

**MICHIGAN
STATE
UNIVERSITY**



STATE NEWS

East Lansing, Michigan

Wednesday, April 22, 1970



Earth Day 1970

Schools join in Earth Day

By JACQUI MILLER
State News Staff Writer

Over 500 universities, colleges and high schools across the nation are participating in the nationwide Environmental Teach-In today, which has been declared Earth Day by President Nixon.

In Michigan, Gov. Milliken has declared this week Environmental Awareness Week.

The emphasis during the teach-ins at most of the universities is on informing the students of environmental problems and on bringing the issue into focus for the outside communities. The purpose of the teach-ins is to get people concerned about the problems of our environment.

MSU's Environmental Quality Group (E-QUAL) has films, programs and speakers scheduled through Saturday.

Highlighting the five-day project is "blight tour" of East Lansing which will point out some of the polluted areas of our community. Buses will be provided for the tour.

E-QUAL also is planning an environmental movie series.

Thirty-three lecturers,

environmentalists and biopoliticians from across the nation and MSU will be speaking during the teach-in. Among them are Stuart Udall, former secretary of the interior, Gov. Milliken, Sen. Philip Hart, Rep. John Dingell and State Rep. Jackie Vaughn.

Other prominent figures addressing MSU students are Dr. Cecil Wadleigh, director of soil

and water conservation research; Victor Yannacone, the Environmental Defense Fund lawyer who took the case against DDT to court in Michigan and Wisconsin, and Dr. Peter Mueller

of the California Department of Public Health.

Classes have not been cancelled today, but faculty members have been urged to either turn their class discussions to environmental issues or convene classes for appropriate lectures or panels.

Mike Freed, director of E-QUAL, said the problem is to force people to look at the future, not at what is happening now. He pointed out that conditions may be liveable at the present, but at the rate of environmental disintegration, the problem will become critical in a matter of years.

"The students are the watchdogs of our society," he said and it is the students who must bring the issue to the community. The first step is awareness of the issue and Freed added that "the people in Lansing don't understand the issue."

Other Big Ten universities also are planning large campus and communitywide programs for Earth Day. The University of Michigan held their main teach-in last month sponsored by the Environmental Action For Survival Committee (ENACT), but they are planning a few activities for today.

George Coling, a member of the ENACT steering committee, said their teach-in this week was to be "low-keyed and aimed at the community."

"The emphasis of the day," he said, "will be to use public transportation or walk. We're trying to discourage everyone from driving."

There is also a tentative power boycott scheduled from 5 to 7 p.m. today.

"The reason we choose 5 to 7 o'clock," Coling said, "is because this is the peak power time."

The boycott will be a protest against the use of power plants in the area, he said.

Coling said that now people know what the problem is and are asking what they can do to help.

Ohio State University has a wide range of activities scheduled for today in connection with pollution and environmental problems.

The day began with a "Rite of Spring" featuring poetry and folk music. Following the rite, a walk along the Olentangy River, which runs through campus, is planned and the pollution of local lakes and rivers will be discussed at that time.

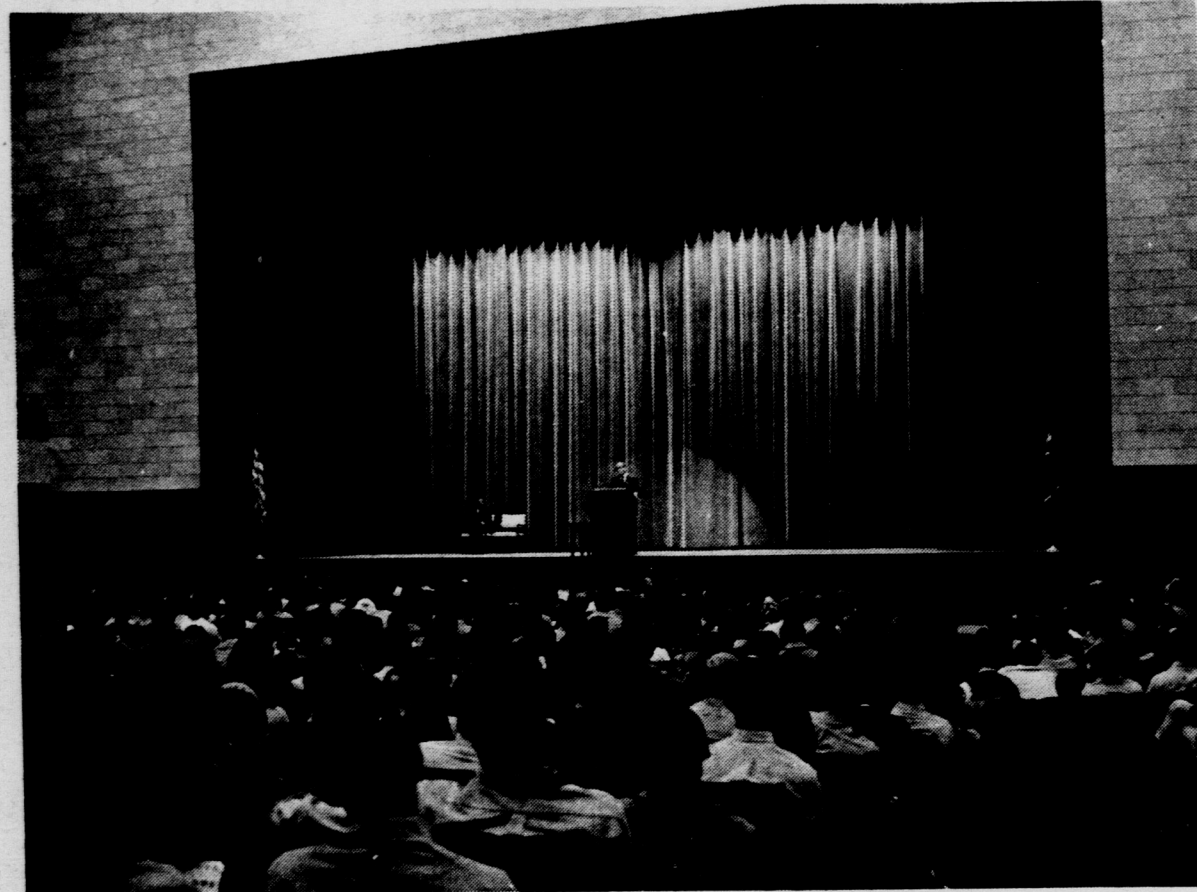
Speakers for the day include Mike Frome, the conservation editor of "Field and Stream" magazine, John Glenn the former astronaut, and Gerry Combs of the National Institute of Health.

