounded by walls which were destroyed by invading Persians in 480 B.C. and later was rebuilt under the guidance of the Athenian statesman Pericles. The Acropolis was the center of religious activity. Many statues and temples were located there. One of the most famous temples is the Parthenon, which was completed in 438 B.C.

The U.N. study recommended urgent measures to protect the marble buildings and sculptures, and predicted that if these artifacts were allowed to remain in place "their complete destruction would be likely within the relatively near future."

In another report released this fall, the NATO Committee on the Challenges of Modern Society says Greece has no air pollution standards or controls on emissions from power and industrial plants. Sulfur dioxide levels in Athens are higher than in any American and most European cities. This sulfur dioxide combines with water vapor to produce a sulfuric acid mist that literally turns marble into dust. Although sulfur dioxide is the prime cause of damage, smog-contributing emissions from automobile exhausts pose an additional threat.

Experts from 30 countries attending a recent conference in Athens recommended that to save the Acropolis Greek authorities ought to ban gasoline use in much of that city, and should also forbid all but electric heating within a half mile of the site to avoid pollution from other energy sources such as oil and natural gas.

Although these suggestions are prob-



The Parthenon, one of the temples which draws throngs of visitors daily to the Acropolis in Athens.

ably unrealistic, especially in light of the Greek government's current policy of promoting industrial expansion, the Ministry of Industry is planning to furnish all modern buildings near the Acropolis area with a fuel oil of lower sulfur content than that currently in use; this cleaner fuel will also be issued to factories whose fumes are carried by the wind toward the ancient monuments.

Athenian authorities are also acting on the U.N. report's ominous warning that saving many Acropolis treasures will be impossible if they are left in their present locations. Certain statues and sculptures are being removed from exposure to the city's polluted air and placed in indoor museums. British-made reproductions will replace them outdoors.

Some of the more notable artifacts to be removed, perhaps forever, from the places they've occupied for more than

two thousand years, are (1) the sculptures on the west side of the Parthenon, depicting an epic battle between the goddess Athena, protectress of Athens, and Poseidon, god of the sea, and (2) the famed caryatids, six giant stone columns in the form of lovely Grecian maidens, which have supported the eastern portico of the Erechtheum Temple since the fifth century B.C.

The U.N. report praised an Acropolis task force of Greek archaeologists engaged in scientific research on pollution, but recommended the establishment of a permanent team of experts to be stationed there with power to really do something about air pollution damage.

In conclusion, the study endorsed a Greek suggestion for an international appeal to save the Acropolis: "The importance of the monuments, which are among the most precious jewels of world culture, the expected difficulties involved, and the high cost of the project, would amply warrant a recourse to aid from the international community." ■

David Ryan is an EPA Headquarters Press Officer who recently returned from a visit to Athens.

APPOINTMENT IN DETROIT

By David Cohen

Rows of car bodies, suspended in mid-air from huge hangers, inched slowly forward amid the humming of a Ford Motor Company assembly plant. At scores of points along the line, engines, transmissions, wheels, and everything else down to the painted racing stripes were being added to the skeleton bodies.

Two work shifts, involving a total of about 2,500 persons, would, on that day alone, send some 650-800 cars rolling out of the cavernous plant and on to showrooms around the country.

Touring this Detroit assembly line recently were a group of EPA officials, headed by Stanley W. Legro, EPA Assistant Administrator for Enforcement, and Dr. Norman Shutler, Deputy Assistant Administrator for Mobile Source and Noise Enforcement.

Although many members of this group had seen such operations previously, they were especially interested this time because of a new EPA program called Selective Enforcement Auditing which will check the emissions of certain vehicles as they come off assembly lines.

At the EPA group's next stop, the manufacturer's emission test laboratory, a load of cars shipped from a Kansas City assembly line was undergoing the final stages of a trial test for the new program.

"This program represents a real milestone for the enforcement of the Federal clean air program," Mr. Legro said. "Emission standards for new automobiles have been in effect since the 1968 model year. However, up until the beginning of this year, testing to make sure those standards are met has been largely confined to prototype, not production, vehicles. New cars and light-duty trucks cannot be sold in the U.S. unless their prototypes are certified by EPA to meet standards. The new program begins the additional step of testing selected samples of actual assembly-line models to help ensure compliance with emission standards."

Since July, the auditing program has employed test trials in which the manufacturers selected the vehicles to be tested. Since Jan. 1, the program has been mandatory under the Clean Air Act. This means that EPA now decides which vehicles will be audited and when. The trial tests were

conducted at each of the leading domestic manufacturers' facilities. Each trial run was open to representatives of other manufacturers. All the vehicles tested during the preliminary and voluntary trials met the standards.

When the new assembly-line testing program was announced in July, EPA Administrator Russell E. Train said, "The auto manufacturers' own data indicate that more than half a million 1976 model cars did not satisfy the Federal emission requirements when they came off the assembly line. EPA data on 1975 vehicles in actual use suggest even higher noncompliance. As a result of this new program, American consumers will be better assured that the benefits of their investment in pollution control will be realized."

Charles N. Freed, head of EPA's Manufacturers Program Branch in the Mobile Source Enforcement Division, said, "Although we feel that the auto manufacturers have generally acted in good faith, there are many difficulties in making a prototype model completely representative of vehicles coming off the line. We hope that the new program will remedy this situation. We feel that it has already begun to do so by having encouraged the manufacturers to develop their own assembly-line emission testing programs."

"In implementing this program," said Benjamin T. Jackson, Director of the Mobile Source Enforcement Division, "we have stressed communication with the companies. It would not be in our interest to just walk in and start giving orders. Thus far things are going well. The manufacturers have been extremely cooperative."

For instance, on the third trial test EPA officials met with 18 manufacturers and trade association members. The give-and-take discussion included the possibility of an additional trial test to be held abroad for the benefit of foreign manufacturers whose vehicles produced for sale in the U.S. will also be tested in the audit program.

Under the new regulations, EPA can conduct one audit for every 300,000 cars and light-duty trucks in annual production

for sale in the U.S. There are, however, two exceptions to this rule: 1) Should a manufacturer fail an audit, that audit does not count against the annual number of audits EPA may conduct; and 2) even if EPA has reached its annual limit, it can still conduct an audit if it has received information that a violation is probably occurring.

Under most circumstances, according to Mr. Jackson, fewer than 20 vehicles need be tested to determine an audit's "pass" or "fail" results. Emissions are tested for levels of hydrocarbons, carbon monoxide, and oxides of nitrogen. Although it is impossible to know exactly how many cars will be produced by industry in a year (and therefore how many audits EPA will be allowed) 40 audits is a reasonable guess, according to Mr. Freed. At a maximum of about 20 vehicles per audit, that would mean that as many as 800 vehicles may be tested in 1977 out of an estimated production of 12 million cars.

EPA estimates the cost of the program will require an average increase in the per car sticker price from 17 to 70 cents. Administrator Train has said, "The selective nature of the program requiring testing of only a small number of vehicles makes it a highly cost-effective and efficient way to assure the proper emission performance of production vehicles."

When EPA does decide to perform an audit, it must first identify a particular vehicle category (called a configuration). A category includes all vehicles produced by a manufacturer having the same type engine, emission control system, transmission, and weight range.

The order requiring the test is then signed by the Assistant Administrator for Enforcement or his designee and delivered to the manufacturer. It must specify the vehicle category, the manufacturer's plant or storage facility from which the vehicles must be selected, the time, the number of vehicles in the sample, and the manner of selection.

If a certain percentage of vehicles in the sample fail the test, certification for the category may be suspended or revoked at the Administrator's discretion, thereby making sale of these cars illegal. The suspension or revocation will remain in

David Cohen is a staff writer for EPA Journal.

effect until the manufacturer can demonstrate to EPA that the problems causing the emissions failure have been corrected.

The regulations currently state that if 60 percent or better of the vehicles in a given category pass, vehicles in the category are considered to be in compliance. "The Agency had originally proposed to require a 90 percent success level to determine if a sample passed the test," Dr. Shutler said, "but if manufacturers build in the safety margins we expect in order to protect against losing their certificates, a 90 percent requirement could in fact cause manufacturers to build all of their cars to more stringent standards than the law presently intends. Therefore, we are beginning with 60 percent, hoping it will generate compliance in the 90 to 100 percent range. Our approach is rather like enforcing a new 55 mile-per-hour speed limit where drivers had been going 65. When 55 initially goes into effect, tickets probably would not be issued to drivers who were going 56 miles per hour. Rather they would be given to those going 65 and faster, in the hope that the enforcement activity would cause most drivers to obey the 55 limit. If the result were drivers generally going 60, one would then start ticketing at 60 in order to gain compliance with the 55 limit. We will pay close attention to the results the new program achieves to determine any need for tightening the pass rate requirement."

