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86 Buckingham Street
Cambridge, Massachusetts 02138
August 27, 1987

His Excellency Michael S. Dukakis
Governor of the Commonwealth of Massachusetts
Executive Office
The State House
Boston, Massachusetts 02133

Dear Governor Dukakis:

My concern with public health issues first caused me to run for City Council office in the City of Cambridge. My alarm at the rapid unchecked devastation of our environment has intensified my desire to take a turn in government affairs.

I have enclosed for your information, literature on a major global issue -- the hazards of plastic pollution. The nuisance and danger of plastics were evident years ago; still the industry has been allowed to proliferate instead of a calling for its demise. (Exh. A)

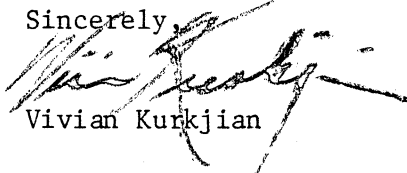
Common sense would dictate reducing plastic usage. Its alleged short-term convenience has caused the defiling of not only our entire planet but the atmosphere as well. It has created an unmanageable waste disposal problem. Think of all those frozen food trays! The polluting chemicals come from the manufacture, use, disposal and incineration of plastic materials. We are finally left with tons of toxic ash. All because people have become too lazy to wash dishes and the insistence of industry to promulgate a throw-away society. (Exhs. B, C, D)

No one yet has divined a finger to plug the holes in the ozone layer. It seems no great hardship to refuse to drink from a foam plastic (Styrofoam) cup. I have heard reports that adding lemon to hot tea in a Styrofoam cup forms a carcinogen yet there are no warning labels to that effect on container packages.

I am writing to ask you to declare a statewide emergency ban on the use of foam plastic packaging. Several cities have a ban on their use and Suffolk County in New York is considering one. I am hoping a grass roots boycott in Cambridge will induce local legislation. Surplus newspapers were once used as packing material; Styrofoam has replaced them and surplus newspapers have become a new problem. (Exhs. E, F)

I am also asking you to consider statewide policies on recycling and trash separation. Separating trash at household, office and industry levels would ease the hazardous waste problem. Eliminating the use of hazardous and toxic materials should be of the highest priority along with informing the public of what hazardous materials they are using and safe alternatives. Land is too precious to be gobbled up as landfills. In Cambridge, a hazardous household materials list was issued with our electric bills and in the local newspaper. Unfortunately, there is only one drop-off day a year. Perhaps we can benefit from Japanese methods of waste management. (Exhs. G, H)

Sincerely,


Vivian Kurkjian

Sept. 7, 1987
CC: Cambridge City Council, Cambridge Health Department, Cambridge Chamber of Commerce
Massachusetts Senate President, Massachusetts Speaker of the House of Representatives
Massachusetts Secretary of State, Senator Edward Kennedy, Senator John Kerry
Congressman Joseph Kennedy, MASSPIRIG, Jeremy Rifkin, Ted Koppel

(A) Plastic Pollution, Parks, (B) Inform Reports, C. Rynite (D) London Observer,
(E) Flyer, (F) New York Times, G., H. Inform Reports

To Cambridge City Council: I would like to see separate trash receptacles for bottles in heavily trafficked areas such as Harvard Square. People are constantly going through trash barrels for empty drink containers.

Felicia C. Coleman
and D. H. S. Wehle

Plastic Pollution: A Worldwide Oceanic Problem

EXH. A.
(FULL TEXT
ON REQUEST)

From Newfoundland to Australia, biologists studying seabird feeding ecology in the early 1970s started noticing an odd prey item in their subjects' diets: plastic. Their tales were soon joined by similar ones of plastic ingestion and entanglement in plastic debris, in a wide variety of marine organisms including fish off the southern New England coast, sea turtles off Costa Rica and Japan, and whales in the North Atlantic. At the same time, scientists conducting planktonic and benthic surveys in both the Atlantic and Pacific oceans found unprecedented numbers of plastic particles among their samples [Feder et al., 1978; Colton et al., 1974], and members of both Ra expeditions observed plastic pollution while crossing the Atlantic [Heyerdahl, 1971]. Plastic pellets washed ashore in New Zealand in such large quantities that some beaches literally seemed covered with "plastic sand" [Gregory, 1978]. By the close of the decade, a new problem had been added to a growing list of ecological concerns — plastics at sea.

