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PROHIBIT CERTAIN NO-DEPOSIT, NO-RETURN CONTAINERS

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HEARING

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BEFORE THE

SUBCOMMITTEE ON PUBLIC HEALTH AND WELFARE

OF THE

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

HOUSE OF REPRESENTATIVES

NINETY-FIRST CONGRESS

SECOND SESSION

ON

H.R. 14863 and H.R. 17805

BILLS TO AMEND THE SOLID WASTE DISPOSAL ACT TO PROHIBIT THE USE IN INTERSTATE COMMERCE OF CERTAIN ALUMINUM OR NONRETURNABLE CONTAINERS

H.R. 18773, H.R. 18988, and H.R. 18999

BILLS TO REDUCE POLLUTION WHICH IS CAUSED BY LITTER COMPOSED OF SOFT DRINK AND BEER CONTAINERS, AND TO ELIMINATE THE THREAT TO THE NATION'S HEALTH, SAFETY, AND WELFARE WHICH IS CAUSED BY SUCH LITTER BY BANNING SUCH CONTAINERS WHEN THEY ARE SOLD IN INTERSTATE COMMERCE ON A NO-DEPOSIT, NO-RETURN BASIS

SEPTEMBER 18, 1970

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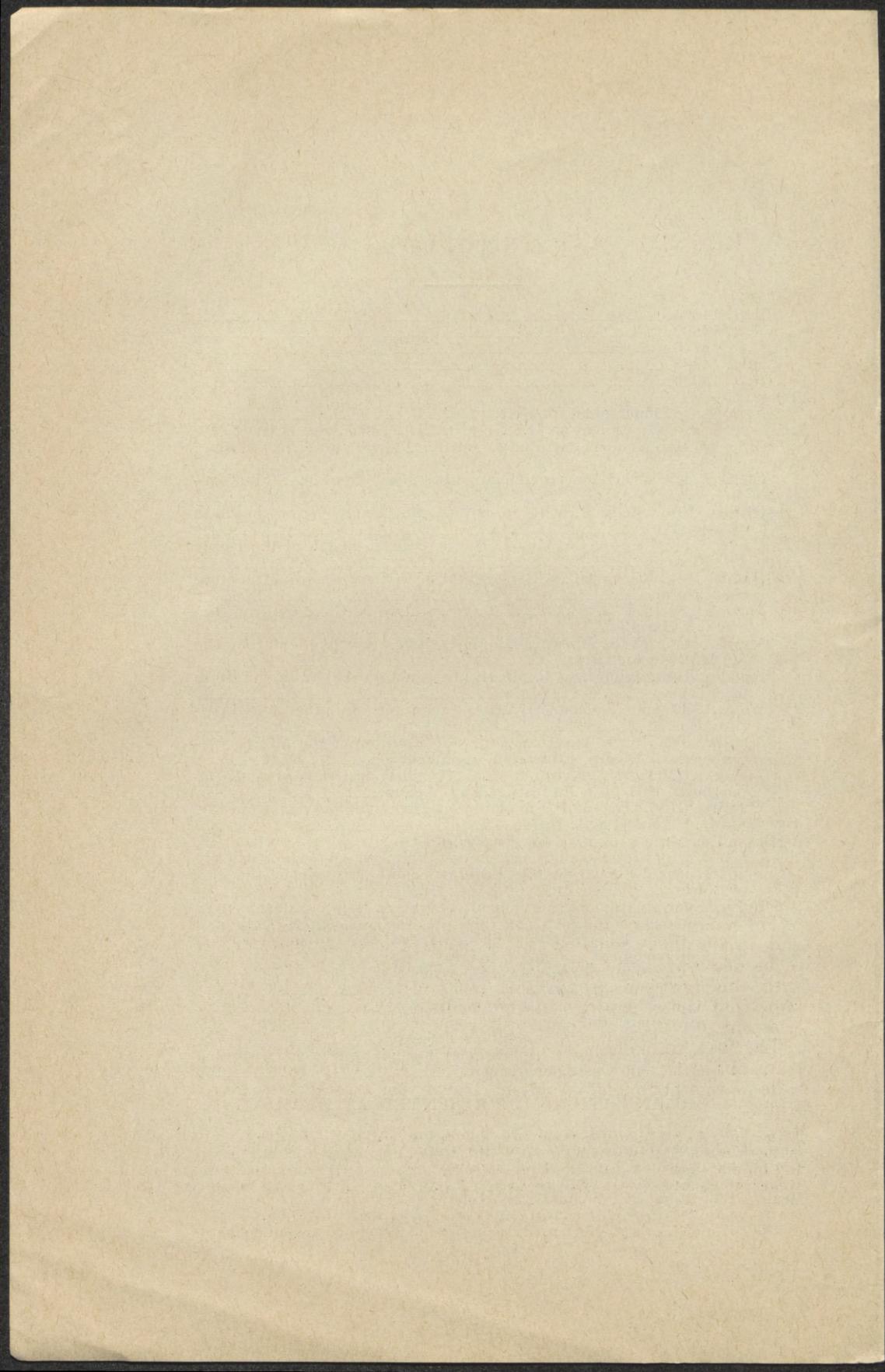
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Glass Container Manufacturers Institute, Inc.:
 Cheney, Richard L., executive director.
 Stewart, Eugene L., counsel.
Health, Education, and Welfare Department:
 Stelow, W. Roger, Director, Office of Environmental Affairs.
 Vaughn, Richard, Director, Bureau of Solid Waste Management.



PROHIBIT CERTAIN NO-DEPOSIT, NO-RETURN CONTAINERS

FRIDAY, SEPTEMBER 18, 1970

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PUBLIC HEALTH AND WELFARE,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met at 10:30 a.m., pursuant to notice, in room 2123, Rayburn House Office Building, Hon. John Jarman (chairman) presiding.

Mr. JARMAN. The subcommittee will please come to order.

This morning the Subcommittee on Public Health and Welfare begins hearings on a number of related bills: H.R. 14863, introduced by our colleague on this committee, Mr. Dingell, which would prohibit the use in interstate commerce of certain aluminum containers; and H.R. 18773, H.R. 18988, and H.R. 18999, introduced by Mr. Vigorito and cosponsored by a number of other Members.

These last three bills, which are identical in content, would prohibit the sale of nonreturnable glass, plastic, or metal containers used for packaging beverages.

The problems with which these bills seek to deal constitute special aspects of the solid waste disposal problem with which this subcommittee sought to deal in a general way in earlier legislation. This legislation has already passed the House and the Senate (H.R. 11833 and S. 2005).

The subcommittee is anxious to learn the views of the departments, agencies, and other interested parties concerning the manner in which the bills before us attempt to deal with this particular solid waste problem.

There can be no question that the littering of our highways, streets, and public places with bottles, cans, and other solid waste will have to be dealt with energetically. The question is which way of dealing with this problem promises a substantial measure of success. We hope that these hearings will contribute to answering this important question.

The first annual report of the Council on Environmental Quality transmitted to the Congress in August 1970, emphasizes the magnitude of this particular problem. The report states, on page 116, and I quote:

In 1969, 43.8 billion beverage containers for beer and soft drinks were made in the United States. If the trend of throw-away containers continues, by 1980, 100 billion of these bottles and cans will be produced and discarded every year. Beverage containers already comprise 3.9 percent of all collected refuse and the

number is growing at the rate of nearly 7.5 percent per year compared to four percent for all refuse. Bottles and cans constitute a major part of what is left in incinerators after burning. They must be hauled to land disposal sites.

Each year an estimated one to two billion glass and metal beverage containers end up as litter on highways, beaches, parks and other public areas. Severe penalties for littering have not worked in the face of rising sales of the throw-away bottle and can and strict enforcement of these laws has been difficult.

(The text of H.R. 14863, H.R. 17805, H.R. 18773, H.R. 18988 and H.R. 18999, and departmental reports thereon follow:)

[H.R. 14863, 91st Cong., first sess., introduced by Mr. Dingell on November 19, 1969]

A BILL To amend the Solid Waste Disposal Act to prohibit the use in interstate commerce of certain aluminum containers

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Solid Waste Disposal Act (42 U.S.C. 3251 et seq.) is amended by adding at the end thereof the following new section:

"ALUMINUM CONTAINERS

"SEC. 211. (a) No person shall manufacture for sale, sell, offer for sale, or introduce or deliver for introduction in interstate commerce any aluminum container for use in packaging or marketing any food or beverage for human or animal consumption.

"(b) Whoever violates subsection (a) of this section shall be fined not more than \$1,000, or imprisoned for not more than six months, or both.

"(c) The Secretary of Health, Education, and Welfare shall by regulation define the term 'aluminum container' for the purposes of this section. Such regulation shall be issued, amended, or repealed in accordance with the procedures established by section 701(e) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 371e). This section shall take effect upon the effective date of the first definition issued under this subsection.

"(d) For the purposes of this section the term 'interstate commerce' shall have the same meaning as that given it in section 201 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321)."

[H.R. 17805, 91st Cong., second sess., introduced by Mr. Gilbert on May 26, 1970]

A BILL To amend the Solid Waste Disposal Act to prohibit the use in interstate commerce of certain nonreturnable containers

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Solid Waste Disposal Act (42 U.S.C. 3251 et seq.) is amended by adding at the end thereof the following new section:

"NONRETURNABLE CONTAINERS

"SEC. 211 (a) No person shall manufacture for sale, sell, offer for sale, or introduce or deliver for introduction in interstate commerce any nonreturnable container of glass, plastic, or metal or any combination thereof, with respect to which no refundable money deposit is required from the consumer for use in packaging or marketing any food or beverage for human or animal consumption.

"(b) Whoever violates subsection (a) of this section shall be fined not more than \$1,000, or imprisoned for not more than six months, or both.

"(c) The Secretary of Health, Education, and Welfare shall by regulation define the term 'nonreturnable container' for the purposes of this section. Such regulation shall be issued, amended, or repealed in accordance with the procedures established by section 701(e) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 371e). This section shall take effect upon the effective date of the first definition issued under this subsection.

"(d) For the purposes of this section the term 'interstate commerce' shall have the same meaning as that given it in section 201 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321)."

[H.R. 18773, 91st Cong., second sess., introduced by Mr. Vigorito on August 3, 1970;

H.R. 18988, 91st Cong., second sess., introduced by Mr. Vigorito (for himself, Mr. Hosmer, Mr. Bennett, Mr. Rosenthal, Mr. Hays, Mr. Ottinger, Mr. Farbstein, Mr. Biaggi, Mr. Rodino, Mr. Rhodes, Mr. Moorhead, Mr. Hanna, Mr. Matsunaga, Mr. Olsen, Mr. Reid of New York, Mr. Hechler of West Virginia, Mr. Brown of California, Mr. Barrett, Mr. Bingham, Mr. Koch, Mr. Harrington, Mr. Morse, and Mr. Vanik) on August 13, 1970; and

H.R. 18999, 91st Cong., second sess., introduced by Mr. Johnson of Pennsylvania on August 13, 1970,

are identical as follows:]

A BILL To reduce pollution which is caused by litter composed of soft drink and beer containers, and to eliminate the threat to the Nation's health, safety, and welfare which is caused by such litter by banning such containers when they are sold in interstate commerce on a no-deposit, no-return basis

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) the Congress hereby finds that litter composed of soft drink and beer containers is a major source of pollution in all areas of this Nation, that the collection and disposal of solid waste composed of such containers impose a great cost burden upon the States and their political subdivisions.

(b) It is declared to be a part of the public policy of the United States that nonreturnable beverage containers on which no refundable money deposit is required from the consumer pose a threat to health, safety and welfare of individuals and environment in the United States, and that such containers, representing as they do a high cost in the form of litter and solid waste management, should be banned from circulation within and among the several States.

(c) It is the purpose of this Act to recognize and affirm this policy and to assist in preventing the use and circulation of the offending types of nonreturnable beverage containers by banning their shipment and sale in interstate commerce.

SEC. 2. (a) No person shall manufacture for sale, sell, offer for sale, or introduce or deliver for introduction in interstate commerce any nonreturnable container of glass, plastic, or metal or any combination thereof, with respect to which no reasonable refundable money deposit is required from the consumer for use in packaging or marketing any beverage for human consumption.

(b) Whoever violates subsection (a) of this section shall be fined not more than \$1,000, or imprisoned for not more than six months, or both.

(c) The Secretary of Health, Education, and Welfare shall by regulation define the term "nonreturnable containers" for the purposes of this section. Such regulation shall be issued, amended, or repealed in accordance with the procedures established by section 701(e) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 371e). This section shall take effect upon the effective date of the first definition issued under this subsection.

(d) For the purposes of this section the term "interstate commerce" shall have the same meaning as that given it in section 201 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321).

(e) For the purposes of this section the term "beverage" shall be defined by the Secretary of Health, Education, and Welfare but shall basically include beer, ale, malt liquor, and carbonated soft drinks of any variety.

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D.C., September 25, 1970.

Hon. HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives.

DEAR MR. CHAIRMAN: This is in reply to your request of November 20 for a report on H.R. 14863, a bill "To amend the Solid Waste Disposal Act to prohibit the use in interstate commerce of certain aluminum containers." The bill would prohibit the use of any aluminum containers for any food or beverage for human or animal consumption.

The Department recommends against enactment of this bill for reasons which are discussed below.

We are very much mindful of and concerned about nondegradable objects that are being widely and often promiscuously distributed in our environment. However we do not believe that it will serve the public interest to approach the overall solid waste disposal problem by prohibiting the use of aluminum containers for any food or beverage. Other effective and economic methods to accomplish this objective should be sought.

We believe that emphasis on recycling and reuse is the most effective way to deal with the problem of nondegradable containers in the environment. Research programs of USDA and cooperators include searches for materials that are readily degraded or recycled into use when discarded. In addition, ways are sought for processing discarded urban wastes to recover valuable agricultural and forestry raw materials.

We do not believe, however, that the problem of aluminum containers is so unique or serious as to warrant being treated apart from food and beverage containers of all kinds. Emphasis might better be placed on incentives to producers, distributors, sellers, and users to encourage recycling of such materials.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,

J. PHIL CAMPBELL,
Acting Secretary.

DEPARTMENT OF COMMERCE,
OFFICE OF THE GENERAL COUNSEL,
Washington, D.C., September 17, 1970.

HON. HARLEY O. STAGGERS,
*Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.*

DEAR MR. CHAIRMAN: This is in further reply to your requests for the views of this Department concerning H.R. 14863, a bill "to amend the Solid Waste Disposal Act to prohibit the use in interstate commerce of certain aluminum containers," H.R. 17805, a bill "to amend the Solid Waste Disposal Act to prohibit the use in interstate commerce of certain nonreturnable containers," and H.R. 18773, a bill "to reduce pollution which is caused by litter composed of soft drink and beer containers, and to eliminate the threat to the Nation's health, safety, and welfare which is caused by such litter by banning such containers when they are sold in interstate commerce on a no-deposit, no-return basis."

H.R. 14863 would prohibit the manufacture for sale or introduction in commerce of any aluminum container to be used for packaging or marketing of food or beverage for human or animal consumption. The Secretary of Health, Education, and Welfare would be required by regulation to define the term "aluminum container".

H.R. 17805 and H.R. 18773 would prohibit the manufacture or sale in interstate commerce of any nonreturnable container of glass, plastic, or metal or any combination thereof with respect to which no refundable money deposit is required from the consumer. H.R. 17805 would cover any container used in the packaging or marketing of any food or beverage for human or animal consumption; H.R. 18773 is limited to beverage containers. The Secretary of Health, Education, and Welfare would be required by regulation to define the term "nonreturnable container" for the purpose of these bills.

All three bills provide that any violation be penalized by a fine of not more than \$1,000, or imprisonment for not more than six months, or both.

The problems of litter and solid waste disposal resulting from the increasingly widespread use of nonreturnable containers are serious and not easily remedied. These bills represent certain approaches to dealing with these problems, and we support the general objectives of the bills. However, for the reasons discussed below, the Department of Commerce recommends against their enactment at this time.

Various pilot projects are being conducted to develop effective methods of recycling and reuse of waste materials. However, in its First Annual Report to the President of August 1970, the Council of Environmental Quality recommended that further efforts are needed by industry, private research organizations, and all levels of Government to develop programs for research and demonstration projects designed to improve: household sorting of waste; collection of waste products; and methods of recycling and reuse of waste materials. Such efforts are currently a matter of high priority in the activities of the Executive Branch, especially within the Department of HEW's Bureau of Solid Waste Management.

With more information available from such research and further analysis and recommendations for meeting the problems of solid waste disposal, we should be able to develop a comprehensive approach, including legislation which could best minimize solid waste pollution, while meeting other necessary objectives of minimizing costs, maximizing utilization of available resources, and meeting consumer needs as effectively as possible.

Until such information and analysis is available, we believe favorable action on H.R. 14863, H.R. 17805 and H.R. 18773 would be premature.

We have been advised by the Office of Management and Budget that there would be no objection to the submission of our report to the Congress from the standpoint of the Administration's program.

Sincerely,

WILLIAM E. MURANE,
Acting General Counsel.

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF MANAGEMENT AND BUDGET,
Washington, D.C., September 21, 1970.

HON. HARLEY O. STAGGERS,
*Chairman, Committee on Interstate and Foreign Commerce, House of Representatives,
Rayburn House Office Building, Washington, D.C.*

DEAR MR. CHAIRMAN: This is in response to your requests for reports on H.R. 14863 and H.R. 18773, bills which would ban the use in interstate commerce of non-returnable containers.

In recent testimony before your Subcommittee on Public Health and Welfare, a representative of the Department of Health, Education, and Welfare asserted that not enough information has been accumulated, nor have all factors bearing on the problem of container disposal been adequately considered, to warrant legislative action at this time. In this connection it was noted that, in response to the President's request that economic incentives and regulatory measures to promote recycling of wastes be explored, the container and packaging disposal problems are matters of high priority in the activities of that Department's Bureau of Solid Waste Management.

We agree with the bills' general objective of remedying the growing litter problem. In light of the foregoing points, however, we believe that enactment now of these or related measures would be premature. Accordingly, we cannot recommend the enactment of H.R. 14863 or H.R. 18773.

Sincerely,

WILFRED H. ROMMEL,
Assistant Director for Legislative Reference.

Mr. JARMAN. Our first witness this morning is our colleague from Pennsylvania, Congressman Joseph P. Vigorito.

It is a pleasure to have you with us.

STATEMENT OF HON. JOSEPH P. VIGORITO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA

Mr. VIGORITO. Thank you, Mr. Chairman, and members of the committee.

It is with pleasure that I appear before this distinguished subcommittee to testify on behalf of H.R. 18988, the legislation I introduced in the House to ban nonreturnable beer and soft drink containers sold in interstate commerce on a no-deposit, no-return basis.

It was most gratifying to see a broad recognition of the need for this legislation among my colleagues. Twenty-two of them have cosponsored this measure on a bipartisan basis. Furthermore, the bill has now been introduced in the Senate.

The need for the bill is obvious. According to one source, it is estimated that in 1970, Americans will consume more than 36 billion

nonreturnable soft drink and beer containers. Based on a conservative population estimate of 200 million, the average American citizen used 200 such containers annually. The problem is going to get worse in the years to come. The soft drink industry will produce 95 percent of all soft drinks in nonreturnable containers by 1975. The brewing industry will far exceed this pace by producing and retailing practically all its products in nonreturnables by 1972.

But statistics are only statistics. The whole problem of solid waste pollution is not only a practical one, it is also a moral one. It reminds me of a famous quotation by Henry David Thoreau: "If a man does not keep pace with his companions, perhaps it is because he hears a different drummer. Let him step to the music which he hears, however measured and far away."

The Congress, at this time in history, has the opportunity to march in the forefront and lead the Nation. It has that chance to be the different drummer. The drumbeat of history has pounded out a rhythm of pollution and litter that, if left unchecked, will bury us in our own negligence. The people of this Nation are waiting for the Congress to set the beat. They know that the war of litter is all around us. We are at war. It is up to the Congress to lead our citizens into battle.

Under the present waste disposal policy, all of these bottles and cans must be either crushed, buried or burned. This is becoming both impracticable and impossible. Just to collect and dispose of bottles alone costs the city of Detroit \$4,000 daily. Aside from this prohibitive cost, incineration of waste materials in such quantity is becoming unfeasible. In a typical situation where 1 ton of packaging material is incinerated, a residue of 705 pounds remains, of which 637 pounds, or 90 percent, comes from glass and metal containers.

