

East German Environment Comes into the Light

Environmental issues—particularly air pollution—are finally getting attention after years of political repression and neglect; an industrial complex near Leipzig indicates the extent of the change

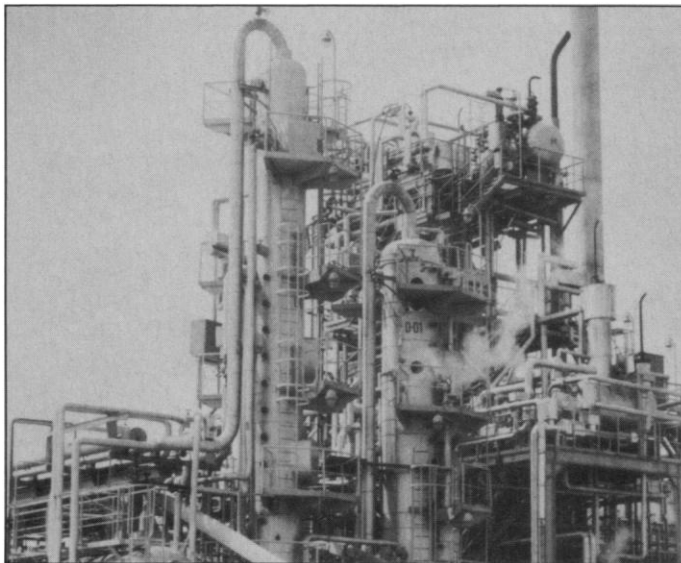
Leipzig
BEFORE EARLY NOVEMBER, when a peaceful revolution rocked this country, the environment was just one more skeleton in the political closet. Pollution, toxic waste, and acid rain were words that weren't part of any official lexicon. Although the air in much of East Germany is a direct risk to public health—as a result of poor emission controls on outdated industrial plants that burn brown coal—that fact was never publicly addressed. Levels of air pollution were treated as state secrets, and efforts to reduce them were at best half-hearted.

Now the environment in East Germany has come out of the closet. A visit to Leipzig and the surrounding region in December shows how rapidly the constraints have been lifted. Air pollution levels are published in the daily newspapers. Once-toothless watchdog agencies are laying plans to increase their power. Industrial firms are making ambitious plans to modernize equipment. They are also taking measures to cope with the environmental watchdogs and with the newly aroused public opinion—measures that include such things as hiring directors of public relations. If some of this has a Western sound, it doesn't appear to upset most East Germans, who blame the centrally planned economy for their country's creeping environmental disaster.

The new openness, along with an air of euphoria, were palpable when a Western visitor met with officials at the State Environmental Inspection Office in Halle, an industrial city in the southwest corner of East Germany. From closets (formerly kept locked) the officials retrieved colored maps showing in detail the very high levels of sulfur dioxide (SO₂) and particulates that prevail in some parts of East Germany. The combination of SO₂ and particulates, typical of coal-burning industry, is terrifically de-

structive: it results in particles coated with sulfuric acid, which wreak havoc on the respiratory system when inhaled, and in acid rain, which eats away forests and buildings.

On the maps, prepared by East Germany's public health authorities, the country's regions are shown in shades of red and green. Several industrial centers, including Leipzig, Halle, and Bitterfeld, show dull red, indicating average SO₂ levels greater than 375 micrograms per cubic meter and particulate levels greater than 1000 micrograms per



Dark satanic mills. A view of part of the Walter Ulbricht Works—a large petrochemical complex at Leuna, near Leipzig in East Germany.

cubic meter. In broad areas surrounding the industrial centers and covering about a third of the country the air is somewhat better—but it still holds more than twice the 80 micrograms per cubic meter of SO₂ and 75 micrograms per cubic meter of particulates that the U.S. Environmental Protection Agency has established as air quality standards. (Actual levels of these pollutants in the United States are well below the limits.)