Also planned at Ohio State are about 30 workshops on a variety of related topics and a panel discussion on "Cultural and Social Causes of Environmental Crisis."

The Environmental Teach-In at the University of Wisconsin, sponsored by the Earth Day Committee, is also aimed at the community.

"An effort was made," Carol Gann, E-DAY speaker ecology bills of rights, population controls, abortion committee director said, "to reoform. If you want a clean world, the only way to get it is to do it yourself."

(Continued on page 5)



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What you can do to battle pollution

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1. Boycott aluminum cans. America imports bauxite to make those cans — we haven't enough of this ore left. Neither will the rest of the world, soon. If you boycott for just a few months, you can ring about a drastic change in containers.

2. Don't buy plastics. They are made from coal and oil resources that can never be

replaced and are not biodegradable.

3. Take the less of two evils. Coated milk cartons, for instance, are almost as bad — but not quite — as plastics. The best alternative:

BUY ONLY DEPOSIT BOTTLES. Force the bottling industry to change back to returnable bottles. Throw away pollute!

5. SAVE A TREE: conserve paper. Don't put your garbage in grocery bags; return the bags to the store. Use scrap paper. Save newspapers and magazines for paper drives. Newspapers bring 40 cents per 100 lb., magazines 10 per 100 lb. from scrap — metal yards.

6. At the grocery store: LEAVE depleting resources in the store. Bring with you your own cloth bags for groceries and your own bottles for drinks. When you buy something super-leave the package in the store. Channel the garbage back to its source: such pressure may bring about efficient use of paper, plastic, trees, glass.

7. Recycle your garbage. Cans and glass can be sold. Bury organic garbage or make a compost heap.

8. CONSERVE WATER. Don't leave it running constantly while you shave, wash dishes, brush your teeth.

9. Don't drive when you can walk. Save the air.

10. Stop buying detergents with high phosphate levels.

11. Write ALL your congressmen in support of ecology bills of rights, population controls, abortion reoform. If you want a clean world, the only way to get it is to do it yourself.

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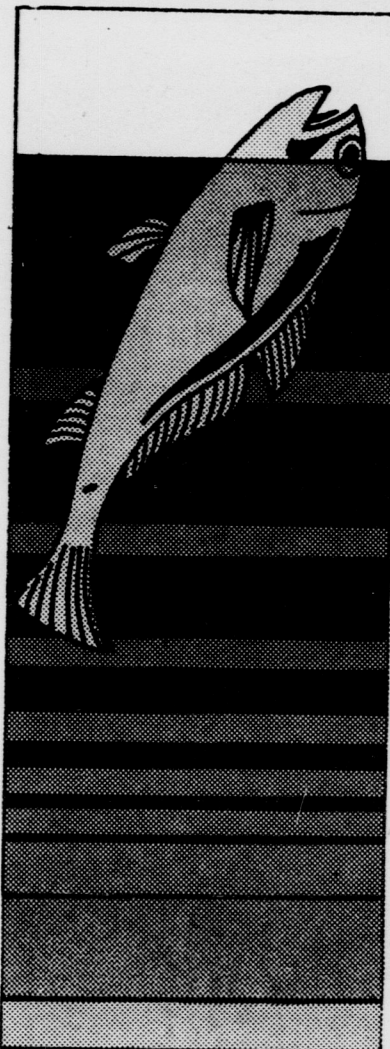
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Peaceful atomic energy most dangerous pollutant?

By THOMAS SPANIOLO
State News Staff Writer

Since the end of World War II, the contamination of our environment has progressed at an alarming rate. And perhaps the most dangerous of all the pollutants is radiation. Although nearly everyone is aware of the perils of nuclear fall-out as a result of atomic weapons, fewer



people know about the danger involved in the peaceful uses of atomic energy.

In order to accommodate the constantly growing demand for electrical power, nuclear reactors, capable of producing electricity in enormous quantities have been built on the shores of numerous lakes and rivers. But unlike their conventional counterparts, nuclear power plants require a tremendous amount of water for cooling purposes. After the water has been used, it is returned to the river, usually at an appreciably higher temperature. And this inevitably leads to a general rise in the temperature in the river or lake.

A sudden rise in temperature in almost any body of water can have a drastic effect on the ecology — the relationship of plants and animals to one another — of that body of water.

First, heat can have an important effect on the composition of water itself. Warm water holds less oxygen than cool water, and, if water becomes too warm, it can lead to the suffocation and death of fish. The case of the salmon, which is particularly sensitive to temperature changes in water, is a good example. The Pacific Northwest's Columbia River Basin, which is the site of a major spawning area for many salmon, is also an area of nuclear reaction activity. According to scientists, this activity will raise the water temperature to 85 degrees Fahrenheit, five degrees above the maximum temperature that salmon can tolerate.

Another effect abnormally high water temperature can have on fish is that it upsets their reproductive processes. To fish such as bass, trout, walleye and salmon, a disruption of the natural rhythm of seasonal variation of water temperature can disorient or even destroy their reproductive mechanisms. Still another negative effect unnaturally high water temperature has is its fatal results to unhatched fish eggs and young fish.

An additional danger arising from this increase in water temperature is that formerly dormant and parasitic organisms flourish.

However, the greatest danger posed by nuclear reactors, short of some type of explosion or natural catastrophe which would permit the escape of radioactive gases, is not thermal pollution but the waste disposal of radioactive material.

In a typical reactor, uranium fuel is concentrated in the core of the reactor. Intense heat is produced from the concentrated uranium which converts water into steam, and this, in turn, powers the electricity-producing turbines. But, in addition to the heat produced, it also produces radioactivity in the form of gamma, beta and X-rays.

As a result of the radioactivity, fuel tubes can become damaged, and the uranium fuel becomes contaminated by the fission products, and thus it becomes necessary to replace the fuel in the reactor's core. Generally, fuel replacement occurs when only a small percentage of the fuel is consumed. Then, the used fuel is removed and placed under water for several months to let some of the radioactivity

subside. The fuel is then shipped to a reprocessing plant where it is dissolved in acid. The radioactive solution is collected and boiled down to reduce its volume, and the resulting concentrate is stored in large underground tanks.

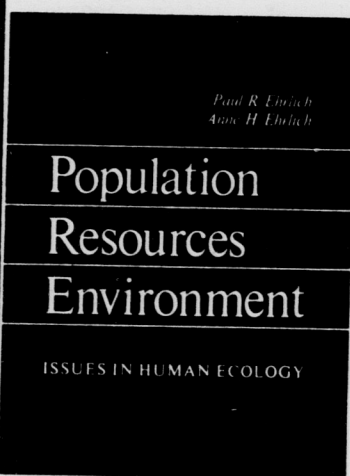
This process appears to be efficient and safe, but actually this is not the case. When the radioactive waste is removed, there is a certain amount of leakage which cannot be prevented. This leakage does not decay very rapidly and may remain for perhaps hundreds of years. To make matters worse, many of these released radioisotopes tend to concentrate in human and other organic systems.