The only solution that can be effective in halting pollution caused by beverage containers is to ban their sale as nonreturnables. The great volume of mail, telephone calls, and telegrams I have received since I first proposed this approach has been unbelievable. It shows that the average American citizen is concerned about our environment and that he recognizes nonreturnable bottles and cans are one of the prime causes of solid waste pollution.

There are many reasons favoring this approach. The first is that the natural resources of this Nation are not inexhaustible. Instead of throwing away glass bottles by the millions—and I may add there by the billions—we should be reusing them. We do not have endless reserves of aluminum to make aluminum cans. We must reuse and recycle these natural resources rather than waste them as we are at present.

A second reason favoring this approach is that it would save the consumer money by eliminating the cost of the container. It is estimated that Americans could save \$705 million per year if they purchased all soft drinks in returnable, money-back containers. If all beer were purchased in returnable, money-back containers, the consumer could save an additional \$800 million. Studies show that up to 22.5 percent could be saved if the consumer were to buy his beer and soft drinks in returnable containers.

Finally, by recycling our soft drink and beer containers, we would remove the blight on our roadways and countryside caused by bottles

and cans. We would hereby mark a vital beginning in an all-out attack on solid waste pollution.

Mr. Chairman, we will hear testimony presented before this subcommittee by those opposing H.R. 18988, reporting that consumers have demanded nonreturnables, thereby forcing bottlers to manufacture and sell them. The problem is, however, that tens of thousands of stores across the country have refused to handle returnables, finding nonreturnables more convenient. Thus, often the consumer has no choice but to buy beverages in nonreturnable containers. The popularity of returnables to the consumer was illustrated by a poll taken by the Minneapolis Star. Seventy percent of the persons interviewed said they favor a total ban on the noretturn bottle and can.

The beverage industries have a moral obligation to consider what happens to the containers which they make so easily disposable. Our Nation is demanding that industry halt the poisonous pollution of our streams and waters. Americans are demanding that industry halt the rampant pollution of the air we breathe. To the demand that polluters stop the desecration of our environment, we must add the demand that all of us halt the pollution of our countryside by returning to a recycled, money-back, returnable system.

Mr. Chairman, I would like to conclude my remarks today with a last quote from Thoreau:

Men will lie on their backs, talking about the fall of man, and never make an effort to get up.

We are fast burying ourselves in our own solid waste. Let us make an effort to get up before we cannot.

I would like to say thanks very much for this pleasure and honor of appearing before this committee to present my remarks.

Mr. JARMAN. We appreciate the gentleman being with us and leading off in this important hearing.

Let the Chair ask just one question, if he may.

In the last paragraph of the first page of your statement you refer to a saving to the consumer of \$705 million per year if they purchased all soft drinks in returnable money-back containers.

Then if all beer were purchased in returnable money-back containers, the consumer would save an additional \$800 million.

Could you indicate to the committee the source of these figures?

Mr. VIGORITO. Offhand, I cannot.

Mr. JARMAN. Is it just an estimate that you think is realistic?

Mr. VIGORITO. A pack of soft drinks would run 18 to 20 cents cheaper if you buy in returnable containers, disregarding, of course, the deposit on returnable containers. By multiplying that by the total quantity of consumption you can arrive at these hundreds of millions of dollars.

Of course, different sources come up with different amounts, but I think it is safe to say that we pay for the convenience of nonreturnables, but by going back to a returnable container we can save hundreds of millions of dollars even though it is very difficult to pinpoint the exact amount.

Mr. JARMAN. Mr. Hastings.

Mr. HASTINGS. I have no questions, Mr. Chairman.

I would like to compliment my neighbor to the south of me in Pennsylvania for his presentation on this legislation.

I am not convinced at this point it is a total answer. I think, however, it is one of the viable alternatives that has been introduced and I think this subcommittee certainly will look at it with a great deal of interest.

Mr. VIGORITO. Thank you.

Mr. JARMAN. Mr. Rogers.

Mr. ROGERS. Thank you very much.

I think your statement was excellent. I think you express the concern of the American people.

This committee, as I am sure the gentleman knows, has already passed out a solid waste disposal bill but not breaking it down into specifics as this bill begins to address the problem.

For instance, disposable and nondisposable bottles. I think we do need to point up this problem.

I am delighted that the gentleman has appeared and made an excellent statement.

Now, I am concerned that the Senate bill on disposable waste is a very weak bill and does not address itself to the problem of beginning to handle the solid waste disposal problem in this Nation as the House bill does.

When we go to conference, which I hope will be next week, I hope that the House can begin to get the Senate to recognize this problem, which it has not yet. I think this is another effort to do this and I think it will be helpful to us in the overall problem of trying to reuse these wastes that we must find some way to recycle, otherwise, as you say, we will just be covered up to our necks in it.

Thank you.

Mr. VIGORITO. Thank you, Mr. Rogers.

Mr. JARMAN. Thank you, Mr. Vigorito.

We have a number of Congressmen who wish to make a statement for the record this morning.

The next statement is by the Honorable John J. Rhodes, of Arizona. Welcome, sir, please proceed.

STATEMENT OF HON. JOHN J. RHODES, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. RHODES. Mr. Chairman, as one of the sponsors of this legislation to prohibit "nonreturnable" containers from interstate commerce, I appreciate this opportunity to address you in support of H.R. 18988 and its companion bills.

Recently I received a letter from one of my constituents. The letter described the disgraceful piles of used cans and bottles the Labor Day crowds left at Coon's Bluff, a very popular recreation area on the Salt River in Arizona. Of course, this letter pointed to but one small instance of solid waste pollution and yet it was a valid example of one of our grave ecological problems.

Commercial recycling of such containers would be a sound, positive step toward cleaning up this type of solid waste, and preserving public convenience without suffering esthetic outrage and ecological damage. This is why I support the bills before you today. In his message to the Congress on the environment on February 10, 1970, President Nixon pointed out that as we look to the long-range future ". . . recycling of materials will become increasingly necessary not

only for waste disposal but also to conserve resources." Nonreturnable containers are not only a part of ugly accumulations, they are a major burden on local sanitation services, a drain on the country's natural resources and in many instances, a threat to public health. Their convenience factor seems to be far outweighed by the long-range problems created, unless recycling is instituted.

Our entire environment is suffering from the grave malignancy of pollution. The legislation before you is not a cure; however, it is a necessary part of our overall effort against this menace. I therefore strongly urge the enactment of this piece of legislation.

Thank you, Mr. Chairman.

Mr. JARMAN. Thank you, Mr. Rhodes.

Next we shall hear from the gentleman from New York, the Honorable Jacob H. Gilbert.

STATEMENT OF HON. JACOB H. GILBERT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. GILBERT. Mr. Chairman, I welcome the opportunity to testify before your subcommittee on a bill I consider to be of highest importance to the people of this Nation, prohibiting no-deposit, no-return containers in interstate commerce.

I have submitted a similar bill, H.R. 17805, which would totally ban manufacture or sale in interstate commerce of nonreturnable containers made of metal, glass, plastic or any combination of materials. Under the bill, the Secretary of Health, Education, and Welfare would have the responsibility for enforcement of the act. Conviction of violation would be a \$1,000 fine or imprisonment of not more than 6 months, or both.

I believe this bill should be passed promptly by Congress because it has become evident that no-return containers are to a great extent responsible for the litter along our rivers, parks, and roadways. I believe the Federal Government must take the initiative against pollution and the best way is to prevent these containers from being manufactured in the first place.

This bill would increase slightly the cost of manufacturing containers and the cost would go right down the list of handlers. The savings then would be realized right back up the list when the bottle is returned. That way everyone becomes interested in keeping these containers from being thrown away.

These proposals have a firm record of support from the citizens of this Nation. Our citizens have lived with litter far too long and they are sick to death of it. I would refer to a poll taken last April in which 70 percent of the persons interviewed said they favor a total ban on no return bottles and cans. A large majority of those questioned also said they are willing to return bottles to the store for use later.

Almost nine out of 10 said they would be willing to return bottles and cans for reuse rather than throwing them out. Eleven percent would be unwilling and 1 percent was undecided.

It is estimated today that over 36 billion soft drinks and beer are sold annually in throwaway bottles and cans. That is a lot of potential litter. If all of these soft drinks and beer were purchased in returnable, money-back containers, the total savings to consumers is estimated at more than \$1.5 billion, a sum that could go toward

financing the program proposed to clean up our environment. The crusade for a cleaner environment suggests, however, that the Glass Container Manufacturers Institute has launched a \$7.5 million ad campaign to promote throwaway soft drink bottles among teenagers.

A survey taken for the National Wildlife Federation found that nearly all of 1,500 people questioned were willing to have the Federal Government spend more on natural resource presentation—but two-thirds said only if the money is raised by cutting other outlays. Even an annual cost rise to \$20 per year per taxpayer won approval of only 55 percent of those questioned. The \$1.5 billion savings on returnable containers is equivalent to \$25 for each of our 60 million families and we will be getting rid of approximately 800,000 large-sized trailer loads of trash, bottles and cans. Mr. Chairman, I think the imagery of 800,000 large-sized trailer loads of trash should be argument enough for passage of this bill.

Let us briefly look at other statistics which are nearly as overwhelming. According to W. Roger Strelow, Director, Office of Environmental Affairs, U.S. Department of Health, Education, and Welfare, beverage containers alone in 1969 comprised 3.9 percent of all collected waste in this country. It cost the public \$176 million to dispose of these containers last year. It would be so much better, I think, Mr. Chairman, if the \$176 million had been spent in the fight against pollution, rather than simply in a vain attempt to keep pace with it.

I do not want to burden the subcommittee needlessly with statistics. I believe the argument is clear-cut for this bill and I believe it should be passed by the House as quickly as possible. We are elected officials of this country and if we are to act as responsible representatives, we will act promptly in a cause which only has the public good at heart. I would hope that Congress will reject the overwhelming and sophisticated campaign by the special interest groups to maintain the status quo, and will respond promptly to the dictates of its conscience.

Thank you.

Mr. JARMAN. Thank you, Mr. Gilbert, for sharing your views with us today.

Mr. GILBERT. Thank you, Mr. Chairman.

Mr. JARMAN. The Honorable F. Bradford Morse, of Massachusetts, is our next witness. Proceed as you see fit, sir.

STATEMENT OF HON. F. BRADFORD MORSE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MASSACHUSETTS

Mr. MORSE. Mr. Chairman, I am pleased to have this opportunity, as a cosponsor of H.R. 18988 now being considered by this subcommittee, to express my strong support for legislation aimed at combating one of the greatest threats to our environment—the mounting problem of solid waste.

One of the most serious consequences of the place that convenience has come to hold in our national values, our increasing population and the accelerated pace of technological innovation in this country is that we now face the risk of being overrun by our own refuse.

As the Council on Environmental Quality has stated in its first annual report:

The growing technology and affluence of American society have laid a heavy burden on solid waste facilities. Refuse collected in urban areas of the Nation has increased from 2.75 pounds per person per day in 1920 to 5 pounds in 1970. It is expected to reach 8 pounds by 1980. This spiraling volume of solid waste has a changing character. The trend toward packaged goods in disposable containers has put more paper, plastics, glass and metals instead of organic matter into the refuse. And technology of solid waste collection and disposal has not kept pace with this change.

About throwaway beverage containers the report says:

In 1969, 43.8 billion beverage containers for beer and soft drinks were made in the United States. If the trend to throw-away containers continues, by 1980, 100 billion of these bottles and cans will be produced and discarded every year. Beverage containers already comprise 3.9 percent of all collected refuse, and the number is growing at a rate of nearly 7.5 percent every year—compared to 4 percent for all refuse. Bottles and cans constitute a major part of what is left in incinerators after burning. They must be hauled to land disposal sites. Each year an estimated 1 to 2 billion glass and metal beverage containers end up as litter on highways, beaches, parks and other public areas. Severe penalties for littering have not worked in the face of the rising sales of the throw-away bottle and can, and strict enforcement of these laws has been difficult.

Not only does the litter constitute a blight on the appearance of many of our parks and other places of recreation, but discarded broken containers present a serious health and safety hazard. Indeed, what family has not suffered a child whose foot or hand has been cut on broken glass while playing on a sandy beach, or experienced the inconvenience of a flat tire due to glass fragments on the road? In addition, the collection and disposal of solid waste composed of such nonreturnable containers imposes a growing financial burden upon our States and municipalities.

Although I am hopeful that we will see greater progress in the development of new methods for the collection of solid waste and litter, technological change has, in general, been slowest in this area. We need to begin now to take steps to combat this threat to our environment. H.R. 18988 would prevent the use and circulation of the offending types of nonreturnable beverage containers by banning their shipment and sale in interstate commerce. It offers an opportunity to cut down significantly on the amount of "bottle pollution" that occurs in the Nation, and would serve most effectively as an incentive to industry to develop methods for the maximum recycling and reuse of such bottles and cans.

Thank you, Mr. Chairman.

Mr. JARMAN. Thank you, Mr. Morse, for a fine statement.

Next we shall hear from the gentleman from Hawaii, the Honorable Spark M. Matsunaga. Welcome, Mr. Matsunaga.

STATEMENT OF HON. SPARK M. MATSUNAGA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF HAWAII

Mr. MATSUNAGA. Mr. Chairman and members of the subcommittee, I appreciate this opportunity to testify in support of H.R. 18988, of which I am a cosponsor.

This bill takes a direct and vitally needed step in our critical struggle to save our environment: it simply bans the interstate use of nonreturnable beverage containers.

The popular name for such bottles and cans provides us with an insight into the need for this legislation: they are called "throwaways."

And that, unfortunately, is precisely what happens to them. Soft drink, ale and beer cans and bottles litter every roadside, sidewalk and national park in America. Although they comprise only a small part of the overall solid waste disposal problem, throwaways are highly visible in the very areas where they are most disfiguring.

H.R. 18988 is not designed to decrease beverage purchase; nor will it cut down on the variety of products offered in the marketplace. Its purpose is merely to reduce the growing volume of container material being discarded. Simultaneously, it accomplishes two desirable goals: the improvement of our Nation's appearance, and the conservation of our precious resources.

As to the first, there can be no doubt about the contribution of discarded beverage containers to the degradation of our landscape. A national magazine recently told of an antilitter campaign conducted last spring in Vermont. Volunteers collected 40,000 cubic yards of litter from the State's roadsides, 90 percent of which were nonreturnable bottles and cans. My own State of Hawaii, to which hundreds of thousands of visitors travel every year because of its natural beauty, has found itself particularly vulnerable to disfigurement by "throwaways."

An essential and expected consequence of the bill would be the recycling of scarce materials. A returnable bottle makes 20 or more trips through the economic system, from manufacturer to bottler to retailer to consumer. By definition, a nonreturnable container makes just one.

Each year, Americans throw away 28 billion bottles alone. Throwaways in 1967 constituted 13.5 percent of all beverage bottles, a fivefold increase in only 8 years, and in a fast-growing market. One might ask why such a massive shift in consumer preference has come about. It is said that the American consumer is too busy to be bothered with returning bottles to a supermarket, and has therefore flocked to the one-way bottle. On the other hand, a number of small breweries and bottlers have been publicly quoted as saying that the shift to nonreturnables is not a response to consumer demand; rather, they say it is a response to pressure from large bottle and can manufacturers and supermarket chainstores. I understand that one large east coast supermarket chain has actually refused to handle returnable bottles.

The claim is made that manufacturing a new bottle or can is more economical than recovering and recycling an old one. One questions whether that assertion is true. Is the throwaway beverage container cheaper only because it does not bear its full costs, social as well as marketing costs? City governments across the country tell us that one-way containers cost them millions of dollars for solid waste collection and disposal.

Mr. Chairman and members of the subcommittee, it should be noted that, despite increased sales of nonreturnables, the American public appears to be very concerned about this serious problem. A recent poll in Minnesota showed that 70 percent of those surveyed favored exactly the provisions contained in H.R. 18988. Voters in Washington State will decide next month whether to adopt similar prohibitions.

I understand that Finland has already outlawed disposable beverage bottles, and that a ban on all no-deposit beverage containers goes into effect in British Columbia, Canada, next year.

The time for legislative action, I believe, is now. There is no simple solution to the problem of solid waste disposal, and certainly H.R. 18988 does not purport to supply such an answer. But it does deal with an important part of that problem, and one that promises to grow. The 28 billion nonreturnables thrown away in 1967 is predicted to rise to 58 billion by 1976. Unless we are to accept bottle- and can-littered beaches, roadways and parks, and a needless drain in our limited resources, we should enact legislation as provided in H.R. 18988.

I urge that this distinguished subcommittee grant early approval to this important legislation.

Thank you.

Mr. JARMAN. Thank you, Mr. Matsunaga, for taking time out of your busy schedule to present your views to us this morning.

Mr. MATSUNAGA. Thank you, Mr. Chairman, it has been my pleasure.

Mr. JARMAN. The Honorable Richard T. Hanna of California is our next witness. Welcome, Mr. Hanna. Please proceed as you see fit, sir.

STATEMENT OF HON. RICHARD T. HANNA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. HANNA. Mr. Chairman, I am speaking before you today as a cosponsor of H.R. 18988.

My interest in this bill relates more to its indirect consequences than to its affirmative actions.

The consideration by this committee of the ban that this bill will place on nonreturnable beverage containers is in my mind significant in that it will encourage further development and utilization of solid waste recycling systems which we so urgently need. The collection and disposal of waste material alone cost Americans \$4.5 billion per year and the volume of waste is growing at a rapid rate. Today it is a staggering 5.3 pounds for each person every day of the year. By 1980, it will be over 8 pounds of waste per day. We must develop new and more effective means to combat this impending crisis.

Over the past weeks, a number of constructive programs have come to my attention. A program now in effect in the Los Angeles area is of special significance as it demonstrates the effectiveness of the combined efforts of local government, industry, local citizens groups and individuals in combating the alarming increase of solid waste in our Nation today.

The Los Angeles glass reclamation program is the largest industry-wide glass recycling project ever attempted. It has now reached the level of almost 1,500,000 bottles and jars a week.

The program was launched in April of this year by glass manufacturers in the Los Angeles area. Eight reclamation centers were set up to handle the used glass containers turned in by individuals and groups in the area.

During the first week of the drive, southern California residents brought in some 30,000 bottles. By mid-May the volume had climbed to 250,000 a week. Since then it has climbed sharply week by week to the present level of 1,500,000. More than 10 million used containers have been collected by the redemption centers with over \$50,000 paid to the individual and groups by the Glass Container Manufacturers Institute.

The special significance of this program is that a large portion of the glass brought in to date has been glass that was formerly solid waste litter. The balance is glass diverted from normal solid waste disposal channels. Glass collected at the reclamation centers is crushed, melted at temperatures in the range of 2,800° F., and used for making new bottles.

The success of the Los Angeles project has resulted in the extension of the program nationwide. The objective of the national program is to salvage an estimated 11 billion bottles and jars a year from the Nation's litter and solid waste accumulation systems for reuse in the bottlemaking process.

Support of the Los Angeles project by civic organizations, city governments, youth groups, ecology clubs, student associations, service clubs and churches has been overwhelming. Ecology groups such as the Cal Tech Environmental Action Council are enthusiastically participating as a means of combating the litter and solid waste problems. A minister in Riverside is collecting bottles to help feed and clothe needy Indian children in Mexico. Orange County Girl Scouts channeled their check for 85,000 bottles toward a camp development fund. The city of Lakewood, which has activated the largest drive within the program to date, has turned in more than 200,000 used glass containers with the funds going toward city beautification. Hundreds of other groups are participating in glass collection projects to help pay for trips to Europe, plant trees, pay hospital bills, clean up beaches, and buy uniforms. The reclamation centers pay private individual and nonprofit organizations 1 cent a pound—which averages about one-half cent per bottle—for the used glass. Considering the fact that the cost to dispose of this waste is approximately one-half cent per pound (\$.0045/lb.) this method not only reduces the local governments' expenditures in solid waste, but also provides funds for participating groups and reduces the litter problem immeasurably.

Another program of merit was the successful development of techniques to magnetically separate the glass and metal fractions from incinerator residue. The Bureau of Mines has developed the technology to convert the salvaged glass into building bricks and glass wool insulation.

A project which also deserves this committee's attention is the use of crushed waste glass as aggregate in glasphalt, a product in which glass substitutes for crushed limestone in asphalt for paving streets. The product was developed by the University of Missouri with partial support in the form of a Department of Health, Education, and Welfare grant. Estimates indicate that the need for such aggregate in most cities would far exceed the available glass. Most cities have their own hot-batch asphalt plants and would need only to remove the glass from their own refuse and crush it for such a use. I am quite optimistic that this will prove to be a major successful development in the field.