Plastic shows up in the marine environment in two forms: manufactured pieces and raw particles. Those who frequent coastal regions are painfully aware of the prevalence of manufactured plastic litter along the shore. Most of this refuse is generated by transport, fishing, and recreational vessels. In 1975, the US National Academy of Sciences estimated that commercial fishing fleets alone dumped more than 52 million pounds of plastic packaging material into the sea, and probably lost more than 298 million pounds of plastic fishing gear, including nets, lines, and buoys [Merrell, 1980].

Raw plastic particles — the spherules, nibs, cylinders, beads, pills, and pellets (each about the size of a wooden match head) from which products are manufactured — enter the ocean via inland waterways and outfalls from plastic manufacturing plants. They are also lost from freighters during loading and unloading, and, upon occasion, are deliberately dumped into the sea.

However it manages to reach the sea, plastic debris is ubiquitous. It has turned up in benthic sediments along the industrialized coast of Great Britain in concentrations of 2,000 pieces per square meter [Morris & Hamilton, 1974]; near Auckland, New Zealand, at densities greater than 100,000 pieces per lineal meter of beach [Gregory, 1978]; in the Mediterranean Sea as enormous floating masses [Morris, 1980]; and in coastal regions of the United States, Portugal, Colombia, Lebanon, and such remote sites as the Aleutian and Galapagos Islands. Members of the Marine Resources Monitoring, Assessment, and Prediction Program (MARMAP) — a nationally coordinated program of the US National Marine Fisheries Service (NMFS) — found large quantities of raw plastics in the open ocean, particularly in the Sargasso Sea, an area in which floating debris is known to accumulate; this would indicate that winds and currents play an important role in distributing and

concentrating particles in certain oceanographic regions. Given the presence of plastic particles in the marine environment, it was only a matter of time before they turned up in the digestive systems of animals that forage at sea.

One of the earlier known occurrences of plastic ingestion was in 1962 for an adult Leach's storm-petrel collected off Newfoundland [Rothstein, 1973]. In 1966, researchers in the Hawaiian islands found plastic in the stomach contents of nestling Laysan albatrosses, indicating that the parents had picked up the plastic as "prey" and fed it to their young [Kenyon & Kridler, 1969].

As the data accumulated, certain patterns emerged: for example, in the Northern Hemisphere, North Pacific and North Atlantic procellariids (particularly shearwaters and fulmars) and North Pacific alcids (particularly auklets and puffins) contained more plastic material than other seabirds in those areas, including phalaropes, gulls, terns [Day, 1980]. To date approximately 15 percent of the world's 280 species of seabirds are known to ingest plastic.

While seabirds choose from a wide array of plastic objects during foraging (including raw particles, fragments of processed



photo by Charles O'Claire, NMFS

The death of this gull can be attributed directly to the plastic yoke from a six-pack of drink cans. These yokes are almost invisible in the water, and both divers and surface water feeders are particularly susceptible to such entrapment.

*These should
be outlawed*

*published by:
Intl. Union for Conservation of Nature &
Natural Resources*

At two meetings in December arranged by INFORM, visiting members of Japan's Plastic Waste Management Institute (PWMI) heard New York City and State officials express the growing concern in the U.S. about burning plastic waste which produces dangerous hydrogen chloride (HCl) emissions and, some believe, emissions of a lethal toxic, dioxin. In response, PWMI's

plastics be taken out of the waste stream and recycled. Voluntary civic groups have also done this in about half of Japan's 3,255 municipalities. But in recent years, he said, the costs of collecting the plastics and the technical problems in recycling heterogenous plastic resins have curtailed the official programs.

Today, Mr. Motonaga said, "Most of the municipalities have given up

landfills but only 10 percent accept unprocessed, raw wastes, and 351 of its 1,951 incinerators (which handle 67 percent of Japan's garbage) recover energy from burned garbage.

Some answers to queries at the meeting provided useful lessons for U.S. waste managers, e.g., in Japan some of the toxic ash residues from incinerators are first cemented permanently into blocks and then buried in landfills fitted with liners and leachate collecting equipment.

Over 40 Organizations

The more than 90 people attending this meeting reflected the swiftly mounting U.S. interest in garbage-burning problems. They represented over 40 local, state, national, educational, environmental and corporate organizations.

