

the garbage book

HOW TO SAVE ENERGY AND
MONEY BY THROWING OUT LESS



Energy, Mines and
Resources Canada

Énergie, Mines et
Ressources Canada

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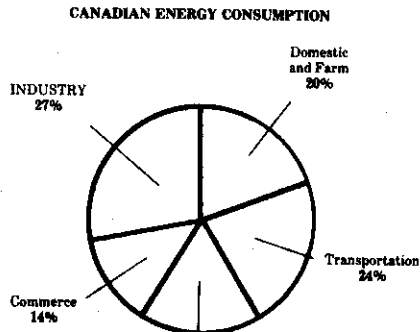


introduction

Most of us don't think much about garbage — but it's time we did. There's a lot more to it than a fat plastic garbage bag sitting on the curb, or vegetable peelings sailing down the chute in the apartment building.

That's energy we're throwing away!

How come? Well, it takes energy to extract, manufacture and transport all of the products we consume — food, clothing, containers, paper and furniture. By avoiding unnecessary products and reusing and recycling the rest of them, we can bring about worthwhile energy savings in the industrial and freight transportation sectors of our economy which now account for about 40% of our energy consumption.



could be as high as 95%.

A refillable soft-drink bottle that makes an average of 12 trips (including washing and transportation) can save about 53% of the energy needed to make the same number of throw-away bottles.

And if we don't buy widgets because we don't really need widgets, we'll save 100% of the energy because another widget won't be manufactured to replace it.

We'll also reduce pollution and save money. The cost of garbage collection, for example, is climbing steadily. More garbage means more trucks, more energy to haul the garbage away, more landfill and more incinerators. These costs all come back to the taxpayers.

If we all pitch in to reduce unnecessary consumption and reuse and recycle more, we'll bring about large energy savings for Canada. And dollar savings for ourselves!

That, briefly, is the argument for reducing garbage — or solid waste as the experts call it.

Of course, solid waste is made up of more than just household garbage. There are large amounts of industrial, and agricultural solid waste, to say nothing of the waste from energy production, especially that based on coal. Even getting things to us involves lots of solid waste; look behind your neighbourhood supermarket or your favourite restaurant next time you go there. However, in this book we are going to focus mainly on household

Energy conservation is a fact of life in the 1970s

The reality of the situation is that we cannot continue to consume energy in ever-increasing quantities. This can only lead to severe shortages, hardships and possible rationing. The most immediate, direct and practical step is to cut back on our consumption.

Earlier Government publications — *100 Ways to Save Energy and Money in the Home* and *The Billpayer's Guide to Furnace Servicing* — have dealt with some of the many ways to save energy in the home.

This book focuses on ways to help us reject, reuse and recycle products that are part of our daily lives.

A glance through the index will show you the specific topics covered. Read through from front to back, or hop around to suit your interests and needs.

Clearly, not everyone can follow all of the suggestions. Pick the ones appropriate to your particular situation.

You might want to tear out the *Note* pages at the back of the book, write down any tips you want to remember and post them in a convenient spot.

This book is not, of course, the final state of the art. New data and new approaches are being developed all the time. To the best of our knowledge the information is accurate and the ideas practical. Many people are practicing them now.

You can help by noting the "Feedback" pages at

— over and above the actual energy and dollar savings.

A WORD ABOUT THOSE CONSERVATION DOLLARS

One point to watch. If we are all going to save money by reducing waste and conserving energy, we have to be careful how we spend that money. If, for example, you save a dollar by buying soft drinks or milk in returnable containers and you use that money to buy extra gasoline for an outboard motor boat, you have probably increased not decreased your energy consumption. A good conservation ethic means that we think about the likely energy implications of our purchase decisions.

In short put your conservation dollars back into conservation.

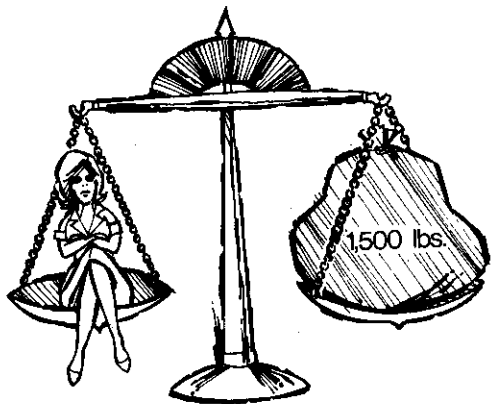
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Why reduce garbage in your home ?

Everyone of us discards an average of about 4 pounds of garbage a day! That's 1,500 pounds per person per year or 3 tons for a family of four. The data shows that about 2½ of that 4 pounds per day is thrown out at home, the rest at work, school or other places. That's energy we're throwing out!



Statistics also show that each one of us is throwing

It's now estimated that total garbage production in Ontario is growing at a rate of up to 7% a year. The Environmental Protection Agency in the United States is a little more conservative; they predict a 3% to 3.5% annual growth rate in post-consumer waste. *An annual 3% increase means twice as much garbage in just 23 years!*

What's the solution?

Well almost all of us believe in conservation to some degree. For many people it is a simple matter of saving money. Others see it as a necessary step to preserve our resources so we won't run short sometime in the future. For still others, conservation is an ideal — a way of life to which we should aspire.

Where do you stand? From any one of these 3 viewpoints, there are good reasons to conserve energy by reducing your garbage.

Here are the four major benefits:

1. ENERGY SAVINGS

It takes a lot of energy to make the products and packages we buy every day — energy to extract the raw materials, energy to refine them, energy to manufacture them into the final products, energy to ship these products around the country.

Every product and package we buy — even our food — goes through at least one of these steps and therefore carries with it a hidden investment of

We save more energy when we reuse and/or recycle products because we are not wasting the original energy needed to extract and refine the materials.

Solid waste reduction — garbage reduction, as most of us call it — is an excellent way to conserve energy.

2. RESOURCE SAVINGS

Such non-renewable resources such as tin, aluminum and even iron are irreplaceable and only available from limited sources. Future sources of supply, even if they are found, are likely to be more expensive in terms of both dollars and energy.

Most of our modern plastic and synthetic products are actually made from oil and gas — resources which are even now becoming scarce and costly.

Even renewable resources such as wood can be gobbled up faster than our forests can produce them in various regions of our country.

To waste either renewable or non-renewable resources is foolhardy. Careful management is the only sensible course open to us. Reduction, reuse and recycling are important aspects of this management.

3. DOLLAR SAVINGS

Many of the ideas offered in this book to help you reduce your garbage will also save you money

Returnable containers for milk and soft drinks save you money. For example, milk in a 3 quart returnable jug is about 10c cheaper than in plastic pouches, once you return the jug.

Right now it's estimated that we spend \$500 million a year to collect and dispose of all the garbage in Canada. This works out to about \$25 a year for every man, woman and child. These costs are hidden in our tax bills. If we reduce our garbage we reduce these costs as well.

4. ENVIRONMENTAL SAVINGS

An inefficient incinerator spews pollution into the air; poorly located and designed land disposal sites can pollute our rivers, lakes and groundwater. Just because these environmental costs are difficult to measure doesn't mean we can ignore them.

If we produce less garbage we can avoid turning so much of our countryside into dumps and landfill operations.

Reducing our garbage helps the environment in other ways too. If we buy less, production drops — so there's less pollution of land, water and air by the refining, manufacturing and transportation industries involved.

We should realize as well that the escalating demand for natural resources in Canada results in the need for exploiting new mineral deposits of diminishing quality. As these ore bodies are

TARGETS FOR YOUR WASTE WATCHING PROGRAM

Where should you start? What are the biggest problem areas?

The table below is based on the pattern of solid waste generation in a major Canadian city in 1975. It will give you some idea of the make-up of your own waste. Unfortunately these are not national figures and they exclude durable goods such as major appliances, furniture, etc., but the pattern is believed to be much the same in major urban areas across the country.

APPROXIMATE URBAN RESIDENTIAL SOLID WASTE GENERATION

CONTAINERS AND PACKAGING	37.9%
<i>Glass containers</i> (beer and soft drinks, wine and liquor, etc.)	10.9%
<i>Steel cans</i> (beer and soft drinks, food, etc.)	6.8%
<i>Aluminum</i> (beer and soft drinks, etc.)	less than 1%
<i>Paper, Paperboard and Corrugated</i>	14.6%
<i>Plastics</i>	4.2%
<i>Wood Packaging</i>	1.3%

APPROXIMATE URBAN RESIDENTIAL SOLID WASTE GENERATION continued

NON-DURABLE GOODS	29.4%
(newspapers, books and magazines, office paper, paper tissue, paper plates and cups, other non-packaging paper, clothing and footwear, miscellaneous)	
FOOD WASTE	21.3%
YARD WASTE (variable with season)	5.1%
MISCELLANEOUS INORGANIC	6.3%

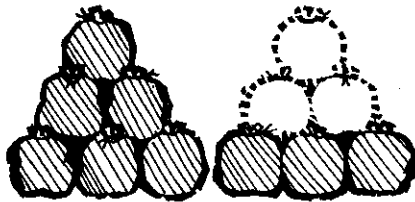
Source: Solid Waste Management Branch, Environment Canada

You'll notice that *packaging* is the largest component of waste. The fact that it has no primary use makes it an ideal target for your waste watching program.

Set a goal for yourself: A U.S. Environmental Protection Agency study estimates that total post-consumer waste could be reduced by 10-20% by 1985 through a combination of rejecting and reusing options. Also that another 24% of post-consumer waste could be separated at source and recycled by 1985.

That adds up to a total of 34-44% without touching food and yard waste.

the 3r's: reject, reuse and recycle

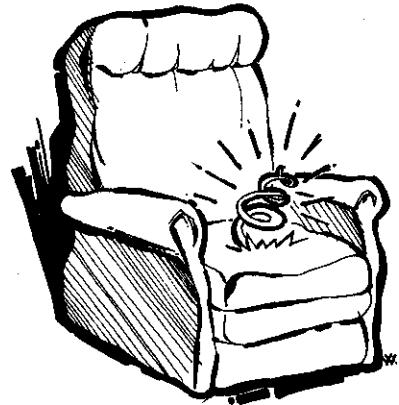


In these days of energy worries, the 3 R's have taken on a new meaning — *reject, reuse, recycle!* If we can all start practicing them in daily life we'll go a long way towards reducing waste and saving energy.



those impulse items, products with more package appeal than product appeal, and unnecessary frills. Keep old but still usable items longer. Think before you buy.