During the next few months the manufacturers' emission testing facilities will be used exclusively. However, Frank D. Slaveter, head of the recently formed Selective Enforcement Auditing Section, said, "During all testing EPA will have on-site supervisors carefully checking the procedures. By spring of this year, we expect to have our Mobile Enforcement Test Facility ready. It will be a mobile van ready to go from plant to plant and conduct emissions tests.

"The regulations also allow the manufacturer to put the amount of mileage on the test vehicles necessary to stabilize their emission levels. The law, of course, requires that the cars maintain the standards for 50,000 miles. The Mobile Source Enforcement Division is constantly gathering information about the emission levels of vehicles already out of the factory and on the road. If there is sufficient information to believe that a certain vehicle category is in violation of the standards, a test order is issued," Mr. Slaveter added.

According to Mr. Freed, decisions about which vehicle categories to audit will also depend on data obtained from prototype testing, State inspection and maintenance programs, and information learned during auto recalls. Mr. Freed said that EPA will

also be looking at those vehicle categories which are produced in the largest volume.

The emission test itself first involves several pre-test steps, including filling the vehicles up with a specifically controlled composition of gasoline, pressure testing the evaporative emission control system for possible leaks, a preconditioning run on a dynamometer (a treadmill device upon which the vehicle is "driven"), and allowing the vehicle to sit for at least 12 hours while maintaining a room temperature of no less than 68° F and no more than 86° F.

The car is then placed back on the dynamometer, and a tube attached to the exhaust. The emissions are trapped and analyzed automatically and a computer records the data.

The driver must maintain a number of

speeds which simulate an average day's driving in the city. Should the driver deviate too much from the acceleration-deceleration plan which has been mathematically determined, the test is voided. At the Ford Motor Company testing facility, for example, a teletype terminal next to the test vehicle continuously prints out emission-level figures for the various speeds. These figures are not the averages that determine the test result; rather they analyze changes in emission levels at various stages of the test. This information will later be used by the company to help it diagnose the reasons for any failures which may occur.

In the future the new audit program will also apply to motorcycles produced for sale in the U.S. ■



Observing procedures at Ford Motor Co. emissions testing laboratory (in foreground) are Stanley Legro, (left) EPA Assistant Administrator for Enforcement, and Dr. Norman Shutler, Deputy Assistant Administrator for Mobile Source Enforcement. At far right is Charles Freed, chief of the Manufacturers Program Branch in the Mobile Source Enforcement Division.



Chrysler assembly line.



members of the State Department of Environmental Conservation and seven Hooker Chemical experts completed the field team, which was led by John Ciancia of EPA's Surveillance and Monitoring Division at Edison, N.J. Mirex is a toxic hydrocarbon that has been used in the southeastern States to control fire ants. When data from plant outfalls and soil samplings are analyzed the investigators hope to have a more definitive picture of the causes of the Mirex contamination, which was first discovered by EPA sampling last July.

fish kill follow-up

A public symposium is expected to be held this month on the causes of a series of fish kills off the New Jersey coast last summer. State and Federal agencies have been collecting and evaluating all available information and hope to make recommendations to avoid such fish kills in the future. Preliminary findings indicate that a "bloom" or sudden growth of microscopic plant life occurred in the cold, deep-water layers of the ocean, and the subsequent death and decomposition of the plants used up the water's dissolved oxygen and killed the fish.

incinerator violators

Formal violation notices have been issued to six Westchester County communities for excessive smoke and soot emissions from their incinerators. They include Eastchester, New Rochelle, Rye, Scarsdale, White Plains, and Yonkers.

cleanup ordered

The Gloucester Sewerage Authority, Gloucester City, N.J., has been ordered to correct numerous violations of its permit to discharge treated wastewater into Little Timber Creek, a tributary to the Delaware River, and to show cause why civil and criminal penalties should not be imposed. Regional Administrator Gerald M. Hansler said the pollution resulted from neglect and malfunctions in the sewage treatment plant and "could have been avoided by simple maintenance on a day-to-day basis."

kind to be operated by any American city, the plant can treat 30,000 gallons per day. It cost about \$300,000, none of which was Federal money. The Philadelphia Water Department, which has already done much pioneering work in the detection of trace contaminants, is using the plant for large-scale testing and demonstration of various purification techniques.

city is sued

A \$2-million Federal civil suit has been filed against Erie, Pa., its Sewer Authority, and the Commonwealth of Pennsylvania for continuing violations of the authority's permit to discharge treated sewage effluent into Lake Erie. The action was initiated by Region III, seeking immediate compliance with the limitations imposed by the permit. About 64 million gallons of wastewater are discharged daily.

county noise law

Montgomery County, Maryland, recently put into effect a noise control law setting maximum permissible noise levels for industrial, commercial, and residential zones and for areas where different zones meet. The ordinance also sets noise levels for construction, repair, and demolition of structures and roads.



hot water

Region I Administrator John A. S. McGlennon recently rejected a power company plan to pour 1.2 billion gallons per day of heated seawater into the ocean at Seabrook, N.H.

The company appealed this decision to EPA Administrator Russell Train, who agreed to review it, saying "the case presents important issues of national significance." A final decision is not expected till February or later. The Public Service Company of New Hampshire is building a \$2-billion nuclear power plant at Seabrook. It seeks a permit to discharge the plant's cooling water at 39 degrees hotter than the temperature of the ocean water at the intake, which usually ranges from 40 to 60 degrees Fahrenheit. The regional decision was reached after an intensive review of data presented at a hearing last year. Opponents believe the company should revise its plans to provide better technology to minimize adverse environmental effects.



mirex in ontario

Eleven representatives of Region II recently took part in a three-day investigation at the Hooker Chemical Co. plant at Niagara Falls, N.Y. to determine if discharges from the plant were responsible for the presence of the pesticide Mirex in the Niagara River and Lake Ontario. Seven



air pollution fine

The Allied Chemical Corporation was recently fined \$925,000 after it pleaded no contest to Federal charges of violating air pollution control standards at its Semet-Solvay Plant in East Ashland, Ky. U.S. District Judge David Hermansdorfer suspended \$800,000 of the total fine, contingent upon the company's meeting a rigid compliance schedule over the next five years. The plant's emissions will be measured every 60 days. Compliance failure will bring an additional \$100,000 fine, which, if not paid promptly will reinstate the suspended \$800,000 levy. The court order stipulated that a new criminal action may be taken if at any time EPA is not satisfied with the company's rate of compliance. Regional Administrator Jack Ravan initiated the complaint against Allied Chemical last June. It charged 83 violations of emission standards by the firm's coke ovens over a 37-day period.



pilot plant

Philadelphia has built a pilot plant to remove very low levels of organic compounds from drinking water. First of its



big interceptor

A seven-mile-long interceptor sewer seven and a half feet in diameter has been chosen as the best option to meet the needs of Cuyahoga and Summit Counties, Ohio, in the Cleveland Regional Sewer District. Region V recently completed the final environmental impact statement on the project, which will carry wastewater to the Cleveland Southerly Sewage Treatment Plant near Garfield Heights. Several outdated treatment plants will be abandoned as well as thousands of septic tank filter fields. Eleven trunk sewers will connect with the big interceptor, which will be tunneled below the Cuyahoga Valley National Recreation Area to avoid damaging it.

coke oven suit

A suit has been filed in U.S. District Court in Chicago against Interlake, Inc., seeking to halt the steel company's operation of two batteries of coke ovens in South Chicago. Since December 1974, the suit charges, Interlake has operated the ovens without the required air pollution controls, producing levels of particulates (smoke and soot) that exceed national air quality standards by almost 40 percent. Extended negotiations by Region V officials failed to produce an administrative settlement.



oxidant strategy

Amended regulations aimed at controlling oxidant air pollution in Texas were the subject of public hearings last month in Dallas, Houston, and San Antonio and are expected to be formally approved soon. The new rules will affect six metropolitan areas in the State where oxidant pollution now exceeds the national standards: Beaumont-Port Arthur, Corpus Christi, Dallas-Fort Worth, El Paso, Houston-Galveston, and San Antonio.