The cause of all this air pollution is not automobiles. Most East German cars are old-fashioned and smelly, but there aren't many of them. Even to a casual visitor, though, the source of the pollution—industry—is obvious. At the Walter Ulbricht Works, a complex of oil refinery and chemi-

cal plants in the town of Leuna, about 25 kilometers south of Halle, the night sky flickers for miles around. The eerie illumination comes from the flares of burning waste gases. These flares in turn reveal trails of smoke from half a dozen stacks. Every year those smokestacks belch 146,000 metric tons of SO₂ into Leuna's air, along with 28,000 metric tons of particulates, leaving a coat of acidic grime on every exposed surface.

The air in Leuna typically contains 300 to 400 micrograms of SO₂ per cubic meter. When the weather is particularly bad, the SO₂ content can triple or quadruple beyond those levels, according to Dieter-Rainer Zocher, medical director of a general practice clinic in the town. This very high level of pollution has drastic effects on the health of the inhabitants: at any given time 60% of the population suffers from respiratory ailments. "We observe a continual lowering of the ages at which diseases occur in the population," Zocher says, "and an earlier and earlier end to their working life."

The situation of children, who suffer high rates of chronic bronchitis and conjunctivitis, is particularly bad. Indeed, Zocher believes "children under the age of 10 probably should not be allowed to live in this area." As a result of the depressing health picture, it is difficult to get doctors to work at Zocher's clinic. "Doctors are trained to cure sickness," he says. "They cannot stand the stress that comes from not being able to affect the root causes of illness here."

The problem in Leuna—and throughout East Germany—is the burning of brown coal containing high levels of sulfur. Four million tons per year are consumed at the Ulbricht Works for making synthetic gas, ammonium, and fertilizer from coal and crude oil. Brown coal is also the main fuel used in East Germany for heating homes.

Now, there are ways of reducing both SO₂ and particulate emissions from brown coal. Filters can trap particulates and scrubbers can remove sulfur-containing gas. But these methods haven't made much headway in East Germany. The state Environmental Inspection Office in Halle says that only 23% of East German plants that are officially required to install filters have done so. The filters are hard to get, because only one East German company makes them, and it prefers selling them to the West for hard currency.

In that respect the Ulbricht Works in

Leuna is better equipped than most East German factories. Its smokestacks have filters to trap particulates, and the plant operates a network of atmospheric monitoring stations nearby. Yet filters by themselves are clearly not a complete solution. For one thing, the filters at the Ulbricht Works operate at 97% efficiency, well below the 99.5% expected in modern coal-burning plants in the West.

Furthermore, the complex has no scrubbers whatever. The plant still uses Winkler generators, a technology developed in the 1920s for turning coal into gas, and, according to Horst Böse, the plant's director of research, it is not physically possible to add scrubbers to the older parts of the plant.

The reasons why big East German industrial complexes like the Ulbricht Works have not made more vigorous efforts to reduce air pollution are complex and deep-rooted, involving the weakness of government agencies and the system of central planning itself. Some of the difficulties of regulation by the environmental agencies became clear during visits to the Environmental Inspection Office in Halle, a 30-minute drive away. That office is responsible for monitoring the Ulbricht Works, but Richard Neuhofer, the office's director, says his inspectors are hopelessly overburdened: he has 16 inspectors to monitor developments at 705 industrial facilities. A single inspector is responsible for the entire Leuna complex—and handles several other plants as well.

But inadequate staff is not the only problem inspectors face. The entire system encourages industrial managers to ignore environmental laws that interfere with production. Accidents often go unreported. Recently, inspectors responded to complaints of an overwhelming stench coming from part of the Ulbricht plant. Receiving no cooperation from the plant's management, Neuhofer said, inspectors had to "struggle all the way through the plant" before they found the cause: a boiler full of amines (foul-smelling chemicals derived from ammonium) had burst, releasing tons of the chemicals into the plant's sewers.

Until now, management could afford to give short shrift to the government's environmental watchdogs. Although each plant has long been required to lay out a plan for reducing pollution, management has until now been able to violate the limits laid

down in the plan with impunity. All Neuhofer and his men could do was to levy fines against the firm—fines that amount to "mere pinpricks," says Neuhofer. In cases of gross negligence, individual managers can be fined as well, but the fines generally run only about \$200. Furthermore, it takes a week of an inspector's time to prepare the paper work necessary to justify the penalty. As a result, only five managers in the Halle region had to pay personal fines in 1989, a small fraction of the violators.