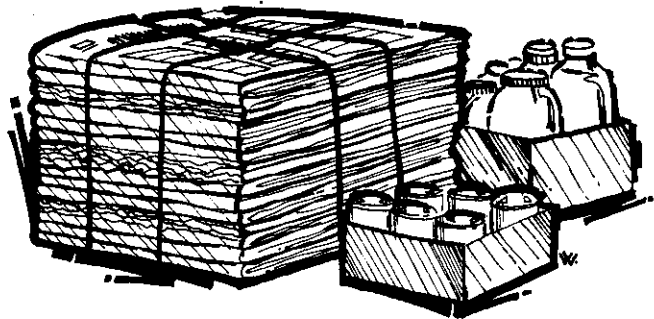
Refusing the buy is the most efficient way to reduce waste and energy consumption.



REUSE IT!

Before you throw *anything* out take another look at it. Could you repair that toaster? Could you recover that chair? Do you buy beverages only in returnable containers? Can you find a creative use for those jars and tin cans? Perhaps to store loose items or as pop art?

It generally takes less energy to repair and/or reuse a product than to make a new one.



RECYCLE IT!

Maybe you can't use all of those jars, tin cans and newspapers — but somebody else can! They can be recycled by industry. This means they're melted or broken down by industry to make new products and packages. Separate them from your regular garbage and make sure they are recycled. (*Chapter 8 tells you all about recycling programs: where to find them and how to start them.*)

Recycling also has the advantage of reducing the number of unpleasant, expensive landfill disposal sites.

Waste can be recycled from your home in two ways:

- (1) It is separated from your regular garbage at home and either taken to a convenient recycling depot (preferably en route to some-

MECHANICAL RECYCLING PLANTS ARE NEAT BUT EXPENSIVE

Life would be so much simpler if all our garbage could be picked up at the curb and taken to a central recycling plant. Unfortunately this doesn't work out as well as we might hope.

These large processing plants are only practical in large cities. Millions of people miss out. And the plants are expensive. Although they may eventually reduce the cost of disposal, they won't do much to reduce the cost of collection.

Then, too, when everything is compacted together — newspapers, bacon grease, etc. — contamination is inevitable. It takes additional energy to separate these items at the plants. It is generally better to separate at home and keep them separate.

What it all boils down to is this: *whatever you can do to reduce the amount of solid waste that must be collected from your home will be a big step forward.*

FIGHTING GARBAGE IS A LOT LIKE FIGHTING FIRES...

One way is to concentrate on putting out a

DON'T USE A GARBAGE COMPACTOR!

If you produce so much garbage that you need to compact it, you've got a problem. These expensive machines do little more than smash garbage all together, making it that much harder to separate and recycle.

THREE WAYS TO FIGHT THE GARBAGE WAR

(1) REDUCE YOUR GARBAGE BY 50%

It's not that difficult. This book shows you how. In fact, you and your family might even have some fun with the project. (See *Chapter 9: Put "Garbage Gus" on a Diet and Have a Little Fun. It offers a free poster and ideas to use at home or school.*)

(2) SPEAK OUT AGAINST GARBAGE!

- *Tell retailers and manufacturers how you feel about their products and packages.* If you meekly accept what's offered, the obvious conclusion is that you're happy with it. Are you? Would you prefer to see products designed for longer life and easier repair? Would you prefer less glossy, expensive packaging? Would you prefer standardized, returnable containers for the beverages, foods and other products you buy?

Refuse to buy products that don't make sense to

sure they work on the issues that are important to you.

The Federal Government is already involved in a number of research projects in this field. But the more vocal and concerned you are, the more action there will be at all levels of government.

(3) ORGANIZE YOUR COMMUNITY

- *Talk to your friends and neighbours.* There's a good chance that many of them are just as concerned. Pull together!
- *Start a community recycling project.* See Chapter 8 for details.
- *Look for ways to reduce garbage where you work or go to school.*

12 WAYS TO REDUCE YOUR GARBAGE AT HOME

1. *Reject.* Think before you buy any item. Do you really need it? Can you make do with what you have?
2. *Check the packaging.* Buy for contents, not the container. Why pay for flashy, wasteful packaging? (See the next chapter for more suggestions.)

Try to find ways of reusing other jars and cans around your home. (Again, see the next chapter.)

5. *Buy durable products.* Look beyond the price. Consider operating costs and the lifespan. You may have to pay a little more, but you'll get more value for your money. (See Chapter 4: *How to Get More Life Out of Consumer Products.*)
6. *Repair it.* Instead of throwing it out, fix it up.
7. *Save.* Save those little things: ribbon, wrapping paper, string, rubber bands, paper clips, shopping bags. You can use them over and over again.
8. *Let someone else use it.* Don't dump your old clothes, furniture and appliances into the garbage when you're finished with them. Local charities and second-hand shops can spruce them up and make them available to other people.
9. *Buy second-hand, rent, share.* Watch your local paper for good buys. Shop at second hand stores. Consider sharing the cost of expensive items — lawnmowers, garden appliances, ladders, etc. — with your family and neighbours. Rent seldom-used items.

10. *Make compost.* Recycle your food and garden

cycling depot in your neighbourhood. (More details in Chapter 8.)

12. *Buy recycled paper.* Try to buy products and packages which contain recycled material. Generally, recycled paper takes less energy to make than virgin paper. (See page 48.)

6 WAYS TO REDUCE GARBAGE AT WORK OR SCHOOL

1. *Avoid wasteful purchases.* Be on the lookout for signs of waste. Is there a lot of unnecessary paperwork? Is food wasted in the cafeteria? Is some equipment and machinery simply not needed?
2. *Get the most out of paper and envelopes.* Every sheet of paper has two sides. Use both of them. Envelopes — particularly big ones — should be used more than once. Reduce the amount of photocopying.
3. *Avoid disposables.* If your cafeteria is now using disposable kitchenware, start a campaign to switch over to permanent ware. This should help to offset rising cafeteria costs.

4. *Encourage the purchase of durable repairable*

separate and recycled. Stores that end each day with a lot of waste cardboard should sell it back to industry for recycling.

If you work in a factory, take a look in the waste bins for discarded items and ideas on items that could be recycled.

6. *Buy recycled products.* Make sure that your organization buys those products and packages, such as paper, which contain the most post-consumer recycled material.

Even if you're not directly responsible for purchasing in your office, plant or school, you can start the ball rolling. Find out who is responsible and encourage them to look for ways of cutting waste. In fact, why not start by sending them a copy of this book.

how to save on packaging



packaging materials has climbed from 412 pounds per person in 1958 to 590 pounds per person in 1971. Canadian figures are probably similar.

Less packaging means less garbage. *It also means lower production costs.*

In 1976 Canadian manufacturers will spend \$2.3 billion on materials, machinery and services to package manufactured goods worth about \$55 billion. And more than 90% of that packaging will end up in somebody's garbage can within the year. That works out to a packaging investment of about \$100 per man, woman and child in Canada each year — not including the cost of waste collection and disposal.

**CONSUMPTION OF CONTAINERS AND OTHER
PACKAGING SUPPLIES BY SELECTED
MANUFACTURING INDUSTRIES, 1967**

Industry	A	B	
	Total value of materials and supplies used in manufacturing (In \$000)	Value of containers and other packaging materials (In \$000)	(% of A)
Manufacturers of toilet preparations	42,230	26,978	64

**CONSUMPTION OF CONTAINERS AND OTHER
PACKAGING SUPPLIES BY SELECTED
MANUFACTURING INDUSTRIES, 1967**

Industry	A	B	
	Total value of materials and supplies used in manufacturing (In \$000)	Value of containers and other packaging materials (In \$000)	(% of A)
Biscuit manufacturers	52,959	17,177	32
Breakfast cereal manufacturers	19,813	6,045	31
Confectionary manufacturers	99,714	25,052	25
Macaroni manufacturers	14,926	3,738	25
Manufacturers of pharmaceuticals and medicines	98,017	24,296	25

Source: Statistics Canada, 1967

These statistics are nine years old, and if anything, the percentages have increased in recent years.

There can be little argument that *some* packaging serves a useful, necessary function in transporting and protecting products.

But much of today's packaging works to new

Seven types of containers deserve a close look:

1. SOFT DRINK AND BEER CONTAINERS

The non-returnable soft drink bottle is a perfect example of needless, wasteful packaging. The returnable, refillable bottle is a much-preferred alternative.

As of March, 1976, legislation has been passed in three Canadian provinces which shows that governments recognize this waste:

- British Columbia has introduced a mandatory deposit on all containers and has banned pull-top cans.
- Alberta has also introduced a mandatory deposit system.
- Saskatchewan has banned the sale of non-refillables throughout most of the Province.

Advantages of refillable bottles: A recent Ontario Government task force report found that 10-ounce refillable bottles used just ten times each:

- use significantly less energy than non-refillable bottles
- produce less solid waste than non-refillables.
- will actually bring about a net increase in employment of 645 jobs because the refillable system is more labour intensive
- could save the people of Ontario an estimated \$7.7 million a year through lower costs of produc-

Similarly, if non-returnable cans were replaced by refillable bottles, there would be savings of energy, solid waste and dollars.

ESTIMATED SOLID WASTE GENERATED AND ENERGY REQUIRED FOR 240,000 FLUID OUNCES OF SOFT DRINK PACKAGING

	Volume ¹ (cu. ft.)	Weight (lb.)	Energy ² (Millions of BTU's)
10-ounce size			
Non-refillable glass bottle	216.0	10,882	136.8
Refillable glass bottle (10 trips)	27.6	2,749	80.1
Non-refillable can	65.8	2,768	100.7
26-ounce size			
Non-refillable glass bottle	208.7	9,733	120.3
Refillable glass bottle (15 trips)	16.0	1,710	56.8
40-ounce size			
Non-refillable glass bottle	208.5	9,709	119.4
Refillable glass bottle (15 trips)	15.7	1,546	54.5



In each case it's obvious that the refillable glass bottle is a clear winner. *The advantages of the refillable beer bottle are even great because they are used many more times — an average of 24 trips.* Waste is cut! Costs are cut!