Each year the amount of radioactive waste increases, and a single ton of fuel will produce anywhere from 40 to several hundred gallons of waste. It would take five cubic miles of water to dilute this fuel and the U.S. Public Health Service predicted that by 1995 there would be two billion gallons of this waste.

This waste fuel is so potent that there is no container capable of holding it for more than 20 years, which means the waste must continually be transferred from tank to tank, and the possibility of a mistake, which could easily result in the death of thousands of people, is enormous.

At the present time, there are two working reactors in Michigan. One is in the northern part of state near Charlevoix and the other is located at Lagoon Beach, about an hour's drive from Detroit. In addition, there are five others either being built or planned. The only other state to have more reactors than Michigan is New York.

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Man: the 'ultimate rapist'

By MARION WOWAK
State News Staff Writer

The clearest idea to emerge from our ecological crisis is that unless something is done, immediately, intelligently and totally, our entire society will be destroyed — and soon.

For those who do not feel particularly threatened by this idea, let me add that if we try hard enough, we'll take the possibilities of life on the continent (if really successful, the planet) with us.

Most people, however, know very little about pollution; consequently, they have very little comprehension of the full import of real eco-reform. Perhaps you're worried about the DDT in penguins or all your food intake or are upset about Gaylord Nelson's prediction that we'll run out of all metals within 75 years or don't like ghetto rats or drinking dilute chlorine instead of water.

A mere demand to "get rid of it" is inadequate. The ramifications of ecological reform are staggering. And unless one prefers multiple and inevitable pressurized death, one must be prepared to do everything necessary to preserve the planet.

The most stunning thing about eco-reform, once one gets beyond media horror stories about oil slicks or Lake Erie, is its complexity.

The problem, thus, stands as not merely one thing in the air or a few too many things in the water. It's not even just the air and the water and the soil. It's everything in our physical world. Man, particularly American man, is committing the ultimate rape: he's after mother earth. And, as if the problem of turning back the rapist isn't bad enough, everything has been rendered far more complex by the nature of the rapist. "We have found the enemy," Pogo says, "and he is us."

Incumbent to our multiple polluting is America's most important product: progress. Progress is the greatest clean-

cut, all-American concept our civilization has created. The idea of progress lies at the basis of our incredibly successful brand of capitalism: business enterprises and the nation flourish together when both aim together to properly progress. Our brand of progress means profit. And profit is best made by minimizing costs.

Garbage - dumping in the environment is quite noble under this scheme of things: look how using the river as a sewage drain saves cash! Progress.

Progress also means growth and lots of it. The more consumers, the better. Then we can have more industry which makes more all-American progress / profit, the making of which generates even more pollution.

Here, then, we see the second determinant behind the eco-crisis: volume. Any ecosystem can handle a small amount of abuse. But a massive, continuing and even accelerated attack cannot be coped with. The very nature of our existence offers such an attack. The attack cuts down in huge volume on every ecological front. Moreover, we believe that the conditions constituting such an attack - overpopulation, overconsumption - are essentially good.

The total problem, then, becomes not one of getting rid of one plant spray and a few types of containers. To deal with our environmental crises, we must wrestle with two devils: the manifestations of crisis themselves, as ugly water or mass starvation, and the outlook permitting such crises.

Examination of various facets of the ecology crisis, will bring further understanding of the various symptoms, infections and attempts at a cure behind such facets. Often, the proposed so-called cures are nothing more than a bigger dose of infection. But always the dual cause - volume and attitude - prevails.

Pesticides are the panacea of the eco-reform movement. Any

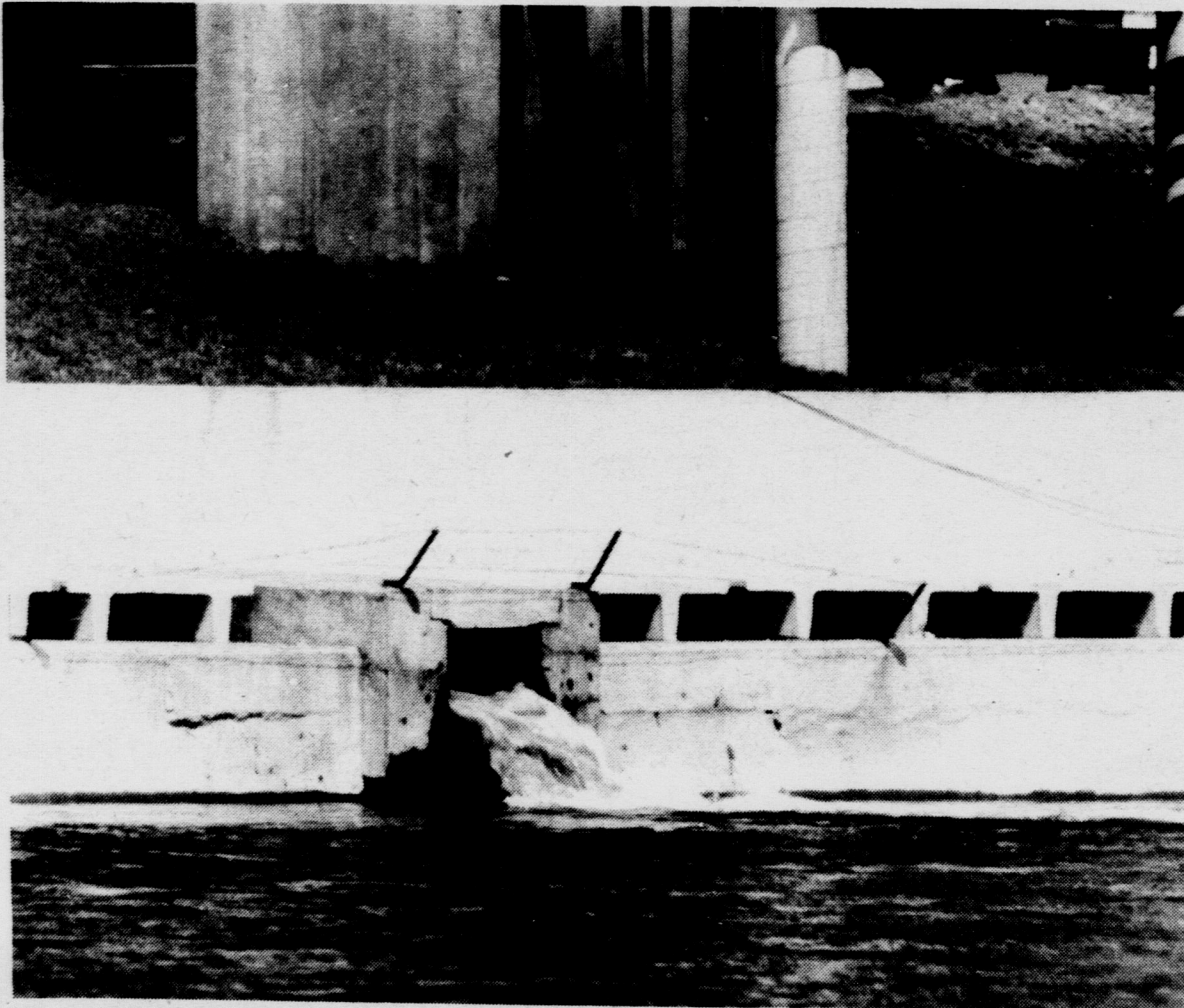
discussion of environmental decay inevitably belabors the topic of pesticide pollution to an incredible degree. Pesticides indeed stand as a significant problem and will be discussed here. The degree of danger, however, relative to the total pressure we face, deserves far less hysteria than has been generated.