joint planning

Region VI officials have invited representatives of State agriculture and water management agencies to participate in and make suggestions concerning EPA planning for Fiscal 1978. The meeting, to be held this month, will cover all EPA programs in the Region.



college advisor

Carl V. Blomgren, Director of the Water Division for Region VII, has been named to the advisory council of Iowa State University's Civil Engineering Department. The council represents industry, consulting and construction firms, and government agencies and provides guidance to the university in its policies for engineering education. Mr. Blomgren's primary interest is in environmental engineering, and particularly in Iowa State's Civil Engineering Cooperative Education Program that combines classroom studies with on-the-job experience. "I hope to become acquainted with minority and women engineering students at the university and encourage employment with EPA," he said.



twelve in one

An unusual, perhaps unique, environmental planning project is under way in the Denver metropolitan area: an impact study of 12 proposed sewage treatment facilities at once. Completion of the 12-in-one environmental impact statement is expected at the end of April. It will include all problem areas—air quality, conversion of agricultural lands, social and economic effects—as well as water quality considerations. Robert Doyle of EPA's Region VIII staff is project officer. The EIS is being coordinated, through the Mountain Plains Federal Regional Council, with other studies being undertaken by the Departments of Interior, Transportation, and Housing and Urban Development.



citizens' forums

A program of Citizens' Forums (also known as Town Meetings) is under way in Region IX, led by the League of Women Voters under contract to EPA. During this month and next, forums on "208 Planning," "Regional Growth and Resource Management," and "Agricultural Preservation in Urban Areas" will be held in Riverside, San Diego, and Orange and Los Angeles Counties. Forums have already been held at Fremont, San Dieguito, and Lake Tahoe. Senior Staff members of Region IX take part in the discussions. The meetings seek to "start a meaningful dialogue on environmental issues at the grass roots level," said Regional Administrator Paul DeFalco Jr., "and to bring the public into the decision-making process."



ketchikan dispute

Tentative settlement of a three-year dispute over water pollution cleanup at the Ketchikan Pulp Co., Ketchikan, Alaska, was announced recently by Region X Administrator Donald P. Dubois. The company will move as fast as possible to give secondary treatment to all wastewater from its sulphite pulp mill, following the compliance schedule specified in its discharge permit. The company will install equipment and modify its plant to reduce organic wastes (biological oxygen demand) to 75 pounds per ton of pulp produced, about one-third of its present pollution output. If it is unable to meet the statutory limit by next July, while proceeding with due diligence, the company will pay a penalty of \$250 for each day through 1980 on which its discharge exceeds the limit. The settlement will enable Ketchikan Pulp to continue operations while installing pollution controls. Last summer the firm said it would close down rather than spend about \$30 million to comply with EPA requirements.

STREETS FOR PEOPLE

By Truman Temple

The Nation's capital has opened two pedestrian malls in the heart of the city. One of them runs along the front of the National Portrait Gallery on F Street N.W. and the other, known as "Library Place," is a nearly block-long square for strollers fronting the Martin Luther King Library.

The projects, built at a cost of \$6.3 million with Federal urban renewal funds, make downtown Washington more inviting, exciting and fun.

By opening the malls, Washington has joined a world-wide movement limiting the use of autos and trucks in downtown areas. The mall concept not only is aimed at enhancing the esthetic and commercial appeal of inner cities with quiet, traffic-free zones but also at protecting public health by curbing air pollution.

Banning vehicles to improve the quality of urban life is not a new idea. Some 20 centuries ago Julius Caesar prohibited chariots from running along Rome's narrow streets during evening hours because their noise disturbed people. Leonardo da Vinci drew up a city plan in the 15th century to put vehicles and pedestrians on different levels so that people could shop and chat in the open air without being distracted by traffic.

But today the pedestrian mall is a concept whose time has come. According to the Organization for Economic Cooperation and Development, more than 100 cities in Europe now have pedestrian malls, and the total grows every year. Some are simple, block-long auto-free corridors in small villages, created by painting lines or putting up a modest wooden sawhorse or two. Others are the result of years of planning and large reconstruction programs.

The movement also is well under way in the United States. The first American city to close off downtown streets permanently to motor vehicles and reserve them for

shoppers on foot was Kalamazoo, Mich., in 1959. Since then the mall idea has spread rapidly. Three years ago, the Downtown Research and Development Center in New York reported that 34 downtown malls were under construction or completed around the country. By last March, the total had reached 81 in cities ranging from Lebanon, N.H. to Honolulu, from Winchester, Va., to Dallas, Tex. Officials note there are a number of additional cities with malls that aren't on their list yet.

How much does a pedestrian mall cost to build? That depends on the plan. A relatively simple one in Jackson, Mich., was built at a cost of \$75,000. At the other end of the scale, a very ambitious project in Memphis, Tenn., covering more than ten acres cost approximately \$6.7 million.

One of the most important arguments for creating auto-free zones within a city is the effect this has in curbing air and noise pollution. In one experiment in New York City in 1970, closing Fifth Avenue to traffic resulted in a reduction of carbon monoxide levels from 30 to five parts per million. At the same time, noise levels

dropped from 78 to 58 decibels.

To be sure, there is a right way and a wrong way to go about creating a mall. The process requires some forethought not only by city planners but by area merchants, police, firemen, transit officials, traffic managers, and just ordinary residents. Unless the project is looked over carefully by everybody affected, trouble is bound to occur.

Consider the case of Frankfurt, Germany, where officials some years ago closed off a large thoroughfare of department stores and shops known as the "Zeil" or lane. In theory this should have led to a quieter and more environmentally desirable city. Instead, it caused riots. According to *Der Spiegel* magazine, banning vehicles simply caused the traffic to shift a few blocks away. The result was disastrous. Two parallel residential streets found themselves swamped with trucks and cars. A protest movement erupted, and police finally had to move in to restore calm. The city fathers were obliged to restudy the whole project.

On the other hand, where adequate planning precedes construction of a pedestrian mall, the results can be happy indeed. In Norwich, a 1,200-year-old city in northeast-



View from the Rathaus (City Hall) Tower at the eastern end of Munich's large and beautiful Fussgängerzone (pedestrian zone).

ern England, the city council adopted a careful plan in cooperation with retailers, including temporary street closings to test the idea. Now the plan is permanent, and virtually all the store owners report increased business from shoppers who have time to window-gaze under pleasant conditions. In a month-long survey of pedestrian malls in six European countries two years ago, this writer found the experience widespread. Despite early fears by merchants that banning cars would hurt business, the opposite proved to be true.

Some auto-free areas in cities like Munich and Vienna are the result of large reconstruction programs involving new subways, escalators, public fountains, and extensive repaving, all carefully integrated with outer ring highways to assure that traffic patterns make sense. Others, like Murren and Zermatt in the Swiss Alps, started out as remote mountain villages and have banned autos entirely to preserve their special appeal to skiers and mountain climbers.

The mall with perhaps the greatest charm that this writer visited was in Rouen. This ancient French city in Normandy was enjoying a September afternoon. I stood on cobblestones next to the great cathedral where the heart of William the Conqueror is buried. Around me swirled shoppers, businessmen, and tourists. A blessed quiet reigned along narrow streets once trod by Joan of Arc.

Rouen like many other cities in America and Europe understands the principle of restoring peace to the heart of a city, but with the peculiar genius of its people has endowed its old sector with Gallic charm. The city's auto-free area is disorderly, winding, ungeometric, and imperfect. That's what I liked about it. Secluded courtyards beckoned off the streets, where the workshops of artisans echoed with pleasant sounds of activity. A tub of flowers barred autos while decorating an intersection. One could shop at modern boutiques near a public square dedicated to the 19th century author of *Madame Bovary*.

Truman Temple is a Headquarters Public Affairs Officer who has seen a number of pedestrian malls.

Gustave Flaubert. His statue benignly overlooked a group of office workers on their lunch hour playing petanques, an outdoor variation on bowling. Unlike so many sterile, stark, downtown office neighborhoods in other cities, Rouen flows with life after hours. Its inhabitants obviously share a love and pride for their *voies pietonnes*, their pedestrian streets.