I am singularly impressed with the effort and energies which have been expended in this vital area of concern. I firmly support any constructive, direct or indirect, action that this Congress can take to further encourage and assist such commendable efforts.

Mr. JARMAN. Thank you, Mr. Hanna, the committee appreciates your appearance here this morning.

Mr. HANNA. Mr. Chairman, I thank you for the opportunity to be here today.

Mr. JARMAN. Our next witness this morning is Mr. Roger Strelow, Director of the Office of Environmental Affairs, Department of Health, Education, and Welfare, accompanied by Mr. Richard Vaughan, Director of the Bureau of Solid Waste Management, Department of Health, Education, and Welfare.

STATEMENT OF W. ROGER STRELOW, DIRECTOR, OFFICE OF ENVIRONMENTAL AFFAIRS, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE; ACCOMPANIED BY RICHARD VAUGHAN, DIRECTOR, BUREAU OF SOLID WASTE MANAGEMENT

Mr. STRELOW. Mr. Chairman, it is a pleasure to appear before this subcommittee to discuss H.R. 18773, H.R. 18988, H.R. 14863, H.R. 18999, and problems caused by beverage containers. Beverage containers not only contribute to the mounting volume of solid wastes that must be collected, transported, and eventually disposed of or recycled, but they often end up as litter in our parks and along our streets and highways. We share the subcommittee's interest in solving these problems.

Last year beverage containers comprised 3.9 percent of all collected wastes in this country. It cost the public \$176 million to dispose of the 46.8 billion beverage containers produced last year. Beverage containers wastes are growing 7.5 percent a year compared to overall waste growth of 4 percent a year. If this trend continues, by 1975 beverage containers will represent 4.6 percent of all waste collected compared to 3.9 percent in 1969. This will increase the total waste management cost accordingly. The \$176 million reflects costs attributed to household collection and does not include the cost of collecting and disposing of the cans and bottles littered along the highways. If that cost is included in the price paid for the convenience of disposable cans and bottles, the figure is much higher.

The precise number of beverage containers which are littered is not known. Twenty percent of items found in litter, however, are beverage containers.

I might add here that if that percentage could be computed by weight it would likely be somewhat higher in addition to which beverage containers comprise one of the more visible portions of the litter.

Between 1 and 5 percent of all containers are littered. On the average, 1 cubic yard of litter is accumulated per month for each mile of interstate and primary highway. Of this, about 59 percent of all items are paper, 16 percent are cans, 6 percent are glass bottles and jars, 6 percent are plastics, and 13 percent are miscellaneous.

Beverage containers are not degradable—they resist breakdown by micro-organisms in soil or water. Steel containers eventually rust, but glass and aluminum containers persist unchanged. Furthermore, they are not combustible and therefore contribute to large incinerator residues which must be removed for dumping or landfill. Plastic containers, which are currently being test marketed, will burn. However, these are likely to capture only about 5 percent of the market by 1975. Because of this, plastic containers will have little effect on

reducing incinerator bulk. Also, only about 15 to 20 percent of these will actually be incinerated in view of the disposal practices such as landfill forecasted to prevail by that time.

I might add here that some of the plastic containers that are now being developed do not have the harmful emissions when incinerated that some of the existing containers do.

To sum up: Beverage containers are a small but growing portion of solid waste and a high percentage of litter items. As a whole, they are noncombustible and nondegradable. This characterization will change somewhat if plastic containers are successfully introduced, but disposal practices may not change sufficiently to make their impact significant in the foreseeable future.

Beverage containers are produced by package manufacturers, which use their own raw materials, in the case of glass, or which purchase semifinished manufactured products, in the case of aluminum and steel cans. The container production industry consists of more than 140 companies.

After production, the containers are shipped to beverage producers, more than 3,800 companies, who fill, seal, and then transport them to retailers, either directly or through a wholesaler. These retailers, may be food, drug, or liquor stores; they may be vending machines, or bars, and restaurants. Currently, beverages are distributed through 385,000 retail outlets and 1.4 million vending machines.

In 1969, the beverage industry shipped products whose wholesale value was \$8.96 billion. The industry employed 215,000 production workers who delivered 85.8 billion fillings to market in 1969. Slightly over 2 billion returnable bottles carried around 41 billion fillings; on the other hand, 44.7 billion nonreturnable bottles and cans carried 44.7 billion fillings. In 1969, 46.8 billion containers were produced. These containers consisted of 18.3 billion glass bottles, 23.5 billion steel cans, and 5 billion aluminum cans.

There are five major roles in the beverage container cycle: the material producers, the container producers, the beverage producers, the retailers, and the consumers. Each role individually must be examined to determine its relationships in the cycle to fully understand this complex subject area.

MATERIALS PRODUCTION

Steel beverage cans represented 1.3 percent of total steel production (1.28 million tons of 93.9 million tons) in 1969, and 23 percent of all steel used in packaging. Producers of sheet metal for beverage containers do not convert the sheet to cans.

Aluminum beverage cans are 3.9 percent of all aluminum made (214,000 or 5.4 million tons), and account for 40 percent of this metal used in packaging. Some of the aluminum producers also convert metal to cans; others supply metal only.

For aluminum producers, the aluminum beverage can is one of several growth markets. For steel producers, steel beverage cans are a small part of a well-developed can market with slow growth.

Glass containers are made directly from silica sand, limestone, and soda ash. There is no intermediate product phase as in steel and aluminum can production.

CONTAINER PRODUCTION

Steel and aluminum cans are produced by more than 100 companies which operate 280 plants and employ 62,000 people. The four largest companies account for 74 percent of production. The industry's 1969 value of shipments was \$3.5 billion for all cans. Some of the canmakers are beverage producers. The beverage producer pays approximately 4 cents per unit for metal cans.

The steel, aluminum, and can industries have encouraged throw-away packaging through beverage advertising campaigns, lease policies for equipment, contests, subsidiaries, and incentives to bottlers.

Glass containers are produced by about 40 companies; the eight largest account for 72 percent of production. The industry operates 120 plants and employs 72,000 people. Its 1969 value of shipments was \$1.7 billion (all glass packages). The returnable glass bottle, strong enough to withstand 50 round trips, is sold for 9½ cents to 11½ cents a unit. The nonreturnable beer and soft drink bottle, which is a relatively light and fragile container, sells for 3½ cents a unit. Approximately 50.9 percent of all glass containers made in 1969 were beverage containers; of these, 88.6 percent were nonreturnable bottles.

For glass container manufacturers, the nonreturnable beverage bottle is the only product with good growth prospects; in all other glass container product categories, plastics and plastic-paper composites have taken over markets for glass.

The glass industry did nothing initially to combat the can industry's campaigns. Once cans had taken control of the throwaway business, the glass industry embarked on a "copy" campaign to hold their business. Many bottlers welcomed the glass throwaway as a chance to utilize their idle production equipment. The result was less returnable production and a chance for supermarkets to eliminate the returnable bottles.

Container producers, as a whole, see the beverage market as an important growth market. Half of all beverage units or "fillings" sold are sold in returnable containers. In 1969, 41 billion fillings reached the consumer in returnable containers; in the same year, 2 billion returnable bottles were produced. Had all these fillings in 1969 been in nonreturnable containers, package producers would have sold 41 billion containers (at around 4 cents a unit) instead of 2 billion containers (at around 10 cents a unit). It is obvious from this comparison that the container manufacturer has considerably more to gain from the volume sale of nonreturnables than from the sale of the relatively expensive returnables.

I think a quick calculation here will show that the first alternative 41 billion nonreturnable at 4 cents a unit would be \$1.64 billion, whereas the 2 billion containers at 10 cents a unit would be \$200 million. For this reason, the container manufacturers are an important force in the no-deposit, no-return promotions.

BEVERAGE PRODUCERS

Soft drink producers, beer brewers, distillers, and wine producers make up the beverage production industry.

The soft drink industry is divided into two segments—producers of flavorings and syrups (approximately 40 companies) and bottlers/

fillers. Of the 3,400 bottling establishments, approximately 550 are major bottlers; the rest are small operations.

Distillers and wine bottlers package their products in nonreturnable containers. Spirit bottles are required to be one-way containers by the provisions of section 5301(c) of the Internal Revenue Code to insure that the Federal revenue stamp is placed on each container holding spirits. The regulations permit revision of this requirement if adequate guarantees are made that the revenue stamp is again affixed to the container when it is reused. Wine bottles are not covered by this regulation but are not returnable in practice. Both in spirits and wine markets, a large percentage of product is imported.

Most beer and soft drink producers have facilities to handle glass bottles; larger establishments typically also operate can-filling lines. The filler processes all glass containers in the same manner—whether returnable or nonreturnable. Each bottle is inspected and washed before filling and passes through the same equipment.

One-way glass containers are competitive with cans because they cost slightly less and can be handled on existing glass-processing equipment. Cans can be filled more rapidly because they are wide-mouthed, thereby saving labor costs; they require special equipment for filling; they are lighter than glass, which saves on transportation costs; and their compact shape permits savings in shipping space.

Investment costs for new bottle-filling plants are less than for new can-filling plants.

RETAILING

Beverage retailing takes place through foodstores, drugstores, liquor stores, vending machines, bars, taverns, and restaurants.

Retail foodstores handle approximately 57 billion filled bottles and cans yearly. Beverages represent 2.1 percent of all grocery sales. Grocers receive back, for return to the beverage producer, 27 billion empty returnable bottles. Drugstores process 4 billion filled containers and receive back an estimated 1 billion empties.

About 1.4 million vending machines dispense nearly 9 percent of all fillings or 7.57 billion units (5.2 billion in glass, 1.4 in cans). Cans are growing, bottles declining, in market share. Between 1967 and 1968, vending machines dispensing glass bottles increased by 1,000; can-dispensing machines increased by 63,000. It is not known what portion of vended glass beverage containers is returnable because the machines can handle both returnable and nonreturnable bottles.

Liquor stores, bars, taverns, and food service organizations handle an estimated 16 billion packaged beverage units; they return 12 billion returnable bottles to beverage producers yearly.

The supermarket chains have utilized their controlled-label soft drinks to help force the beverage industry to convert to throwaway packages. There is hardly a chain that does not have a strong anti-returnable bottle policy based primarily on the alleged high cost of handling empties. There are many chains that refuse to handle items in returnables that compete with their controlled-label throwaways and some that refuse to carry any returnable bottles at all.

CONSUMERS

The consumer pays more for a beverage in a nonreturnable container than in a returnable one. This holds true in some cases even when the deposit is included in the price of the returnable container.

Thus, the consumer is often better off buying and throwing away a returnable container than buying and discarding a nonreturnable container. Beverage producers report that some consumers have made this deduction and are throwing away returnable bottles. This tendency is encouraged to some extent by the honor system used in some supermarkets. The store in these cases does not charge a deposit on returnables. Consumers are "on their honor" to return the empties. Litter surveys show that 10 percent of all littered beverage containers are returnable bottles.

H.R. 18773, H.R. 18988, and H.R. 18999 (three identical bills) would prohibit the manufacture and sale in interstate commerce of any nonreturnable beverage containers of glass, plastic, or metal with respect to which no reasonable refundable money deposit is required. The term beverage is defined in these bills as including beer, ale, malt liquor, and carbonated soft drinks of any variety.

The concept of required returnability embodied in these three bills is a potentially attractive one. It may be that this approach will prove to be an important part of the solution to the litter problem posed by beverage containers. I might add here that, as the earlier figures demonstrated, it is essentially a litter problem rather than a household solid waste disposal problem that we are concerned with. However, on the basis of our current information on the numerous ramifications of the problem, we would suggest that the matter be carefully and thoroughly evaluated in all respects before action is taken.

Basically, there is an opportunity through such a proposal to substantially reduce a significant and particularly unsightly component of litter. However, there are factors, such as impact on consumer choices and preferences and impact on employment in the can and bottle industries to be considered.

The consumer issue relates not only to the lack of information—perhaps conflicting information—concerning the preference of consumers for throwaway or returnable containers but also to the possible shift towards alternatives such as powdered and noncarbonated beverages if a deposit, particularly a large one, is mandated.

The employment issue centers on the virtual certainty of large-scale displacement of workers in the can and bottle industries, particularly the latter—up to 40,000 or 50,000 jobs based on rough calculations—if the proposed ban on throwaway containers were adopted.

We do not suggest that such factors necessarily should stand in the way of a ban on throwaway containers, only that they be identified and considered in perspective, along with alternative solutions to the litter problem, such as a major litter cleanup system, voluntary industry efforts to collect and recycle containers (several of which are underway), programs of public antilitter education and information, or economic incentives other than a required deposit.

Even if it were decided that a ban on nonreturnable containers is desirable, a key question remains unanswered: What is a reasonable deposit? The bills in question neither define a reasonable deposit nor suggest how to determine it. Yet, the size of the deposit appears to be crucial to the success of a required returnability approach. Data is virtually nonexistent on the effects of various deposit levels. Of course, we are watching with great interest the recent experiments in various localities with bans on throwaway bottles and with required deposit levels.

As data is accumulated, one must consider, for example, such questions as whether the deposit should be set high enough to effectively prevent beverage container litter so that people won't throw them away in the first place, or only high enough to induce an adequate amount of private cleanup of whatever litter continues. One must also consider questions such as whether a uniform deposit—in this case, a uniform nationwide deposit—is necessary or desirable, and whether, if the deposit is a large one, it is desirable to remove such a large amount of money from the ordinary flow of commerce, thus preventing various consumption or investment alternatives.

In summary, while we feel there is considerable promise in the approach proposed in H.R. 18773, H.R. 18988, and H.R. 18999, we do not believe enough information has yet been accumulated or that all pertinent factors have yet been adequately considered to warrant action at this time.

I would like to assure the subcommittee that the beverage container issue, and the whole packaging problem of which it is a part, are high priority concerns in the activities, both current and planned, of our Bureau of Solid Waste Management in response to the President's request that economic incentives and regulatory measures to promote recycling of wastes be explored.

H.R. 14863 would prohibit the manufacture and sale in interstate commerce of any aluminum container for use in packaging or marketing any food or beverage for human or animal consumption. Aluminum food and beverage containers make up only a small fraction of the container litter and solid waste problems. It is not clear what this bill seeks to accomplish. From the standpoint of degradability, it is true that aluminum, as well as glass, is biologically inert. However, the difference between aluminum containers and glass bottles on the one hand and steel containers on the other, in terms of persistence as visible litter, is apparently only on a long-term basis. From a recycling standpoint, the economics of aluminum actually make it an excellent candidate, particularly as compared to glass or steel.

In summary, we do not view the problem of aluminum containers as sufficiently large or unique to warrant dealing with it apart from food and beverage containers of all kinds.

When sufficient information is available to make a sound judgment, we would support appropriate action to solve the litter and solid waste problems caused by beverage containers. We are currently planning major studies of packaging and incentives to determine the best way to deal effectively with the entire packaging problem. The study recently completed by the Midwest Research Institute for the State Department entitled "The Role of Packaging in Solid Waste Management" is an important step in this direction.

I greatly appreciate this opportunity to appear before you and welcome any questions you may have.

Mr. JARMAN. Thank you very much for this comprehensive statement. It will be of real value to the subcommittee.

You refer to major litter cleanup programs. You refer to voluntary industry efforts to collect and recycle containers. Several of these programs are underway.

I have read of various programs of individual companies and uses that are made of the containers when they have been returned, collected. How widespread is the voluntary industry effort in this field?

Mr. STRELOW. I think they are pretty much in the beginning stages. As you say, there have been several types of experiments. Certainly, this is not on any large-scale basis at the present time.

I understand that at least some of the industries or groups involved in these experiments plan to expand them as rapidly as possible and in some cases this is on the basis of what they feel already is a successful start.

Obviously, the question of whether action such as proposed in these bills or other types of governmental action is required will depend, to a large extent, on the speed and success with which the industry groups concerned and others in society can address this problem without governmental action. Obviously, the public is not in a mood to wait forever for solutions to be found.

Mr. JARMAN. I have read, for instance, of an active program by Coors Co. in Denver and others to make a collection of containers.

What incentive do companies like this give? What kind of price do they pay for returned containers?

Mr. STRELOW. I believe it varies somewhat from one experiment in one locality to another. Essentially it is offering something like a bounty either per pound or per unit. Usually it is either for bottles or for aluminum cans.

The public is given an inducement that if they can pick up sufficient quantities of these and bring them into a redemption center, they will be reimbursed for their efforts. I think this has been particularly attractive to groups like Boy Scout troops and other organized groups rather than just single individuals who have become involved in these projects.

Mr. JARMAN. But in a national sense not very much has been done in this field?

Mr. STRELOW. In terms of national impact on cleaning up litter or preventing containers from getting into the solid waste disposal system, I would not think the impact has been large yet.

Mr. JARMAN. Mr. Rogers.

Mr. ROGERS. Thank you, Mr. Chairman.

I think your statement setting forth the problem is quite comprehensive although I do not see too much reaction to the call for action in the statement.

How many people do you have working on solid waste in the Department?

Mr. STRELOW. I will ask Mr. Vaughan to respond to that but let me indicate initially I think certainly one of the key remaining questions in our mind is this: If you agree that a ban on nonreturnable containers is desirable, we still are left with very little, almost no, experience in deciding what kind of deposit level would be required to have any impact, as is obvious from the testimony.

In many cases with existing deposit levels people are throwing away even bottles for which they have paid a deposit. The relative convenience for them to throw away apparently outweighs the money they would be able to get in return.

Obviously, a very crucial question is what kind of deposit level would be required to work? It is not simply enough to say let us have deposits on all bottles. That is probably not even half the solution. So, I think in terms of no "call for action"—I don't know that I

characterize our approach that way; I wouldn't—but that is probably the single biggest gap in existing knowledge at the present time.

Mr. ROGERS. How long do you think it will take you to determine that? A month? Two months?

Mr. STRELOW. That is hard to predict accurately. One thing it depends on, I would think, is the continued activity by various localities.

In Prince Georges County where I live, in some stores they have now raised the deposit to 5 cents for all bottles regardless of size. Other areas are taking similar approaches.

As we have had some experience here that we can analyze and determine what effect a 5- or a 10-cent deposit level has had, then we are in a much better position to say what should be the price.

Mr. ROGERS. I understand that.

Now, you know we passed solid waste legislation some time back for research to make these determinations. I don't see a lot of result from that.

Mr. STRELOW. Of course, it has been particularly recently, very recently, that both the President and the Congress have expressed a specific interest in really emphasizing the possibilities for recycling and reuse rather than simply working on the most effective methods of disposal of waste.

Mr. ROGERS. I thought that was what our research and demonstration projects were to do. We wanted innovative thinking; that is the point of research.

Mr. STRELOW. As I have indicated, the research up until recently has been largely directed toward disposal methods rather than recycling and reuse possibilities, particularly in the economic incentive areas. I think that has been a relatively new concern both for the Congress and for the administration. We are certainly pursuing it rapidly.

Mr. ROGERS. This may be true but I am concerned that the research and innovative thinking has developed as you say perhaps literally. When we set up an agency and ask them to do research, this is where the innovative ideas are to come from to help us.

Mr. STRELOW. That is certainly true.

Mr. ROGERS. That is the point of the Congress setting it up.

Mr. STRELOW. You had a specific question on the number of people that were working in this specific area?

Mr. ROGERS. Yes; in the Department.

Mr. VAUGHAN. 206, sir.

Mr. ROGERS. How many of those are professional people, as such, that you could classify as professional?

Mr. VAUGHAN. Approximately two-thirds. I can furnish the exact number for the record.

Mr. ROGERS. If you would, for the record. About two-thirds?

Mr. VAUGHAN. Approximately. I will furnish the exact number for the record, if you like.

Mr. ROGERS. Certainly.

(The following figures were received for the record:)

<i>Number of personnel (professional and nonprofessional) working in the solid waste department</i>	
Professional.....	136
Nonprofessional.....	70

Mr. ROGERS. Your budget is what now?

Mr. VAUGHAN. Around \$16 million.

Mr. ROGERS. Is that for all of your activities?

Mr. VAUGHAN. That is correct, sir.

Mr. ROGERS. How much of that goes for research?

Mr. VAUGHAN. About a third of it; a little more than one-third; about \$5 million.

Mr. ROGERS. Is that in-house?

Mr. VAUGHAN. Primarily grants and contracts. Some of it is in-house. Roughly a third each.

Mr. ROGERS. Will you give us all these figures?

Mr. VAUGHAN. I will be glad to furnish all those details for the record exactly.