DDT is the most popular supervillain of all pesticides. Its

persistently are the so-called "hard" pesticides like DDT that remain stable in the environment for years. DDT itself has a "half-life" of 15 years; that is, after 15 years half of a quantity of the chemical has degraded to a harmless state, after another 15 years half the remainder is gone, and so on.

DDT, like many hard pesticides, is everywhere in our ecology. It's carried in the air,

pervasion, or a recital of its effects seems to imply. Since it's incredibly stable and not easily eliminated from the body, it tends to concentrate in animal fat, most particularly in reproductive organs. DDT's interference with these organs has greatly magnified the list of endangered species. Yet man continues to use it, and pesticides far more dangerous, quite casually.



value in the past has undeniably been fantastic. An estimated 50 million lives have been saved in public health programs using DDT. The chemical, furthermore, serves an integral part in preserving human food supplies. However, the consequences of such preservation are phenomenal.

DDT, in short terms, has saved. But, over a long period of time, it maims and kills. The purpose of pesticides is, after all, to kill. Those that do so most

the water and in the soil's groundwater. Traces of it have been found in penguins in the Antarctic, although it's highly unlikely that Antarctic food crops have been sprayed extensively with that chemical. The average American carries 12 parts per million of DDT in his fatty tissues, or five ppm above the federal beef tolerance. But even such universal pervasion may not be of necessity dangerous. The real danger lies in malignant effects. What does DDT do?

It is known today that DDT causes severe reproductive failure in fish, shellfish and birds. Birds suffering chronic DDT poisoning lay thin-shelled eggs that either are crushed by the mother's weight or fail to hatch. Fish and shellfish larvae die in eggs before they hatch.

Again, the mortality rate among such fish as DDT-poisoned salmon is 10 times greater than normal. DDT reduces photosynthesis in algae, thus cutting down the vital process of oxygen reproduction. It also cuts growth and reproduction in plankton, the first link in the earth's food chain, by from 50 to 90 per cent.

Fish and birds exposed to "excess levels" of DDT or dieldrin, another hard pesticide, go into convulsions and die. One part of DDT to one billion parts of water (equivalent to five drops in the men's I.M. pool) kills blue crabs within eight days. When DDT levels in the brains of sunfish (a popular Michigan sport fish) reach nine ppm, they die in convulsions.

The effect of DDT is even more insidious than its universal

What effect does DDT have on humans? Average Americans, as stated, carry 12 ppm of DDT in their bodies. No immediate gross dysfunctions traceable to DDT have been noted in humans. Nevertheless, particularly considering the indications so amply afforded in nature, demanding we "prove it now" seem both childish and suicidal.

Only recently research has revealed connections between DDT tissue content in humans and cerebral hemorrhage, various carcinomas and stomach and liver disorders. Furthermore, the nature-indicated possibility of reproductive failure cannot be ignored (but ironically, in light of other environmental factors, might not be a bad thing.)

And DDT is not even the strongest or most persistent of the hard pesticides. Many of these pesticides pollute the world because American consumers have the most incredible cleanliness complex in the world. The affluent American housewife wants a spotless apple, and she'll pay the few extra pennies rather than eat a blemished one. That same housewife, however, hasn't realized that included in the cost of her perfect fruit is environmental pesticide and fertilizer pollution. The difference between a perfect fruit and a slightly damaged one is huge in environmental terms.

"There are many things worse than an apple with a worm hole," ecologist John Canton, MSU provost, says. "Like a brains of sunfish (a popular Michigan sport fish) reach nine ppm, they die in convulsions. food sense."

Again, progress is our most malignant product.



Purity goes down the drain

MARION NOWAK
State News Staff Writer

Water pollution is another notorious facet of the erosion of Earth's ecology.

The blight of the environmental garbage can that our waterways have become is quite all-American. Very few population centers in the United States are located far from a body of water. Most depend on such bodies for all their water; relatively few (the Lansing area included) depend on artesian wells.



The value of water in drinking, transportation and recreation is crucial to humankind, yet we literally treat water like garbage. The creation of garbage in the Great Lakes area exemplifies the all-American way.

The Red Cedar River is the most obvious and immediate erosion example of a beautiful natural resource. At one time the Red Cedar was a trout stream, clear, cold and fast-running. Gradual increases in industrialization and urbanization made the stream a dumping ground. Now, says a report of MSU's Water Research Institute, the river is "little better than a municipal sewer."

Municipalities along the river have just begun anti-pollution efforts in hopes of long-term purification. The Utilex ball-bearing plant at Fowlerville plans to install filtration equipment producing wastewater "so pure you could drink it."

If the Red Cedar is a municipal sewer, other Great Lakes rivers, like the Detroit and Cuyahoga, are far worse than gutters. The Detroit, a major accomplice in the murder of Lake Erie, carries into that lake 1.6 billion gallons of industrial and municipal waste daily. And the Cuyahoga in Ohio is so filthy it burns.

Then there is Lake Erie. This renowned body of crud stands as a manifestation of every factor contributing to water pollution in America today.

First, of course, there is the municipal and industrial waste flow from rivers like the Detroit. Industrial wastes from auto area factories are highly toxic and a threat in themselves. But the

worst threat and most successful poison is an odd perversion of the idea of enrichment.