In a broader sense, it seems to this observer that the movement to create pedestrian malls goes beyond a simple desire to ban autos. It is a spontaneous "streets for people" idea, in the happy phrase of one early prophet and historian, Bernard Rudofsky, whose book on this subject has become a standard reference for environmentalists. The movement not only envisions inner-city sanctuaries where pedestrians are free from vehicles, but where

they can once again find the communion of the marketplace and the village fountain and the park bench and the sycamore's shade—in the same city where they live.

In a way it is a rediscovery of values still lingering in our collective memory of the village commons. There was a time in history, lasting for centuries, where downtown was neither sterile nor fraught with danger, where housewives could gossip and buy thread, where business could be conducted in peace. There are still enough references to this era in our literature to stir men's minds, to make us wonder how we lost our innocence, and how the city was destroyed by technology. By means of the pedestrian mall, we are finding our way back to that era and renewing a tradition. In the process, we are also protecting our health. ■



This man is walking his bicycle through the Fussgangerzone because not even bicycle riding is permitted in this pedestrian mall in Munich, Germany.

PEOPLE



Jerome H. Svore, Region VII Administrator in Kansas City, Mo., since 1971, retired Dec. 31 after a 30-year career in the environmental field. As a Public Health Service officer, Mr. Svore retired with the rank of Assistant Surgeon General. He and his wife will make their home in Austin, Texas. Mr. Svore was Regional Administrator in Kansas City for EPA's predecessor agency, the Environmental Health Service, Department of Health, Education, and Welfare, when EPA was organized. He had previously served in various executive posts in the Public Health Service's environmental programs in Washington, D.C., and Cincinnati, Ohio, and as a director of Federal water pollution control programs in the Dallas, Texas, Federal regional office. He had also been Executive Secretary of the Columbia Basin Interagency Commission, Portland, Ore.



Benton M. Wilmoth, a specialist in ground water quality control in the Wheeling, W. Va., office of Region III's Surveillance and Analysis Division, was recently honored by the American Institute of Professional Geologists. Mr. Wilmoth received the Institute's Distinguished Service Award for his work as Chairman of its National Committee on Geology in the Environment. The committee, the citation said, has helped call public attention to the need for geological study as a base for environmental planning and for land and water development and use.



Patricia L. Cahn, EPA's Director of Public Affairs for two years, has resigned and Marlin Fitzwater, head of the News Services Division, was named Acting Director. Mrs. Cahn is now a free-lance writer and consultant, specializing in environmental matters and education and working out of her country home in Loudoun County, Virginia. She headed the Office of Public Affairs since Jan. 6, 1975.

Joseph A. Krivak has been named Chief, Non-Point Sources Branch, Office of Water Planning and Standards. He is returning to EPA after three years of working on land use policy in the office of the Secretary of the Interior. Mr. Krivak, 50, had previously served in water planning positions in EPA and its predecessor agency, the Federal Water Quality Administration, since 1967. Before that he was with the Department of Agriculture's Soil Conservation Service for 16 years. A native of Wilkes-Barre, Pa., Mr. Krivak is a graduate of Pennsylvania State University's School of Forestry. He is married to the former Rita Riefski, of Wilkes-Barre. They have three grown children.



Francis W. Giaccone has been appointed Chief of the Region II Air Facilities Branch after serving as a Section Chief for three years. In his new role, Mr. Giaccone is responsible for the technical direction of Region II activities regarding the air pollution control of stationary sources and the actions necessary to establish stationary source compliance. He received EPA's Special Achievement Award for continuous superior performance in 1973 and was nominated for the EPA Executive Development Program this year. He is a graduate in mechanical engineering from Stevens Institute of Technology.



Managers of the United Nations Environment Program's information referral centers in Jamaica, Israel, and Ghana attended a three-week training program recently at the United States referral center at EPA Headquarters, Washington. They were **Lynda P. Quamina**, (left above), Information Officer, National Resources Conservation Department, Kingston, Jamaica; **Samuel A. Winful**, Senior Assistant Secretary, Environmental Protection Council, Accra, Ghana; and **Dr. Devorah Ziv**,

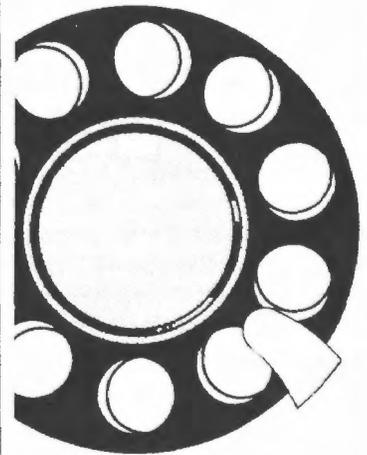
Dr. H. Page Nicholson, who retired last June as Acting Associate Director for Rural Lands Research at the Environmental Research Laboratory at Athens, Ga., was presented with EPA's Gold Medal for Distinguished Service at a testimonial dinner last month in Athens. An internationally recognized authority on the environmental effects of pesticides, Dr. Nicholson is continuing to serve the Athens laboratory as scientific advisor to Dr. David W. Duttweiler, Director. Dr. Nicholson's government career spans 34 years in research assignments with the Public Health Service, the Federal Water Pollution Control Administration, and EPA.

Environmental Protection Service, Jerusalem, Israel. The U.S. center, established 15 months ago, now serves as a model and training point for UNEP centers in other nations. At a welcoming ceremony for the first three trainees, Assistant Administrator Alvin Alm said, "We are pleased with the direction and progress" of international exchange of information on environmental problems. "This training program is an element of the international effort that we are committed to support."

Frank D. Slaveter, Chief of the Selective Enforcement Auditing Section, has headed that unit since its creation last summer. Mr. Slaveter's primary responsibility is to supervise emission testing of new production motor vehicles at assembly plants. This key program began full operation on January 1 (see related story on page 12). Mr. Slaveter's Section is under the Mobile Source Enforcement Division. Mr. Slaveter, 30, came to EPA in 1973. He has a B.S. in mechanical engineering from the University of Maryland, and a M.S. in environmental engineering from Johns Hopkins University. Before assuming his present post, he was a project leader in the development of the Selective Enforcement Auditing Program.



Claire Stern has joined Region II as its Public Participation Specialist. She will assist in development of citizen involvement in the Region's 14 areawide and four state 208 agencies. Ms. Stern's credentials include her previous position as Executive Director of the Long Island Environmental Council, a coalition of over 100 organizations, where she lobbied in Albany (NY) and Washington for legislation. She was instrumental in bringing New York State's Wetlands Act into being, created and taught university environmental courses, assisted in land use planning, and has held a variety of public interest positions throughout her career. She was a first recipient of Region II's Special Award of Merit in 1975.



Readers can find out the Agency's top news story of the day by picking up a telephone and dialing 755-9309 (FTS callers out of town use the prefix number 8. Callers on regular commercial lines use the area code 202.) The story they will hear is prepared and taped by EPA's Radio News Service in the News Services Division, Office of Public Affairs. It normally consists of a brief introduction of a news item, followed by a quotation from an EPA official. The central purpose of the tape is to permit radio stations across the country to call in and tape the story over the telephone line. Then it is included as part of their local broadcasts. But the telephone tape service also serves as a convenient way for you to keep up with Agency activities.

EPA EMPLOYEES HONORED

EPA honored 32 individuals and two groups at the Agency's sixth annual Awards Day ceremony in Washington Dec. 13.

Their efforts "reflect the highest standards and goals to which we all are pledged," said Administrator Russell E. Train. "To each . . . I extend my sincere thanks and appreciation for their superior achievements . . . they serve to inspire and affirm for us all our own resolve . . . in bettering this Nation's environment."

Mr. Train told the employees:

"We have gone through some tough times together, you and I, over the past few years. So, indeed, has the country.

"We can, then, take great pride on the fact

—That the environment remains a matter of the highest national priority;

—That EPA has demonstrated its effectiveness as an instrument for the administration of our national environmental laws;

—That the basic strength of those laws remains unimpaired;

—That EPA has consistently pursued a vigorous and courageous enforcement policy;

—That the nation's air and water are becoming measurably cleaner;

—And that the commitment of the American people to environmental progress remains deep and enduring."

Mr. Train said in this past year, "at a time when environmental priorities were thought to be weakening, we saw enactment at long last of the Toxic Substances Control Act and the Resource Recovery and Conservation Act, essentially completing the structure of our pollution regulatory authorities.