In addition to representatives of such familiar groups as the Environmental Defense Fund, the National Audubon Society and NYPIRG (New York Public Interest Research Group), the audience included six members of New York City's Department of Sanitation, four from New Jersey's Department of Environmental Protection, one member from Mayor Koch's office and another from the Queens Borough President's office.

Other members represented: Shorewalkers, Tow Boat Association, Protectors of Pine Oak Woods, Town of East Hampton, New York State Legislative Task Force for Demographic Research, Clean Air Council, N.Y. Institute of Technology, Environmental Risk Ltd., Kyodo News Service, League of Conservation Voters, Queens College Chemistry Department, the Association of N.J. Recyclers, Rockefeller Institute of Government and the Grass Roots Environmental Organization.

"Tickled Pink"

Others attending included those from several consulting firms and corporations. One of these, Mr. Mark Matsuoka, Executive Vice President of ITOH Takuma Resource Systems Inc., later wrote to INFORM that he found the presentation "fair, accurate and very informative," adding that "needless to say, we were tickled pink to have all the praises of what our people accomplished in Japan in the field of recycling. You had the roomful of audience totally absorbed. It was a great feeling."



Members of Japan's Plastic Waste Management Institute (PWMI) and other Japanese officials meeting with members of New York's Legislative Commission on Solid Waste Management (LCSWM) at the LCSWM offices in Albany.*

Executive Director Hidehiko Motonaga, said, "Your remarks remind me of Japan 15 years ago."

He explained his comment at the meeting he and other PWMI members had in Albany with Executive Director Gordon Boyd and the staff of New York State's Legislative Commission on Solid Waste Management (see photo). Back in the early 70s, Mr. Motonaga told them, Japan had two reasons to begin a concerted effort to remove plastics from the waste stream going to incinerators: "Because of our concern with toxic pollution and because of the damage to incinerators due to the high calorific value of the plastics." These can range up to 19,000 BTU per pound, 20 percent higher than coal

Recycling Reduced

After some of the older incinerators were damaged, he reported, many of Japan's major cities set up official programs requiring that

their [official] recycling programs because of the high cost."

Recommended Sit-Downs

At the meeting in New York City on December 3, PWMI members exchanged their garbage burning experiences with Deputy Commissioner of Sanitation Paul Casowitz and his staff. PWMI's Executive Director gave the Department of Sanitation some advice: "The best progress [in plastic waste management] is made," he said, "when those who manufacture plastics sit down together with those who use plastics and must dispose of them." Such get-togethers, Mr. Casowitz reported, had not yet been arranged.

However, Mr. Casowitz added, "We are very interested in learning from Japan about the recycling of plastics from the residential waste stream and what actions we in New York City might take to further recycling in this country." □

* From right to left: Mr. Randy Coburn, Research Economist, LCSWM. Mr. Stephen Wilson, Director, Scientific and Technical Studies, LCSWM; Dr. Eugene Salerno, Research Coordinator, LCSWM; Mr. Delino Bedinotti, DEC Division of Solid Waste; Dr. Allen Hershkowitz, Director, Solid Waste Management Program, INFORM; Mr. Gordon Boyd, Executive Director, LCSWM; Ms. Kelko Brenner, Interpreter; Mr. Hidehiko Motonaga, Executive Director, PWMI; Mr. Shiro Hamaya, General Manager of General Planning Dept., PWMI; Mr. Makoto Hiraoka, Technical Development Committee, PWMI; Mr. Masao Masuno, Deputy General Manager, PWMI Research and Public Relations; Mr. Goro Kaneko, PWMI Research and Public Relations Committee; Mr. Harumi Kinoshita, Director, Japan Pet Bottle Assoc.; Mr. Muneo Goto, Assistant Director, Japan Pet Bottle Assoc.; Mr. Michio Sato, tour guide.

JAPAN'S WASTES (cont.)

PLASTICS IN GARBAGE
 JAPAN - INFORM REPORTS
 1/15 87

EXH. B

EXH-D

British block world deal on pollution

BRITAIN is blocking international action to reduce the use of chemicals in aerosols and hamburger cartons — which threaten to change the earth's climate and damage its life-preserving ozone layer.