Enrichment pollution occurs when a body of water is so filled with life-nourishing chemicals that it chokes to death from plant overgrowth. Enrichment pollutants include agricultural fertilizers and municipal effluents. The responsible chemicals in both cases are nitrates and phosphates.

Municipal effluents primarily generate from one source: detergents. Some enzyme products almost

Municipal effluents primarily generate from one source: detergents. Some enzyme products are almost 50% pollutant. Don't be fooled when the detergent package boasts "biodegradable." Since 1965, all detergents are biodegradable; in fact, the stuff making them non-soapy in a river is the same stuff producing enrichment pollution. Clean-cut America gets its whites whiter; it also gets its streams dead.

Fertilizers also contribute to dead streams. American agriculture today emphasizes ultrayields and perfect crops. The only way to sustain such super-production is by overapplying fertilizers. These fertilizers make American fields lush and continue their lush stimulation in rivers and streams.

In all, then whiter whites and perfect apples plus all-American progress mean strangulation. Lake Erie strangled from algae overgrowths; it may never be revived. Some scientists feel its nitrate cycle is too well established. The rest of the lake system fares similarly well.

Niagara Falls, honeymoon haven, now is losing its tourist business. It smells and looks awful. And the fault distinctly rests with the Americans: Although only 10% of the total Falls flows over the American side, this 10% carries 90% of the Niagara water pollution.

Two major pollution sources spew raw effluents into the falls here, and both are American: 500 yards above the Falls, a tunnel dumps 400 million daily gallons of industrial wastes, and the city of Niagara Falls vomits 70 million daily gallons of raw human sewage.

Lake Michigan is the most endangered of all Great Lakes

during the summer canning season. Cherry wastes are four times more toxic than raw human sewage. Moreover, only 25% of the wastes are processed at peak activity periods.

At Manistee, fish sometimes taste like kerosene. Used by paper mill manufacturers, kerosene has been a major water pollution problem for years. The

In fact, some ecologists already consider the south end of Michigan dead. Tributary poison is partially responsible, but the greatest deathblows of all have been rendered by such industrial centers as Gary, Ind. The job Gary started, with an assist from Chicago, may be finished with the completion of two nuclear power plants in the southern portion of the lakeshore. Both plants offer distinct potential for radioactive and thermal pollution of the ecosystem. Both plants are located in tourist resort areas; one of them, the Palisades Plant near South Haven, is located directly adjacent to a public beach.

Lake Michigan may well become the next Lake Erie. But the other Great Lakes are not far behind. Lake Superior, long considered the last holdout, already reveals marked evidence of ecological poisoning.

This death of all our lake system is not a cause for concern due to the potential death of a few birds or fish. Not just this lake system, but virtually every body of water at all significant to a community's existence, has become a garbage can. This condition is not merely Midwestern: It holds true across the country. Because anti-pollution installations cost money and cut into profits, the nation's lifeblood becomes more and more cancerous daily. We aren't just threatening robins, we're committing suicide. Water indeed can cleanse itself: But the process takes a very long time and requires no toxic overload. Our waters don't have the time but they certainly do have overtoxicity. And because of this, we may soon run out of time. Increased population demands and pollutes more and more water. We may find ourselves within a few years at the point where, while there is indeed enough water, none of it will be fit for consumption.

Universities

(Continued from page 2)

involve the community as much as possible."

The Teach-In at the University of Wisconsin is scheduled through Friday and some activities planned are a canoe tour of area lakes with biologists, a bike tour to "push" for more bike trails, a clean-up at the campus Union and an Earth Service at Picnic Point to "create a spiritual atmosphere for viewing the natural environment."

The main event was the Earth Day Rally Tuesday which featured Sen. Gaylord Nelson, Mike Gavel of Alaska, and Boyd Gibbons of the President's Council of Environmental Advisers. The theme of the rally was "Life Style on Trial: the Government and the Environment."

Miss Gann said that classes have not been cancelled for the Earth Day activities but that outside schools are being supplied by E-DAY with speakers on pollution issues.

As for campus participation, she said every department is doing something.



Unlike Erie, it is a cul-de-sac with no through-flow of flushing waters. Once Michigan dies, it has less of a chance for rebirth than even Erie.

Most of the rivers feeding into Lake Michigan are gutters. At Traverse City, various cherry canning companies dump cherry wastes into Traverse Bay

Manistee Lake, graced by two pulp and paper mills, daily receive four million gallons of mill effluent. Brine wastes are flushed regularly into the lake.

In all, Lake Michigan is seriously threatened merely by its tributary system. This threat magnifies with every industrial addition along Michigan's shores.



Dirty air lurks everywhere

By MARION NOWAK
State News Staff Writer

Air pollution from American technology blankets the earth; its effects are most heavy on the North American continent, particularly urban America. As previously mentioned, 60-65% of our air pollution comes from

warms it, but, rather than escaping into space it is trapped by the atmosphere. This effect occurs normally to a degree, but air pollution increases the amount of heat trapped. Hence, the prediction that earth's atmospheric heat is slowly increasing, leading surely to the

soon be sold without lead, since the new anti-pollution devices for cars don't function with lead-imbued gasoline. The chief danger of such an advertising idea is its popular exposure to a public used to believing in advertising: At a time when we are choking on a 12-strand rope,

is the only "one thing you can do," and too many Americans will come to believe the truth of this deception.

Another more traditional proposal for car exhaust cutbacks is faith in development of non-internal combustion engines. The worth of this idea is not as blatantly useless as the first. Nevertheless, it is not much better.

Initially, research in propelling cars with, for instance, electricity, has had little success. Models produced so far are most significant in their inconvenience: batteries fill the trunk and engine, they travel at an excruciatingly slow speed, and current electric cars constantly need recharging (or a very long extension cord).

Assume, however, that science indeed develops an adequate electric car. Electric cars need batteries, which must be made from lead. There is not, however, enough lead left in the earth to make a supply of batteries for all America's cars. Other metals may be substituted for lead — but there is not enough of them either, and even if there were, the air pollution produced by power plants recharging all those batteries would well compensate for the end of internal combustion. Again, the 10-strand rope. But this time we get a few more strands for the inconvenience.

The reform proposal most "attractive" to the auto industry concerns universal installation of anti-pollution filters on all cars. This cuts down on the volume of crud thrown into the air, right? That makes things a whole lot better, doesn't it?