(The following figures were received for the record:)

	<i>Budget figures related to research</i>	<i>In millions</i>
In-house-----		\$1.1
Grants-----		1.9
Contracts-----		1.8
Total research-----		4.8

Mr. ROGERS. What was the President's request this year for solid waste?

Mr. VAUGHAN. I can't remember the exact figure. It was 15.3.

Mr. ROGERS. About 15.3, which is less than your current budget.

Mr. VAUGHAN. It was approximately the same level as it was last year.

Mr. ROGERS. Has the request been formulated for the next budget year?

Mr. STRELOW. There are certainly no definite figures as yet.

Mr. ROGERS. Are you requesting an increase from your level?

Mr. STRELOW. I don't think it is possible to say at this time. We are fairly early in the budget planning cycle.

Mr. ROGERS. I don't think you understood my question.

I said: Is the Solid Waste Division of HEW requesting an increase?

Mr. VAUGHAN. Yes; we did.

Mr. ROGERS. A significant increase?

Mr. VAUGHAN. Yes, sir.

Mr. ROGERS. How much?

Mr. VAUGHAN. Can I furnish this for the record?

(The following figure was received for the record:)

\$17,626,000

Mr. ROGERS. Yes, but you can give us the order of magnitude, perhaps. Double? Triple?

Mr. VAUGHAN. No. Right now, we kept it within the limits of the authorized ceiling of last year which only would allow us up to about \$19 million.

Mr. ROGERS. So, you are asking for your full authorized amount?

Mr. VAUGHAN. No; but very close to that.

Mr. ROGERS. Not completely, but close to it.

You know that the House has passed a bill that would go to the next fiscal year?

Mr. VAUGHAN. And this year, too.

Mr. ROGERS. I say beginning fiscal 1971.

Mr. VAUGHAN. Yes, sir; I am aware of that.

Mr. ROGERS. As I recall, the House figure is some \$100 million. We have not yet gone to conference which we will this week.

I think the Senate is about \$15 million.

Now I believe we can convince the Senate to go the full House figure. In that event, would you anticipate that you would increase your request?

Mr. VAUGHAN. It would be then, I think, desirable to submit a request for a supplemental appropriation, which we would do.

Mr. ROGERS. To try to get to the authorized level?

Mr. VAUGHAN. I think depending on the time limit involved for the rest of this fiscal year we would ask for enough money to be spent wisely within that period of time.

Mr. ROGERS. I hope you will do that. I don't know that I would be encouraged too much that you would get it approved but we would try to help.

Now, what is your thinking on this whole problem that we are discussing now?

Mr. VAUGHAN. The beverage containers?

Mr. ROGERS. Yes.

Has any research come out?

I notice you mentioned one study. What does it show?

Mr. VAUGHAN. This was a factfinding study. This provides most of the quantitative facts about beverage disposable containers that came to you this morning. Up to that time, we had no idea of the magnitude of the problem.

The kinds of things that we see as critical to the solution of the beverage disposable containers, Mr. Strelow pointed out, are not necessarily in the development of new technology for handling equipment but more related to the proper approach to make sure that the beverage containers do find their way back to reuse, not somebody just putting returnable on the containers and throwing them away.

One of the figures that impressed us quite a bit is the large amount of returnable bottles that one finds in the average garbage can or along the roadside in litter. In fact, in the survey that was mentioned, there was a higher percentage of returnable bottles in that litter than there is on a national basis of all produced. This tells us that a little more comprehensive approach is needed.

We need to find out more facts, what do you have to do to make sure these bottles do get back and are reused, either recycled and made over or reused by the consumer rather than just simply thrown away?

I don't think technology or research of the more traditional type is necessarily more appropriate in this case.

Mr. ROGERS. How long is it going to take you to research this information out?

Mr. VAUGHAN. We think probably between 1 and 2 years.

Mr. ROGERS. You mean it is going to take you between 1 and 2 years to find out whether 10 cents or 25 cents is going to get results?

Mr. VAUGHAN. Or what other methods will be more appropriate.

Mr. ROGERS. You don't think it can be done in about 3 months?

Mr. VAUGHAN. Not to have a solution that will work—that we had confidence would work. You could get one in 3 months but not one

that we would have a great deal of confidence in, that we would recommend, something that would have a likelihood of a high degree of success.

Mr. STRELOW. Sir, I think the 1- to 2-year term is the kind of time that we would feel necessary ideally to make perhaps as adequate and complete a study of all the alternatives, ramifications, many of the points raised today, as would be desirable.

Obviously, there are pressures and needs for action as soon as possible and consequently as in other areas it is just not always desirable or feasible to have every possible bit of information before you commit yourselves to a particular course of action.

I don't think the statement that 1 to 2 years of study would be certainly very desirable necessarily means that we would plan, even at existing funding levels, to wait that long before feeling that we knew enough to believe that section was appropriate. It would be hard to say what time before then.

For example, I am certainly very much interested in getting information as soon as possible on the observable effects of the deposit levels that are now being required, the different levels that are now being required in various localities and municipalities.

I think this kind of statistical information which we now can get for the first time because localities are taking these kinds of steps will be very helpful. As soon as these can be assimilated, we will have a much better perspective, I think.

Mr. ROGERS. Who is doing this study for you now? Are these studies being conducted now?

Mr. STRELOW. It will not be a specific study perhaps as much as amassing and accumulating the data on what happens in the various localities.

Mr. ROGERS. Who is gathering it? Is anybody gathering it?

Mr. VAUGHAN. Yes; our own staff, from the work that is going on now, the communities, for example, that have banned disposable bottles, we are observing and getting the facts as to how successful they are. They have just started these experiments.

Mr. ROGERS. Have you this work ongoing now; where is it being done; how many staff people are doing it?

Mr. VAUGHAN. This work is done by a portion of our staff.

Mr. ROGERS. What number?

Mr. VAUGHAN. Approximately six. That is not all they do. About six people do this as part of their duties.

Mr. ROGERS. How much time do they devote to it?

Mr. VAUGHAN. These six people have expended approximately 2 man-years of effort.

Mr. ROGERS. Do the six people go out and go through trash cans?

Mr. VAUGHAN. Some have done this to get the kind of information we have talked about. Others have worked with the cities that are doing this, that have banned it, to find out how successful it is. They have studied past cases where a State has banned disposable beer bottles.

Mr. ROGERS. You have not contracted with any research group to do this?

Mr. VAUGHAN. No, sir. This will be done this fiscal year as part of our overall incentives program.

Mr. ROGERS. I don't think you are going to find out too much if you only have six people counting bottles.

Mr. STRELOW. We are doing more than simply counting bottles, sir. Obviously, the locality involved with either required deposit levels or a ban on nonreturnable bottles, themselves, should be interested in accumulating data to see how effective these measures are.

Mr. ROGERS. They should be; but are they?

Mr. STRELOW. Yes, sir. We are not only counting bottles but plugging into the data systems that they have.

Mr. ROGERS. Here is what concerns me: We are currently planning major studies of packaging and incentives to determine the best way to deal effectively with the entire packaging problem.

Mr. STRELOW. Yes, sir; as Mr. Vaughan has said, besides planning major studies which go into the many ramifications of the problem, we do have and have had on-going work in various areas.

Mr. ROGERS. I would like to have this specified for the record to see just what is being done and who is doing it, how much money is devoted to it and what results are expected when?

Now, in other words, are we going to have a report in 1 month, 2 months, 3 months, 4 months? Are we going to study this for 2 years, 3 years?

I think the committee is going to want to know what is being done and the effort.

I will say the administration and the Congress has not given proper weight to this problem. I think we are far behind time. This is as serious a problem to us as air pollution and water pollution because every household in America has to deal with this problem, not only the bottle but the whole solid waste problem in every community.

We need to project this into some degree of urgency. I do not see this being done yet. When we talk about 2-year studies, when we talk about having six men study a problem, I think we need to get some urgency to it.

I would like to have a rundown on what you project for next year and how much increase you are asking for in personnel and budget because I think you need some help.

Thank you.

Thank you, Mr. Chairman.

(The following information was received for the record:)

EFFORTS OF THE BUREAU IN CONTAINER RESEARCH

The main effort of the Bureau in the area of beverage containers was the development of a decision document on beverage containers for the Council on Environmental Quality. This was done as a concentrated effort over a period of three months involving Bureau personnel and a contractual effort of Midwest Research Institute. Bureau personnel have made various industrial contacts involving recommendations for industry sponsored research, presenting speeches on the subject, and attempting to coordinate attempts to solve solid waste problems resulting from beverage containers.

The Bureau has two research grants related to beverage containers. In one at Clemson University, we are investigating the possibility of developing a soluble bottle and at the University of Missouri we are researching the use of glass as aggregate as asphalt.

A major Bureau publication "The Role of Packaging in Solid Waste" has resulted from a contractual effort by MRI. We held a packaging seminar in San Francisco to bring the packaging industry into contact with those at State, local, and Federal levels who are responsible for solid waste disposal.

Finally, we have conducted studies to classify refuse to determine what portion consists of bottles and cans.

These efforts plus contact by other staff resulted in an effort of approximately two man-years in-house and an expenditure of approximately \$214,000.

Mr. JARMAN. Mr. Kyros.

Mr. KYROS. Mr. Strelow, if we are going to continue these studies as mentioned by Mr. Rogers, what can we do in the meantime to educate the public in terms of what they should be doing for their part?

We had Earth Day and all the excitement and, I am sure this happened to a lot of us, people brought beer cans to my office, beverage cans, to show what they picked up as litter from the streets.

What should the public do about this solid waste problem?

Mr. STRELOW. There are numerous possibilities. Some of them are already being exercised to some extent. Various individuals as well as citizen groups have frequently gone to supermarkets, particular supermarket chains that have often gone completely nonreturnable or largely so, and have demanded that they at least be given the option of buying returnable beverage containers. This has met with success in some areas, although in others it has not as yet.

I think obviously as in any matter of this type the more citizen public pressure is brought on organizations of this type, the more effect there will be.

Mr. KYROS. The trouble there, of course, is that the public, and that includes us, doesn't know where it is going. You have not made up your mind in which direction we are to go. You have not decided as a policy in which direction we are to go.

Mr. STRELOW. We have said at the present time on balance it certainly looks desirable from the standpoint of reducing litter to move back in the direction of the returnable containers unless some of these other alternatives that are being explored, not just explored but being experimented with, manage to solve the problem in another way, such as these redemption centers for people returning bottles that are picked up and so on.

I am thinking in terms of what a citizen can do now, even if this does not turn out to be the ultimate solution, I think citizens can only do what is possible for them at the moment.

One obvious thing is to encourage citizens not to litter. I realize this is not a very dramatic proposal because attempts have been made and they just don't seem to be too successful. Other alternatives of this type are available.

Mr. KYROS. Does the bill include, for example, canned tomato juice or vegetable juice cans?

Mr. VAUGHAN. The aluminum bill, if that particular can were made of aluminum, would cover this.

The other bill on just the disposable versus the returnable issue would not cover the tomato juice can. That is one of the key points of the problem. The beverage containers are only about one-third of all the containers in this country. Even though you find those in litter and find those in garbage cans, this particular bill would only address itself to approximately one-third of even the container problem.

Mr. KYROS. Cans of soup, for example.

Mr. VAUGHAN. Cans of soup would not be covered. Noncarbonated beverages would not be covered. Wine and liquor bottles would not be covered, even though these are found in litter.

Mr. ROGERS. How about orange juice?

Mr. VAUGHAN. Orange juice would not be covered.

A carbonated orange drink would.

The only thing close to this that would be covered by this bill would be a carbonated orange soft drink. This is one of the problems.

As Mr. Strelow says, I don't think it is our reluctance to admit that it would be desirable to go to returnable bottles. It would. But what is the best way of accomplishing that is what we really don't know at this time.

Mr. KYROS. How long have you had that black covered report entitled "The Role of Packaging in Solid Waste Management" in your organization?

Mr. VAUGHAN. We finished that 2 years ago and we published it a year ago and it has been distributed.

Mr. KYROS. I don't want to be redundant but, what possible answer can we come up with, and what are we going to do? What path can we travel in the State, what kind of bottles and containers can we use?

Mr. STRELOW. As indicated in the testimony, until additional information is available, we are not in a position to say definitely what policy we think ought to be followed.

We have indicated that the proposal contained in three of these bills is definitely a promising one.

Mr. KYROS. You have had a study for a year or two called "The Role of Packaging in Solid Waste Management."

Mr. STRELOW. The study covered cumulative facts on packaging problems and not just the beverage issue. It has only been very recently that we have had any significant number of localities enacting ordinances that give us a very valuable experimental field to look at to see what deposit levels do.

As Mr. Vaughan has indicated, perhaps to put the thing in perspective, we certainly favor returnability or recycling of the bottles. Now, whether you do this by requiring them to be returnable in the normal way or whether you do this through redemption centers that pick them up or some other method we don't yet know for certain. We are in favor of that objective but if you do this by banning non-returnable bottles and requiring a deposit, if that is to be the way to go, we have to know what various deposit levels accomplish.

Mr. KYROS. In other words, with recycling we would have an aluminum can or some kind of metal can which you can recycle?

Mr. STRELOW. It is certainly conceivable that selling beverage containers only on a returnable basis could include metal cans as well as bottles. It is often assumed if you go completely returnable it would only be bottles but the industry experiments that have been conducted to pick up aluminum cans shows—

Mr. KYROS. What about the problem of using returnable bottles where we sometimes hear of accidents that occur? Somehow some stress has been set up in the glass containers going back and forth and being heated and cleaned, and then if someone shakes it or jars it, it explodes? Is there any increased risk of an exploding bottle as we reuse it and reuse it?

Mr. VAUGHAN. The bottles are built for successful reuse about twice, even more than twice the average times that they are used. So far as we know, there is no significant danger. It would probably

be a defective bottle that would explode. In accidents of this type it is not clear whether disposable or returnable bottles are primarily involved.

Mr. KYROS. I remember the old law case in torts about the mouse in the bottle and exploding bottle theory. I just wondered if you kept reusing the bottle whether you would get a stress factor that had more risk of its exploding in use.

Mr. VAUGHAN. Normally, the bottles become unfit for reuse because of a chipped edge or something like this rather than from the stress factor.

Mr. KYROS. Wine and liquor are sold almost exclusively in glass bottles?

Mr. VAUGHAN. Yes. They would not be covered by this bill.

Mr. KYROS. Has there been some experimenting with plastic bottles?

Mr. VAUGHAN. Yes; there has.

Mr. KYROS. The Federal Government has some control over wine and liquor; does it not?

Mr. VAUGHAN. They have that control; also control by the Food and Drug Administration in approving the container for use.

Mr. STRELOW. As indicated in my statement, the wine bottles in practice are not returnable even though there is no requirement.

On the liquor bottles, if sufficient guarantee is given to the Internal Revenue Service that a new tax stamp will be affixed, meaning that the old stamp is taken off before the bottle is reused, the rule prohibiting reuse can be circumvented.

Mr. KYROS. What if bottles were made of plastic: What does that give us as an aid in determining their disposal?

Mr. STRELOW. The primary characteristic of these plastic bottles so far as opposed to existing types of containers is that they are combustible. As mentioned in the testimony, I think it is about 15 percent of solid wastes that are now incinerated and when that happens there is always a residue of bottles and cans that don't burn and they have to be hauled out somewhere.

If plastic bottles were used in their place, they could be incinerated; there would be no residue, or very little, and there would not be harmful emissions.

However, one key fact I have already stated; that is, that only about 15 percent of solid waste is incinerated. I think projections for the future, and certainly what we would like to see, would indicate that that is not likely to become the dominant method of solid waste disposal.

Mr. KYROS. Are the individual States legislating on bottles for beverages?

Mr. VAUGHAN. A great many bills have been introduced in the State legislatures. To the best of our knowledge, only one has passed in the last two or three decades. That was in Vermont. It was allowed to expire after about 4 years of practice primarily because the particular single-use beverage item that they wanted to make only returnable was replaced on the highway litter by another type of container, in this case the metal can containing beer. They felt that it accomplished very little. In other words they banned the nonreturnable beer bottles and made you sell beer in glass bottles that were returnable.

On the highways, this was replaced by tin cans or aluminum cans in almost the same number as the previously disposal beer bottles. So, they failed to reenact this one when the original time expired.

Mr. KYROS. Are you making studies to show interstate commerce or transportation benefit of shipping by bottle or by can?

Mr. VAUGHAN. This is a consideration in the long-term studies that we are talking about, the facts of this case, how much would be this way, to try to find out what is the best way to approach it through tax incentives, banning, regulation of any kind.

Mr. KYROS. In the meantime, your advice to the public would be first to look for returnable containers and try to get the local people to use them if possible and, second, not to litter the highways.

Mr. VAUGHAN. I also think, and I agree with Mr. Strelow, the consumer—if he feels this way, and I hope they do—should let the people that manufacture the products they buy, know that they prefer this product in a returnable container.

Mr. KYROS. I imagine a lot of consumers, though, find it easy to carry a lot of things in cans back and forth from the supermarket. They will have to have a whole reeducation process again.

Mr. VAUGHAN. That is true. Consumer support for such a move like this we think is a vital ingredient.

Mr. KYROS. What about rubber tires? Have you come up with anything for disposal of rubber tires?

Mr. VAUGHAN. We have use for rubber tires, varying from grinding up and using them as part of new rubber tires, to extracting certain desirable ingredients out of the rubber, to even using them as artificial reefs to encourage fish breeding.

Mr. KYROS. Yes; I read about that.

Thank you very much.

Thank you, Mr. Chairman.

Mr. JARMAN. Mr. Preyer.

Mr. PREYER. Thank you, Mr. Chairman.

These bills offer a rather Draconian solution to the problem in that they simply say, we will ban all nonreturnable bottles. That has some unfortunate consequences such as putting 40,000 to 50,000 people out of jobs, as you point out.

If that is the only solution, however, that is the way we would have to go. But it raises the question in my mind, what are some of the alternatives to insisting on returnable bottles as a solution? For example, what are the possibilities of glass bottles, and I am talking about nonreturnable glass bottles, being recycled by crushing them and then using the crushed glass as a road-building material? I have heard that idea advanced some place.

Mr. VAUGHAN. Yes, sir, that is one of our grants, one of the most successful research grants. It is now showing this can be done and is being done. In fact, we have even laid a strip of highway with material that is about 90 percent glass; the rest of it an asphalt binder. We are trying to develop different ways that one can use this discarded material.

I would agree with you this is an alternative to such things as banning—the reuse of materials.

Mr. PREYER. Has your demonstration project on this gone to the point where you know it is feasible?

Mr. VAUGHAN. It is feasible. The economics would probably preclude its universal use. It may depend, for example, on how close you are to a substitute aggregate for this material.

Mr. STRELOW. I might add that that seems to be perhaps the central barrier or impediment in many of the areas of potential recycling and reuse. It is not the technical or other feasibility of it but rather the economics.

Is there a sufficient incentive in the market system, the way it now works for people, for example, to go around and pick up littered glass containers, collect them and grind them up and put them in a highway? As has been indicated, there is not such an incentive, at least on a wide scale, at the present time.

So, in many of these cases we face the economic facts of life and existing conditions in the market picture rather than technological impediments.

Mr. PREYER. You have mentioned that aluminum is a good candidate for recycling.

Is this the same situation there, that the economics of recycling doesn't justify it?

Mr. STRELOW. Aluminum is one of the brighter pictures in this respect. Aluminum per pound is much more valuable than, say, glass or steel if it is collected to be used for recycling. There is also considerable demand for recycled aluminum. So, that is why I think there has been some degree of success at least and some degree of economic sense in these experiments that the chairman referred to earlier.

For example, in Los Angeles, I believe, where they have set up redemption centers for aluminum cans, it has worked to some degree because there is some economic sense in picking these up and recycling them in that manner.

Mr. PREYER. Are there any other examples such as using crushed glass for highways where nonreturnable containers can be used?

Mr. VAUGHAN. Yes, sir. At the present time, disposable containers can be accepted by the people who make glass bottles and they use the same material, crush it up and make the same glass bottles again. This is being done.

Similar to the aluminum situation, on a special basis we understand there are glass-of-all-kinds redemption stations.

We are trying to find out other uses for glass, as well. The highway was a kind of natural use as an aggregate because it has unlimited potential. Maybe the economics might not be desirable but you could use all discard glass.

Now, the aluminum economics, as Mr. Strelow pointed out, are quite good. In fact, the industry tell us they can handle all that will come to them this way.

Mr. PREYER. As this technology develops, it looks as if the economics might become more and more attractive on it as technology can reduce the cost involved. It looks as if it would be well worth exploring, especially where the alternative is to just do away with it altogether.