GEOFFREY LEAN, Environment Correspondent, reports on Government opposition to controls over everyday chemicals endangering life.

European Environment Ministers will decide this week what to do about chlorofluorocarbon (CFC) and halon pollution, which is rapidly emerging as one of the most serious threats to life on earth, amid growing pressure from East and West to make drastic reductions.

So far the EEC has insisted that it should go on producing the chemicals, used in aerosol cans and air conditioning, at present levels. This prevented agreement on cuts at a special international conference last month, and Dr Mostafa Tolba, executive director of the United Nations Environment Programme (UNEP), which organised it, has written to the European Commission urging a more positive approach.

Several EEC countries have announced that they want reductions and the commission says Britain is the only country opposed. The Government denies it is isolated in recalcitrance, but top interna-

tional officials insist its opposition is the major stumbling block to worldwide agreement.

The polluting chemicals are squirted from aerosol cans and are used to puff up plastic foam hamburger containers and other fast-food boxes. They cool refrigerators and air conditioning systems and are used in fire extinguishers and to clean computers.

One million tons of the chemicals are produced worldwide each year and they drift slowly and inexorably up to the ozone layer, which screens harmful ultra-violet rays from the sun, protecting us from skin cancers and other diseases.

The ozone is scattered between 15 and 30 miles above the earth's surface but so thinly that if it were compressed into liquid it would be no thicker than the sole of a shoe.

Two years ago British scientists, analysing data collected by balloon since 1957, found that an alarming 'hole' had opened up in the ozone layer over Antarctica. The

hole, which appears every September/October, had been growing for years and the evidence had been picked up by American satellites.

Unfortunately NASA's computers had rejected the evidence as 'incredible' and did not pass it to its human operators. It was not until the British Antarctic Survey's old-fashioned methods had found the hole that the satellite data was retrieved.

This showed that the hole had opened and spread with alarming suddenness since the end of the 1970s. It now seems to have stabilised, for a while at least, with the ozone at about 60 per cent of normal levels. But there is now evidence of lesser ozone depletion spreading well beyond its borders over South America.

Last year Swiss scientists reported that there might be another hole growing over the Arctic. They claim that the ozone has been thinned over northern Europe as far south as Switzerland.

These discoveries have added explosive fuel to an old

argument. More than 10 years ago scientists first suggested that CFCs used to propel aerosol sprays would damage the ozone layer. Though the theory was attacked at first — and is still not proved conclusively — most scientists now accept it, as does UNEP.

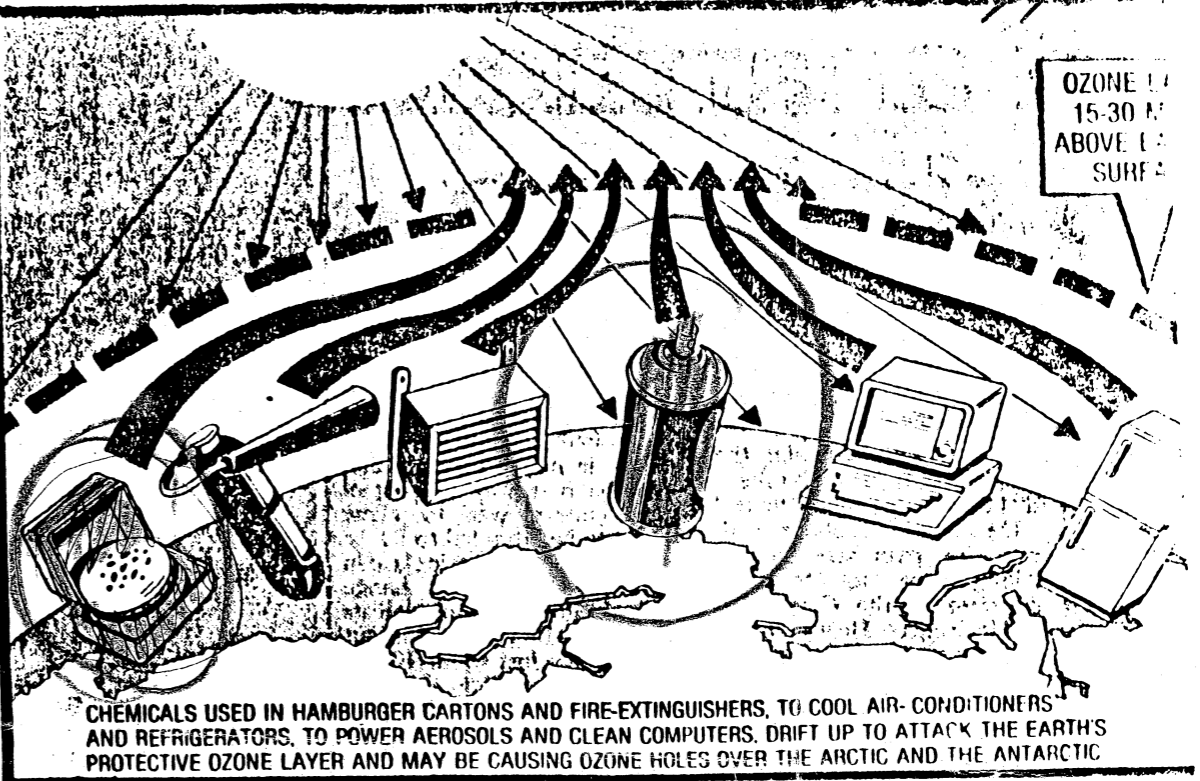
Some countries, including the United States, banned the gases from aerosols. However, other uses grow and other chemicals posing similar threats came on to the market.