Even larger fines levied against the works itself don't carry much weight. Last year the Walter Ulbricht Works paid \$23.75 million for pumping sulfur and dust into the air and for dumping ammonium sulfate into the Saale River on which the plant lies. (That sum was calculated according to the foreign exchange rate used internally by the firm: \$1 equals 8 East German marks.) The fine is not insubstantial compared with the plant's gross yearly sales of \$750 million, but in the centrally planned East German economy



No smog here. In the mid-1960s Erich Honecker (wearing hat) came to Leuna to inaugurate a new section of the Walter Ulbricht Works.

fines lose their bite, since the plant does not operate to maximize profit but to fulfill a mandated production plan. Operating expenses come out of an account in the central government budget, and income is returned to the same account, which blurs profits and losses and reduces the motivation to cut costs by avoiding fines.

But times have begun to change in Leuna. According to Neuhofer, polluters will soon have to pay higher fines. Changes in the system could also make the fines more meaningful by preventing plant management from passing them along to the government in Berlin. Economic reforms now being contemplated would turn major enterprises like the Ulbricht Works into semi-

independent units, financing themselves from their own profits. To survive, those enterprises will be forced to modernize and cut costs.

These are not the only changes that are affecting the Ulbricht Works. Some of the shock waves from the country's political earthquake are also being felt there. Hundreds of officials formerly assigned to the plant to maintain "ideological purity" have now been reassigned. But even as the ideologues were leaving, a new post was being created: director of public relations. That post may have been created partly to deal with local political groups, who have been asking, with increasing insistence, when the plant was going to stop polluting the town's air.

The new public relations director will have some promising material to work with. Böse, the research director, who wears the pin of the ruling Socialist Unity Party on his lapel, recently commented on his plant's ambitious plans. Within 6 years management would like to replace the oldest brown coal furnaces, substitute a more efficient process of coal gasification for the Winkler generators, and build new waste treatment facilities, all at a total cost of more than \$500 million.

Where will the money come from? For immediate help, all eyes are turning to Bonn. On 13 December Klaus Töpfer, West Germany's Minister of the Environment, announced that his agency was considering 17 environmental projects in East Germany. These would cost West Germany about \$500 million, with East Germany kicking in an equal total. Among the 17 projects

was a liquid waste treatment plant for the Walter Ulbricht Works.

Although the help from the West German government is much appreciated, East German managers are also looking forward to a greater degree of economic self-sufficiency. In a few years the Ulbricht Works may be able to pay for some investments from its own profits. According to Böse, his enterprise has an annual net profit of \$75 million in its trade with the West, selling mostly petroleum products and fertilizer. Under the new economic reforms, private investors may buy shares in East German enterprises and get a share of the profits. Although the plant's profits will be taxed, what remains after taxes will stay in Leuna to be invested

as management decides. Under these rules, joint ventures with companies from the West are expected to become common, bringing in fresh capital.

A variety of pressures may help to ensure that some of that capital is invested in cutting down pollution. A recent public-opinion poll, the first carried out in East Germany with the help of Western pollsters, put the environment at the very top of the issues that concern the East German people; promises to protect the environment have become part of the platform of every one of East Germany's new political parties as they prepare for the 6 May elections.

It will no doubt take some time for these changes to be translated into political reality. As a result of decades of government repression, East Germany has no organized environmental movement, although it seems likely that under the newly relaxed conditions such a movement will develop rapidly. For similar reasons there are very few activist scientists, but some who toiled on environmental issues in academia are now taking important roles in the government.

For the moment the environmental policies of the central government remain in turmoil. The Minister of the Environment, Hans Reichelt, was recently replaced by Peter Dietrich of the Democratic Farmers' Union, one of the parties allied with the ruling Socialist party. Civil servants in the Ministry in Berlin say the future structure and responsibilities of their ministry are very much up in the air.