As Dr. Johnson said, when a man knows he is going to be hanged in a fortnight it concentrates his mind wonderfully.

As an alternative to doing away with the nonreturnable bottle, I would think the bottle people would get hustling on the economics of some alternative use of nonreturnable bottles.

Just one other question.

You mention that consumer's preference is a matter that needs study, the impact on consumer choices and preferences. I am not sure what you mean there.

On page 8, you say "The consumer pays more for a beverage in a nonreturnable container than in a returnable one."

It would seem to me that is about all the consumer research you need to do; if he knows he pays more for a nonreturnable container wouldn't he prefer the other?

Mr. STRELOW. There are a number of complicating factors. One is that the relative prices to the consumer are not always evident from the way the materials are priced or advertised on the shelf or in other advertising.

I think it is well to commend some of the advertising that has been current recently at least from some of the beverage manufacturers to point out the fact that indeed returnable containers are cheaper and some of them have, at least in some areas, been encouraging consumers to use them on that basis.

But, discounting the savings that you get from the net price of the beverage sold in a returnable container is obviously the inconvenience of returning the container. To some extent, the consumer finds it convenient not to return something. It is a nuisance to carry bottles back to the store. Consumers at home or at a picnic or driving along the highway apparently make the judgment, if indeed it is a conscious judgment, that it is worth more to them in terms of convenience to simply throw the bottle away—this includes returnable bottles—rather than bring them back.

An additional factor is that there has been, over the last several years particularly, a very extensive advertising campaign, initially, I think, by the can manufacturers and, to some extent now also from the bottlers, to induce the consumers to buy nonreturnable containers, pointing out it is convenient; you just throw it away.

This gets into the basic question of advertising and its impact on the consumer. Is it because the consumer really prefers this convenience or is it because, to some extent, he has been told he likes it, he has been educated to like it?

All these facts are interwoven, which makes it difficult at the present time to determine as a clearcut proposition whether consumers in fact desire returnable or nonreturnable containers? Some people on an environmental basis say we ought to have returnable containers. It may be some of these same people who, in practice, are throwing them out because of convenience.

Mr. PREYER. I thank the gentleman.

I would like to suggest as a final comment if you have any information on experiments such as using glass recycled for paving highways it would be very useful if you could give it to us for the record. In other words, we would like to know if you ban nonreturnable bottles what potential uses are we cutting off by that? Is there some alternative that is better than just banning them? Maybe we are banning something that can be used. I don't know. I think we would like to know that, at any rate.

Thank you.

(The following statement was received for the record:)

We have a research grant which is exploring how waste glass can be used as an aggregate in bituminous mixtures for street maintenance and to illustrate its

potential use as a method of solving urban glass waste disposal problems. Ground glass or cullet can also be used in the manufacture of certain glass products.

Mr. ROGERS. May I ask another question, Mr. Chairman?

Mr. JARMAN. Mr. Rogers.

Mr. ROGERS. Mr. Strelow, you are the Director of the Office of Environmental Affairs; is that correct?

Mr. STRELOW. Yes, sir.

Mr. ROGERS. How often do you see the Secretary of Health, Education, and Welfare?

Mr. STRELOW. It varies from month to month, time to time.

The Office of Environmental Affairs is within the jurisdiction of the Assistant Secretary for Health and Scientific Affairs, and we obviously do work with the Secretary.

Mr. ROGERS. Do you have direct access to the Secretary or must you go through the Assistant Secretary?

Mr. STRELOW. No; in practice, I often deal with the Secretary or his immediate office.

Mr. ROGERS. Directly, without going through the Assistant Secretary for Health?

Mr. STRELOW. When it is in a situation such that I am acting on his behalf, with his implicit or explicit approval, yes.

Mr. ROGERS. Have you briefed the new Secretary on this program?

Mr. STRELOW. On this specific program? Not to my knowledge, other than in the context of a general briefing on the environmental programs and some of the problem areas, of which this is certainly one.

Mr. ROGERS. What I wonder about, now that the President has suggested reorganization, has this resulted in any diminution of effort in HEW in this field?

Mr. STRELOW. No, sir.

Mr. ROGERS. You feel that it has not?

Mr. STRELOW. We feel very committed to continuing the environmental programs at full speed with full effort right through the transition period. If the reorganization plan is approved, it would transfer these programs to the Environmental Protection Agency.

Mr. ROGERS. Would you anticipate moving all the current personnel there to the new agency?

Mr. STRELOW. To some extent it is a matter of choice with some of the personnel as to whether they want to move.

Mr. ROGERS. Generally, is it contemplated that current personnel will?

Mr. STRELOW. Yes; it is contemplated that many of the people, probably the predominant number of people, in the environmental programs will be transferred.

Mr. ROGERS. What discussions have you had with Internal Revenue to see if they could work out a system whereby whisky bottles can be reused?

Mr. STRELOW. I don't think it is a question of working out a system. I think there are some bottlers who may already be doing this in practice. The law provides for an exemption from the basic rule of nonreturnability if a particular bottler can demonstrate to the Internal Revenue Service that he has a system for effectively removing the old tax stamp from the bottle before it is reused.

Mr. ROGERS. Have you tried to get the industry together with Internal Revenue on this? Have you acted as a catalyst here? Have any efforts been made?

Mr. VAUGHAN. No. We contacted Internal Revenue recently to find out the specifics of their requirements. We found in checking with them it was possible, if certain safeguards were put in, to reuse bottles.

Mr. ROGERS. Would you let us know that information and what contacts will be made?

Mr. VAUGHAN. Yes, sir.

(The following information was received for the record:)

Distillers and wine bottlers package their products in non-returnable containers. As a result of our contact with the Internal Revenue we learned that spirit bottles are required to be one-way containers by provisions of the Internal Code (Section 5301(c), July 1, 1959) to insure that the Federal revenue stamp is placed on each container holding spirits. The regulations permit revision of this requirement if adequate guarantees are made that the revenue stamp is again affixed to the container when it is reused. (During World War II Liquor bottles were returned to spirits producers for refilling.) Wine bottles are not covered by this regulation but are not returned in practice.

Mr. ROGERS. What contact have you had with the industry to encourage their help in research in determining whether bottles should be reused.

Mr. VAUGHAN. We have had numerous contacts with all of the representatives, the Glass Container Manufacturers Institute, Reynolds Aluminum, and other aluminum companies, the people who make steel cans, to encourage and develop programs of recycling and reclamation primarily in these three.

Mr. ROGERS. What reaction have you had?

Mr. VAUGHAN. Very satisfactory. In other words, they have agreed to spend their research money on trying to develop techniques where glass, aluminum and steel could be reused. There are some technical problems in steel, for example, from the standpoint of contaminants. They are working on this. They think they can overcome it.

We have had other contacts with the glass people in particular and offered some suggestions for changing their advertising approach that Mr. Strelow mentioned. Instead of trying to promote use of disposable containers, change it to condemn litter, and also to promote recycling, and they have agreed and they are doing this.

Mr. ROGERS. Will you let us have an outline of these contacts, when they were made, and the results?

Mr. VAUGHAN. All right.

Mr. ROGERS. Fine. Thank you.

(The following information was received for the record:)

CONTACTS WITH INDUSTRY TO STRESS PARTICIPATION IN RECYCLING

We are working with the Glass Container Manufacturers Association by recommending research that they might undertake. This has led to their financial support of a project at Stanford Research Institute which was begun by the Bureau. This project is researching a method of air classification for separating dry solid waste. The National Disposal Research Council of the Packaging Industry contacted the Bureau regarding the research they might undertake and were advised to concentrate in the areas of separation and grinding.

Two speeches were given before the Society of Plastics Engineers and one was given at the 30th Annual National Packaging forum of the Packaging Institute. The Bureau presented a paper to the Plastics Division of the Manufacturing Chemists Association.

Contact was made regarding plastic bottles with B. F. Goodrich, Celanese, and Vistron to discuss certain plastics which have undesirable characteristics and to explore improved types of plastics.

Corning Glass and Owens-Illinois were contacted in relation to our research grant on solvable containers. Visits were made to plastic and glass bottle plants by Bureau personnel. Coca-Cola was contacted to investigate the feasibility of getting a joint industry-government program underway for mitigating solid waste problems associated with beverage containers.

We have met with the Aluminum Company of America relative to the initiation of their recycling program.

We have met with the National Steel Company to explore the recycling of steel cans.

We contacted the Reynolds Metal Company relative to their recycling program.

We met several times with representatives of the Society for the Plastics Industry to recommend private research designed to develop solutions to problems of disposal of plastic wastes.

Mr. ROGERS. Should the Secretary have the right to set standards for all of the containers?

Mr. STRELOW. What type of standards are you referring to?

Mr. ROGERS. Standards either to make them of certain composition, disposal or not, whatever is required?

Mr. STRELOW. I don't know that we would be in a position at this point to advocate that the Secretary or anyone in Government needs to have the authority to dictate what types of packaging should be used. I think certainly we are approaching the time when there are going to be parameters put on the types of packaging materials and so on and perhaps it will ultimately come into the——

Mr. ROGERS. Do you have that authority now, to put in those constraints?

Mr. VAUGHAN. We have no regulatory authority whatever under the Solid Waste Act.

Mr. ROGERS. Have you requested it?

Mr. STRELOW. No.

Mr. ROGERS. Do you think you should have it now?

Mr. STRELOW. I have just indicated I don't think we feel now that it is clear that this is necessary or desirable at this point.

I might add that the Food and Drug Administration, for example, has a certain amount of control over containers from the point of view of food safety.

For example, these plastic bottles we have been talking about, those have to be approved by the Food and Drug Administration to make sure they will not have a harmful impact on the food that is used.

Mr. ROGERS. Should you have the authority to set these guidelines and restraints that would have no harmful effect on the environment?

Mr. STRELOW. This may ultimately be necessary and desirable.

Mr. ROGERS. Have you given any thought to this?

Mr. STRELOW. I don't mean to imply we have not given any thought to it. It is just that we are not in a position yet to say this is necessarily the way it should be handled. There are still other alternatives that cannot yet be ruled out.

Mr. ROGERS. What about plastics? What about the work done in England where they are supposed to have now even a bottle that can disintegrate?

Mr. VAUGHAN. This is the plastic coating that will dissolve under ultraviolet light—which will be sunlight—in a short period of time. They are also doing it in Canada. Two independent researchers came up with this at the same time. We have contacted them and are getting the results of their investigations to see if it has applicability.

Some people have suggested that a coating of this material with an insert of a water-soluble glass and then inner coating of this material would be an answer so that the sun would dissolve the plastic and then water after the first rain would dissolve the glass. These are some of the things we are looking into now.

Mr. ROGERS. When do you anticipate hearing from them?

Mr. VAUGHAN. We have already heard from them—the one in Canada; not the one from England.

Mr. ROGERS. Will you give us a rundown on that?

Mr. VAUGHAN. Yes.

(The following information was received for the record.)

CANADIAN RESEARCH ON DISSOLVABLE BOTTLES

We have become aware of two projects, one being carried out at the University of Toronto in Canada by Dr. James E. Guillet and the other at the University of Aston near Birmingham, England by Professor Gerald Scott. The early reports we have received from these scientists are incomplete because the research is still in its early stages, and apparently some of the processes involved are still considered quite proprietary.

Dr. Scott's investigations have been reported in the August 10, 1970 issue of Chemical Engineering. His group essentially found that small amounts of two additives can cause a plastic to degrade in ultraviolet light and become a colorless powder. They estimate that such a process could be commercialized as early as two years from now. The article indicated that several industrial firms have already demonstrated interest and will be involved in the development and evaluation of the additives. The first tests have apparently shown that the technique will work with polyethylene, polypropylene and polystyrene and the team believes it will also work with polyvinyl chloride. The report in Chemical Engineering indicates that the additives are relatively inexpensive and account for less than two percent of the total weight of the plastic. It is also indicated that the items prepared from plastic in this manner would disintegrate only in open sunlight. It is pointed out that window glass provides an effective shield. The estimates of the time required for disintegration are presently two months or more. We have requested more detailed reports on this process.

The work being sponsored by Dr. Guillet at the University of Toronto is similar to that being carried out by Dr. Scott. In response to a request for information, Dr. Guillet provided us with a copy of a press release issued by the University of Toronto. At the present time, patent applications have been filed by the University. Dr. Guillet has promised to write us as soon as it is possible for him to give us more definitive information regarding this project. The information we have on hand indicates that his group has learned how to approach the problem of making plastics much less stable out-of-doors. He has described the key to their success as the attachment of "sensitizer groups" along the skeleton of the polymer chain. He has indicated these could be included in commercial synthesis of the plastic in low concentrations. These groups are said to have the property of absorbing the ultraviolet light of the sun and then using the energy they gain to break the molecular chain. He points out that when the chains are broken plastic loses its customary physical integrity and may crack and become brittle. These actions would be conducive to natural erosion by wind, water, and soil. The small particles resulting from this erosion would then be more susceptible to attack by microorganisms. The products of microbiological degradation could then re-enter the ecologic cycle. He points out that he expects that the rate at which the degradation will take place will depend upon the intensity of the UV light, as well as the choice of the sensitizer groups which are fixed within the molecule. We are anxious, of course, to receive further information on Dr. Guillet's progress.

Mr. ROGERS. Are there any other breakthroughs that look imminent?

Mr. VAUGHAN. The one I mentioned to you is the result of some of our work in North Carolina on the water-soluble glass. This is from a litter-control standpoint.

I mentioned to Mr. Preyer some of the work we have done in paving, finding alternate uses for glass. I can't think of any right now.

Mr. ROGERS. Do you have research contracts out that you anticipate will bring in some new information?

Mr. VAUGHAN. Most of the research contracts that we have in this area are related to the separation of good material from a big waste stream, for example, a better classifier or piece of mechanical equipment that will get out what you want so that you can use it, overcoming that barrier. We have several of these.

Mr. ROGERS. I know of some research you have done, particularly at Palo Alto. I commend you for that type work. I think within your budget you have been trying to move forward. I think you need more people. There needs to be greater urgency in the Department in this whole area and I think you need greater funding and this committee, I think, will try to help you.

Thank you, Mr. Chairman.

Mr. JARMAN. Thank you, gentlemen.

Mr. STRELOW. Thank you.

Mr. JARMAN. Our next witness is Mr. Richard L. Cheney, executive director, Glass Container Manufacturers Institute, Inc., Washington, D.C.

I understand Mr. Cheney is accompanied by Mr. Eugene L. Stewart, also of Washington, D.C.

**STATEMENT OF RICHARD L. CHENEY, EXECUTIVE DIRECTOR,
GLASS CONTAINER MANUFACTURERS INSTITUTE, INC.; ACCOMPANIED BY EUGENE L. STEWART, COUNSEL**

Mr. STEWART. Thank you, Mr. Chairman.

I am Eugene L. Stewart, on behalf of the Glass Container Manufacturers Institute.

We are especially grateful to be scheduled to testify. I want to say in introducing Mr. Cheney that he is an expert in this field and we wanted to have the opportunity while your mind was focused on this subject to give you the information available through the Glass Container Manufacturers to be of assistance to the committee.

Mr. Cheney.

Mr. CHENEY. Mr. Chairman and members of the subcommittee, I am Richard L. Cheney, executive director of the Glass Container Manufacturers Institute, the association representing domestic manufacturers of glass containers. I am a graduate of the Massachusetts Institute of Technology in civil engineering. Our members have plants located in some 100 communities in 25 States, employing more than 70,000 persons.

The legislation which you have under consideration would directly affect the interests of American manufacturers of glass containers. Up to 40 percent of the glass container industry's markets would be wiped out by a ban on nonreturnable bottles and thousands of jobs would be lost. Our concern about this legislation is, however, not based entirely on economics and decreased employment. It is also based upon a concern for the environment which we share with the members of this committee.

H.R. 18988 explicitly contains a finding that nonreturnable containers present both a litter and a solid waste disposal problem. The ban on the sale of nonreturnable containers is a choice which the

sponsors of the bill would make to cope with that litter and solid waste disposal problem.

We are in sympathy with their desire to correct these problems; we disagree emphatically with their choice. We believe there are more realistic and, for the long term, sounder choices which will be much more efficacious in solving the litter and solid waste disposal problems involving nonreturnable containers.

In this testimony, I shall present for your consideration four major sets of facts which bear importantly upon the choice of remedy:

1. The public policy which has already been expressed by the Congress in legislation which directly deals with the development of effective remedies for the litter and solid waste disposal problems; further, the conclusions which have been drawn by other committees of the Congress in legislation which has passed both Houses based upon an exhaustive study of the litter and solid waste disposal problems and their impact upon the environment, and how these problems can best be dealt with on an expedited basis.

2. The facts pertaining to the position of nonreturnable glass containers in the litter and solid waste disposal problems so that realistic perspective can be gained in searching for a remedy to these problems.

3. The activities of this industry through research and cooperative programs with other interested groups in developing private remedies to contribute to a solution of the litter and solid waste disposal problems, and the lessons which may be drawn from those efforts in regard to the wisest choice of further governmental action in the area.

4. The impact of a proposed ban of nonreturnable containers on consumers.

5. The impact of a proposed ban on business.

CONGRESSIONAL ACTION RELATING TO LITTER AND SOLID WASTE DISPOSAL

Public policy in regard to a remedy for the litter and solid waste disposal problems is expressed in the Solid Waste Disposal Act of 1965, which was mentioned earlier this morning. There the Congress found that technological progress and improvement in the packaging and merchandising of consumer products created a problem as a result of the practices of consumers in discarding packaging materials and used consumer merchandise. The act took note of the financial and management problems which these practices presented to communities in solid waste disposal.

The act recognized that while the collection and disposal of solid waste is primarily a State and local responsibility, the Federal Government could make an appropriate contribution to the solution of these problems through financial and technical assistance in the development and application of new and improved methods of economical solid waste disposal. Accordingly, that act initiated a national research and development program to search for such solutions.

The Bureau of Solid Waste Management was created in the Department of Health, Education, and Welfare to carry forward the public policy expressed in the act, and the presence here in these hearings of officials from that Department and Bureau and their testi-

mony are evidence of the serious and continuing effort of the Federal Government to find constructive solutions to the litter and solid waste disposal problems.

We share with members of the Congress impatience for the achievement of dramatic solutions to these problems. We support the significant attention that is currently being devoted by the Congress to the matter of nonreturnable containers as part of the larger subject of solid waste disposal and recovery in the context of Federal environmental control programs.

The Resource Recovery Act of 1970, also mentioned earlier, S. 2005 and H.R. 11833, has passed both Houses of the Congress and is awaiting a resolution of the differences in conference. The legislation is designed to develop systems which will change the present method of dealing with the solid waste problems of communities by stimulating the development of resource recovery methods to provide for the economic use of waste.

The bill would authorize intensified research and demonstration of methods to improve the collection of wastes, disposition of nonreusable waste residues, and the recovery and recycling of usable wastes.

The bill reflects a recognition by the Congress that there is an urgent need to redirect the thrust of waste management from disposal to the maximum recovery of reusable materials. The bill provides for a program of grants to municipalities to achieve demonstration of resource recovery systems on an area wide basis. The program is designed to stimulate in the shortest possible time the development of systems designed to manage growing volumes of community wastes and to achieve maximum recovery of materials and energy from such wastes.

In the congressional hearings which preceded action on the bill, information was received describing various technologies and systems to achieve the recovery of resources from solid waste materials. The bill recognizes that it is urgent national policy to move this new technology into actual application both in large metropolitan areas and in smaller communities. The bill would provide 75-percent Federal assistance to develop and construct advanced systems of resource recovery. The intent of the program is to stimulate not only the development of technology and its application on an areawide basis to the waste disposal and recovery problems of large metropolitan areas, but also to stimulate communities to study their own circumstances with respect to waste management.

It is intended that the demonstration systems developed under the grant program which would be authorized by the act will provide guidance as to the types of construction which should subsequently be funded by the Federal Government.

The Resource Recovery Act of 1970 also authorizes studies of methods to reduce the production of waste in packaging, in the manufacturing of goods, and in the design of vehicles and other consumer goods which are discarded after use. The Congress specifically refrained from imposing disposal charges on products such as nonreturnable containers. The subject of the possible use of disposal charges in order to assure orderly marketing and recovery of articles which now become part of the solid waste problem was referred to the Senate Committees on Finance and Commerce for further study.

This pending legislation would also amend the existing Solid Waste

Disposal Act to expand the planning grant programs for municipalities and metropolitan councils of governments, to increase to 75 percent the Federal portion of grants to fund the planning of waste disposal and recovery systems.