The standardized beer bottle encourages this high rate of return and should be an example for other food and beverage manufacturers.

START YOUR WAR ON GARBAGE BY BUYING ALL YOUR SOFT DRINKS AND BEER IN RETURNABLE, REFILLABLE BOTTLES!

2. MILK CONTAINERS

Various types of milk containers are now in use across Canada — glass bottles, plastic jugs, plastic pouches, plastic-coated paper cartons.

- *Plastic 3-quart returnable jug.* The winner! These jugs are each used about 200 times and are the most efficient in terms of energy consumed and waste generated.

Bonus: A three-quart jug of milk costs about 10 cents less than three quarts in a pouch. Use them

moment. Some can be washed out and used for storing food.

- *Refillable glass bottle.* Each bottle usually gets about 20 trips. However, they are heavier than plastic jugs and taken more energy to move about.
- *Plastic-coated paper carton.* A poor bet! Since these cartons have a plastic coating, they can't be bundled in with other paper for recycling. Handy for starting a fireplace fire, but that's about all.

ESTIMATED ENERGY REQUIRED FOR 3,000 QUARTS OF MILK DELIVERED

	Container Energy Input (Millions of BTU's)	Comparison Ratio
3 Quart Size		
Paper Carton *	2.19	10.9:1
Refillable Glass Bottle **		
(20 trips)	2.13	10.6:1
Plastic Pouch	0.57	2.8:1
Refillable Plastic Jug		
(200 trips)	0.20	1.0:1
Non-Refillable		
Plastic Jug *	3.75	18.8:1
1 Quart Size		
Paper Carton	1.93	9.6:1
Refillable Glass Bottle		
(20 trips)	2.76	13.8:1

similar package in a different size.

Source: General Report of the Solid Waste Task Force to the Ontario Minister of the Environment, 1974.

3. FOOD, OTHER BEVERAGE BOTTLES AND TIN CANS

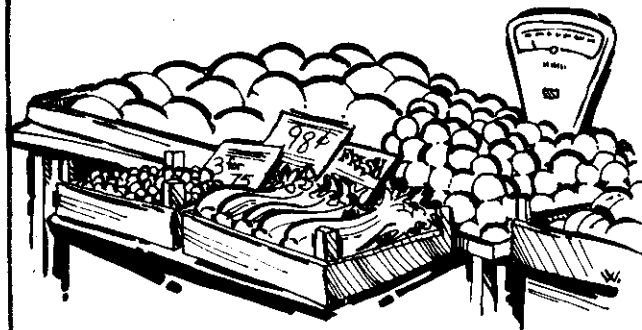
Some food jars could be refilled by processors, just as the pop bottles are now refilled. Although this isn't common in Canada, we should be quick to enthusiastically support any moves in this direction.

Your best approach for the moment is to avoid buying as many containers as possible. Here are some ways to do it:

- *Grow your own vegetables.* You'll save money, enjoy plenty of fresh air and get a kick out of your own self-sufficiency. Many gardening books are available.

FREE BOOKLET: *Home Vegetable Growing.* For a copy get in touch with your regional office of Agriculture Canada or write to:

Agriculture Canada
Information
Sir John Carling Building
930 Carling Avenue
Ottawa, Ontario, K1A 0C7



- *Shop at farmers' markets.* Try something different and head for a nearby farmers' market. Take along your own shopping bag and make it a zero-garbage trip!

Fresh produce not only tastes better, but is also more nutritious and free of the additives often used in packaged and prepared foods.

- *Buy in bulk.* It's a good way to take home more value for your money and a lot less packaging. Supermarkets carry large quantities of some products. Also try food terminals, wholesalers and other direct outlets.

Transfer the food to smaller containers at home and return for refills as needed.

- *Pet foods:* Stay away from the cans! Buy dry food in a large bag and dress it up with unsaturated oils, bouillion, or leftovers.
- *Bring your own container.* Some food outlets — particularly the health food stores and coopera-

- *Make your own preserves.* Here's a great way to cut down on buying canned and bottled foods. Make your own assortment from fresh fruits and vegetables. Buy the special canning jars — Mason, Kerr and Owens jars are interchangeable — and reuse them year after year.

Free booklets to get your started: "*Canning Canadian Fruits and Vegetables*", "*Home Canning of Fruits and Vegetables*", "*Freezing Food*" and "*Jams, Jellies and Pickles*" and all free when you write to Agriculture Canada. (See the address on page 32.) Also check with your provincial department of agriculture.



- *Make your own beverages.* You can avoid some beverage bottles by making your own wine and

- *Buy concentrates.* Why buy water and then pay for it to be packaged and shipped around? Instead, buy fruit juice concentrates and add your own water.

- *Liquor and wine bottles.* Many more liquor and wine bottles could be returnable and refillable.

In Alberta, the 5 cent deposit on soft drink bottles also applies to wine and liquor bottles. These bottles are now being recycled but not reused. *Be sure to support any widespread movement to refill wine or liquor bottles.*

- *What to do with what's left.* Even if you take all these steps you may still wind up with a surplus of bottles and cans. Put them to work —

- Use them to hold leftovers in the refrigerator.
- Use them to hold nails, thumb-tacks, paper-clips, paintbrushes, etc.
- Take what's left to your nearest recycling depot (*See Chapter 8.*)

- *How to prepare bottles and cans for recycling:*



- sort by colour (clear, green, brown)
- remove all metal lids, rings, etc.

- Tin cans:
- rinse out (cold water if possible)
 - remove both ends
 - remove paper labels
 - flatten with ends in the middle

Once you get into the habit, you'll find these steps are quite easy. An occasional trip to the depot on your way to the store isn't much trouble. Besides, you'll have a chance to meet other waste watchers and compare notes.

Remember, too, that all refillable containers — milk jugs, soft drink and beer bottles — are thoroughly cleaned and inspected to ensure that they're completely sanitary. **You can help this process along by not using returnable containers to hold anything other than the original contents.**

4. PAPER AND CARDBOARD

- *Bubble-packs.* You don't need all that fancy cardboard backing and clear plastic when you simply want a can opener or a few nails. Avoid expensive packaging usually found in self-service stores. Your local hardware probably has the same product — without the fancy packaging — for less money.
- *Corrugated cartons.* This sturdy container can be

to the single use system.

COMPARISON OF THE USE OF 1,000 TONS OF SINGLE-USE CORRUGATED CONTAINERS WITH THE USE OF REUSABLE CORRUGATED CONTAINERS PROVIDING THE SAME DEGREE OF SERVICE*

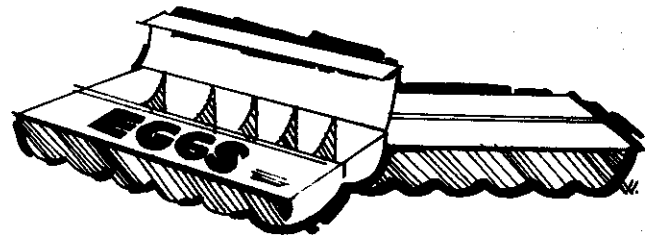
Environmental impact	Single-use container system	Reusable container system†	Difference (percent)
Production energy consumption (10 ⁶ Btu)	25,564.0	5,017.0	-80.3
Production air pollution generation (lb)	36,183.7	11,403.9	-57.0
Production water pollution generation (lb)	849,976.0	18,398.0	-97.8
Post-consumer solid waste generation (tons)	1,000.0	1231.0	-76.9

*Source: Gordian Associates. Energy consumption for six basic materials industries. U.S. Environmental Protection Agency Contract No. 68-01-1105, Task No. 68-01-1111, 1973. (Unpublished data.)

†Assumes that each reusable container is utilized five times prior to discard.

‡To allow for reuse five times, each container has been designed to utilize 25 percent more linerboard than the single-use container.

A few large food markets will pay you 25 cents for the return of corrugated cartons. Such containers are always helpful for moving or storing. Again, be ready to enthusiastically support any widespread program which promotes the reuse of these containers.



- *Egg cartons.* Egg cartons and flats are reusable and can be returned to some stores for 1c or 2c each. Check with your local farmers' market or grocery store. The moulded pulp trays have the advantage of often being made from recyclable

5. ALUMINIUM

Aluminum containers and packaging make up less than 1% of post-consumer waste in the United States. Here in Canada the figure is even lower since all-aluminum beer and soft drink cans are not as widely used.

Aluminum requires more energy to produce than the other materials commonly used in packaging. So avoid aluminum containers wherever possible. It's only advantage is that it takes a little less energy to transport products in aluminum than in glass bottles.

Recycling: Because of its relatively small role in residential waste, aluminum recycling depots are rare in Canada. In the United States, depots are more common; machinery to separate aluminum from mixed waste is expensive and not in use in Canada at the moment.

What can you do? (1) Avoid aluminum packaging.
(2) Try to find ways of reusing what you do buy.

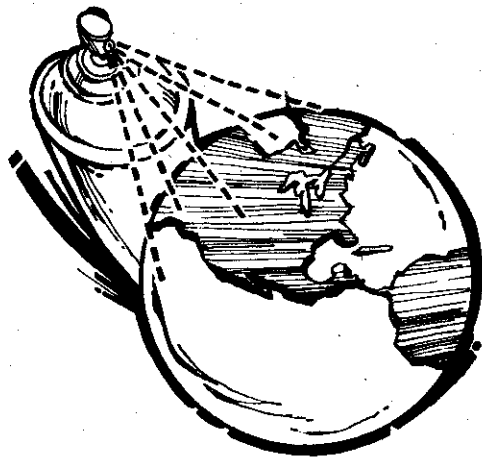
6. PLASTICS

The three-quart milk jug in Ontario is a good example of how reusable plastic containers create minimal waste. Although this is about the only reusable plastic container, there's no reason why the same approach couldn't be taken with other products. Encourage it! (In the meantime, remember that some plastic containers can be re-used around

conventional incinerators.

This fact, plus the small amount of plastic in ordinary garbage, means that recycling depots have not been set up in Canada to accept plastics.

New developments in the plastics industry are making possible the use of mixed waste plastic to make fencing, boxes, low cost pallets, shrink-wrap trays and shuttering. When you're in the market for these products, try to find out if they're made from recycled plastic. Buy them if you can!