The US Environmental Protection Agency estimated last year that there would be 40 million more skin cancers and 12 million extra eye cataracts in the US alone over the next 90 years if CFC emissions continued to grow at recent rates.

The extra ultra-violet radiation, it adds, could also lead to increases in hepatitis, herpes and the viral leishmaniasis diseases.

Yet such elaborate models of what could happen did not take account of what may be already happening, in the Antarctic hole. No one is yet certain that this is caused by man-made chemicals rather than natural fluctuations. But everyone agrees that, if it is, the world faces a global emergency.

These gases also increase the



'greenhouse effect' of the warming of the earth's atmosphere. CFCs are 10,000 times more effective at this, molecule for molecule, than carbon dioxide, the main culprit.

Scientists now accept that some degree of greenhouse effect is inevitable. The worse it is, the more coastal areas will be flooded as the seas rise, and the more harvests will be devastated as rainfall patterns change.

Two years ago UNEP succeeded in getting nations to agree to control the pollution by an international protocol.

but the details have yet to be worked out and it is here that Britain is holding things up.

Everyone agrees that the use of the gases must be cut back by 85 per cent if their levels in the upper atmosphere are to be stabilised because, once released, they remain there for more than 100 years.

The US wants to phase them out almost entirely. The Scandinavian countries and the Soviet Union want similar measures and such EEC countries as West Germany and the Netherlands also want big cuts.

Officially the EEC will

accept only a freeze on present rates of production, but this position is disintegrating under international pressure. Only Britain vigorously supported the freeze at last month's conference and, alone among EEC countries, it tried to stop proposals for cuts being put into the protocol for discussion.

One top international official said last week: 'Britain is being extremely difficult. It takes the hardest line of any nation in the world.'

The British Government insists, however, that it takes a middle position in the EEC

and says it do not accept production hampering that the evidence is stage.

This Waldegrave's ambivalent personally about the spent to persuade — and e groups — seriously. Only last

Meanwhile

EVH

McDEATH REDUCTION

THE GLOBE AND MAIL, THURSDAY, AUGUST 6, 1987

CANADA

McDonald's will scrap foam containers linked to ozone-layer damage

Staff and Associated Press

McDonald's restaurants in Canada and the United States will stop serving food in foam containers made with chlorofluorocarbons, chemicals that are destroying the Earth's ozone layer.

The world's largest restaurant chain announced the decision in Washington yesterday and a spokesman in Toronto said the Canadian division will follow suit. The containers are to be phased out over the next 18 months.

"We have made this decision with the full recognition that McDonald's packaging represents only a minute portion of total CFC usage," said Clifford Raber, McDonald's U.S.

vice-president of government relations.

"While our decision will not have any realistic impact upon the level of CFCs being emitted, we do believe it could be helpful in persuading others to make similar decisions," Mr. Raber wrote in a letter to Senator Robert Stafford (R, Vt.).