Finally, the bill would create a National Commission on Materials Policy to report within 2 years on means for the extraction, development, and use of materials susceptible to recycling or nonpolluting disposal.

Action is also expected by this session of Congress on the Environmental Financing Act of 1970, S. 3468. This bill would create the Environmental Financing Authority to buy State and local bonds for constructing waste treatment facilities.

The National Environmental Policy Act of 1969, Public Law 91-190, established the Council on Environmental Quality. The Environmental Quality Improvement Act of 1970, Public Law 91-224, established the Office of Environmental Quality to provide professional and administrative staff for the Council on Environmental Quality.

The council's first annual report, which you quoted at the opening of the hearing, Mr. Chairman, was submitted to the Congress on August 10, 1970. That report, "Environmental Quality," contains a comprehensive overview of the problems confronting the Nation's environment, corrective actions which are underway, and opportunities for further correction in the future.

In chapter VI of the report, in a section entitled "Recycling and Reuse," the council notes that present techniques for separating and recovering solid waste materials are primitive, that recycling of solid waste materials into the economy is not widely applied, and that the Federal Government through the Solid Waste Disposal Act, administered by the Bureau of Solid Waste Management in the Department of Health, Education, and Welfare, and through the Bureau of Mines in the Department of the Interior, is now intent upon programs of research and development to achieve the recycling of solid wastes.

The report states that the Federal Government "is heavily committed to the emerging technology of salvage and recycling." The report states that "Federal research into mixed refuse sorting and salvage has advanced, and some innovations are nearly ready for widespread application." Municipal solid waste disposal systems are characterized as deficient. Regional solid waste management is declared to be the only rational approach to the solid waste disposal, recycling, and reuse objective through the control of solid waste management by metropolitan wide authority.

Specific recommendations are made that research and demonstration projects be focused on collection procedures, household sorting, sorting from mixed refuse to salvage valuable items, the mechanical removal of litter from public areas, and the recycling of solid waste. Federal support is recommended to aid urban areas to undertake innovations from research to large-scale demonstration projects. Intensive efforts are being made by the council to develop a solid waste recycling strategy in which help from industry, private research organizations, and all levels of government is requested. The council did not recommend a ban on nonreturnable containers.

Mr. Chairman, the careful study and attention which have been given by the Congress, its committees, and the executive branch of the Government through the Council on Environmental Quality

to the litter and solid waste disposal problems should commend themselves to your committee in its consideration of the present legislation.

It should be obvious from my review of the congressional legislation, committee reports, and the Council's report that every deliberative body which has given deep and thoughtful consideration to this problem has avoided the choice of such simplistic measures as a ban on the use of packing or consumer products which are found to be present in litter as any realistic solution to the litter and solid waste disposal problems. We think there is a lesson in these activities for your committee. That lesson is that the ban proposed by the legislation under consideration is not a realistic choice of a remedy.

THE POSITION OF NONRETURNABLE CONTAINERS IN THE LITTER PROBLEM

A number of reputable studies have been made showing that convenience packaging for beverages is only a small part of roadside litter and solid waste. The Highway Research Board of the National Academy of Sciences in 1969 completed a 29-State survey of roadside litter for Keep America Beautiful, the national antilitter organization. The studies in each State, in which litter was picked up along scientifically selected stretches of highway, analyzed, and counted, were conducted in cooperation with the respective State highway departments. The average national composition of litter revealed by this survey was as follows:

	<i>Percent</i>
Paper (containers, wrappers, newspapers, et cetera)	59
Metal cans (beer, soft drinks, food, et cetera)	16
Glass bottles and jars (beverage and food)	6
Plastic items	6
Miscellaneous	13

The composition of litter varied somewhat from State to State, but the relative position of the various categories remained constant. This nationwide study verified the findings of earlier litter surveys made in a number of individual States.

Note that one-way beverage bottles accounted for less than 3 percent of the litter picked up in the Highway Research Board study. Deposit bottles and other types of glass containers accounted for more than half of the glass total.

Thus, so far as bottles are concerned, this legislation before you today would affect under 3 percent of roadside litter.

It further becomes apparent that punitive action—in the form of forced deposits—on one-way beer and soft drink containers is no solution to the litter problem.

The Highway Research Board in a summary of findings in the 29-State roadside litter survey stated:

Study findings indicate that current attempts to reduce litter significantly by assessing special taxes or through development of "self-destruct" bottles may leave other problems unsolved. Litter components, including paper, automobile tires, construction material and random items represent a high percentage of the litter generated by motorists along the nation's primary highways. Control of cans and bottles alone will not solve the problem and additional punitive measures are not likely to prove effective.

This conclusion was proved by experience in Vermont, where in 1953 the State Legislature banned the use of one-way beer bottles. The law remained on the books until 1957 when it was allowed to

lapse after a commission appointed by the Governor found that the ban on no-return beer bottles had no significant effect on the volume of roadside litter.

THE POSITION OF NONRETURNABLE CONTAINERS IN THE SOLID WASTE DISPOSAL PROBLEM

Glass is chemically inert. It does not decompose or chemically react with adjacent land or water. Hence, glass does not cause pollution of either the soil or water. It does not rot or putrify and, thus, does not cause air pollution. Properly handled, glass makes a positive contribution to each of the three generally approved methods of solid waste disposal: Sanitary land fill, incineration, and composting.

Glass containers can readily be reduced to small pieces, and the glass fragments contribute to a firm foundation for land fill, desirable for the later use of such land fill. Glass containers enhance the operation of incinerators because they shatter as a result of heat shock in such a way as to aerate the batch. Glass does not decompose in incineration and thus does not contribute to air pollutants. Recent studies by the U.S. Bureau of Mines show that glass fragments in the incinerator residue can be reclaimed.

In composting, glass reduces quickly to small, harmless granules in a grinder or shredder and thus becomes compactible without clogging the machinery. It also acts as a soil conditioner in the compost, improving its quality.

Many studies have also been made in recent years of the composition of solid waste. An authoritative study reported in the April 1968 proceedings of the American Society of Civil Engineers revealed the following average composition of municipal solid waste in the United States:

	<i>Percent</i>
Paper.....	59.0
Wood and lawn and garden waste.....	10.0
Food waste.....	9.0
Glass, other ceramics, and ash.....	8.5
Metal.....	7.5
Clothes, rags, plastic, rubber, leather, and dirt.....	6.0

With regard to the glass, other ceramics, and ash category listed above, it is generally conceded that glass containers of all kinds account for about 5 percent of solid waste, and other ceramics and ash about 3.5 percent.

The Midwest Research Institute in a study for the U.S. Public Health Service concluded that all packages account for only 13 percent of residential, commercial, and industrial solid waste.

Although no authentic study has been made of the volume of non-returnable bottles and cans for beer and soft drinks in solid waste, the percentage obviously is small.

CONTRIBUTIONS OF THE GLASS CONTAINER INDUSTRY TO SOLUTIONS TO THE LITTER AND SOLID WASTE DISPOSAL PROBLEMS

A. Litter prevention

The Glass Container Manufacturers Institute has been actively involved for some years in a constructive effort to cope with the litter problem. In 1953, we were one of the founders of an organization

called Keep America Beautiful, Inc., whose purpose is to secure attention to the litter problem. Keep America Beautiful has become the Nation's recognized litter prevention authority. In addition to conducting programs of public education supported by massive advertising and publicity programs, it also encourages enforcement of realistic antilittering laws and the provision for adequate means of disposing of litter. It works closely with schools and youth organizations and is presently establishing a network of field offices to work even more closely with thousands of State and local antilitter groups throughout America.

Keep America Beautiful, and virtually all other groups at the forefront of the national litter prevention movement, proceed in the conviction that the answer to littering is public education, strict enforcement of antilittering laws, and provision of ample means for the disposal of litter (litter baskets and receptacles along highways and other public places, and litterbags in cars and boats).

To supplement the work of Keep America Beautiful, as well as that of thousands of State and local antilitter groups, the Glass Container Manufacturers Institute several years ago initiated its own industry litter-prevention program for execution by its member companies in their plant town communities. In this connection, a broad variety of antilitter projects, including an annual "Glass Container Industry Anti-Litter Week," were conducted in 1969 in more than 70 communities across America. Another major project was a letterwriting contest in which more than 65,000 schoolchildren participated.

GCMI, furthermore, works closely with its customer industries in the development of their litter-prevention programs. We have published litter-prevention guides for the brewing and soft drink bottling industries.

We have made a litter-prevention movie and published a "Litter Fact Book," of which more than 100,000 copies have been distributed. And, GCMI, in 1970, has broadcast hundreds of TV and radio announcements urging the public not to litter.

These extensive litter-prevention activities by KAB and industry are paying off in a number of ways. For the first time, in 1969 KAB's national litter index dipped below the base level of 100, after inching upward for several years. The dip was substantial.

And it now appears that help is on the way from still another source. At least two companies are developing equipment that will automatically pick up practically all litter in the roadside area that can be reached by a roadside mower.

One such device is being successfully operated by the Connecticut Highway Department, and they have ordered seven more of them. And one of our member companies is actively developing another concept for collecting roadside litter.

B. Solid waste management

The solution to the solid waste problem is not so much one of education as one of devising the suitable means for disposing of a rapidly growing volume of waste materials. About 95 percent of today's solid waste is disposed of in open dumps, landfills, or by incineration. The remaining 5 percent is converted into compost, flushed down the drain after passing through home garbage disposal units, or salvaged for reuse by industry.

The results of some of this research lead us to the conclusion that there are more potential uses for waste container glass than there is glass available from refuse now or in the foreseeable future.

The most immediate potential for the reuse of glass containers is in making new bottles and jars. Bottlemakers traditionally have used glass, or cullet, as they call it, for about 5 percent of their raw material mix. It facilitates the melting process and lowers fuel consumption. Research, however, indicates that 30 percent or more of the raw material mix could well be crushed, used containers. This one use, therefore, could provide a market for about one-third of all the glass bottles made and used in the United States.

To this end, we are sponsoring research at Stanford Research Institute and the Sortex Co. in cooperation with Health, Education, and Welfare, to develop the mechanical means for separating container glass from raw refuse and then sorting it optically by color for recycling back into the bottlemaking process. This research shows great promise.

Meanwhile, as a first step in establishing meaningful recycling operation, the glass container industry has instituted an industrywide bottle redemption and recycling program at 100 bottle-manufacturing plants in 25 States. Most glass container manufacturers are paying a penny a pound, or its equivalent, for all types of used glass bottles. In the Los Angeles area, where the program started at eight plants on a pilot basis in April, more than 1 million bottles a week are now being redeemed. The nationwide program is leading to the salvage and reuse of tremendous volumes of used bottles and jars.

Furthermore, we are cooperating with the U.S. Bureau of Mines on its successful development of techniques to magnetically separate the glass and metal fractions from incinerator residue. The Bureau also has developed technology for converting the salvaged glass into building bricks and glass wool insulation. Mr. Stewart has samples of these two products here. With color sorting and automatic removal of contaminants, which appear to be feasible, this glass could also be used as cullet to make new bottles.

An even larger potential exists in the use of crushed waste glass as aggregate in glasphalt, a product being developed by the University of Missouri, in Rolla, Mo., in which the glass substitutes for crushed limestone in asphalt for paving streets, and Mr. Vaughan has spoken of this. Here is a sample of a glasphalt block cut out of a parking lot where it was in use for 3 or 4 months. The white colored aggregate in there is glass. The project is being partially supported by a grant from the Department of Health, Education, and Welfare. Estimates indicate that the need for such aggregate in most cities would far exceed the available glass. Most municipalities have their own hot-batch asphalt plants and would need only to remove the glass from their own refuse and crush it for such a use.

The feasibility of this reuse of glass is being thoroughly tested in pilot projects consisting of sections of roads paved with this glasphalt material at the University of Missouri and at glass company facilities at Toledo, Ohio, and Winchester, Ind. We are quite optimistic that this will prove to be a major development.

The ultimate solution, of course, should be the separation of all components out of waste and returning them for reuse to their respective industries, such as paper back to the papermill, aluminum back

to the smelter, scrap iron to the foundry, and glass to the glass plant; this is very important to the future of the country.

Thus, separation becomes the major problem. New methods for separating and salvaging refuse are being developed by industry and need only the opportunity for full-scale pilot programs in a typical community to demonstrate their worth. Our work with glass is one example. Another is the development of a unique wet system capable of crushing and separating glass, metals, and paper pulp from other materials at a cost, we are told, of approximately \$2.50 a ton of raw refuse. This includes operating costs and amortization in a proposed plant designed to handle 500 tons of waste per day. The Glass Container Manufacturers Institute is working with various research organizations further to refine glass from this process for reuse in glass furnaces.

We estimate that more than 30 new refuse management systems are presently in varying stages of development in the private sector. These are all under surveillance, of course, by the Bureau of Solid Waste Management of Health, Education, and Welfare. As you will note from the attached appendix (see p. 48), these include volume reduction by high temperature incineration with a potentially reusable byproduct of slag, composting methods that incorporate all organic and glass refuse into a useful soil conditioner, and salvage techniques recovering some or all usable materials in refuse.

Projects such as these place us at the threshold of a new generation of solid waste disposal. This will be a generation of systems and automation. We are convinced that continued cooperation between Government and industry, coupled with the system of grants provided by the Resources Recovery Act, will make this new era of waste disposal a reality.

At this point, I would like to tell you that on August 13 a new organization called the National Center for Solid Waste Disposal, Inc., was incorporated as a nonprofit corporation for the purpose of conducting and supervising research in the solid waste management field. The incorporators are members of the packaging and beverage industries and we are very hopeful that through the pooling of our resources here our research money can be made to complement and aid and assist what the Federal Government is doing in this area.

THE PROBABLE IMPACT OF A BAN ON NONRETURNABLE CONTAINERS ON CONSUMERS

The basic direction of the so-called packaging revolution has been toward disposable packages for all products. Literally, everything the housewife brings home from the supermarket is in its own individual disposable package. With the partial exception of milk, soft drinks and malt beverage containers, the packages are nonreturnable. The returnable glass milk bottle is approaching extinction and the use of returnable beer and soft drink bottles is declining. Many retail outlets refuse to handle them, and a growing number of consumers are unwilling to carry bottles back to the store, even if they can redeem deposits. With more than 40 percent of housewives holding jobs outside the home, today's convenience packages become absolute necessities.

Convenience packaging is the accepted way of life with modern American retailers and consumers.

Soft Drinks magazine, a leading monthly trade journal servicing the bottling industry, makes an annual survey of consumer package preferences based on actual purchases in retail stores. In this publication's last survey, reported in July 1970, it was found that 57 percent of supermarket shoppers selected convenience packages for soft drinks—31 percent made their purchases in one-way bottles and 26 percent in cans.

The U.S. Brewers Association reports that in 1969, some 72 percent of packaged beer sales were in convenience containers—cans accounted for 51 percent and one-way bottles 21 percent.

In many areas, particularly in large cities, the number of round trips made by returnable bottles has decreased drastically. In New York City, for example, Pepsi-Cola last year raised the deposit to 5 cents to protect a new inventory of 600,000 cases of 16-ounce returnable bottles. The inventory was exhausted in 6 months, which means that customers had forfeited \$720,000 in deposits—in a city with a large ratio of underprivileged citizens.

In other cities across the Nation, Baltimore and Seattle for example, the use of returnable bottles is largely rejected by the public. Our conclusion therefore is that the consumer does not wish to return to the returnable.

THE IMPACT ON BUSINESS

Legislation outlawing nonreturnable beer and soft drink containers would create severe economic dislocations in industries employing hundreds of thousands of people.

Among those hardest hit would be the glass container industry which, in response to consumer demand and for competitive reasons, has invested heavily in research and development of improved nonreturnable bottles and in manufacturing capacity to produce them. About 40 percent of the glass container industry's manufacturing capacity is devoted to the production of nonreturnable bottles for soft drinks and beer. This market would be drastically reduced by a conversion to returnable bottles and thousands of glass container plant employees would be put out of work. Such legislation would have a similar effect on can manufacturers and their employees. More than 35 percent of the cans manufactured in the United States are used for soft drinks and malt beverages, and all of these cans are nonreturnables. The crippling effects of limitations on convenience containers by no means would be confined to the glass container and metal can manufacturing industries.

A major segment of the brewing industry has keyed its production, distribution, and marketing operations to the concept of convenience packaging. Massive sums have been invested in highly efficient breweries designed for packaging beer and other malt beverages in nonreturnable glass and metal containers. Huge investments in can filling and handling lines would be lost. Many of the built-in technological advances and cost efficiencies would have to be sacrificed if these highly automated facilities were converted to returnable packaging.

Virtually all of these disadvantages apply to the soft drink bottling industry, which comprises more than 3,300 companies, large and small, in all parts of the country.

I want to add here that I do not undertake to speak for these industries. They are customarily industry customers of ours. I have

been in touch with my counterpart in those industries. They tell me that they have not had time to prepare statements for this hearing, but I believe they are going to request an opportunity to be heard at a later hearing on these bills.

Per capita consumption of soft drinks has more than doubled in the past two decades and total consumption has nearly tripled. The fastest rate of growth has been in soft drinks packaged in nonreturnable containers. Several hundred bottlers no longer have bottle sanitizing equipment to handle returnables.

Supermarkets, which represent a major outlet for soft drinks and beer, would be severely affected by restriction on the use of nonreturnable beverage containers. The resultant slump in sales would compound the economic loss sustained by soft drink bottling and brewing firms, which rely heavily on supermarket distribution. Rising costs of labor and overhead make it economically unfeasible for high-volume retailers in many parts of the country to provide the added floor space, storage area, and personnel required for handling used bottles. The returned empties—which must be stored in the same building with food products—can also create sanitation problems.

Some 20 percent of soft drinks consumed in the United States are sold through coin-operated vending machines at gasoline service stations, school cafeterias, and other locations. Bottlers, vending companies, service stations, and other location owners have invested huge sums in automatic machines designed for dispensing soft drinks in nonreturnable glass and metal containers. Much of this investment would be irretrievably lost if the one-way packages were removed from the market.

Mr. Chairman, I have pointed out that the public policy expressed in existing Federal legislation makes a choice of different alternatives than the banning of nonreturnable containers to cope with litter and solid waste disposal problems which affect our environment.

I have called attention to the considered conclusions which have been drawn by other committees of this Congress seeking to expedite the application of correctives to these problems which likewise point to the development of alternatives other than the ban of nonreturnable containers.

We have examined with you the actual dimensions of the litter and solid waste disposal problems as they relate to glass containers and have found all glass containers, let alone nonreturnables, to be an exceedingly small part of those problems.

We have shown you that glass by its very nature is, oddly, a constructive element in the disposal of solid waste, facilitating land fills and incineration, and offering the promise of real economic value to communities willing with Federal help to innovate in the recycling of solid wastes.

Finally, we have shown that the adoption of the proposed ban on the use of nonreturnable containers would deprive consumers of a choice of convenient packaging for which they have demonstrated an emphatic preference.

In all seriousness, we share the committee's concern in the underlying problem, but feel that the choice of remedy proposed by the existing legislation is not only unfortunate in its implications for consumers and our industry but, in fact, unworkable so far as contributing to a solution of environmental problems. We believe that an especially

tragic aspect of the adoption of the proposed legislation would be the disorientation which would inevitably result in the energies and attention of communities which are now being encouraged by the Federal legislation to which I have referred to seek more enduring solutions to these problems.

We therefore urge that the pending legislation not be favorably considered by the committee.

(The appendix referred to follows:)

APPENDIX

INDUSTRIAL ORGANIZATIONS KNOWN TO BE ENGAGED IN RESEARCH TO DEVELOP SOLID WASTE MANAGEMENT SYSTEMS AS OF MAY 1970

A. Complete Systems

1. Black Clawson Company, Middletown, Ohio: Hydrapulper; wet separation system—separates paper pulp [not de-inked], metals, glass, and unusable material at an estimated cost of about \$2.50 a ton, with a 500-tons-a-day plant. A pilot plant is operating and funding is needed for demonstration.

2. Lone Star Organics, Houston, Texas [subsidiary of Metropolitan Waste Conversion Company]: Compost system; separation of paper, metals, and glass. A plant capable of 350 tons a day has been operating for several years.

3. Combustion Power Company, Palo Alto, California: CPU-400 system; incineration, salvage of metals and glass, and power generation. This is in a pilot plant stage, supported by Bureau of Solid Waste Management, PHS.

4. Naturizer Corporation, Norman, Oklahoma: Composting systems; salvaging metals and glass. The composted materials are used with fertilizers and for animal feed. Pilot plant operation at 35 to 100 tons a day.