7. AEROSOLS

Medical experts warn that aerosols must be used carefully. There have been reports of deaths from excessive dosages of the fluorocarbon propellants, blisters, rashes, liver damage, burns, lung diseases and explosions in extreme heat. Some experts believe that even low dosages are dangerous because the fine droplets are so easily inhaled.

To top it off, aerosols are now believed to be indirectly responsible for destroying part of the earth's ozone layer which blocks dangerous levels of ultra-violet light from reaching the earth. Prolonged exposure to these rays can cause eye problems and skin cancer.

Recycling and reuse. None. They cannot be mixed with cans for recycling.

Action: Avoid them all if you can!

how to get more life out of consumer products

Consumer products are usually broken down into two groups:

Durables — big items such as washing machines, chesterfields, chairs, etc.

Non-Durables — newspapers, clothing, cups, plates, etc.

Even this is misleading. Many of the so-called non-durables — clothes, plates, shopping bags, etc. — can and should be designed for a long and durable life.

Discarded consumer products, both durables and non-durables, make up more than 30% of post-consumer solid waste. For a detailed breakdown, see the table in Chapter 1.

Put the three R's to work. As you know by now, the best way to cut your garbage is not to buy in the first place. What's unnecessary for you, of course, will depend on your way of life. Maybe it's a second TV set: maybe it's a first TV set. Maybe it's doing

Reuse and repair what you can — notably newspapers — are already easily recycled. Others, such as laminated packaging, could be designed to encourage easier recycling.

Your support for products made from recycled materials — such as paper — helps to develop new markets for secondary materials.

APPLIANCES

- *Buy the durable ones.* You'll save money and reduce waste by shopping around for appliances that are built to last and are easily repaired. Check the manufacturers' guarantees before you buy.
- *Find out what the experts say.* Study *Canadian Consumer*, a monthly magazine published by the Consumers' Association of Canada. They compare the performance of different brands in many product categories.

Consumer Reports is a similar magazine put out by the Consumers' Union in the United States. They also publish a valuable yearly *Buyers' Guide*.



For more information, contact your local branch of the Consumers' Association, or the national headquarters:

Consumers' Association of Canada
251 Laurier Avenue West
Room 801
Ottawa, Ontario, K1P 5Z7

- *Avoid the novelty or luxury items.* Do you really need an electric can opener, electric carving knife or electric tooth brush? It's difficult to justify the net cost to society of such items.

Remember that an infrequently used product, such as a floor polisher or rug cleaner, can be shared or rented more economically.

- *Keep your appliances in good condition.* Follow the manufacturer's recommendations for use and servicing. When repairs are needed, find qualified experts to do the work.
- *Don't throw it out — find a new home.* Will a second-hand store buy it? Better still, track down a local charity that would like to fix it up for someone in need.
- *As a last step, try to recycle it.* Some communities have separate collections of "white goods". While most of these items end up in a landfill site, some are sold to a scrap metal dealer. First, talk to your municipality, then to a scrap dealer if necessary.

FURNITURE AND FIXTURES

Shop around for sturdy, long-lasting products. They may cost a little more initially but you'll get more value for your money.

Good used furniture can be a better buy than a brand new piece. Repairing, refinishing and reupholstering can work wonders — and be a lot of fun if you do it yourself.

Old trunks can be turned into tables; old window frames stripped and refinished as mirrors; pedestal basins used as bird baths. Remember, today's junk may be tomorrow's treasure.

Once you've exhausted all possibilities for that old couch, see if it can be passed along through a neighbourhood group or charity.

TIRES



One way to cut this waste is to buy tires that last longer. You have a choice of three basic types: bias-ply, belted-bias-ply and radial-ply. Before you buy, check the guarantees, expected road life and prices. (The consumer magazines mentioned on page 42 often rate tires on performance and cost. Look at their reports.)

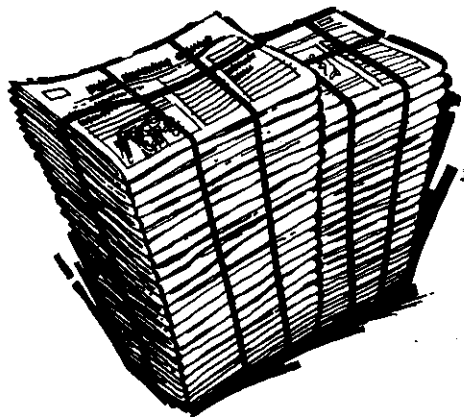
We may soon have tires on the market that can go 100,000 miles. The higher initial cost will save you money in the long run.

Old tires: Old tires can be retreaded and are available at various retail outlets. Worn out tires are also useful as bumpers on garage doors and boat docks.

New uses for waste rubber: Possibilities include chemical decomposition by pyrolysis to produce carbon black or synthetic fuel; incineration for steam generation; road building and reef building.

Recycling: Reclaimed rubber is not technically suitable for making new tires, but it's good enough for such low-grade rubber products as doormats, hoses, belts and such. But with 22 million discards a year the supply far exceeds the present demand, so you'll have difficulty recycling your old tires.

NEWSPAPERS



Newspapers are the king of waste — one of the largest single components in residential garbage!

You can reduce this, of course, by buying fewer newspapers or sharing with your office colleagues. Try *thinner* newspapers.

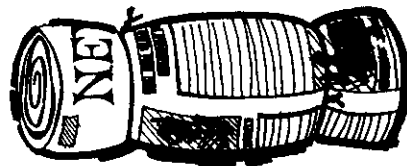
- *Recycle them.* Even if you find a few uses around the home for leftover newspapers — cleaning the oven, starting the fire, polishing tiles — you'll still face an overflow. The only sensible way to manage them is by recycling.

There has been a lot of interest in re-

- *Separate newspapers and tie them into bundles.* Remember that the collecting is often done by children so make your bundles easy to handle.
- *How to start a recycling program.* Read Chapter 8. It's filled with ideas on how to start a program in your community.

A HOT IDEA FOR PEOPLE IN ISOLATED COMMUNITIES...

You can't take advantage of an existing recycling program and it's probably not practical to start a new one. But you can cut down on wood needed for your fireplace by using newspapers.



Roll them tightly into a log shape and tie with light wire. A tightly rolled bundle will last almost as long as a log and give off just as much heat.

BOOKS AND MAGAZINES

- *Recirculate your books and magazines.* Don't dump them in the garbage. Libraries, hospitals, nursing homes, schools and other community groups are often looking for books and magazines.
- *Recycle.* The usual paper recycling programs often reject books and magazines. Check to see what is acceptable.
- *Buy books, magazines and other paper products made with recycled materials.* This is one good way to help the whole recycling system.

STATIONERY PAPER

- *Return unsolicited mail.* If you're receiving a lot of unwanted, unsolicited mail — junk mail, as some call it — write to the Canadian Direct Mail Association (130 Merton Street, Toronto, Ontario, M4S 1A4) and *tell them to remove your name from all their mailing lists.*

Unsolicited first class mail can be returned free if it is unopened; just mark it "Refused — Return to Sender" and drop it in any mail box.

Bulk mail and flyers (second and third class mail) which have a return address, can be returned free to sender if you wish.

- *Stretch your stationery.* Use both sides of every sheet. Envelopes, particularly large ones, can be reused by crossing out the previous address.

HOW TO BUY RECYCLED PAPER

rather than virgin paper.

Stationery is one area where you have a good deal of control over what you buy. Many brands and grades of fine paper sold in Canada contain various amounts of "recycled" paper. Paper mills usually recycle their own internal trimmings and many use other pre-consumer wastes from paper converters.

Look for recycled paper. The paper produced by Abitibi Provincial Paper Ltd. at their Thorold, Ontario mill contains at present more recycled, post-consumer paper than the output of any other mill in Canada. They offer a number of different grades containing from 10% to 70% recycled fibre.

Abitibi is believed to have the only fine paper de-inking mill in Canada which allows them to use so much post-consumer paper.

Look for a recycling symbol or label before you buy envelopes, stationery, school notebooks, type-writer paper.

It's your only guide at present because a national symbol indicating those products which contain a certain percentage of post-consumer waste has not yet been adopted.

Paper distributors. If you or your employer buy cut, blank paper by the carton you must go through a paper distributor. (See your Yellow Pages.) Distributors usually sell paper from different manufacturers, but the price shouldn't vary.

Advertise. Let the world know you care about the

Buying fine paper containing recycled, de-inked fibres is one way you can carry out a preferential purchasing policy for products containing recycled, post-consumer waste paper.

PAPER TISSUE

- *Cloth vs. paper towels.* It's up to each one of us to decide if we're going to use cloth towelling or the paper products — paper towels, paper napkins, face tissues.

An American study compared cloth with paper towels and found that cloth uses up to 2 or 3 times more energy than paper under various washing conditions. However, if you use the cloth towel at least a dozen times before washing, the energy required for the cloth system *would be much less*. Of course cloth towels produce less solid waste.

- *Cloth vs. disposable diapers.* The same study found that, depending upon washing circumstances, *each* could have a slight energy advantage. Again, the cloth diapers produce the least solid waste.
- *Cloth vs. paper napkins and facial tissues.* There's no hard evidence to say that cloth has an energy saving over paper napkins and facial tissues. But there's no doubt that reusable cloth products in general produce less solid waste.

Try to reuse paper napkins in your home: to wipe up kitchen spills and for clean-up jobs in the

DISPOSABLE PLATES AND CUPS

Research shows that disposable paper dishes use *two to three times* as much energy as earthenware dishes (depending upon how the washing water is heated). Disposable plates and cups produce much more solid waste.

Avoid disposable dishes and cutlery.

Paper or plastic cups and plates are not suitable for recycling at depots.

CLOTHING AND FOOTWEAR

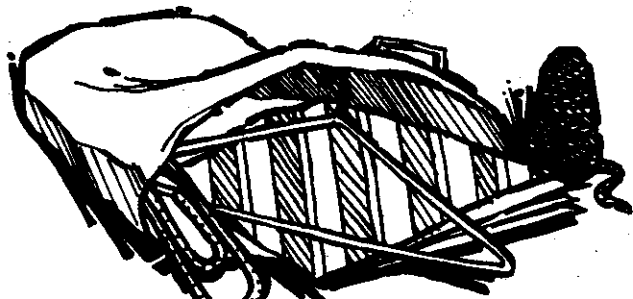


- *Don't chase the yearly fashions.* You don't have

Remember, if you hold onto your "out" clothes for a few years, chances are they'll become "in" clothes again. Shoes too.