Indeed, nothing East German is certain these days. But the environment has clearly emerged from the closet, and is now caught up in political debate that has a distinctly Western flavor, mingling political parties, public opinion polls, public relations directors, fines for polluters, and the profit motive. And although some East Germans worry about exchanging the evils of socialism for those of capitalism, those worries apparently don't extend to environmental issues: there is a consensus that the Western countries have done better than those of Eastern Europe in protecting the environment.

During a long talk one evening with a top manager of one state-owned East German enterprise, he repeatedly mentioned the steps Western companies had taken to reduce emissions of harmful chemicals—steps his own firm had not bothered to take. At the end of the evening, after reciting his litany of failure, the manager concluded with disgust: "The system is useless."

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The Fluoride Debate: One More Time

A new study on cancer potential may revive arguments about the treatment of drinking water that began in the 1940s

THE 40-YEAR-OLD CONTROVERSY over the use of fluoride in drinking water threatens to erupt from dormancy this month as the government gets ready to make public new data on fluoride's cancer-causing potential.

Since the 1940s, sodium fluoride has been added to toothpaste and public water systems to prevent tooth decay. Opponents have resisted the practice as forced medication—or worse, as a poisonous conspiracy. They hope to use the new toxicology data to buttress their case.

The new animal studies, directed by the U.S. National Toxicology Program, have not been released. But already the word is out that some as yet ill-defined abnormalities have been spotted in one rodent species.

Public officials have known that trouble was brewing since August, when a memo from the office of Michael Cook, the chief drinking water official at the Environmental Protection Agency (EPA), noted: "Very preliminary data . . . indicate that fluoride may be a carcinogen." While EPA has not elaborated on the August memo, officials are bracing for intense publicity. Anti-fluoridationists have long argued (and have been ridiculed for arguing) that fluoride causes cancer. Now they may have a chance to score a few points, and they probably will not show restraint, even if the data are equivocal—as they probably are.

"My phone is ringing off the hook," says John Bucher, the reviewer at the National Toxicology Program who has the unenviable task of interpreting the data. The studies began under his direction in 1985, and he is scheduled to present the results to an in-house panel this week. A public hearing is set for 12 March. Bucher says: "The anti-fluoridationists have whipped the press into a frenzy," and reporters are calling every day, asking him to confirm that fluoride is a carcinogen. He firmly declines to comment.

Meanwhile, EPA—also under pressure to look at carcinogenicity—announced on 3 January that it will undertake a review of new fluoride literature to bring its standards up to date. The last review took place in

1986, when EPA set the maximum allowable concentration of sodium fluoride at 4 parts per million, four times the "recommended" amount that many towns use to prevent tooth decay. The agency found no risk of cancer or bone disease at that level, based on a review of the literature performed by then Surgeon General Everett Koop. The report's conclusions have since been challenged as being at odds with the concerns expressed in transcripts by his advisory panel members. A decision now to decrease the limit could be a blow to small communities where natural fluoride levels in water are high, requiring the installation of expensive filtration equipment.

More than half the children in the country now live in fluoridated water districts, and most dental health officials say this is why U.S. tooth decay rates have plummeted 50% in the last 20 years. However, if the new toxicology report triggers a change in policy, the entire scheme of fluoridation developed since 1945 could come undone.

"My God—you can well imagine the ramifications if we had evidence that fluoride was a carcinogen," says John Sullivan, deputy director of the American Water Works Association. "The toothpaste industry would go crazy," he says, not to mention his own colleagues in the water business.

Not only are fluoride's toxic effects getting a more critical look, but its benefits seem to be shrinking as well. Recent dental surveys show fluoridation to be less effective than was claimed in the past.

The anti-fluoridation lobby has been trying to draw attention to these issues since 1986, when EPA closed the books on its last review. The leader of their troops today is John Yiamouyiannis, director of the Safe Water Foundation of Delaware, Ohio, a professional "anti" and Ph.D. biochemist who has argued vehemently for years that fluoride causes cancer. He is well known to officers of the National Institute of Dental Research (NIDR), whom he routinely denounces as scoundrels. NIDR's press office responds in kind, pointing out that Yia-



Alexander Lowry/Photo Researchers