5. IIT Research Institute, Chicago, Illinois: High temperature separation of glass from metals. These minerals refined by density differences and reused for secondary materials. Research stage.

6. Battelle Memorial Research Institute, Richland, Washington: System of separation and reclaiming refuse. Separate newspapers and garbage from containers. Glass, metal, and paper containers separated by shape and color for crushing and reuse of material.

7. Hercules, Inc., Cumberland, Maryland: Complete system of handling refuse by separation and salvage; details unknown. Research stage.

8. Franklin Institute Research Laboratory, Philadelphia, Pa.: Gravity separation of household refuse into paper, plastics, glass, and metal. Research and pilot stage.

9. Conservation Industries, Inc., Pittsburgh, Pa.: Composting system where all refuse is ground and used, including metals and glass. Company will provide financing, construction, and operate facilities. They have market for all compost with fertilizer nutrients added.

10. The Sira Corporation, Los Gatos, California: A system of high temperature incineration, metal salvage, and utilization of slag residue. A pilot plant is operating [Bath Industries].

11. Pan American Resources, Albuquerque, New Mexico: Central to this system is pyrolysis unit for incineration at moderate temperature and reduced air pressure. Metals and glass are separated either before or after incineration. Carbon material converted into charcoal. Research and pilot plant operating. The early version of this unit was known as the Lantz Converter.

12. General Electric Company, Shelbyville, Indiana: Developing a vortex incinerator [developed by FMC], utilizing a shredded [fluidized] principle of volume reduction. Some reclamation is possible. Research pilot plant capable of 5 tons an hour being constructed.

13. Industrial Services of America, Louisville, Kentucky: Presently have assembly line for separation of corrugated paper and metal. They are developing means of automatic salvage of all fibrous materials in solid waste.

14. Stanford Research Institute, South Pasadena, California: System to crush refuse and separate components by enriching and refining. Supported by Bureau of Solid Waste Management and Glass Container Manufacturers Institute, Inc. Research stage.

15. Federated Waste and Pollution Control, Hoboken, N.J.: System of pulverizing refuse and producing compost.

16. Fairfield-Hardy System, Altoona, Pa.: Non-combustible materials pre-separated. Organic material pulped, digested, and composted for use with fertilizer. Plant in operation almost 10 years.

17. Sears-Westinghouse [International Disposal], St. Petersburg, Florida: Separate, then pulverize and digest for compost. 105-tons-a-day capacity.

18. Dravo Corporation, Pittsburgh, Pa.: Dravo/flo system incineration, high temperature. Reduces refuse to 6 percent of volume; burns with siliceous material to form slag. Research and pilot stage.

19. General Ecology System, Pittsburgh, Pa.: Separate and salvage large material. Pulverize and compost the organics, using special bacteria. Unusable materials pulverized and fed under pressure into furnace. Early pilot stage.

20. Gainesville, Florida: Cooperative project of the University of Florida, City of Gainesville, and Metro Waste Conversion Company. Some separation of refuse, and composting. In operation.

21. Heil Company, Milwaukee, Wisconsin: Developing system of limited separation for salvage and pulverizing refuse for stable landfill. Separation system under development; pulverizing system now used at Madison.

22. Carborundum Company, Erie, Pa.: High temperature means of incinerating refuse at low pressures. Volume is reduced over 95 percent and slag can be used for construction. Gases are cleaned or collected. Research and pilot stage.

23. Williams Patent Crusher and Pulverizer Company, St. Louis, Missouri and American Baler Company, Belleview, Ohio: Developing systems of shredding, baling, and dry volume reduction of municipal refuse. At present they are devising a pilot study by combining several components into a system.

24. Hugo New-Proler, Material Metals, and Ogden Corp., Los Angeles, Calif.: Assembling a system of shredding automobile hulks and recovering nonferrous materials.

25. Fiber Process, Inc., Piqua, Ohio: Developed methods for salvaging and reusing plastic materials used for automobile upholstery, and wire and cable wrapping. Pilot plant in operation and larger facility being constructed.

26. Action Transfer Centers, Inc., Los Angeles, California: Developing recycling concepts for separation and distribution at transfer stations. Research status.

27. Rekaln, Denver, Colorado: Developing recycling system for municipal refuse. Initial research complete; assembling components.

28. Auto Pak Company, Riverdale, Maryland: Currently manufacturing stationary compaction equipment, but are developing a recycling concept to produce new products from processed refuse.

29. American Thermogen, Inc., Whitman, Massachusetts: High temperature incineration; volume reduction. Pilot plant stage.

30. M. J. Clark Corp., Delphos, Ohio: Automatic system of separation of refuse for salvage and reuse. Liquid and mechanical separation. Research stage completed. Developing pilot system.

31. Monsanto Enviro-Chem Systems, Inc., Chicago, Illinois [a subsidiary of Monsanto, Inc.]: Developing a system of separation and pyrolysis of municipal refuse. The gases and inert solid by-products are collected for reuse. A prototype plant with a capacity of 30 to 50 tons a day is operating near St. Louis, Missouri.

32. Mercer Alloys Corporation, Pittsburgh, Pa.: Separate for salvage, glass, fiber board, steel, and nonferrous metals, Material, possibly mixed with sewage sludge, will be composted. Advanced research stage.

33. Garrett Research & Development Company, La Verne, Calif.: Combination dry and wet separation of refuse to salvage paper pulp, metals, glass, and gases [by pyrolysis]. Study is in early pilot plant stage.

34. Bath Industries, Milwaukee, Wis. [Holding Company for Sira Corp.]: High temperature processes, forming a marbleized slag. Research and pilot stage.

35. Ferro-Tech Industries, Pittsburgh, Pa.: Intermediate temperature using a hot blast cupola. Planning and research stage.

B. Subsystems

1. Reynolds Aluminum Company, Richmond, Virginia: Developing systems to sort metal cans from aluminum cans in regional collection stations. Aluminum cans processed for reuse in aluminum industry.

2. Sortex Corporation of America, Lowell, Michigan: Developing system of refining glass concentrates received from various systems, and sorting of glass by color for reuse in glass furnace.

3. American Paper Institute, New York, N.Y.: Field studies to determine the feasibility of collecting newsprint and de-inking for reuse.

4. Material Disposal Services, Barrington, Illinois: Developing systems to reclaim fibers in refuse.

5. Waste Management, Incorporated, Hindsdale, Illinois: Developing means of recycling fibrous materials, Research stage.

6. Sacramento Waste Disposal, Inc., Sacramento, Calif.: Currently baling and shipping 1,500 tons a month of corrugated paper and 600 tons a month of newsprint to secondary mills. This system has been developed through an affiliate company and has been approved by the City of Skokie, Illinois.

Mr. JARMAN. Thank you, Mr. Cheney. The problem is of tremendous magnitude in our country. Certainly the human element is a mighty big factor in any effective solution that we can achieve.

Mr. ROGERS?

Mr. ROGERS. Thank you, Mr. Chairman.

Mr. Stewart and Mr. Cheney, we appreciate your being here and giving us this information. As I understand it then, it is your position that you do not hold much hope for a returnable bottle program, but rather we should proceed to try to reuse and recycle the glass.

Mr. CHENEY. That is right, along with all the other containers. As we have to stop and realize, all containers except these two are single-trip containers.

Mr. ROGERS. You may not have this, but if you could furnish it for the record, what is the cost of the production of the brick and of the glasphalt? Can it be competitive?

Mr. CHENEY. The Bureau of Mines believes the brick can be competitive. We are working with them. They are currently, I understand, making an economic study.

It would depend on a number of factors. It would vary by locality, of course.

Mr. ROGERS. What about the glasphalt?

Mr. CHENEY. The average city, we understand from the folks at the University of Missouri, pays from \$2 to \$4 a ton for crushed limestone or other stone aggregate that they use in their asphalt plants.

So that this crushed glass, if it can be separated and sent over to the city asphalt plant, has a value of between \$2 and \$4 a ton. In New York, for example, it costs \$8.50 a ton to take solid waste to land fills and bury it. Taking the negative value, the community has a chance to recover some \$10 a ton if they would adopt this glasphalt.

Mr. ROGERS. What is the budget that the Glass Container Manufacturers Institute devotes to research, or your member companies?

Mr. CHENEY. I don't have the figure for our member companies, except in general terms. We think the member companies probably devote \$20 million a year in total to research.

Mr. ROGERS. I notice that you listed at the end of your statement some of the companies and the research they are doing. I think it would be helpful to the committee if you could let us have a breakdown of what they are doing and the results.

You have indicated some of the more plausible attempts to do something here.

Also, I think it would be helpful to maybe list for us whether any of these ideas have actually been put into effect. I know we are recycling paper, about 60 percent as I recall, and 40 percent of the copper. Maybe not 60 percent on paper.

Mr. CHENEY. Paper is about 20 percent.

Mr. ROGERS. I think it is 40 percent on copper, as I recall.

Mr. CHENEY. I should think so. It has high value.

Mr. ROGERS. I think it might be well to have a rundown on recycling of your products or similar products, where it is being done, and the cost factors and so forth, and any new and innovative ideas that are being developed, where pilot plants have been in operation or are in operation, that offer some hope.

Mr. CHENEY. I will be glad to do that.

(The information requested was not available to the committee at the time of printing.)

Mr. ROGERS (presiding.) Mr. Kyros?

Mr. KYROS. Thank you, Mr. Chairman.

I have just a couple of questions.

I notice here on returnable containers that there is a question of whether or not people even redeem them for their deposits. Is that right?

Mr. CHENEY. Yes.

Mr. KYROS. I remember about 30 years ago, in the late thirties, we used to wake up in the morning and go by a dance hall in Maine and pick up all the returnable bottles and get a nickel or 2 cents. That was all the excitement we ever had some of those mornings. It was fun.

Today people don't take them back to get the 2 cents or 5 cents; is that right?

Mr. CHENEY. That is right. The example in the statement shows what happens. Two years ago, in New York City, Pepsi-Cola wanted to introduce a 16-ounce bottle—returnable bottle. They raised their deposit from 2 cents to a nickel. They introduced 600,000 cases of bottles, which is 14.4 million bottles, in the market in the spring. Six months later, the bottles were all gone and the public had forfeited \$720,000 in deposits.

The fact that the highway survey that was quoted by Mr. Strelow shows that 40 percent of the bottles picked up in this national survey along the highway were returnable bottles indicates that the convenience seems to be the principal desire of the majority of people.

Mr. KYROS. So you think, Mr. Cheney, that the path which we should take is the recycling, as you pointed out.

Mr. CHENEY. Yes; and education and enforcement in the litter field. After all, it is the people who throw them out. Those people have taken those beverages along in the car for refreshment purposes. They have shown that the deposit of the sizes in existence does not deter a lot of them from throwing them away. If they took them in other containers, they would probably throw those away.

Until we can reach them—and we are beginning to reach them with education, and there are a lot of these people who are strongly favoring the returnable bottle because they recognize the ecological or environmental problems here. They are helping in this educational process, trying to get people to understand the civic duty of having a litter bag and bring this material home instead of littering it.

The States are going to have to have much better facilities, more receptacles, and more frequent service.

Mr. KYROS. Thank you.

Mr. ROGERS. Mr. Preyer?

Mr. PREYER. Thank you, Mr. Cheney. I think it is a very good statement. I think the information Mr. Rogers asked for is the same

thing that would interest me; that is, the alternative to a returnable bottle program is a recycling program—how close are we to making the recycling program economically feasible, and what kind of effort is going into it, and what results are we getting?

Thank you very much.

Mr. CHENEY. Thank you.

Mr. ROGERS. Has the industry done any study other than the study you submitted which was done by the National Academy of Sciences on the present litter pattern? I see that study was done in 1969. There has been a great change, I think, in the conscience of the country on litter and waste. I wonder if any new study has been done on this.

Mr. CHENEY. No; it has not been done. That is only a year old, but you have a point, the whole change of attitude here might make it desirable to get that done again.

Mr. ROGERS. I think maybe not on an extremely large scale, but I would think perhaps by contacting some of the State highway people maybe we could get some facts.

If this could be done, I think the committee would be interested in receiving that.

(The information requested was not available to the committee at the time of printing.)

Mr. CHENEY. They are very cooperative. In fact, most of the work was done by the highway departments for the National Academy.

Mr. ROGERS. What do you think about giving the Secretary authority to set standards or guidelines?

Mr. CHENEY. I would think that would be far too broad an authority to be in the public interest. These things are highly technical; they have complex economic and social aspects. I should think that they should be dealt with in individual cases.

I don't think that would be in the public interest.

Mr. ROGERS. Are there any other questions?

Thank you very much for the information you have given the committee.

Mr. CHENEY. Thank you, Mr. Chairman.

Mr. ROGERS. Our next witness is Mayor Leo Green of the city of Bowie, Md.

Mr. Mayor, the committee welcomes you. We will be pleased to receive your statement at this point.

STATEMENT OF HON. LEO GREEN, MAYOR, BOWIE, MD., IN BEHALF OF THE BOWIE CITY COUNCIL

Mayor GREEN. Thank you, Mr. Chairman, and distinguished Congressmen.

My name is Leo Green, mayor of the city of Bowie, Md. On behalf of the Bowie City Council, I welcome this opportunity to appear before the Subcommittee on Health and Welfare concerning the proposed nationwide banning of the sale of soft drinks and beer in nonreturnable containers.

In my view, a kind of suffocation by trash hovers over the homeland, and this eminent committee, by taking up this measure, is addressing itself to the menace.

It is reported that Americans last year threw away 37 billion cans and bottles that had contained beer and soda pop. I submit that this is a squandering of the national wealth that is intolerable. We are expending treasured natural resources to create mountains of unusable material.

The necessity of doing away with one-way containers for beer and soft drinks is a philosophy my colleagues on the Bowie City Council and I share with Congressman Joseph Vigorito and the 22 Members of the U.S. House of Representatives who have joined him in cosponsoring H.R. 18988.

Evidence that the Bowie City Council thinks the way these distinguished lawmakers do would be the Bowie ordinance passed this summer to take effect next April. It contains provisions affecting our community that parallel ones in the measure you have under consideration for nationwide application. Our ordinance bans sales in Bowie of beer and soft drinks in anything but returnable containers.

I would like to give you some background with respect to how we came to the consideration of this problem in Bowie. We had been studying antilittering laws for some time and concluded they were ineffective and enforcement was nil.

In Prince Georges County, from January 1 to June 1 of 1970, there were six littering citations. In the entire Washington metropolitan area, as reported by a metropolitan paper, there were only 16 citations.

But our considerations to ban nonreturnable soft drink and beer containers grew out of our Earth Day ceremonies on April 22, 1970. The young people also clearly identify the problem when they gathered hundreds of pounds of nonreturnable beer and soft drink containers in their cleanup campaign during Earth Week. We also were conscious of this problem in our natural environment and the statistics and studies available in this regard.

I would like to differ with the representations made this morning with respect to the amount of nonreturnables on our highway. I refer to the statistics in Business Week this week where a survey in Vermont showed that 90 percent of the litter picked up off the highways was nonreturnable beer and soft drink containers.

I refer also to the study made by our young people during the week of Earth Week which coincides with the Vermont study.

In this connection, I believe the citizens and the consumers are totally aware of this litter situation. At the time that we held our legislative hearings, industry's representatives stated that the consumer would not support our particular legislation, and, moreover, the citizens would not support the legislators who were proposing it.

I think one of the things that really got us disturbed was the fact that we were told some 19 jurisdictions had considered such a law. But, the legislation was defeated by industry statements made in the State assemblies or before municipalities. We thought someone should take a step to attack this problem.

Our commitment to pass this legislation was based on: (1) The litter of these containers was destroying the quality of our environment—I think this is evident to you, your constituents, and to anyone who travels our streets and our public highways; (2) the rising cost to the taxpayer in gathering and disposing of these containers was becoming unconscionable. Our city budget with respect to waste disposal went up 200 percent in this regard.

The city of New York has statistics, and there are many studies, Mr. Chairman, that in New York alone it takes only 5 cents to put a nonreturnable on the street. But it takes 35 cents to take it off. This gives you evidence of the public taxpayer's cost in this area.

We believe, however, that although we took a small step, we want it to be the catalyst for the State legislatures and for you, the Congress, to take appropriate measures on a comprehensive basis to attack such pollutants. Our action was a small step, but your consideration and eventual approval of legislation will be the giant step. I trust you will take this courageous step.

The legislation is an idea whose time has come. I believe the legislation is ecologically, economically, legally, and, yes, morally sound at this time.

We applaud and commend Congressman Vigorito for his introduction of the bill. We truly realize there must be some balance between the economy and the ecology problems facing our country today. Congress should consider giving tax incentives and legislative directions to induce industry to make the technological changes and adopt recycling methods.

Lastly, we are in a desperate race against destruction of our environment. We, as citizens, must make sacrifices and reform our institutions if we are to insure a continued good life for ourselves and our children in the years ahead. Time is running out.

This legislation is one small way in which we can preserve and improve the quality of our environment. I might say that we have received thousands of communications since we enacted our ordinance, effective April 1, 1971; it was the first and only law enacted in the country at the time.

There have been hundreds of requests for copies of this ordinance. Also, I have received proposed law review articles which support the constitutionality and legality of it.

I say that the industry is misreading the consumer and your constituents when they say the consumer will not abide by some reasonable ban on these nonreturnable bottles. I think this is the message and finding you will make after studying the problem.

We are a small town but we felt this step would enable us to improve the quality of our environment, and to attack now the problem for our taxpayers. I think that your consideration of this problem is most appropriate. I applaud you and I hope you will pass legislation that will remedy this problem in our country today.

(Mayor Green's prepared statement follows:)

STATEMENT OF HON. LEO GREEN, MAYOR, CITY OF BOWIE, MARYLAND

Mr. Chairman, my name is Leo Green, Mayor the City of Bowie, Maryland. On behalf of the Bowie City Council, I welcome this opportunity to appear before the Subcommittee on Health and Welfare concerning the proposed nationwide banning of the sale of soft drinks and beer in non-returnable containers.

In my view, a kind of suffocation by trash hovers over the homeland and this eminent committee, by taking up this measure, is addressing itself to the menace.

It is reported that Americans last year threw away 37 billion cans and bottles that had contained beer and soda pop.

I submit that this is a squandering of the national wealth that is intolerable. We are expanding treasured natural resources to create mountains of unusable material.

The necessity of doing away with one-way containers for beer and soft drinks is a philosophy my colleagues on the Bowie City Council and I share with Congressman Joseph Vigorito and the 22 Members of the U.S. House of Representatives who have joined him in co-sponsoring H.R. 18988.

Evidence that the Bowie City Council thinks the way these distinguished lawmakers do would be the Bowie ordinance passed this summer to take effect next April. It contains provisions affecting our community that parallel ones in the measure you have under consideration for nationwide application. Our ordinance bans sales in Bowie of beer and soft drinks in anything but returnable containers.

As background, we had been studying anti-littering laws around us for some time and concluded they were ineffective and enforcement was nil. But, our considerations to ban non-returnable soft drink and beer containers grew out of our Earth Day Ceremonies on April 22, 1970. The young people also clearly identify the problem when they gathered hundreds of pounds of non-returnable beer and soft drink containers in their clean-up campaign during Earth week. We were also conscious of this problem in our natural environment and the statistics and studies available in this regard.

We, therefore, decided to use the legislative process in our democratic system to attack the problem. We became more determined when our studies showed that nineteen states presently had this legislation under consideration but no bills were ever passed because of the strong opposition of the industry.

In short, our commitment to pass the legislation was based on (1) the litter of these containers was destroying the quality of our environment; (2) the rising cost to the taxpayer in gathering and disposing of these containers was becoming unconscionable. We fully understood at the time that our action might be challenged in Court. We believe, however, it would be the catalyst for the state Legislators and Congress to take appropriate measures to comprehensively control such pollutants to our environment. Our action was a small step but your consideration and eventual approval of legislation will be the *giant step*. I trust you will take the courageous step.

At the Hearings on our legislation, the industry and local retailers stated the consumer would not buy returnables and would not support the ordinance. We believe they were wrong. Our convictions have been vindicated by the tremendous response we have received about our legislation. Thousands of communications and hundreds of requests for the ordinance have been received. The fact you are considering a similar piece of legislation today is testimony to our judgement and the national feeling.

This legislation is an "Idea whose time has come." It is ecological, economical, legally and, yes, morally sound.

We applaud and commend Congressman Vigorito for his introduction of the bill.

We truly realize there must be some balance between economy and ecology. Congressmen should consider giving tax incentives and legislative directions to industry to make the technological changes and adopt re-cycling methods.