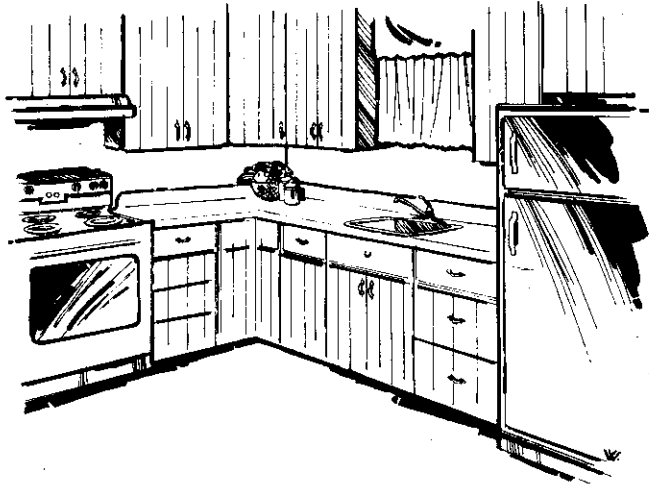
- *Repair is not a dirty word.* Patching, sewing and invisible mending are not lost arts.
- *Could others use them?* Before you throw out old clothing, check with local charities to see if they can use them. Many organizations operate stores or conduct rummage sales to raise money for their work.
- *Salvage.* Useful rags for jobs around the home can be salvaged from old clothing. (Nylons and pantyhose can be used to stuff toys and cushions, or to tie up bundles.) Some garages and factories buy rags for use by mechanics and machine operators.

**SHOPPING BAGS, COAT HANGERS, RIBBON,
STRING, WRAPPING PAPER, PAPER CLIPS,
RUBBER BANDS...**



- *String shopping bags.* They'll hold up through many, many trips.
- *Coat hangers.* If your closet has more hangers than coats, take the extras to a dry cleaner. Some cleaners will pay 1c or 2c each for them.
- *Gift wrapping.* Wrapping paper, ribbons and gift boxes can be used repeatedly. Don't apologize; tell people why you're reusing wrapping paper for their gifts. It's a great way to win new converts to conservation.

cutting food waste



Food waste is the most unpleasant part of your garbage. It's the part that smells after a few days, the part that necessitates expensive, twice-a-week garbage collection in many centres.

In fact, when you pause for a moment to reflect on the millions of people around the world who are starving, our North American food waste is simply obscene.

you properly store food.

(2) *Turn those leftovers into dishes.* Many of us have forgotten how to transform tonight's scraps into tomorrow's lunch. It's too easy just to sweep them into the garbage.

Try a few of the simple "leftover" recipes in this chapter. The ideas here are drawn from *Let's Cook it Right* by Adele Davis, and *The All New Fannie Farmer Boston Cooking School Cook Book* by Wilma Perkins.

(3) *Make compost.* Much of your organic waste can be returned to the soil as rich compost. See *Chapter 7 for the full story on compost.*

The suggestions for home preparation of food will bring about increased energy use and perhaps even organic waste in your home. But this will be partially offset by a reduction in energy demand and waste production in the food processing industries because you won't be buying as many of their products. And apart from saving money, your dinners should taste much better.

CEREAL AND GRAIN PRODUCTS

paper bag and crush it with a rolling pin or put it through a food chopper. Sift. Store in a closed jar. Ideal for scalloped dishes, coating croquettes, etc.

Stale cracker crumbs, potato chips and corn flakes can also be heated and rolled for a delicious topping.

Crumb Dressing

Dice, chop or run through the meat grinder and saute gently in 1 or 2 tablespoons of vegetable oil:

1 or 2 onions

1 minced clove garlic (optional)

1 to 4 stalks celery with leaves

1 handful parsley

1 chilled bell pepper or pimento (optional)

Cover utensils and steam 5 minutes; remove from heat and add:

2 or 3 cups diced or crumbled dry whole wheat bread

1/4 to 1/2 cup wheat germ mixed with 1/4 cup powdered milk

1 to 2 cups broth

1 teaspoon salt

pinch to 1/2 teaspoon sage, thyme, marjoram or savory

1/4 teaspoon crushed black peppercorns

If for turkey, chicken or other fowl, cook neck and giblets and add broth and chopped or ground

Tipsy Pudding

Dip 1/4 pound of dry, leftover unfrosted cake cubes into 1/2 cup sherry in a bowl. Put them in a serving bowl; cover with soft custard (using your own favourite recipe). Garnish with whipped cream, macaroon crumbs or chopped nut meats. Fruit can also be spread over it to make English Trifle. Serves 4 to 6.

Icebox pudding or icebox cake can also be made from leftover cake.

MEAT TRIMMINGS, WASTE AND BONES

Meat should be stored in your refrigerator. Use chopped meat within a day or two. A roast stays fresh for 4 or 5 days. If you want to keep it longer, wrap it in freezer paper or self-sealing wax paper and pop it in the freezer.

When you have only a little leftover meat, chop it, season well, heat in a sauce and serve in fried rice, omlettes, etc.

Basic Casserole

bread or cracker crumbs. If it seems too thick, add gravy, milk or tomato juice. Season to taste with salt and pepper, or more highly with onion juice or herbs. Spoon into a casserole dish. Put on the cover or sprinkle over the top buttered crumbs, crushed corn flakes or potato chips. Bake at 370°F (188°C) for 30 minutes.

There are all sorts of variations on this theme. Experiment!

Soup Stock

Select a large soup kettle with a flat base and a tight-fitting lid. Put over heat and add:

accumulated bones, meat trimmings and/or fresh bones
2 quarts water
¼ cup vinegar
2 teaspoons salt

Cover kettle and simmer 3 to 4 hours. If odour of vinegar can be detected at the end of this time, uncover kettle and boil vigorously for a few minutes until vinegar has evaporated. Add:

chopped parings and leftovers
¼ to ½ teaspoon crushed black or white peppercorns
2 or 3 crumbled bay leaves
1 white cayenne or chilli

Force the chopped vegetables down into the stock

Use stock for sauces, jellied meats, soups, bouillions, consommés and for general cooking. Many variations are possible.

Navy-Bean Soup

Use bone and skin left from baked or steamed ham or cured shoulder. Trim off edible meat scraps and save. Pour 2 quarts of water over bones and skin; bring to a boil. Wash quickly 2 cups of white navy beans, drain them, then add to the broth. Cover utensil, lower heat and simmer 2 hours. Add:

¼ to ½ teaspoon crushed black peppercorns
½ cups soy flour shaken with 1 cup water
1 crushed bay leaf
1/8 teaspoon marjoram, savory and/or basil
1 or 2 chopped onions
1 small cayenne pepper or chilli tepins, pierced with toothpick

Simmer 20 minutes longer, or until beans are tender; mash about half the beans; taste for salt and add more if needed. Remove bones, cartilage, skin, cayenne or chilli peppers; add ham scraps, if any, and garnish lightly with chives. Serve with garlic croutons.

used for fritters or potatoes, strain it into a container through double cheesecloth to separate out the scraps.

If you would like to remove the strong flavour of cooked onion, fish, etc., cut a potato into $\frac{1}{4}$ inch slices, add to the fat, and set over a low heat until the fat stops bubbling and the potato slices are brown; then strain as above. Store in a cold place. It's important for good nutrition to discard fat which has been overheated or has become rancid.

Bacon Fat: Strain into a jar, cover and store in the refrigerator. Use for pan-frying potatoes, eggs, lamb patties, liver, etc.

Chicken Fat: Render as explained below. Excellent for gingerbread, cookies and steamed puddings. In substituting for butter, use $\frac{2}{3}$ as much and increase the liquid slightly.

Suet: Render (see below) and store in refrigerator. Excellent for oven-fried potatoes, and it's the traditional pastry shortening in English cooking.

Brown Gravy: Take out the roast (beef or lamb) and pour all the juices from the pan into a cup or narrow jar so that the fat will rise quickly. Spoon off the fat. Set the roasting pan on the stove over low heat. Put in 4 tablespoons of the fat and cook, stirring to loosen the brown bits in the pan. Add $\frac{1}{4}$ teaspoon sugar to encourage browning. Cook and stir until brown. Add 4 tablespoons flour. Stir until rich, dark brown. Add slowly $1\frac{1}{2}$ cups cool liquid (pan juices plus water or consomme).

wooden spoon to loosen the brown glaze. Cover over low heat until well blended. Add water to dilute as much as you like. Taste and season.

To Render Fats: Cut solid uncooked fat into small pieces or put through a food chopper. Melt in a double-boiler over hot but not boiling water, or in a shallow pan in a 250°F (120°C) oven. Pour off the melted fat. If the bits of meat or gristle still cling to the fat, add boiling water and let stand until cool. Lift off the cake of fat and scrape the underside with a knife. Store in the refrigerator.

FRUITS



immediately, store the rest in a cool place — preferably spread out so the pieces don't touch each other. To improve the flavour, chill before serving.

You don't always need perfect, unblemished fruit for dessert recipes. Here are two dishes that turn out just fine using bruised fruit.

Applesauce: Wash and quarter apples but do not pare or core. Cook slowly until soft, with just enough water to keep from burning. Or cook in a pressure saucepan 5 minutes with $\frac{1}{2}$ cup water. Put through a food mill or coarse strainer. Add a sprinkling of salt. Add sugar to taste. Stir until the sugar melts completely. Some cooks stir in a bit of butter. Add spice and lemon juice if the apples need more flavour.

If you prefer your applesauce not quite so smooth in texture, pare and core the apples before cooking and beat only slightly with a fork when they are done.

Banana Cake: Set your oven at 350°F (177°C). Butter a 9-inch square pan. Cream $\frac{1}{2}$ cup butter until light and fluffy. Beat in $\frac{1}{2}$ cups of sugar gradually. Add 2 eggs, slightly beaten. Beat thoroughly. Add 1 cup mashed bananas and 1 teaspoon vanilla or lemon extract or $\frac{1}{2}$ teaspoon of each.