Frankly, it doesn't. Once

again we're back to the old problem of overwhelming volume. An ever-accelerating number of cars (today's traffic-jamming number will double by 1980) is being driven, too many for any real change to be effected. So, car and oil industries profit from anti-pollution. And, since such equipment slashes gas mileage, the air gets fouler and fouler. (An interesting application of progress, eh? Profit from seemingly joining the ecology bandwagon, while not really changing a thing. Too bad the odor of money doesn't clean out the lungs.) Pollution car filters are another unfortunate panacea.

Electric cars won't succeed — too undeveloped, too potentially threatening to mineral resources, most of all too ironically air polluting. Exhaust filtration is at best stopgap, but most likely ineffective — too many people keep consuming more cars. There's simply too many.

And here we are again, back at the basic: there's simply too many. Too many people, drive too many cars that pass too much polluting gas. There is only one way to breath: Slash the volume.

The only honest method to cut the volume of car-produced pollution must emphasize overall reduction of the number of cars and the miles they are driven. Of course, you know that means mass transport, particularly in urban areas. Very few members of our society will voluntarily "submit" to such transport. This also means increased difficulty in getting a driver's license, with an increase probably in minimum age.



automobiles. Additional air pollution in urban areas is belched into the atmosphere via industrial smokestacks and from bus and plane exhausts.

Even considering seafood poisoning, air pollution is more of a direct health threat than water or pesticide pollution. While drinking water receives treatment for disease prevention, and while dangerously high bacteria level beaches are closed to the public, raw air cannot be closed to the public or chlorinated for safety.

Pollution-laden air is directly incriminated in causing or aggravating a variety of human diseases, particularly respiratory. Rates of deaths due to respiratory ailments are higher in heavily air-polluted vicinities. Respiratory infections are more frequent. Deaths from diseases such as lung cancer, emphysema and chronic bronchitis are as much as tripled in high-pollution areas.

The guilty gases include carbon monoxide, carbon dioxide, and sulfur dioxide, especially from furnaces and power plants, lead and many other sources.

Not merely our lungs are involved. Plants suffer from the gases, too. Many California redwoods are dying from the infamous California smog. Crop damage occurs nationally.

The sheer volume of air pollution we produce, some scientists say, quite easily could trigger drastic changes in the atmosphere of the planet. The "greenhouse effect" appears to be the most popularly expected eco-catastrophe: Heat from the sun enters the atmosphere and

melting of the polar ice caps, which in turn will inundate every major capital in the world.

Attempting to solve the air pollution problem automatically runs us up against the very factors behind air pollution: volume and attitudes. Autos do most of the polluting, and autos are an index of American industrial strength.

American industry, Paul Ehrlich points out, doubles every 13 years and is highly dependent on population growth and accelerating consumption.

"Industrial societies," he says, "serve the needs of industry rather than applying technology to man's needs. Man is expected to expand to serve industry without regard to the total ecology."

Auto factories, as I've said, pollute the air directly by making cars and indirectly when these cars are "consumed." Assume you want this disproportionate and overwhelming hazard cut down. What would be a sensible goal to strive for? Consider several alternatives and their ramifications.

One of the newest suggestions for slashing air pollution comes from the oil companies themselves. Several have recently begun to urge the public to cut air pollution by using their products. Certain gasolines, it seems, no longer contain lead. They are now referred to as "detergent gasolines."

Remember what detergents do to rivers? Lead, although indeed a factor in air pollution, is not the most dangerous chemical by a long shot. Furthermore, all gasolines will

we are offered the salvation of hanging on a 10-strand one.

Moreover, we are being heartily enjoined to believe this

Ecological imperialism threatens world's people

Three billion people exist on earth today.

Of these, only about 450 million can be said to live adequately, to eat well.

This luxury club occupies white European-based nations: Europe, Canada, America, Australia and New Zealand. Of these, America is, by far, the most affluent. We are startled that the rest of the world doesn't live by our standard of affluence, yet whether the world can afford it is questionable.

The remaining 2.5 billion persons can be said merely to exist. Their living occurs under conditions of underfeeding, malnourishment (a polite euphemism for slow starvation) or out-and-out starvation, leaching quality out of life. They live mostly in Asia, Africa and South America and are the victims of imperialism that is both economic and nutritive.

It is a startling, and perhaps delightful, thing to realize that through ecology one can fully prove those old radical rantings about U.S. imperialism.

America, with 6 per cent of the world's population, consumes a disproportionate amount of protein. We export

250 million tons of protein goods annually but at the same time import 350 million tons of various protein goods. These goods must be diverted away from hungrier nations to come here. And when they get here, they often are used absurdly. Five to six pounds of high-protein products, for instance, produces 2 pounds of high-protein meat. It takes six times as much ground to raise protein on the hoof as in the grain field. Not only are American cows, pigs and chickens better fed than American kids, they're better fed than anyone in the world. This abuse of protein supplies is termed the great protein swindle by Georg Borgstrom.

Nutritive imperialism is not the only brand we practice. America's affluent society absorbs more natural resources than any other. For instance with six per cent of the world's population, we use 55 per cent of its raw resources.

Obviously, then, we cannot expect the rest of the world to follow our standard of living: it is too exhaustive.

America thus threatens not just herself with her pollution, but through an ecological

imperialism justifying the dirtying of the air and the stealing of food resources, jeopardizes the closed-system spaceship that is Earth.

It is vital to remember that, with the miracles of modern chemistry, we have only managed to postpone Malthus' dismal theorem. We are reaching the limits of arable land, breathable air and drinkable water. At the same time, we've cut down the Malthusian controls on overpopulation: disease no longer is relevant as a population control, massive people-eradicating war will either destroy everyone or, more likely, never occur. All that remains is mass starvation, already taking over in such overpopulated areas as India, China and parts of Africa. Man has overpopulated to the upper limits. There are no fairy-tale myths to turn to — save depopulation.

Starvation is not the only catastrophe posed by overpopulation. We see the second variation on the theme of too many people: too much poison... America's vast but well-fed millions largely needn't fear starvation.

'Dollar pollution' can help

By ROBERT ROACH
State News Staff Writer

The current condition of the Red Cedar is the result of more than 100 years of pollution. Clifford R. Humphrys, MSU professor of resource development, said.

Emphasizing the economic aspect of pollution control, he added that he does not expect to

agricultural water supply, industrial water supply, aquatic life and riverfront property.

A lake or stream is damaged by premature aging known as eutrophication. This process occurs when large amounts of nutrients, primarily phosphates and nitrates, are present in waste discharges. They stimulate excessive growth of nuisance algae. Excessive plant growth limits the amount of oxygen a

Primary treatment is the basic process. Rural communities generally employ this system to replace individual septic tanks.