Lastly, we are in a desperate race against destruction of our environment. We, as citizens, must make sacrifices and reform our institutions if we are to insure a continued good life for ourselves and our children in the years ahead. Time is running out.

This legislation is one way in which you can preserve and improve the quality of our environment.

I would like to make the point that the Bowie ordinance banning one-way containers was not a quixotic move to gain publicity or notoriety. Rather, the ordered ban is part and parcel of a concerted program on the part of the City Council and the citizens of our community to make Bowie a better place in which to live, now and on into the next century.

To substantiate the point, and with your forbearance, I will cite in capsule form other elements of that program:

The City of Bowie proudly spends more tax money per capita on parks, recreation and development than most communities in the U.S., having purchased in excess of 500 acres of open space.

An innovative master plan to govern the City's growth was coauthored by the City of Bowie and the Maryland National Capital Park and Planning Commission.

The City won two National awards in as many years for community-wide clean up—fix up efforts.

An Environment Control Commission ordinance was initiated.

A program to renew older sections of the City is being implemented.

A program has been put into effect that will encompass the City's waste disposal needs over an extended period.

Community safety was a consideration in the enactment of Bowie's container ordinance. Non-returnable bottles are hazardous because they have thinner walls, breaking more easily than two-way bottles intended for reuse. Thanks to the ordinance there should be less fragmented glass on the playgrounds and in the parks of the City.

Use of returnable containers translates into an appreciable saving for the consumer. A survey by the Crusade for a Cleaner Environment conducted in the Washington, D.C. and Richmond, Virginia areas indicates that, in those two communities, a six-pack of soft drinks in throwaway cans costs 20 cents more than a six-pack of returnable bottles.

But more. A community that bans throwaways saves tax dollars that would have been expended for extra trash collection, litter clean-ups and landfill acquisitions.

The City of Bowie has submitted a request to the Attorney General of the State of Maryland for an opinion as to the legal sufficiency of our container ordinance.

Does the City Council of Bowie have the power to enact such an ordinance?

I can assure this committee that my fellow Councilmen and I will be more than satisfied if our action has served as a catalyst to induce a jurisdiction with wider scope, state or national, to legislate our ordinance into law.

My Council colleagues and I urge this distinguished group to report favorably on H.R. 18988 with a view to having this measure, designed to redeem our despoiled environment, become the law of the land.

I thank you for your attention.

Mr. ROGERS. Thank you very much, Mayor Green, for your statement.

I wonder if you would submit for the record a copy of your ordinance. You may not have it with you.

If you do, we will receive it now.

Mayor GREEN. Yes, sir.

(The ordinance referred to follows:)

ORDINANCE OF THE COUNCIL OF THE CITY OF BOWIE, MARYLAND, PROHIBITING THE SALE OF CERTAIN NON-RETURNABLE OR DISPOSABLE BEVERAGE CONTAINERS WITHIN THE CITY OF BOWIE

Whereas, the use of certain disposable beverage containers and their consequent disposal is producing an adverse effect upon the environment which is injurious to the health, safety, comfort, convenience, welfare and happiness of residents of this City; and

Whereas, pursuant to section 18 of the Charter of the City of Bowie, the City Council has the power to pass such ordinances as it deems necessary for the protection and promotion of the health, safety, comfort, convenience, welfare and happiness of residents of the City; and

Whereas, pursuant to said authority the City Council deems it in the public interest to prohibit the sale of certain non-returnable or disposable containers within the corporate limits of the City of Bowie in an effort to curtail the steady degradation of the natural environment;

Now, therefore, be it ordained by the Council of the City of Bowie:

Section 1. The sale of certain non-returnable or disposable beverage containers as herein defined is hereby prohibited within the corporate limits of the City of Bowie.

Section 2. Definitions. For the purposes of this Ordinance, the following terms, phrases, words and their derivations shall have the meaning given herein:

a. Beverage(s) shall mean:

1. Non-alcoholic beverage—any mineral waters, soda waters or any other carbonated or uncarbonated beverage not containing alcohol that is commonly known as a soft drink.

2. Alcoholic beverage—any beer, ale or other malt beverage containing one-half of one per centum or more of alcohol by volume.

b. City shall mean the corporate limits of the City of Bowie.

c. City Manager shall mean the City Manager of the City of Bowie, or his designee.

d. Container shall mean any device made of glass or metal material used for the purpose of holding or containing either soft drinks or beer.

e. Non-returnable or disposable beverage container shall mean any device made of glass or metal material used for the purpose of holding or containing either soft drinks or beer and the title to which the seller intends to pass with the sale of the contents.

f. Sale shall mean a commercial transaction by any person, firm, individual, corporation, partnership or vendor whereby beverages are exchanged for a monetary consideration.

Section 3. Inspection. The City Manager, or his designee, shall have the authority to enter upon the premises of any firm, individual, corporation, partnership or vendor selling beverages and which is licensed to conduct a business under the laws of this state, for the purpose of performing inspections to determine if said firm, individual, corporation, partnership or vendor is in compliance with the provisions of this Ordinance.

Section 4. Violations. Any firm, individual, corporation, partnership or vendor selling beverages within the City, found guilty of violating any provision of this Ordinance, shall be guilty of a misdemeanor and shall be punished by a fine not exceeding one hundred dollars (\$100.00) or imprisonment for thirty days (30) or both such fine and imprisonment. Each day's violation of the provisions of this Ordinance shall constitute a separate offense.

Section 5. Severability. The provisions of this Ordinance are hereby declared to be severable and if any provision, sentence, clause, section or part thereof is held illegal, invalid, unconstitutional or inapplicable to any person or circumstance, such illegality, invalidity, unconstitutionality or inapplicability shall not affect or impair any of the remaining provisions, sentences, clauses, sections or parts of this Ordinance or their application to persons and circumstances.

Section 6. Effective Date. This Ordinance shall take effect at the expiration of twenty (20) calendar days following its passage, after publication as required by law. Provisions of this act shall apply to all sales of non-alcoholic and alcoholic beverages as defined herein, made after April 1, 1971.

Introduced by the Council of the City of Bowie, Maryland at a regular meeting on June 15, 1970.

Passed by the Council of the City of Bowie, Maryland at a regular meeting on July 21, 1970.

LEO E. GREEN, *Mayor.*

Attest:

EDITH MAYLACK, *City Clerk.*

Mr. ROGERS. Mr. Kyros?

Mr. KYROS. Just a few questions, Mr. Chairman.

Mr. Mayor, how was this received finally by the people when they realized that they were not going to be able to buy soft drinks and beer in cans?

What feedback did you get?

Mayor GREEN. The feedback, I think, is evidenced by the example shown. This is the political season in Maryland. I think as a matter of courtesy that every home I have gone into or the council has gone into, the residents made it a point not to have nonreturnable bottles on these occasions.

I have not received any bad comments or any adverse comments from any of our citizens at Bowie. The retailers, I might say, are concerned. We are concerned for them because we are afraid we might cause economic descrimination against them. We asked therefore our citizens to buy Bowie, buy returnables, and patronize our local merchants, who would immediately voluntarily comply with the intent and spirit of our law.

One retailer just outside our community vindictively got rid of all his returnables. He is only selling nonreturnable soft drinks to capture the Bowie market. This gives you an idea of the battle that will go on. We think the consumer will conscientiously, with the problem facing him, take the step and make the sacrifice to buy returnables.

We are hoping that the giant industries, the stores, will come up with some central location where they can receive returnables. They have, however, raised the price of the returnables to try to balance this difference between returnables and nonreturnables.

I am very encouraged. I think you will be when you go back to your home and when your constituents know you are moving in this direction.

Mr. KYROS. Thank you very much. I think it is very thoughtful of you to come here and tell us of your experience in the city of Bowie. It will be helpful to the committee.

Mayor GREEN. Thank you.

Mr. ROGERS. Mr. Preyer?

Mr. PREYER. I agree. You are doing an excellent job for your city in this area of environment, with your purchase of 500 acres of open space and the other steps you outlined. I commend you for it.

You mentioned the cost of litter to the taxpayer for collecting it. I wonder if you have considered a special tax on soft drink cans or bottles to pay for the cost of collecting the litter. In effect, that would seem to be making the litterers pay for their own litter.

Do you think that would be feasible?

Mayor GREEN. Unfortunately, as a municipality and creature of a State, we only have limited authority in this area. We have no authority to move in that direction. Once we were told that we had no legal authority, we did not study that particular problem.

I know that bills have been introduced to that effect, but we really have not studied it.

Mr. PREYER. Thank you very much, Mr. Mayor.

Mr. ROGERS. As I understood, your ordinance does not become effective until the first of April 1971. Is that correct?

Mayor GREEN. Yes, Mr. Chairman. This is the earliest effective date of the two or three that subsequently passed after our ordinance.

We have also passed and I hope the governments throughout the country can follow this example, a ban on nonreturnable beer and soft drink containers in our community centers and our public parks. The Maryland National Capital Park and Planning Commission of Prince George's and Montgomery Counties has taken this step also.

Mr. ROGERS. Has that been done?

Mayor GREEN. It will become effective in the fall, around October 1st.

Mr. ROGERS. Will this also affect the racetrack operations?

Mayor GREEN. The racetrack?

Mr. ROGERS. Is that within your jurisdiction?

Mayor GREEN. No, sir. I would like to have it for our tax revenues.

Mr. ROGERS. You indicated that some had already moved in this area since the passage of the ordinance, even though it is not effective or compulsory until the 1st of April.

Mayor GREEN. That is right.

Mr. ROGERS. To what extent have they already moved, other than the one trying to corner the market?

Mayor GREEN. First, I think the fact that they have raised deposits on the bottles is indicative of the ability to try to change the type of bottle used. Secondly, the women in our community have started a volunteer campaign to buy only returnable bottles.

We will study this further to see if we can come up with any statistics for you.

Mr. ROGERS. If you have made any study to show the difference you anticipate in cost to the community as far as handling the waste problem, I think that would be helpful to the committee.

Mayor GREEN. Our land fill operation discloses that the percentage of such waste disposed is between 10 and 15 percent. I notice 6 percent was cited here today. We say it is between 10 and 15 percent in our landfill disposal area.

Mr. ROGERS. Was this borne out during your Earth Day activities?

Mayor GREEN. This was borne out in a study with out land fill operation. That is our statistic. We will continue to study it.

I might say we are moving into the study of "separate but equal" garbage, of Art Buchwald fame, to try to recycle and save the reusable materials. We are moving in that direction with a proposed comprehensive environment control ordinance.

Mr. ROGERS. Thank you.

Are there any other questions?

The committee is grateful for your appearance.

Mayor GREEN. Thank you, Mr. Chairman. I appreciate the opportunity.

Mr. ROGERS. The committee will stand adjourned, subject to the call of the Chair.

The committee is now adjourned.

(The following statement was received for the record:)

STATEMENT OF WAYNE A. BONNEY, CRUSADE FOR A CLEANER ENVIRONMENT

The Crusade for a Cleaner Environment offers its views on H.R. 18988, a bill introduced by the Honorable Joseph P. Vigorito, a Representative from Pennsylvania, which would ban non-returnable beer and soft drink containers sold in interstate commerce on a no deposit, no-return basis.

The Crusade for a Cleaner Environment is a non-profit organization incorporated under the laws of the District of Columbia. Our purpose, so stated in our Articles of Incorporation is to promote, support, conduct, and/or assist in any way whatsoever, public, educational and remedial programs and activities, through the use of any and all media, relating to and dealing with the problem of littering, pollution and defilement of communities and lands, whether urban, rural, public, private or otherwise, caused by indiscriminate disposition and discarding of trash and other solid waste materials.

Included on our Board of Advisors are such people as Mrs. Arthur Godfrey, Mr. Eddie Albert, Congressmen Joseph Vigorito of Pennsylvania and Philip Crane of Illinois, Mr. James B. Lindsey, Sr., President of the Pepsi Cola Bottling Company of Bakersfield, California, and Mr. Sigurd Olson, President of the Wilderness Society.

We are pleased to furnish the Public Health and Welfare Committee background information which we hope will aid the Subcommittee in their deliberations on this important environmental issue.

We will limit our remarks to the basic environmental and economic problems involved in the question of throw-away vs. returnable, money-back containers.

The very fact you have held hearings and are considering additional ones on the question of throw-away containers is indicative of the public's increasing concern about pollution and the environment and an awareness that answers to these problems must be found, and soon.

The U.S. Congress is not the first legislative body to consider legislation dealing with the waste collection and disposal problems resulting from the sale of throw-away beverage containers. As a matter of fact, the District of Columbia is now seriously considering a ban on throw-away beverage containers. The city of Bowie, Maryland, took an historic step recently when they enacted a ban on the sale of throw-away containers. Lake County, Michigan; Richland, Wisconsin; and Edgewater, New Jersey have enacted similar ordinances. Some 25 state legislatures are considering a ban on throw-aways. The state of Washington is having a referendum in November at the request of almost 200,000 citizens who signed petitions in favor of making Washington the first state to ban the sale of soft drinks and malt liquors in nonreturnable containers. British Columbia has a mandatory deposit requirement. Finland has banned the sale of disposable beverage bottles and Denmark is considering legislation. The Maryland-National Capital Park and Planning Commission has banned throw-aways in state parks. The Department of the Interior is considering a U.S. Government park ban on non-returnable beverage containers. More and more responsible people are looking at returnable containers as the important first step in man's fight against pollution.

The public demand for elimination of throw-away containers stems in part from the increased interest in the whole waste and pollution problem but also from the

huge costs of waste collection and disposal. Last year, it cost \$176 million to dispose of the 46.8 billion beverage containers produced. This cost does *not* include the cost of collection and disposal of highway litter. Furthermore, beverage container wastes are growing at a rate of 7.5% a year compared to overall waste growth of 4%. Although beverage containers might constitute a small portion of all waste, glass and metal packages are an acute problem in waste disposal when incineration is used as a means of disposal. In a typical situation where one ton of packaging material is incinerated a residue of 705 pounds remains. Of this amount, 637 pounds or 90% comes from glass and metal containers.

Economically, the cost of collection and disposal of waste as stated is already tremendous and is growing at a staggering rate. Where are we going to put all of this trash? Land fills are not the answer. New York City hasn't found the answer. It costs the city of New York about 30 cents to pick up each can or bottle tossed away as litter. It costs about the same in California where Assemblywoman M. K. Fong has tried to do something about it by introducing legislation which would require a 5¢ deposit and a one-cent service fee on every non-returnable beer and soft drink container sold in the state.

With the huge cost of collection and disposal of throw-away bottles and cans, it might seem puzzling why there are those who are fighting efforts to persuade the public to buy their soft drinks and beer in returnable, money-back containers. It is estimated that Americans could save \$705 million per year if they purchased all soft drinks in returnable, money-back containers. If all beer were purchased in returnable, moneyback containers, the consumer could save an additional \$800,000,000. In the District of Columbia alone, the savings would be \$282,000 and \$320,000 on returnable soft drink and beer containers respectively. These are market price figures and do not include the many millions of dollars that would be saved in taxes from reduced litter pickup costs.

Some will say the public gets what it demands, and that the throw-away is a response to public desires. This simply is not true, as in many cases the consumer is deprived of his choice in the matter as a result of efforts by the bottle and can manufacturers and the supermarkets. The U.S. Department of Health, Education and Welfare (HEW) has said, "The Supermarket chains have utilized their controlled-label soft drinks to help force the beverage industry to convert to throw-away packages. There is hardly a chain that does not have a strong anti-returnable policy based on the alleged high cost of handling empties. There are many chains that refuse to handle items in returnables that compete with their controlled-label throw-aways, and some that refuse to carry any returnable bottles at all."

HEW also shed some light on why the glass manufacturers are pushing throw-aways. They said, "For glass container manufacturers, the non-returnable beverage bottle is the only product with good growth prospects; in all other glass container product categories, plastics and plastic-paper composites have taken markets from glass." It is a fact that the glass industry's campaign to promote throw-away bottles began only after the can manufacturers had taken control of the throw-away business and had cut into the returnable market.

If the issue is to be decided on public demand, then we suggest a survey of the country. We believe the results would be comparable to the poll taken in Minneapolis earlier this year. The survey showed that 70 percent of those interviewed would favor a total ban on the non-returnable bottles and cans. Also, 88% said they would be willing to return their beverage bottles and cans to their local stores.

It has been alleged that in some cities the return ratio on returnables is extremely low. The answer has been supplied above. The retailers are discouraging the purchase of returnables, going so far as to separate them from the throw-aways, hiding them in out-of-the-way unmarked areas of the stores while advertising the throw-aways. On the other hand, some bottlers recently told us they are now obtaining better than 98% return on their returnable bottles.

Economically, the demise of the small brewery illustrates what is certain to happen in the soft drink industry if the trend toward use of throw-away bottles and cans is not reversed. When beer was sold in returnable money-back bottles there were hundreds of small to large breweries in the country. When they converted to throw-aways the small breweries were forced out of business. For example, in 1958 there were 262 breweries in the country. By 1966 this had dwindled to 115, a decrease of over 56%. Employment figures show there were 71,700 persons employed in the brewing industry in 1958. This figure dropped in 1968 to 59,800. This is contrasted to the soft drink industry which had 1,421 firms employing 20 persons or more in 1958 and which grew to 1,691 firms by 1967. The number of persons employed in the soft drink industry grew from 97,000 in 1958 to 125,200 in 1968.

These figures indicate that there is a parallel between the loss of jobs in the brewing industry and their switch-over to throw-aways. The same can be expected in the soft drink industry as the move to non-returnables accelerates. A move back to returnables for both the beer and soft drink industries might cause the displacement of some jobs in the can and glass manufacturing industries, but with their technological expertise, they should be able to offset this with new products which will be not only needed but welcomed by the American public.

Furthermore, a return to returnables would have employment gains in the bottling industry offsetting any losses that might take place in the can or throw-away bottle manufacturing plants.

A lot of publicity has recently been given to various recycling programs including the reclamation plans of the bottle and can manufacturers. Perhaps the greatest flaw in these reclamation programs and the one that leads to skepticism is the fact that most of the promoters of these plans, who are offering $\frac{1}{2}$ ¢ per bottle or 10¢ a pound for aluminum cans, are the same people who have been saying for years that the consumer will not return bottles for a two-to-five cent deposit.

The Soft Drink "Insider" Newsletter, the soft drink weekly trade paper, said in its August 31st issue:

"The much-touted recycling efforts of the packaging majors are rumored to be so much 'hogwash'; it was said they actually are dumping much of what they are redeeming because it is cheaper to start from scratch . . ."

In a September 25th editorial the Rochester, New York, Times-Union commented on the reclamation programs thusly:

"Many supermarket and soft drink retailers have abandoned the returnable bottle because they believe that shoppers do not want to be bothered with returning empties, even for 2 to 5 cents deposit return each.

"Now customers are asked to clean, sort and return old bottles and glass for little or no payment.

"Surely those who have the interests of the environment at heart will return their empties either way. But only an outright ban on throw-aways coupled with high deposits on the returnables will persuade others."

Several U.S. Congressmen have proposed legislation taxing throw-away containers. The Crusade for a Cleaner Environment opposes this approach. It would only add to the litter problem by giving the public "a license to litter."

The Crusade for a Cleaner Environment believes a complete return to returnable, money-back bottles for the soft drink and beer industries is necessary. This could be a step-by-step program, slower for the beer industry than for the soft drink industry. The soft drink industry, with some minor exceptions, is in a better position to utilize only returnable bottles since almost every bottler maintains bottling equipment and has a distribution process to recycle and return bottles.

Money-back returnable bottles offer several benefits to the consumer: One, they permit the consumer to purchase his soft drinks and beer at two to four cents less per bottle; two, they eliminate most of the litter now caused by throw-away cans and bottles; and three, they cut down on the trash collection and disposal problem which is becoming a very serious matter for all of our governmental jurisdictions.

The "do-it-yourself" ecology program of purchasing soft drinks and beer in returnable containers is both simple and realistic. The housewife can actually see the benefits of this program immediately. It will help the litter and pollution problem while at the same time saving the consumer money. Once results are visible, and the public sees that it can clean up one phase of pollution it will be encouraged to go on to bigger problems involving air and water pollution. Let's face it. If we aren't willing to be honest about this simple problem and aren't willing to buck those promoting throw-aways, how in the world can we expect to cope with the massive resistance and pressures which we are sure to face with the larger waste and pollution problems?

(Whereupon, at 12:20 p.m. the committee adjourned, subject to the call of the Chair.)

(Further hearings were tentatively set for later in the session but because of other legislative demands time did not permit.)