Sift together 2 cups pastry or cake flour, $\frac{1}{2}$ teaspoon baking soda (1 teaspoon if sour milk or cream is used) and $\frac{1}{4}$ teaspoon salt.

Add the flour mixture to the butter mixture alternatively with $\frac{1}{4}$ cup milk or cream (sweet or

VEGETABLES



Some vegetable scraps can be avoided; turnips and beet tops, for example, can be cooked and eaten just like spinach. Young carrot tops can be added to other greens.

Remember that peeling vegetables is a huge waste of protein and other nutrients — as well as a waste of time.

Peel vegetables only when the skin is tough, bitter or so uneven that it's difficult to clean. Instead, wash in cold water and scrub with a brush. If you feel you must peel them, use the peelings for soup broth. And when you're finished boiling the vegetables, use the vegetable water for soups, gravies and casseroles.

All vegetable peelings or leftovers which can't be used should go into your compost pile.

Basic Casserole: See the earlier recipe for using meat leftovers.

Cream of Vegetable Soup: Put in a double-boiler:
1/2 cup cooked vegetables, mashed or chopped
1 1/2 cups of milk
1 slice onion

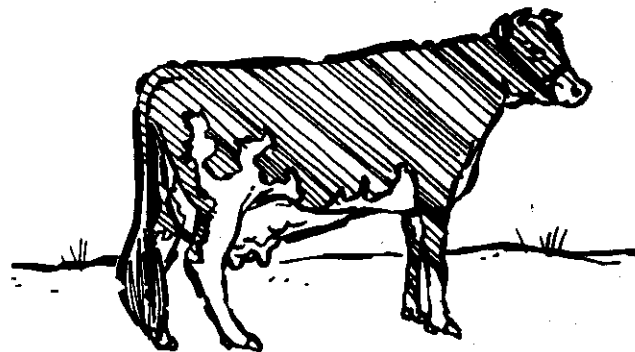
Heat 20 minutes. Rub through a sieve or food mill. Reheat. If desired, add 1 or 2 bouillion cubes. Season to taste with salt and pepper, plus paprika or any herb seasoning. Serves 2 or 3.

Leftover Corn: Hold cob upright and cut downward, being careful not to cut too near the cob. Scrape downward with blunt edge of knife; use corn in salad, reheat in a little table cream, or add to string beans, carrots, peas or other vegetables just before serving.

Fried Potatoes: Slice leftover potatoes. Keep heat

Hash Brown Potatoes: Dice leftover white or sweet potatoes, preferably unpeeled; season with salt and pepper; saute quickly in vegetable oil or bacon drippings; add chives, minced green-onion tops or diced leftover meat or other vegetables.

MILK AND DAIRY PRODUCTS



Some foods — doughnuts, waffles and pancakes, for example — actually taste better when made with sour milk. Sour cream is also fine, but use it before it thickens to resemble cheese.

top of casseroles or soups. The same hard cheese, softened with leftover wine, makes a great cheese spread.

You'll find that butter and margarine both go further when used at room temperature. Use your butter papers for greasing cake and cookie tins, chicken, turkey or fish.

Pancakes: Put $\frac{1}{2}$ cup sour milk, 2 tablespoons melted butter and 1 egg in a mixing bowl and beat gently. Sift:

- 1 cup all-purpose or pastry flour
- 2 teaspoons baking powder
- 2 tablespoons sugar
- $\frac{1}{2}$ teaspoon salt

Add to the milk mixture all at once. Stir just enough to dampen the flour. Add more sour milk if necessary to make the batter about as thick as heavy cream. Cook on the griddle — greased lightly with butter if necessary — until cakes are full of bubbles and the under-surface is nicely browned, then turn over. Serve with butter and maple syrup.

COFFEE GROUNDS, EGG SHELLS, PITS, SEEDS, CORES, PEELS AND SUCH

composted. Read Chapter 7, *Compost*, to get you started.

Don't use a garburator. Using a garburator to dispose of food is *not* recommended. While it may cut down on the amount of food scraps and peels you put in the garbage, it just diverts this problem to the sewage treatment plant and many contribute to overload problems. A compost heap is much better.



cutting yard waste compost

Yard waste from lawns and gardens can make up almost *one fifth* of all residential waste. In other words, one garbage bag in every five! It is particularly heavy during the spring and fall clean-ups.

Don't throw it all out. Much of this material can be used to improve your soil.

- *Leaves.* They make a valuable fertilizer because they're rich in minerals: calcium, magnesium, nitrogen, phosphorous and potassium. They should be added to your compost heap. (See the next chapter.)

They can also be put directly on your garden as a mulch. Mulch is a layer of material — preferably organic — that conserves moisture, holds down weeds, and improves soil structure and fertility. Most leaves will decay rapidly.

Leaf mold can be made by placing shredded, damp leaves in a container. Use your lawn mower for shredding. Ground limestone can be applied to counteract the acidity.

- *Lawn trimmings.* Grass clippings are rich in nitrogen. Use them as green manure and work directly into the soil, add them to your compost heap, or as a mulch on the soil.
- *Plants.* Garden residues can make an important part of the material for your compost heap.

If you're looking for a quick way to eliminate 25% of your waste, start composting!

- *What is composting?* The experts describe it as "*the biological decomposition of the organic constituents of wastes under controlled conditions.*" In simple English, it's the breakdown of food and garden wastes into a soil conditioner. It adds nutrients to the soil, improves the soil's water-holding capacity, improves tilth and aeration, and makes plant nutrients already in the soil more available to the plants.

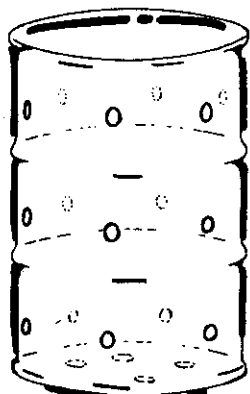
Many different composting techniques have been developed. Which one is best for you? It depends on the amount of your organic waste and the time you want to invest.

- *Basic ingredients.* A successful compost program needs good ventilation, moisture and nutrients (especially nitrogen). The usual way to be sure of adequate nitrogen is to build up the compost using *layers of materials:* green materials (lawn clippings, leaves, green plant stems, roots, flowers, etc.); animal manure and rich soil; and alternatively dry materials (dried grass, mature flower

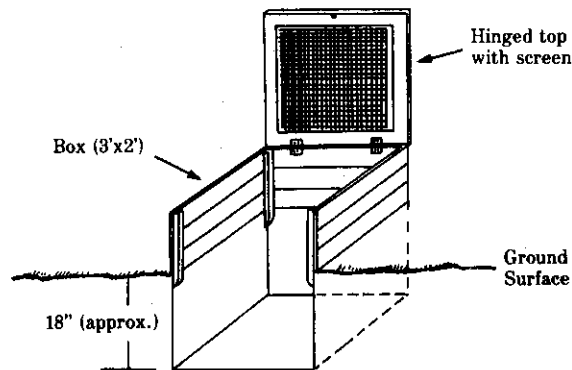
- **Basic models.** You can make a compost heap yourself. Here are three simple ways to do it:

(1) *Dig a shallow pit about 12" deep in a corner of your garden.* If there is any chance of small children or animals falling into it, put a simple wire fence around it. Put a layer of organic material in the bottom and sprinkle it with either compost starter or composted manure or bone meal, then a layer of earth. Moisten and add successive layers of organic material to be composted.

Cover with plastic or burlap to keep the moisture in and the flies out. After 10 days, start turning it over with a garden fork every 3 or 4 days until it is ready.



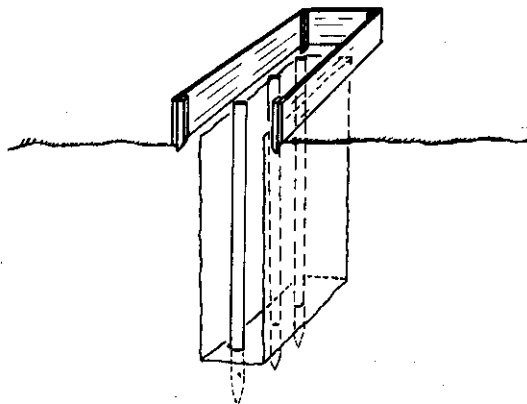
covered. Your compost should be ready in a few weeks. Instead of a drum, you can also use a cylinder of wire mesh.



Cross Section Through End of New Compost Pit

(3) *Construct a wooden box without a top or bottom.* The size will depend on your needs, but 4' long by 2' wide by 1' high should do nicely. Dig a hole 18" deep and slightly smaller than the box, so the box rests firmly on the ground above the hole.

Earth should be added in layers to the compost. Drive wooden stakes into the bottom of the pit, 12" apart. When the box is nearly full with layers of compost materials, moisten, and then remove the stakes so you have "chimneys" of air for ventilation.



You can also purchase small composting units which come complete with instructions and starter from:

Bardmatic Corporation
5200 Dixie Road
Toronto, Ontario, L4W 1E4
(416) 624-1177

Bardmatic Corporation
4360, Joseph Dubreuil St.,
Lachine, Quebec, H8T 1A8
(514) 636-9090

Roto Crop Canada
361 King Street East

wastes such as vegetable and fruit peelings, coffee grounds, tea leaves, egg shells, nut shells, floor sweepings, feathers, hair, ashes from wood fires and cotton.

To prevent contaminating the soil with weed seeds, do not put ripened weeds in the compost heap. If the weeds are green and the seeds have not matured, they may safely be added to the compost heap.

Fats are not acceptable because they don't break down very well. Cooked foods, meat and bones may attract animals, although you may solve this problem with a covering of earth.

- *The yearly cycle.* You can start your compost at any time of the year. Fall is perhaps best because this is when the largest amount of material is available.

For winter composting, be sure to add manure with a soil covering or green manure and topsoil on top of your kitchen wastes.

Compost can be ready in about a week if all the material is ground up. Otherwise it can take up to six months or a year, depending on the amount of ventilation available.

To be sure you have a constant supply from spring to late summer, start a new pile while you're waiting for the first to "ripen". A dark, rich colour tells you it's ready to use.

When that time comes, place it in several con-

You can also apply half-finished compost to your garden in the fall and let the soil do the rest.