After sewers are installed, domestic waste is routed to a man-made pond. There, heavier waste materials settle to the bottom where they will decompose over a period of time. Clean water on the surface then flows into a nearby lake or stream. The settling, or sedimentation, is sometimes aided by the addition of chemicals. Compounds such as ferric chloride help to form larger waste particles which settle out more easily.

When primary treatment is insufficient, it may be supplemented by secondary treatment. This method employs living microorganisms which feed on and decompose waste impurities.

One such process is called the trickling filter system. After primary treatment, the waste water is routed into a cylindrical tank containing an eight-foot layer of rocks. These rocks are three to four inches in diameter and are covered with a biological slime. As sewage seeps through the tank, organisms in the slime decompose the waste material.

Tertiary sewage treatment provides further purification if necessary. In this phase, the

product of secondary treatment is sprayed over a bed of sand three feet deep. The water discharged through a bottom drain is extremely pure.

As improved sewage treatment techniques were developed and implemented, public demand for cleaner water accelerated. This resulted in positive action by governments at the state and local levels.

In 1965 the Michigan Water Resource Commission (WRC) was granted stronger regulatory and enforcement authority to combat pollution. In 1968 the state recorded the approval by a two-to-one margin of a \$335 million clean water bond issue.

In early 1968 the WRC met with similar agencies from Illinois, Wisconsin, Indiana and the Department of the Interior. This conference passed several recommendations to improve the water quality of Lake Michigan and its tributaries.

These recommendations provided for the following: phosphate content in all tributaries should be reduced by 80 per cent by the end of 1972; industries should provide their own waste treatment or connect with a municipal sewer system; septic tanks should be discouraged; and development of municipal sewage treatment should be encouraged.

The WRC prefers that industries and communities subscribe to these stipulations voluntarily. When cooperation is lacking the commission has court power to effect necessary corrections. It may fine industrial polluters \$500 for each day of an infraction. It may also force delinquent communities to issue court orders or general obligation bonds to finance construction of adequate sewage facilities.

In meeting the WRC recommendations voluntarily, the towns of Fowlerville, Webberville and Williamston have undertaken large financial burdens to clean up the Red Cedar. The Fowlerville industrial plant has done the same.

Tom Stock, plant engineer at the Utilex Division of Hoover Ball Bearing Co., said the plant's expenditures for waste treatment will result in a "water so pure you could drink it."

Fowlerville should be credited with considerable foresight in its program. In 1962 it implemented one of the first sewage stabilization lagoon systems in the country, employing a primary sedimentation treatment. The \$600,000 project was financed by increased sewage assessments and the first bond issue ever undertaken by the town.



see great improvement in the Red Cedar until more people realize and undertake the tremendous cost of correcting water pollution.

The communities of Fowlerville, Webberville and Williamston have realized the problem, however, and are undertaking large financial burdens to eliminate pollution. A retired widow in Webberville pays 15 per cent of her \$80 monthly social security check for sewage treatment. This is typical of the 5,000 up-river residents. The three towns soon will have spent over \$1.7 million for improved sewage facilities. Additionally, the only Red Cedar industry, a metal-plating plant in Fowlerville, has spent \$250,000 to meet pure water standards.

Pollution is seen by some people as an urgent environmental crisis and by others as a hot political bandwagon. We on the lower end of the Red Cedar often fail to see beyond our own Budweiser cans when the rational approach demands a wider vision. This approach requires consideration of pollution itself, of the corrective measures underway and of the cost involved. This view may evoke a better understanding of what is being done to the water before it passes under the Farm Lane bridge.

The Michigan Water Resources Commission, a seven-man panel of state officers charged with maintaining water quality, defines pollution as any waste discharge which is or may become injurious to public health, public water supply, recreation, fish and wildlife,

stream has available to aid decomposition of waste solids.

Waste elements fall into two broad categories: storm sewage and domestic sewage.

Storm sewage results from land run-off during spring and summer months. Automobile drippings from street and parking lot drains enter natural waters untreated. Storm sewage also includes soil elements washed directly into the water, a group of nutrients contributing to pollution, abundant in plants and fertilizers.

Domestic sewage, however, is the main concern in water pollution. This category includes both household and industrial wastes. They are high in phosphates, another harmful nutrient group. Detergents and human waste are primary sources of phosphates. Large industrial concentrations may exceed household phosphate output by a two-to-one ratio. Improved domestic sewage treatment, then, is essential to improving water quality.

Until recent regulation, rural household wastes were treated in often-inefficient septic tanks. Isolated industries were also known to discharge improperly treated wastes directly into streams. Current environmental concern has spurred implementation of refined sewage treatment techniques. To better understand these methods, the entire treatment process must be considered.

Domestic sewage treatment is designed to purify both household and industrial wastes. The terms "primary, secondary and tertiary treatment" designate progressive degrees of purification.

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Agencies strike at pollution

By LARRY LEE
State News Staff Writer

Michigan's battle against pollution of its natural resources continues to pick up steam as the executive and legislative

branches and other state agencies have expanded their efforts toward pollution abatement.

Gov. Milliken called on President Nixon last week for a four-point program to combat

mercury contamination in state water.

The mercury scare arose last month with the discovery of the substance in fish in Lake St. Claire and the St. Claire River.

Canada banned all sport and commercial fishing from the

waters and traced the pollution to a Dow Chemical Co. plant in Sarnia, Ont. After conferring with Canadian officials, Milliken banned fishing from the Michigan side.

Friday, he asked the federal government to:

— take the matter before science advisors and report their findings to the states.

— take action to halt mercury discharges throughout the country.

— give State Dept. assistance in expediting liaison with Canada on the questions of compensation, testing, dredging and other matters.

Meanwhile, the legislature is debating this week the "Environmental Protection Bill" that gives citizens the authority to sue industry or a state agency the authority to "protect the air, water and other natural resources of the state."

Debate quickly centered on the word "unreasonable" relative to pollution. The House Conservation Committee had altered the bill to permit the halt only of "unreasonable pollution" in order to win the endorsement of Gov. Milliken.

In an initial vote, a move to strike the controversial word from the bill failed by two votes.

Opponents say the word takes the heart out of the bill. Rep. Thomas Anderson, D-Southgate, author of the bill, called it a "legal cop-out for defense attorneys."

On other fronts, a General Electric plant at Edmore told the Water Resources Commission that it stopped discharge of waste material Friday after having been threatened Thursday with "immediate and appropriate action" by the Attorney General to stop all mercury discharges from the plant.

American attitudes need changing to halt pollution

By MARION NOWAK
State News Staff Writer

Coping with the problems of pollution inadvertently has widespread effects on American industry and technology. If our headlong rush to disaster is not halted, the rule of the lemmings will take over.