"The environmental effort has, from the very start, represented much that is best in this country. And this Agency represents, in my judgment, much that is best in government.

"There have been those who cheerfully predicted that environmental programs generally and the Environmental Protection Agency in particular would be derailed by the counterpressures generated by energy shortages and economic recession. That this has not happened is to the everlasting credit of the good sense of the American people, and also in large measure to the courage and steadfast determination of the women and men of EPA. The battle has

often been a lonely one. More often than not, powerful forces both in and out of government have been arrayed against us. I can remember many meetings over recent years when it seemed that our's was the only voice to speak up on the side of environmental values. All the more important, therefore, that we have not hesitated to speak up and speak out clearly and forcefully. We can be proud that EPA has maintained both its institutional integrity and the fundamental integrity of its programs. We can be proud as well that EPA has established a strong tradition of independence. That is a tradition that the agency must particularly guard and cherish in the future. I hasten to add that it is also a tradition which should not be abused. We must learn to be sensitive to the programmatic needs and concerns of others and be supportive of these when we appropriately can. But when fundamental principle is involved, there must be no compromise."

In speaking of achievements, Mr. Train said "I do not mean to leave the impression that we have only ourselves to thank



Administrator Russell E. Train addresses employees at EPA Awards Day ceremony.

We owe much to many—to environmental and other public interest groups, to far-sighted leaders in industry and labor, to the courts which have given strong support to environmental laws, to many State and local agencies and officials, to Federal officials, to members of Congress and their staffs, to the media which has continued to provide extensive coverage to environmental issues, and, finally, to the American public which has never wavered in its strong support for environmental protection. We must be grateful to all of those who have made our success possible. Nor can we take their support for granted. We must continue to deserve it, and we must nurture it. We must work not only to strengthen our existing sources of support but we must actively reach out to broaden our base of support. This will not be done simply by rhetorical appeal but by establishing a clear basis of mutual benefit.

"Thus, as we implement our new toxic substances control authority, we must give special attention to the crucial relationship with the occupational health and safety laws. Our new information gathering and reporting requirements under TOSCA can provide an enormously valuable tool in alerting OSHA and the public to workplace dangers. Conversely, OSHA can help alert EPA to potential problems falling under our jurisdiction. In all of this, there is a natural community of interest between EPA and labor unions. That community of interest was evident during the Congressional consideration of the Toxic Substances Control Act. We now have the opportunity to strengthen and build on that relationship—to our mutual benefit."

The Administrator said that "Everything we have learned since EPA was established in 1970 has simply confirmed this original, essential insight: that the 'environment' is not simply a side issue or secondary concern. It is a fundamental fact of life, a concern that is central to all others—central, indeed, to life itself. It is, as one observer has written, the overall and underlying 'context' within which we must weigh and deal with the various energy, economic and other 'crises' that confront us.

"So if our efforts at EPA seem to reach out and touch the lives of every American, that is because the health and well-being of every American is directly affected by the condition and quality of his or her

environment. We have, as our constituency, not a single, separate segment of our society actively involved in environmental 'causes,' but every American who lives and breathes as well as millions upon millions more who have yet to take their first breath. We must have no narrow constituency. We have as our constituency the entire society and the environment that sustains it.

"It is, I think, that sense that 'the environment' is something really worth caring and doing something about—that sense that, behind and beyond all the thousand and one frustrations we encounter, behind and beyond all the deadlines and the regulations and the guidelines that make our hours long and, at times, our tempers short, we are dealing with some of our society's basic concerns—that has seen us through some rather rough and wrenching experiences."

Distinguished career awards were given to Louis E. Decamp, Deputy Assistant Administrator for Water Program Operations, who is retiring, and Thomas P. Harrison, Enforcement Division Director, Region VI. Mrs. Harrison accepted the posthumous award for her husband, who died in August.

The Agency's highest award, the Gold Medal for Exceptional Service was given to five persons and one group: Carol R. Foglesong, Chief, Compliance Unit, Region V, Chicago; for her work in administering the discharge permit system in that Region; Stephen Heller, Management Information and Data Systems Division, for designing a computer system that links EPA's chemical files with those of other agencies; Kenneth L. Johnson, (now Acting Assistant Administrator for Toxic Substances) for his creative leadership while serving as Deputy Regional Administrator, Region I, Boston; Sheila Prindiville, Director, Water Division, Region IX, San Francisco, for improving water quality management in that Region; John T. Rhett, Deputy Assistant Administrator for Water Program Operations, for his work on the Construction Grants program; and the Supersaturation Research Project team in the Corvallis, Ore., Environmental Research Laboratory. The 14 team members are James A. Andros, Deidra Boczkiwicz, Gerald R. Bouck, Michael A. Cairns, Gary A. Chapman, Ronald R. Garton, Martin K. Knittel, Richard E. Lewis, Joel K. McCrady, Alan V. Nebeker, Donald Samuelson, Donald G. Stevens, Robert C. Trippel, and Gwen B. White. Their work is helping to reduce a threat to Pacific salmon, endangered by too much air dissolved in the waters of the Columbia and other northwestern rivers.

Silver Medals for Superior Service were presented to 12 individuals and one group: Thomas A. Bellar, Research Chemist, Environmental Monitoring and Support Laboratory, Cincinnati, for developing a new test procedure for public water supplies; Marlin Fitzwater, Assistant Director for News Services, Office of Public Affairs, for exceptional dedication and service in running EPA's news dissemination program; Thomas Gallagher, Director, National Enforcement Investigations Center, Denver, for superior technical support of EPA's enforcement program in all areas; Willis E. Greenstreet, Director, Management Information and Data Systems Division, for his work in setting up automated data processing for the Agency; Edward T. Heinen, Chief, Ecological Review Branch, Region IV, Atlanta, for developing regional programs to protect wetlands; David Kee, Chief, Air Enforcement Branch, Region V, Chicago, for superior leadership and performance; Frederick Kutz, Project Officer, Office of Pesticide Programs, for initiative and achievement in the monitoring of people for pesticide exposure and health effects; John Brian Molloy, Director, Water Enforcement Division, for successful work with major industrial discharge permits; Elbert Moore, Water Planning Branch, Region X, Seattle, for his work in controlling water pollution from farm and forest lands; Dr. Alvin R. Morris, Deputy Regional Administrator, Region III, Philadelphia, for "creative management" that has increased the Region's productivity and morale; William T. Sayers, Office of Research and Development, for exceptional leadership in administering water quality management research; Leonidas B. Tebo Jr., Surveillance and Analysis Division, Region IV, Athens, Ga., for directing the Region's biology program that has contributed to wetland preservation; and the Toxics Strategy Task Force for "developing the Agency's first comprehensive strategy to control dangerous toxic substances in water." The 17 persons on the task force represent various Headquarters offices and include Charles Cook, Harold Coughlin, Swep Davis, Vincent J. DeCarlo, Bruce Diamond, Louis W. Dupuis, Leonard J. Guarraia, Ernest Hall, Ridgway M. Hall Jr., Michael J. Higgins, Richard C. Insinga, John C. Kolojeski, Peter Lederman, Carl J. Schafer, Irving Susel, Peggy E. Travers, and Ruth A. Wilbur.

Four Public Health Service Officers assigned to EPA received the PHS Meritorious Service Medal: Jack Farmer, Office of Air Quality Planning and Standards, Research Triangle Park, N.C.; Tobias A. Heg-

dahl, Air and Hazardous Materials Division, Region X, Seattle; Louis W. Johnson, Air and Hazardous Materials Division, Region VIII, Denver; and Floyd B. Taylor, Water Supply Branch, Region I, Boston.

Certificates for Outstanding Youth Achievement—awards limited to persons under 31 years old—went to David H. Critchfield, Environmentalist, Office of Water and Hazardous Materials; Carol S. Doherty, Assistant Regional Counsel, Region X, Seattle; Beverly Greanya and Alexander Hernandez, Word Processing Operators, Region IX, San Francisco; Phillip Hutton, Entomologist, Office of Pesticide Programs; Carol Joy Kilgore, Clerk Stenographer, Office of Water and Hazardous Materials; Nina Dougherty Rowe, Program Analyst, Office of Research and Development; Irving Susel, Economic Analysis Division, Office of Planning and Evaluation; and Paula C. Wallace, Secretary, Region I.

PROTECTING FISH

Most of EPA's efforts to improve river quality try to increase the water's dissolved oxygen so that fish can thrive.