- *Good advice.* Your bookstore will have a variety of books dealing with composting and gardening. The ideas in this chapter are drawn from *The Basic Book of Organic Gardening* by Robert Rodale (Ballantine Paperback, 1971) and *Composting: A Study of the Process and Its Principles* by Clarence Golueke (Rodale Press, 1973). Both are recommended.

You can also send for Agriculture Canada Publication No. 868, *Manures and Compost* available from:

Agriculture Canada
Information
Sir John Carling Building
930 Carling Avenue
Ottawa, Ontario, K1A 0C7

SO YOU LIVE IN AN APARTMENT...

Don't give up on composting. Some buildings have set up cooperative composts in a corner of the apartment property. See if you can drum up support from other tenants and then talk to your building manager.

how to set up a recycling program in your community

Many community groups, youth groups and municipalities right across Canada have been operating recycling depots, paper drives and separate collections of recyclable materials.

Newsprint is the most common item, but many depots collect bottles and cans as well.

If you are unsure of what recycling programs are now operating in your area, contact either your public works department or one of the environmental groups listed below.

THESE GROUPS CAN TELL YOU MORE ABOUT RECYCLING PROGRAMS IN YOUR COMMUNITY

There are too many environmental groups across Canada to list them all here. Instead we've picked just one organization in each province that can put you in touch with other groups where you live.

Alberta

STOP Edmonton
Box 1633
Edmonton, Alberta
(403) 434-4126

Saskatchewan

Saskatoon Environmental Society
P.O. Box 1372
Saskatoon, Saskatchewan

Manitoba

Pollution Probe Winnipeg
P.O. Box 29
U.M.S.U. Building
University of Manitoba
Winnipeg, Manitoba
(204) 474-8211 (Ext. 22)

Ontario

Garbage Coalition
43 Queen's Park Crescent East
Toronto, Ontario
(416) 928-5432

New Brunswick

Natural Recovery Systems
295 Baig Blvd.
Moncton, New Brunswick
(506) 854-4038

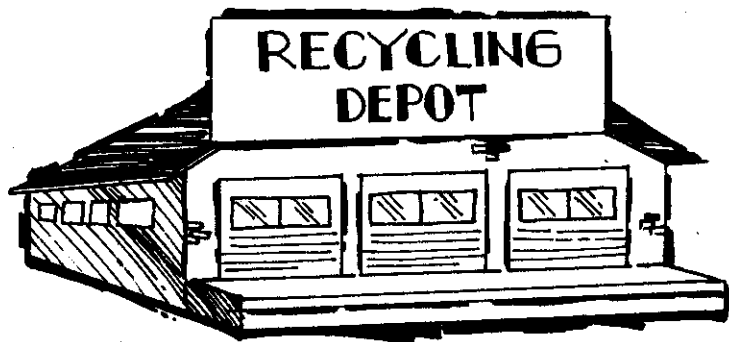
Nova Scotia

Ecology Action Centre
Room 20-A
Forrest Building
Dalhousie University
Halifax, Nova Scotia
(902) 422-4311

These groups are all dedicated to protecting the environment, and they seek your support. They can help you find out just what programs are going on in your community. As well as using their services, consider offering some volunteer help.

If there isn't a program in your area, read on.

TWELVE STEPS TO SETTING UP A RECYCLING DEPOT



How do you go about setting up a recycling depot? First be prepared for a lot of hard work — and a lot of satisfaction.

Try to make contact with someone who has done it before and learn from their successes and failures. If the program is shut down, find out why. Was it a lack of volunteers, poor community cooperation, failing markets?

Here are 12 steps to setting up a successful depot:

1. **Know your markets.** It doesn't make much sense to collect paper, metal or glass if you don't have

2. **Find a team of people to help you.** It's too big a job to tackle on your own. Tell your neighbours and friends what you're trying to do. Word of mouth is your best recruiter.

Talk to your local municipal council and public works department. They may be able to help you with a truck or two, or even a storage building. They might even pay so much per ton of waste that is prevented from entering their already over-loaded municipal system.

All donations of money, muscle and equipment can be a great help. Chase them vigorously.

3. **Work to a plan.** Sometimes a depot in a small community sees itself as a partial long-term solution to the garbage problem.

Another depot, in a large community, may be trying to demonstrate to the powers-that-be, that recycling programs are practical — with the hope that the municipality will take over the program on a large scale. Still others see a recycling program as a way of creating more public awareness of the need to reduce waste.

What's your goal? Think it through before you start.

4. **Find a good location.** Recycling depots have been established in shopping plazas, neighbourhood garages, abandoned buildings, public work yards, fire stations, etc.

materials. It gives you a chance to sell them on the whole idea of solid waste reduction and careful shopping.

Depots of this type are usually open only for certain periods — perhaps an evening a week or Saturday morning.

This also avoids the problem of contamination at unmanned depots. People who don't know or don't care will sometimes dump their entire garbage into the depot.

Depots set up at public works yards or fire stations offer some supervision, but are less than ideal.

6. **Transportation.** You can use a station wagon, a pick-up truck or even a special container truck used by disposal companies.

Check the yellow pages under "Rubbish Removal" for waste disposal companies in your area who could rent you a container for storage and move it to your market when full.

7. **Storage.** Many different types of storage containers are available — from oil drums to rented bulk containers. The best one for you will often depend on your method of transportation.

If the containers have to be moved by hand, keep them *small* so your volunteers don't break their backs.

9. **Be neat.** You're trying to avoid dumps — not create another one. Keep your depot as clean and attractive as possible.

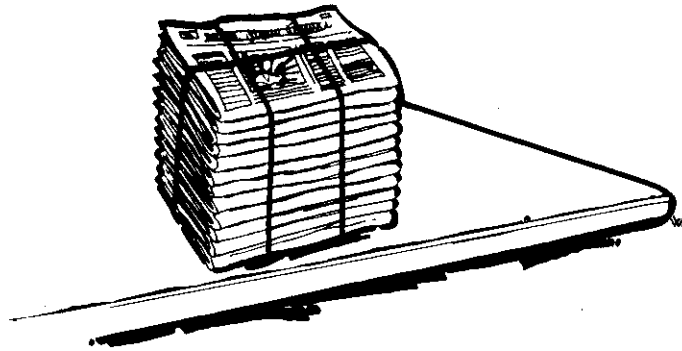
10. **Take safety precautions.** Keep a good first-aid kit and fire extinguisher handy. Don't leave *any* inflammable materials lying around.

It's also a good idea to have all your volunteers sign waiver forms (prepared by a lawyer) releasing your group from any responsibility in the unlikely case of accident. Some groups have incorporated to minimize personal liability.

11. **Let people know what's happening.** Use large simple signs and diagrams to show what goes where. A handbook for volunteers is a good idea. Be sure you have an experienced person on hand to coordinate the team for each shift. *Tip: Telephone your volunteers before their shift to remind them.*

12. **Keep in touch with other recycling groups.** Talk to other depots. Share your ideas, successes, failures. Be sure that the environmental groups listed in the previous section know what you're doing.

SEPARATE COLLECTION OF RECYCLABLES



Separate collections at curbside — especially newsprint, but also glass containers — can be a very efficient way of reclaiming waste. A goal of 60% to 70% would appear to be reasonable.

There are at least four ways to collect recyclables and regular garbage at the same time, but separately:

- racks under the body or rear of the truck
- trailers
- the space in front of the ejector plate
- new mechanical bins

Separate trucks are recommended if the recyclable materials are to be taken to any disposal sites or transported a great distance to the markets.

Many Canadian cities have had a lot of experience with separate paper collections. Many, unfortunately, stopped when the markets for reclaimed

Natural Recovery Systems in Moncton has been operating a similar glass program, as have Etobicoke and Manor Park, Ottawa.

HOW TO START A SEPARATE COLLECTION PROGRAM FOR GLASS OR PAPER:

The six points below will help both community groups and municipalities to tackle this project:

1. **Markets.** Just as with a recycling depot, you must know your market before you start. Try for a *guaranteed* market — if you can deliver a large and regular supply.
2. **Community help.** Committees made up of citizens and elected representatives can help in planning, organizing and monitoring the program. Be sure that people have the name and number of *one* person to call if they have questions or complaints.
3. **Planning.** This is essential and should involve as wide a group as possible. Try to include municipal departments, politicians, garbage men, paper dealers and/or glass container companies, plus interested citizens.

Each has a role to play. Better to hear them out and seek cooperation rather than fight roadblocks.

5. **Work to a timetable.** Arrange a simple collection timetable and stick to it. Promote it. Once-a-week collections seem to work best.
6. **Work out the economics.** Be sure you include all costs, revenues and savings in planning your program. Don't forget to include the regular cost of collecting and disposing of the waste.

Remember, however, that even if your project seems to "lose" money, it may still make sense for the community because the disposal costs are avoided. If you need help doing a thorough economic analysis, including what economists call "external costs", find someone at your local university or community college to help you.

More help:



Probe, July, 1974. It looks at 11 paper collection programs and is available from Pollution Probe, University of Toronto, Toronto, M5S 1A1. Costs \$1.

Information on the separate collection of glass is available from the Glass Container Council, 67 Yonge Street, Toronto. Telephone (416) 304-4109.

MARKETS FOR RECLAIMED MATERIAL

As you know by now, operating a depot without a market is futile. Little is accomplished if the materials aren't eventually recycled and used in the manufacture of new products.

Here's a quick look at the markets for the three most common recycled materials — paper, glass and tin cans.

PAPER

As anyone who has been involved in a paper recycling program will tell you, the waste paper market is a volatile one.

In late 1973, newspapers collected in Toronto were selling for \$15/ton. The price went up to \$40-\$50/ton by early 1974 and slid back down to \$15/ton by April, 1974. As the market continued to drop, most community recycling programs folded.

There are no easy answers to the problem, but an understanding of how the paper industry works is a beginning.

For practical purposes, there are 5 grades of waste

The first two, pulp substitutes and de-inking, make the best substitutes for primary fibres and are in greatest demand. It is these grades, which include the *pre-consumer* wastes from paper mills and convertors, that the professionals in the field have specialized in reclaiming.

Most community programs are involved with collecting *post-consumer* waste, particularly newspapers.

The table below shows the usage pattern for these lower grades.