Last February, Mr. Stafford asked McDonald's to stop using containers made with CFCs, which scientists say are depleting the stratospheric ozone belt that helps protect humans from the sun's cancer-causing ultraviolet rays.

The decision affects 7,400 McDonald's restaurants in the United States and 525 in Canada. "We will

be following the same procedures that they will be following," Maureen Kitts, a spokesman for McDonald's Restaurants of Canada Ltd., said yesterday.

She said the decision to scrap the containers was made by the Canadian management team because "we're always interested in the best interests of our customers."

CFCs are used to create bubbles in foam materials and have wide industrial applications, such as refrigerants and solvents and especially in the production of computer chips.

Lana Ehrsam, a U.S. spokesman for the company, said McDonald's products would continue to be sold in foam packages, but the containers would be manufactured with hydrocarbon-based agents, which, she said, are considered environmentally safe by U.S. Government officials.

The decision will not affect prices, officials in both countries said.

"We don't anticipate any added costs to our customers," Ms Ehrsam said, and Ms Kitts said that if there is no change in prices in the United States, she does not anticipate one in Canada.

The changeover could eventually affect McDonald's outlets in other countries, where 1,475 of the chain's 9,400 restaurants are located.

"We're reviewing our international market on a country-by-country basis," Ms Ehrsam said.

Mr. Stafford, one of the leading environmentalists in Congress, hailed the decision, believed to be the first among the giant fast-food chains.

JUST SAY NO! ASK FOR A PAPER CUP OR CONTAINER

London

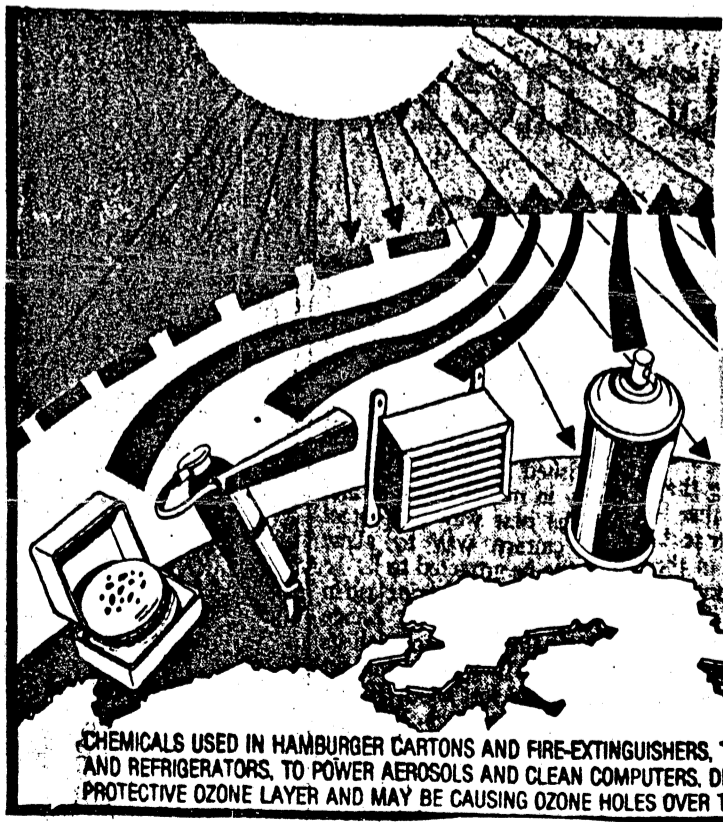
THE OBSERVER, SUNDAY 15 MARCH 1987

What to do about chlorofluorocarbon (CFC) and halon pollution, which is rapidly emerging as one of the most serious threats to life on earth.

The polluting chemicals are squirted from aerosol cans and are used to puff up plastic foam hamburger containers and other fast-food boxes. They cool refrigerators and air conditioning systems and are used in fire extinguishers and to clean computers.

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CHEMICALS USED IN HAMBURGER CARTONS AND FIRE-EXTINGUISHERS, REFRIGERATORS, TO POWER AEROSOLS AND CLEAN COMPUTERS, DEplete PROTECTIVE OZONE LAYER AND MAY BE CAUSING OZONE HOLES OVER THE

Some countries, including the United States, banned the gases from aerosols. However, other uses grow and other chemicals posing similar threats came on to the market.