The number of cars driven, and the number of miles they are driven, must be controlled. Mass transits, particularly in urban areas, can afford us less air pollution, fewer traffic jams, fewer accidents. Since oil and cars are two mainstays of the American economy, we are all naturally in for an economic decline for this period. But this austere decline remains far preferable to death by strangulation.

To control water pollution we must do much more. Housewives can and must avoid high-phosphate detergents and enzymes.

Companies genuinely unable to afford pollution equipment, for instance, might receive government grants, tax breaks or long-term loans to install equipment. Those able but unwilling, similarly, might lose government contracts, pay a special "ecology tax," or face operational shutdown.

Technology as a whole must undergo drastic redirection if we are at all to survive. We do not merely need a slowing down to stop pollution. We must be prepared to handle the remaining problems of the entire crisis before they eradicate us.

We also need a program to provide food to hungry billions. America will not starve in the immediate future as much of the world will, but she will never be able to feed the rest of the world past its time of crisis. Paul Ehrlich proposes adopting the triage system to handle mass starvation.

When medical facilities on a battlefield are inadequate to handle the volume of casualties, these casualties are divided by medical personnel into three groups. In the first group are men who will get better whether they are treated or not. In the

second group are those who will die without attention, but recover if they receive treatment. The third group is soldiers who will die regardless of treatment.

Thus, when medical aid is limited, it is concentrated only on that second group. The others receive no treatment.

Countries who can afford to purchase food for their inevitably booming population can stand alone. Nations that need aid to live until they get "healthy" (Ehrlich proposes West Pakistan, a nation he says is beginning population control and agricultural development but faces catastrophe without aid in the interim) shall receive aid.

And what of that final category: The nation doomed to catastrophe? India, Ehrlich says is such a country. Her birth control programs are pitifully ineffective. Her food supply is incredibly short and she has been overpopulated to the point of mass starvation for years. If India is in the final category, Ehrlich says, "then under the triage system she should receive no more food."

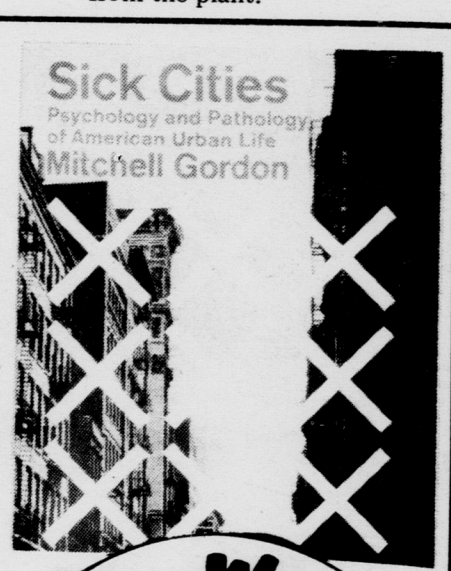
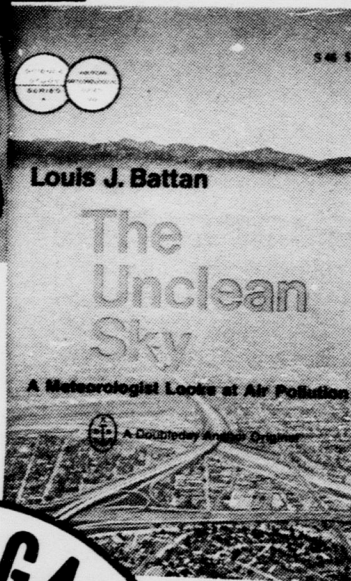
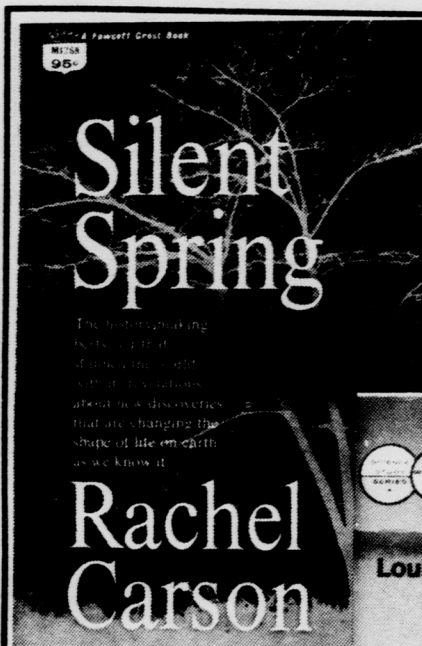
Cruel? Perhaps. But if India indeed is beyond cure and she does take food aid that will not stave off any crisis, what mercy has been performed? Not only does irreversible famine strike anyway, but the food shipped there is lost to nations in the second, crucial category.

The most obvious necessity we must enact has been evident from the start. Government-enforced population control is the most vital factor of all, on an international level.

Again, a system of incentives and constraints can easily be formulated. Easily available contraceptives, birth control information, abortions (they cost \$2 each in some communist countries), sterilization, both voluntary and compulsory plus economic sanctions against more than two children.

The idea of the city must inevitably evolve or change. We cannot afford to have concentrated groups of polluters living in a single area that is often untouchable arable farmland.

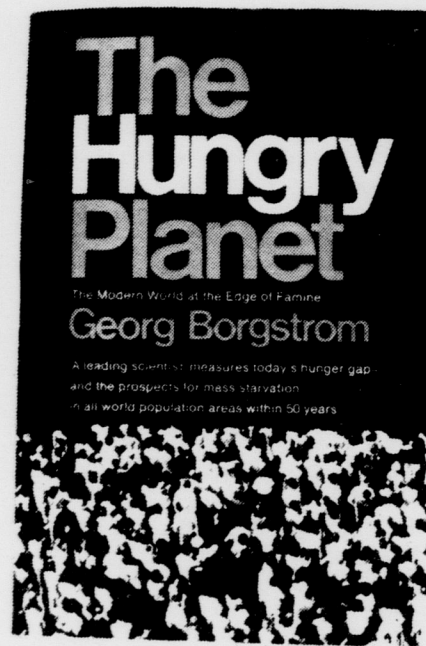
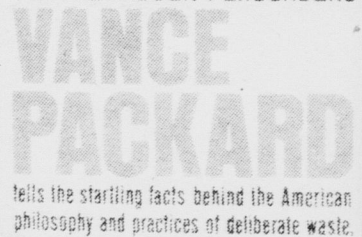
What ultimately must change is the American attitude toward living. It is unlikely that the average American will concern himself with such questions. Yet his outlook must be made to change, as must the lifestyle of earth's whole population. Our whole life effort faces incredible redirection.



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