**PERCENTAGE CONSUMPTION OF THREE
POST-USE GRADES OF WASTE PAPER —
BY USE
CANADA, 1973**

Use	Grade		
	Newspapers (Used and Overissue)	Old Corrugated Boxes	Mixed Paper
Boxboard	65%	39%	21%
Building Materials	28	18	70
Linerboard	3	28	—
Corrugating Medium	2	15	—
Newsprint	2	—	9

selling used newspapers if there is a boxboard or building materials mill in your area.

Although it's technically possible to make newsprint from 100% de-inked waste newspaper, such a newsprint mill doesn't exist in Canada at the moment.

Rather than take your collected newspapers right to a mill, it may be easier to sell them to a waste paper dealer. Look under "Waste Paper" in the yellow pages.

How to expand the market for newspapers and other post-consumer waste paper: Sudden flurries in demand, as in 1973-74, are next to useless. The market must be expanded on a long-term, permanent basis. Here are some ways to do it:

- *Citizen action:* If you demand consumer products which are made from the maximum amount of post-consumer waste, you'll stimulate the market.
- *Government action:* These steps would help —
 - remove discriminatory freight rates
 - give tax incentives and/or remove disincentives for the use of paper waste
 - practice preferential purchasing
 - offer grants to secondary fibre users
 - subsidize de-inking operations
 - introduce labelling laws which don't discriminate against recycled products

GLASS

The market for waste glass in Canada has been a steady one. Each of the glass container companies listed below has set up bottle recycling depots which pay a minimum of \$20 for each ton of glass delivered. The bottles must be reasonably clean and sorted by colour (clear, green and brown) with aluminum rings removed. Developments in the glass container industry may make the separation of glass into 3 colours unnecessary. This would greatly aid recycling.

For more information contact:

Ahlstrom Canada Ltd.
Scoudouc (Moncton)
New Brunswick
(506) 532-4446

Consumers Glass Company Ltd.
85 Montcalm Street N.
Candiac, Quebec
(514) 489-9361

Dominion Glass Co. Ltd.
2376 Wellington Street
Montreal, Quebec
(514) 993-7331

Consumers Glass Co. Ltd.
777 Kipling Avenue
Etobicoke, Ontario
(416) 239-7151

Dominion Glass Co. Ltd.
100 West Drive
Bramalea, Ontario
(416) 457-2423

Dominion Glass Co. Ltd.
Chapple Street
Hamilton, Ontario
(416) 544-3741

Dominion Glass Co. Ltd.
1250 James Street
Wallaceburg, Ontario
(519) 627-2271

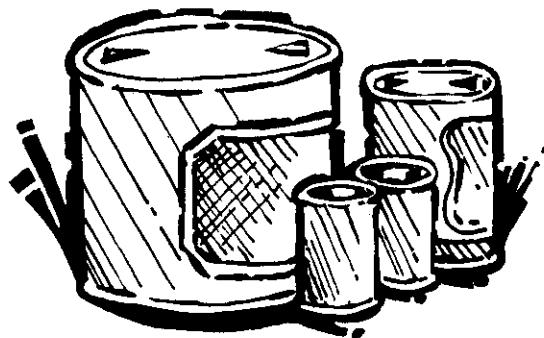
Dominion Glass Co. Ltd.
1st Avenue & 1st St. N.E.
Redcliff, Alberta
(403) 548-3901

Consumers Glass Co. Ltd.
Lavington, British Columbia
(604) 545-2301

Other uses for waste glass are being explored: glassphalt paving materials, building bricks, glass-wood insulation, glass beads for highway paint, fiberglass insulating material and aerated concrete.

For the time being, however, recycling back into glass containers is the main market and potentially large enough to absorb most of the supply. Don't forget however, that the reuse of returnable glass bottles is much better than recycling them.

TIN CANS



What we call tin cans aren't really tin cans; they're mostly steel with just a small amount of tin.

If the tin is not removed the waste can be used to make such low-grade products as metal reinforcing bars for concrete.

Canada: M & T Products in Hamilton.

Look under "Scrap Metal" in your telephone book for dealers who might purchase your collected cans.

Warning: Those soft drink cans with aluminum tops shouldn't be mixed with your collected tin cans. The best step is to avoid buying them in the first place.



FREE "GARBAGE GUS" POSTER

To help all of us in our homes, schools, and offices to get into the spirit, we've developed a *free, colourful poster all about putting Garbage Gus on a diet.*

It shows you how to weigh your garbage each week and cut down *your* waste and slim *his* waist. It lists a lot of ways that you can reject, reuse and recycle products. You can even graph your family's progress.

Pin it up in your kitchen, on the school notice board or office wall. Let everyone around you get into the spirit of recycling.

Use the order form for your free Garbage Gus poster.

SEND ME A FREE GARBAGE GUS POSTER

I want to put it up in my home ()
school () office ()

Name

Address.....

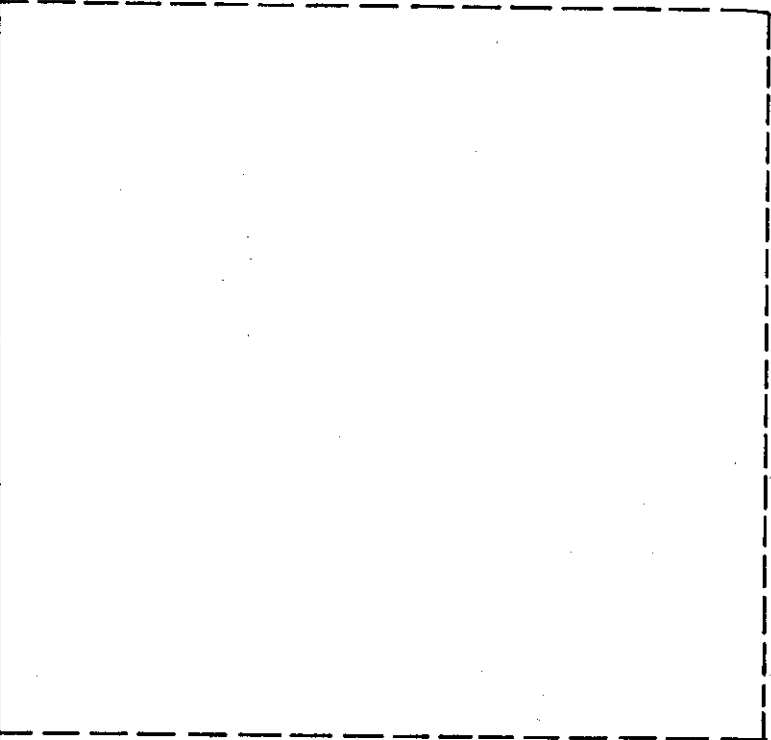
Province.....Postal Code

Send to:

Garbage Gus Poster
Office of Energy Conservation
Department of Energy, Mines
and Resources Canada
580 Booth Street
Ottawa, Ontario
K1A 0E4

TEACHERS: HELP YOUR STUDENTS LEARN MORE ABOUT RECYCLING

- Encourage school projects that deal with the topics and ideas in this book — posters, essays,



SEND "THE GARBAGE BOOK" TO A FRIEND

If you would like another copy of this book, or would like to send a copy to a friend, neighbour, boss, purchasing agent, apartment building manager, etc., fill in the details below and mail to:

The Garbage Book
Box 3516
Station C
Ottawa, Ont.
K1Y 4G1

Name

Address.....
.....

Province.....Postal Code

Name

Address.....
.....

Province.....Postal Code

FEEDBACK

Once you have had a chance to read this book, and put some of the ideas into practice, we would like to receive your comments.

Was it useful? Yes _____ No _____

Was it easy to read? Yes _____ No _____

Was it easy to understand? Yes _____ No _____

Was it too technical? Yes _____ No _____

Or was it too simple? Yes _____ No _____

Did you learn to think about
energy conservation? Yes _____ No _____

Did the book give you enough
information on ways to
reduce your garbage? Yes _____ No _____

Did you start doing anything
to reduce your garbage? Yes _____ No _____

What were the results?

.....

Did the book change your perceptions of:

Energy..... Yes _____ No _____

Garbage..... Yes _____ No _____

Yourself..... Yes _____ No _____

Your home..... Yes _____ No _____

Society..... Yes _____ No _____

How many people read your
copy of this book?.....

Did you read all of it
or just sections?..... All _____ Sections _____

If just sections,
which ones?.....

Other comments:.....
.....
.....

Mail to: Garbage Feedback
Office of Energy Conservation
Department of Energy, Mines and Resources
580 Booth Street
Ottawa, Ontario
K1A 0E4

WHAT OTHER IDEAS DO YOU HAVE FOR REDUCING GARBAGE?

We hope this book has helped you to better understand the reasons for cutting down on waste, and that you are putting some of the ideas to work.

Of course the book doesn't cover everything. New ideas are popping up regularly. Perhaps you have discovered some other ways to avoid putting out so much garbage.

We'd like to hear about them, and perhaps use them in a future publication.

Ideas: (1).....

.....
.....

(2).....

.....
.....

(3).....

.....
.....

HAVE YOU READ "100 WAYS TO SAVE ENERGY AND MONEY IN THE HOME"?

The Garbage Book is our third book about conservation in the home. The first book, called *100 Ways to Save Energy and Money in the Home*, was released last April and we are still receiving thousands of requests for it. "*100 Ways*" covers just about everything to do with energy conservation in the home: furnaces, thermostat settings, insulation, water heating, appliances, lighting, summer cooling. It even has special chapters on apartments, cottages and waste recycling.

If you would like a copy, fill in the form below and send to:

.....
100 Ways
Box 3500
Station C
Ottawa, Ontario
K1Y 4G1

Name

Address

HAVE YOU READ "THE BILLPAYER'S GUIDE TO FURNACE SERVICING"?

The Garbage Book is our third book about conservation in the home. The second book called *The Billpayer's Guide to Furnace Servicing* explains what you can do and what your serviceman *should* do to save fuel in gas and oil-fired furnaces.

If you would like a copy, fill in the form below and send to:

.....

Furnace Book
P.O. Box 2010
Weston, Ontario
M9N 3R4

Name

Address

.....

Province.....Postal Code

notes

notes

For conservation reasons, this book is printed on paper containing recycled, post-consumer fibre.

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