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Suffolk Solid-Waste Bill Could Lead the Nation

By PHILIP S. GUTIS

Special to The New York Times

HAUPPAUGE, L.I., Aug. 18 — In the fast-food industry, they are innocently called "clam shells." But a majority of the Suffolk County Legislature considers them to be a nuisance or worse, and wants to ban them.

The clam shells — styrofoam containers that restaurants use to serve hamburgers, chicken and other fast-food fare — would be among the plastic products made illegal for packaging food in Suffolk County under a bill written by Steven Engelbright, a Democrat from East Setauket, and introduced with the support of 11 of his colleagues.

Mr. Engelbright said his bill — which needs 10 votes to win approval — is designed to both decrease the total amount of plastic in garbage and help create a recycling market by requiring restaurants to separate plastics from biodegradable waste.

"Clearly recycling is a goal that this bill is very much intended to move toward," Mr. Engelbright said.

Would Lead the Nation

Solid-waste management officials around the country said today that the Suffolk legislation would be the most far-reaching of its kind in the nation if it became law.

Representatives of the plastics and fast-food industries, gathering their forces to oppose the bill, are calling it unnecessary and discriminatory.

Clearly, however, both industries have taken notice of the Suffolk proposal — and similar ones in Berkeley, Calif., and Michigan.

"It is the Berkeleys, the Suffolk Counties, where this stuff takes off," said Jerry Powell, the editor of Resource Recycling, a magazine covering the recycling industry. "In that context, I can assure you that people are watching what Suffolk County is doing."

If approved by the Suffolk County Legislature, the plastics bill would not be the body's first ground-breaking environmental law. The Legislature has been in the forefront of nonsmoking legislation, bottle-return laws and bans on the use of certain detergents to preserve ground-water quality.

"At this time," Mr. Engelbright said, "after the floating billboard of the barge, it is not even a close call that we have an immediate, imminent need to move toward recycling."

Statewide, a bill that would have placed a maximum 3-cent tax on non-food and fast-food packaging languished in the Assembly Ways and Means committee after being approved by the Environmental Conservation Committee, said Gordon M. Boyd, the executive director of the Legislative Commission on Solid Waste Management.

The bill, which would have given a 1-cent credit for recyclable packages and another 1-cent credit if the package contained recyclable material, was designed "to make the packaging industry a demand center for recycling," Mr. Boyd said.

Biodegradable Packaging

In Suffolk County, rather than placing a tax on packaging, the proposed legislation would prohibit any retail establishment in Suffolk County from selling anything that wasn't wrapped or packed in biodegradable packaging.

Packaging, state officials say, accounts for about a third of the 18 million tons of garbage generated each year in New York. It would be defined in the bill as: all wrappings, adhesives, cords, bindings, strings, bags, boxes, containers and disposable plates, cups, eating utensils or drinking utensils. Bottles would be excluded from the

legislation, as would packages for raw meat or vegetables and medicines or medical supplies, Mr. Engelbright said.

McDonald's, which has 7,500 restaurants in the United States, is "concerned and watching," said Stephanie Skurdy, a spokeswoman for McDonald's. "Our position is that we just don't believe it serves a purpose to single out any particular type of packaging because there is a tradeoff with all kinds of packaging."

And Kenneth F. Lane, an official of the Society of the Plastics Industry, a trade group, said it is concerned about the proposal because it could become "precedent setting."

"I don't think the nation as a whole will drop to its knees because of what Suffolk County does," Mr. Lane said. "But the New York State Legislature certainly looks at initiatives that have been contemplated in Suffolk County."

And although plastic packaging accounts for a tiny portion of the \$138.5 billion plastics industry, Mr. Lane said the society is willing to fight the proposal because "we don't think the reasoning behind this thing is worthy."

"It's like changing desk chairs on the Titanic," he said, "it won't make much of a difference."

Mr. Engelbright, agreeing that this is a small portion of the entire solid-waste problem, said that "if we take on the entire recycling question instantly, we will not achieve our goal. But if we incrementally, in a measured way, move in this policy area, then I think we can solve the puzzle."

28.

S-533

Comm. from Vivian Kurkjian transmitting
literature Re: the hazards of plastic
pollution & requesting that a State-wide
ban be declared on the use of foam plastic
packaging.

In City Council,

September 14, 1987

Placed on File