But at Corvallis, Ore., a team of EPA people won a Gold Medal last month (see adjoining story) for their work on the problem of too much oxygen.

The "supersaturation" of water with oxygen is caused when water flows over a high dam, picking up and dissolving more air than it would normally hold. It can also occur in heated water discharged by an electric power plant: the warmer water can hold less dissolved gas (as can be seen when air bubbles form in a teakettle long before the water boils) and temporarily becomes supersaturated.

This condition is dangerous to fish and other aquatic animals. They can sicken or die when they take in supersaturated water and air bubbles form in their blood and tissues.

For five years the Corvallis team has been researching this problem, a vital one in the Northwest because of the threat to spawning salmon and game fish like the steelhead trout.

They are experts on supersaturation: how much of it different kinds of fish can stand, how to measure it in the laboratory and the field. Their work is helping other Federal and State agencies to control supersaturation in such many-dammed rivers as the Columbia and the Snake by altering the design of spillways and gates and by more careful operation of hydroelectric plants.

All fish need oxygen, but they can get too much of a good thing. ■

STORING CHICAGO'S RAINWATER

With help from EPA, Chicago has begun building a huge underground system to collect and hold storm runoff water and sanitary sewer overflows so they can be purified in sewage treatment plants after the storm has passed.

Storm water, itself highly polluted with silt and chemicals, now overloads the city's combined sewer system whenever there's a heavy rain, causing treatment plants to be bypassed. At such times mixtures of runoff water and untreated sewage overflow into waterways and sometimes even into Lake Michigan, the city's drinking water source.

EPA has approved construction grants totaling more than \$298 million for work on the first portion of what is expected to be the largest municipal public works project

in the Nation's history. It will take at least 11 years to complete and is expected to cost nearly \$3 billion. The State of Illinois is also contributing funds.

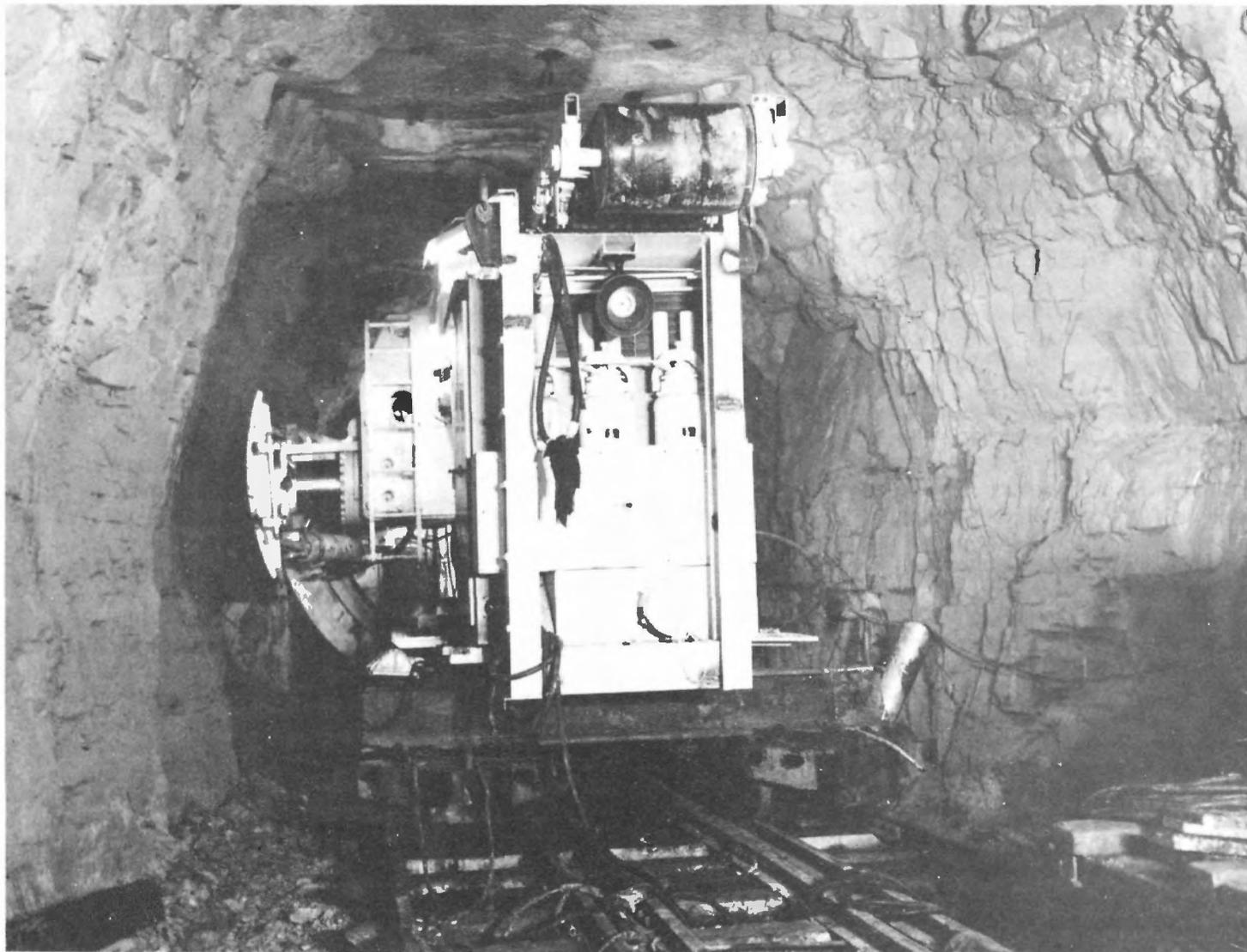
The grants, announced in July, go to the Metropolitan Sanitary District of Greater Chicago for the District's Tunnel and Reservoir Plan (TARP). They cover about 75 percent of the cost of one segment of TARP, the Mainstream Tunnel System, which will collect combined sewer overflows from the central part of the city in a tunnel about 40 miles long extending from Wilmette, on the Lake Michigan shore

north of the city, to Summit, a southwestern suburb near Midway Airport.

The tunnel's path roughly follows the course of the Chicago River south through the business district then west along the Chicago Sanitary and Ship Canal. The tunnel will be cut in solid rock, 200 to 300 feet below ground level. Its diameter will increase in stages from 10 feet at the northern end to 35 feet at Summit, where the collected storm water will be pumped to a wastewater treatment plant.

Region V Administrator George R. Alexander Jr., noting previous EPA grants of about \$110 million for planning and engineering work, said the Agency's contribution to the funding of the total TARP program now exceeds \$388 million.

Tunnel machine bores a section for Chicago's massive underground storage system for storm water.



"The District has now received basically all funding for the water quality aspects of the Mainstream system," he said.

Mr. Alexander said the system would not only reduce water pollution and flood damage but would also stimulate the area's economy and provide jobs for area residents.

Studies have shown that in the construction of water pollution control facilities, he said, each billion dollars spent generates about 20,000 man-years of direct employment and at least an equal amount of employment for suppliers, transport services, and other industries. "Cleaning up the environment is not only good for America, it is also good for business".

For nearly a hundred years Chicago has had gigantic problems with water: for drinking, for sewers, for transportation, and for storm drainage. The city is on essentially flat land, straddling the low divide between the Great Lakes and Mississippi basins. Natural drainage is sluggish. Two small rivers, the Chicago and the Calumet, drained the older sections of the city into Lake Michigan, but the city soon spread westward across the divide, where the land drains into the Mississippi via the Des Plaines and Illinois Rivers.

In the 1880's typhoid fever, cholera, and dysentery were widespread, due to pollution of the Lake Michigan water supply. In 1889 the Illinois legislature formed the Metropolitan Sanitary District, one of the first and still one of the largest intergovernmental authorities, to deal with Chicago's water problems.

The District covered all of Chicago proper and most of Cook County. Over the next 30 years it undertook a series of large engineering projects in which:

The Mainstream Tunnel System now under way is one of four TARP subsystems, each a self-contained scheme for collecting overflow water via underground tunnels, storing it in reservoirs, and releasing it to treatment plants during subsequent dry periods when the plants can handle it. Each of the four subsystems will be operable by itself. Each includes new or expanded treatment plants large enough to handle the increased volume of wastewater.

The Mainstream system will serve central Chicago. The other systems include Calumet in the southern part of the city, Des Plaines along that river in the

western suburbs, and O'Hare in northwestern Cook County near Chicago's main airport.

Storm water will reach the Mainstream tunnel through 134 drop shafts and 220 "collecting structures"—catch basins located at curbs or low points near major thoroughfares and connected by pipes to the drop shafts.

Hard rock mining methods will be used to build both drop shafts and the tunnel itself. Round sections will employ "moles" or boring machines with circular cutting teeth to chew up the rock as the machine advances. Portions of the tunnel and all adjacent rooms for pumps and other equipment will be rectangular in cross-section and built by the drill-and-blast method. Many tunnels, shafts, and rooms will be lined with concrete to keep wastewater from filtering into natural groundwater in the surrounding limestone.

The Mainstream system's reservoir, for which money has not yet been appropriated, will be constructed at the site of a stone quarry. Its capacity will be 84,000 acre-feet of water, the equivalent of an 840-acre lake 100 feet deep. This storage capacity is augmented by the volume of the tunnel itself, 3,180 acre-feet.

About 4.5 million cubic yards of rock spoil will be removed in building the Mainstream tunnel and will have to be disposed of. The project's impact statement proposes that this rock be dumped in landfills or in an abandoned quarry. Rock from the reservoir construction is expected to be salable.

Financing of the remaining portions of TARP is still in doubt. EPA funds can be expected only for the water quality improvement aspects of the work, and the share may change in the next few years.

- The rivers draining into Lake Michigan were diverted via canals to the Des Plaines watershed.
- Sanitary and storm sewers were built, draining into the canals. Sixty years ago the District sewage system was regarded as a civil engineering wonder of the world.
- Canals for commercial vessels linked Lake Michigan to the Illinois River and the Mississippi. They were constructed so that no polluted canal water could flow into the Lake. Lake water was withdrawn to maintain canal levels and westward flow.

As Chicago's population and industry grew, increasing withdrawals of water from

Lake Michigan led to law suits by other cities, Great Lakes States, and Canada. In 1930 a Supreme Court ruling set limits on the amount of Lake water that could be used for the canals, and the District began building more and bigger sewage treatment plants to reduce pollution in the waterways.

These plants treated only the wastewater generated during dry weather and minor rains. Heavier storms caused flows that exceeded the capacity of the interceptor lines, or the treatment plants, or both. According to the TARP environmental impact statement, such storms occur about 100 times a year. Though many are of only local effect the overflow has to be discharged directly into the waterways.

Careful operation of locks and gates in the waterway system can minimize these discharges, the statement said, by drawing down the canal water levels before the storm hits. But this was not enough. "In the past 21 years the locks which separate the waterway system from Lake Michigan were opened 30 times, discharging oxygen-demanding substances, sediment, phosphorus, and other chemical pollutants into Lake Michigan. When this occurred during the summer months, beaches were closed to swimming until the coliform count . . . showed that conditions were safe."

Flooding is also a problem, the statement said, because the flat terrain limits the practical slopes of sewers, and it is too expensive to build them big enough to drain storm runoff as fast as it is produced. As a result, during heavy storms sewers frequently back up and flood basements, highway underpasses, and low-lying areas.

The basement flooding problem, although substantially reduced within the city by auxiliary sewers built in the last 20 years, is becoming severe again, according to the statement. "The area of turf, trees, and earth which formerly absorbed large volumes of rain is no longer present, so that the fraction of a given rainfall that results in runoff is steadily increasing."

Estimated cost of the Mainstream Tunnel System is \$508 million, and its annual maintenance cost \$2.3 million. Maintenance costs can be met either by a property tax or a user-charge system. EPA favors the latter approach and has awarded the District two grants to develop such a user-charge system. ■

INQUIRY

What EPA programs should be given priority in 1977?

Daniel Kraft, Chief, Planning and Evaluation Branch, Region II, New York City: "Highest priority should be given to implementing the five programs identified in the FY'77 Operating Guidance that is developed by the major program offices at Headquarters and then coordinated with the Regions. These are:

- achieving compliance with State plans to attain and maintain National Ambient Air Quality Standards.
- maximizing water pollution abatement through effective management of the Construction Grants Program.
- assuring compliance by major dischargers with national water permit conditions.
- helping States assume primary enforcement responsibility for the Safe Drinking Water Act.
- helping States and 208 agencies in the timely development of State and areawide water quality management plans.

"In addition, major attention must be directed to implementing the new toxic substances control legislation that had not become law when the above program objectives were set."

Lawrence A. Plumlee, M.D., Medical Science Adviser, Headquarters: "The development and promulgation by the Agency of practical, meaningful tests for evaluating environmental chemicals is an urgent matter for our pesticides, toxic substances, and hazardous wastes programs, and important for our air pollution, drinking water and water quality criteria programs as well. Criticisms of test procedures must be countered by knowledge that will enable the public to be justly confident of EPA's efforts to control pollution.

"But no amount of information can quiet all industry criticism, so better efforts must be made to educate the public about the reasons underlying EPA decisions. The Agency

should spend more time briefing groups committed to environmental quality and public health, so that they will help us in educating the public."

David Ullrich, Chief, Case Development Section, Enforcement Division, Region V, Chicago: "The most important task facing the Agency in 1977 is, I think, the implementation of programs to cope with new sources of pollution. This presents us with a difficult challenge, for we must determine how much industrial growth we can accommodate in a time of serious environmental concern and economic uncertainty.

"To address new sources of air pollution we have developed several procedures. Among them is the new source performance standards program that sets the minimum level of pollution reduction required for new plants. Then, in the siting of facilities in places where air quality standards are not being met, we must ensure that there will be a sufficient reduction of pollution from existing industry so that the addition to a new plant or factory will not impede the achievement of air quality standards. Finally, we are concerned with industry locating in areas of very clean air, where no significant deterioration of air quality is desirable; in these instances we must make the decision of how much—if any—deterioration of pristine air can be allowed."

Kerrigan Clough, Special Assistant to the Administrator, Headquarters: "My choice for highest priority in 1977 is that the Agency make public participation its number one purpose. Public participation is not something to do in place of program functions but, instead, is an integral part of program development.

"EPA began to move to heavy public

participation a couple of years ago—before it was a popular thing to do—simply because without it our regulations and decisions were pretty poorly received. EPA has gotten up the steam to use public participation. Maybe if we designated it as number one priority for 1977 it would be considered as necessary as the proper management of public funds is, in our pursuit of various goals."

Vivian Malone Jones, Director, Office of Civil Rights and Urban Affairs, Region IV; now on special assignment with Office of Planning and Management, Headquarters: "Our most pressing need is for a philosophical change in how we perceive our mission of cleaning up the environment. We need to adopt a more humanistic approach and remind ourselves that our work is really about people and the real world in which they live. There are excellent laws on the books and we've had a good record, I think, in administering them, but in our preoccupation with regulations, we have sometimes lost sight of the fact that we are trying to improve the quality of people's lives. That's where progress must be measured—not in the number of permits issued, impact statements made, sewage plants built, or plant clean-up orders issued.

"This may be a non-technician's view, but most of my work with the Agency has been in dealing with the realities of human relations, so I am always conscious that in the end our work is about people and how they live.

"Another urgency facing us in 1977 is how to better communicate with the public. I doubt that the average citizen has much knowledge of EPA or what it is doing, and even sadder, I think is that most Agency people would have difficulty in explaining their role to the public."



Daniel Kraft



Lawrence A. Plumlee



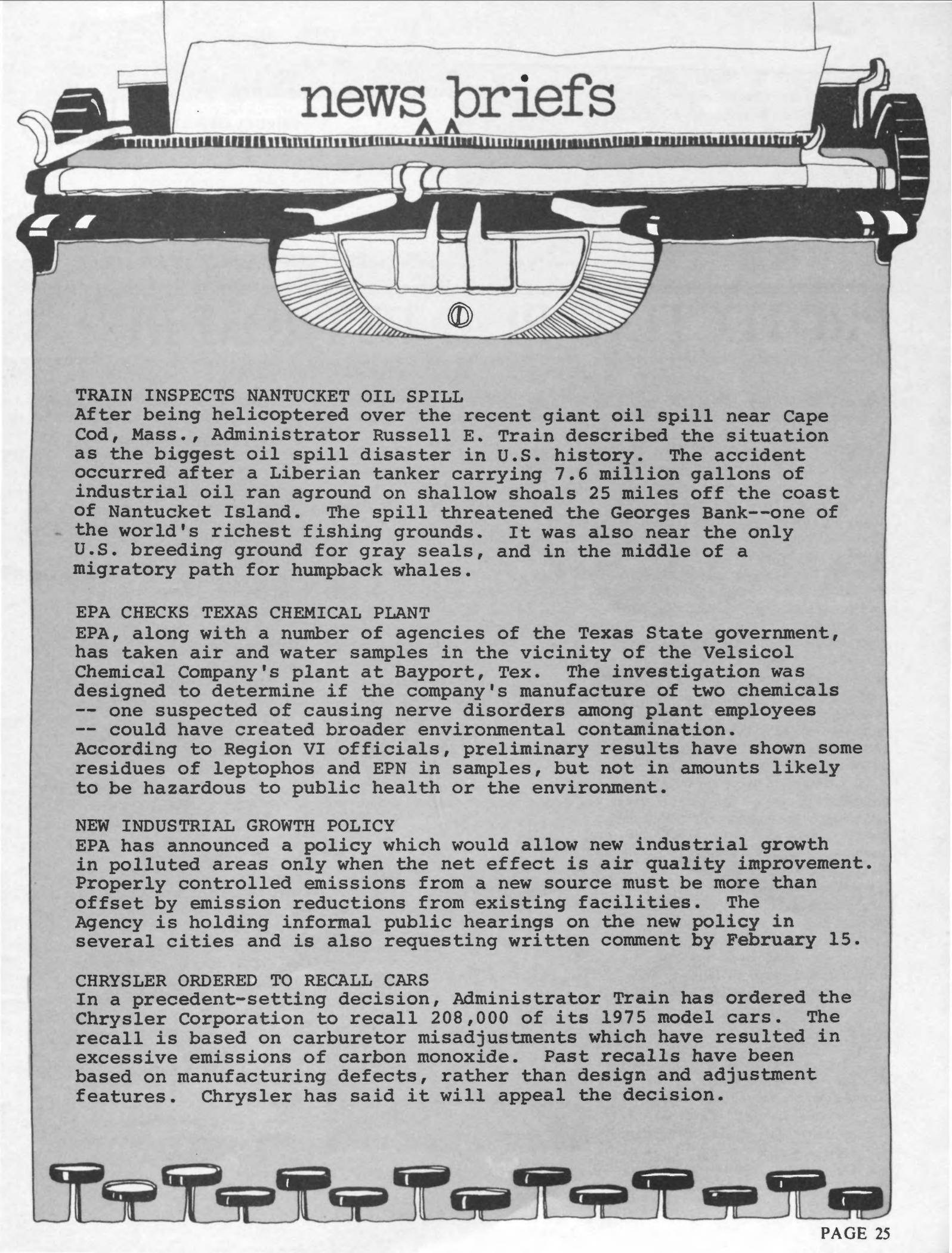
David Ullrich



Kerrigan Clough



Vivian Malone Jones



news briefs

TRAIN INSPECTS NANTUCKET OIL SPILL

After being helicoptered over the recent giant oil spill near Cape Cod, Mass., Administrator Russell E. Train described the situation as the biggest oil spill disaster in U.S. history. The accident occurred after a Liberian tanker carrying 7.6 million gallons of industrial oil ran aground on shallow shoals 25 miles off the coast of Nantucket Island. The spill threatened the Georges Bank--one of the world's richest fishing grounds. It was also near the only U.S. breeding ground for gray seals, and in the middle of a migratory path for humpback whales.

EPA CHECKS TEXAS CHEMICAL PLANT

EPA, along with a number of agencies of the Texas State government, has taken air and water samples in the vicinity of the Velsicol Chemical Company's plant at Bayport, Tex. The investigation was designed to determine if the company's manufacture of two chemicals -- one suspected of causing nerve disorders among plant employees -- could have created broader environmental contamination. According to Region VI officials, preliminary results have shown some residues of leptophos and EPN in samples, but not in amounts likely to be hazardous to public health or the environment.

NEW INDUSTRIAL GROWTH POLICY

EPA has announced a policy which would allow new industrial growth in polluted areas only when the net effect is air quality improvement. Properly controlled emissions from a new source must be more than offset by emission reductions from existing facilities. The Agency is holding informal public hearings on the new policy in several cities and is also requesting written comment by February 15.

CHRYSLER ORDERED TO RECALL CARS

In a precedent-setting decision, Administrator Train has ordered the Chrysler Corporation to recall 208,000 of its 1975 model cars. The recall is based on carburetor misadjustments which have resulted in excessive emissions of carbon monoxide. Past recalls have been based on manufacturing defects, rather than design and adjustment features. Chrysler has said it will appeal the decision.



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PROTECTING PLANES FROM BIRDS

A DC-10 carrying 139 people sucked one or more gulls into a jet engine opening during take-off from John F. Kennedy International Airport on November 12, 1975. The engine exploded, flames spread, and the plane crashed and was destroyed. The passengers, fortunately all airline employees trained in escape procedures, survived the accident. However, if the plane had traveled another 150 feet it would have crashed on the Belt Parkway, a major traffic artery on Long Island, and probably killed dozens of people.

As a result of this crash and many bird strikes by airplanes at JFK and other airports around the country, EPA has been directed by Congress to make a study of methods to reduce the hazard to airplanes from gulls and other birds congregating and feeding on landfills near airports.

The worldwide average for bird strike encounters is now as high as 30 a day, according to an Airport Safety Bulletin put out in April, 1976 by the Flight Safety Foundation, Inc. of Arlington, Va. The section of the new Solid Waste Act on the bird problem was introduced by U.S. Rep. James Scheuer of New York, a member of the Environmental and Atmospheric Subcommittee of the House Science and Technology Committee. His district includes John F. Kennedy International Airport, as well as four of New York City's nine landfills. There were 31 bird strikes at JFK in 1975.

Many airports are located in areas considered unsuitable for housing and often used for solid waste disposal.

Land disposal sites are ideal havens for many species of birds. Household garbage provides food; abandoned furniture and cars serve as roosting sites, and puddling on poorly drained sites provides water for the birds. Some species prefer

to roost on the cleared open areas provided by disposal sites and agricultural lands.

A Department of the Interior study found gulls a major hazard to aircraft at JFK. The Fish and Wildlife Service estimated that 500,000 gulls migrate through the New York area every fall, and up to 200,000 may spend the winter there. "These large gull populations occur and thrive, to a great degree," said the report, "because of the abundance of food in the form of garbage in the New York area. The bird problem at JFK is maximized by the close proximity of two large garbage landfills where thousands of gulls feed."

In 1971, Dr. John L. Seubert of the Department of the Interior, a member of the Interagency Bird Hazard Committee, noted how gulls thrive on our garbage. "Herring gulls along the Atlantic coast numbered only several thousand in 1930, but today they number about 600,000," he said. "There is also a ring-billed gull

population of about 400,000 birds."

EPA's Office of Solid Waste already has some background on the bird hazard problem to work from. In 1969 when the Office was part of the Department of Health, Education, and Welfare, they began a study at the request of the Interagency Bird Hazard Committee. *Bird/Aircraft Hazards*, a report of their findings, was published in 1971. The report was written by George R. Davidson, Jr., Truett V. Degare, Jr., Thomas J. Sorg, and Robert M. Clark.

Even the sanitary landfills surveyed by the study reported occasional flocks of birds, depending on season, climate, and location. Some landfill operators said the problem was mainly during the winter months when birds, especially gulls, throng to disposal sites.

The study found that some airports had programs to discourage the birds. Chemical deterrents, noise devices, recordings of birds in distress, insect and weed control, and vehicle patrols by men carrying shotguns are all measures that have had some success in keeping birds away from airports and landfills. These methods are used in various combinations and to varying degrees depending on the locations of the airports and the intensity of the problem. A few airports reported that use of one or more of the techniques eliminated their bird hazard.

The Office of Solid Waste survey report quoted Federal Aviation Agency statistics that listed 2,196 bird/aircraft strikes from April 1961 to June 1967. The report also noted that the U.S. Air Force reported 1,192 bird collisions with their aircraft in 1968.

The staff of the Office of Solid Waste, with the support and authorization from the new Act, will continue to work toward peaceful coexistence in the air for all fliers, feathered and otherwise. ■



Gulls swarming to a garbage dump in New Jersey.