

War on plastic heating up

Bans on plastic bags and bottles are now proliferating. But as Andrew Chung reports, that bad-boy image overlooks some big environmental advantages

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Navigating his way astride the intimidating, high-speed conveyor belts and industrial-sized rotating teeth that are sending plastics spinning in different directions, John Baldry is breaking a sweat.

That's probably because he's climbing the many dusty stairs in this recyclables sorting plant at the Dufferin Transfer Station in north Toronto. But it may also be from simply trying to keep up with all the plastic dumped here by the truck-a-minute.

"We keep getting more and more, there's no question," says Baldry, the City of Toronto's processing operations supervisor, his goggles fogging up. "Toronto is growing."

Plastic is moving all over this cavernous place. Workers flip it into giant cages. It falls down chutes. It's packed into bales. There's so much plastic that the number of pop bottles sent to plants like this in Toronto alone, if set end to end, would stretch halfway around the world.

To cope, this plant is set to install a \$1-million optical sorting machine that uses the different plastics' refractory characteristics to more accurately separate the many types of bottles and containers. And Baldry says the city, which has two sorting facilities including this one, is also looking to add a third.

Plastic's had a 50-year honeymoon, expanding its influence such that, today, we could scarcely imagine life without it.

Is that about to change?

Plastic's shine has dulled recently as the industry has come under attack over concerns about what plastics might do to what we eat or drink, or to the environment.

Unquestionably, plastic has made our lives more convenient, efficient, hygienic and lightweight. But these days, scientists, environmentalists - even high-end restaurants and the United Church - are all involved in plastic-bashing.

In just a few years, plastic has gone from unassailable engine of the modern lifestyle to a bandwagon off which a good part of society has jumped.

"In large part it reflects a growing awareness of the potential of plastics to harm our health and to have long-term impacts," says Bruce Newbold, director of the Institute of Environment and Health at McMaster University. "Science is just now

wrapping its head around these issues."

The plastic putsch also reflects the recent, hugely growing interest in environmental issues on the part of the public. As such, Newbold says, "plastic becomes an easy target because it's everywhere. We use it for everything."

People now worry about plastics toxicity, especially when it comes in contact with things we ingest. Then there are the environmental costs, partly due to plastics' inherent inability to break down.

But is the bad rap deserved? Even as plastic has become, to some, a pariah, many are forgetting the ways in which the substance is saving lives, and, indeed, the Earth.

It's so ubiquitous we may hardly think of it. Our meat comes wrapped in it at the store. Sometimes our fruit does too, and when it's doesn't, we place it in a filmy bag before we check out. Plastic comprises the shells and brains of computers - and if not the coffee cup itself, then its inside coating. It's in millions of products ranging from airplanes to the address windows in envelopes. We even shrinkwrap boats in it to protect them in winter.

It's in our imaginations, too. Long ago it invaded popular culture as a synonym for the superficial. In the 1967 movie classic *The Graduate*, plastic was a metaphor for a greedy, warmongering parental generation.

In high schools, the "plastics" are teenage girls that may resemble Barbie dolls and inhabit the world of popularity. The word plastic, in the form of credit cards, is another term for money.

Plastic has been evolving for a century. But most of its growth happened after World War II - since the 1960s at a rate five times higher than the rest Canada's manufacturing sector. There is now a huge array of plastic, from polyethylene to polystyrene to polycarbonate.

But plastic's astonishing success may be its Achilles heel. The war against it is escalating. The campaign against plastic bags, for example, continues to spread around the world (see sidebar).

Meanwhile, plastic bottles are getting hit from all sides. In February, environmentalist David Suzuki launched a national tour on green politics by railing against bottled water, which, he says, cause "unbelievable pollution." This followed the United Church of Canada, which last summer asked its members to stop buying bottled water, supporting an initiative against the "privatization" of water and the millions of bottles "choking recycling systems and dumps across the country."

Many high-end restaurants in places like San Francisco, Los Angeles and New York seeking to carve themselves a green image have banned water bottles, and are gussying up tap water through filtering or carbonation for their exacting customers.

Suzuki also expresses doubt that "plastics are not involved in a great deal of the health problems that we face today."

It's here that the second front has opened up against the plastic industry. There are all kinds of plastic manufactured now, and with them come myriad chemicals - some say "toxins."

"There is now an avalanche of research demonstrating a variety of toxins leaching from plastics," says Rick Smith, executive director of Environmental Defence, which has tested Canadians, including federal politicians, for the chemicals lingering in their bodies.

Recent research by Canadian William Shotyk of the University of Heidelberg found that the concentration of chemicals such as antimony increases the longer water sits in a plastic bottle. Levels of antimony, which can be poisonous and is commonly used in batteries, were below drinking-water standards set by Health Canada. Still, at low doses, antimony can cause headaches and dizziness; high doses can cause vomiting or worse.

Then there are phthalates, the "plasticizers" used to make plastic more flexible. There has been worry for years that these substances are "endocrine disruptors" interfering with sexual development, but the industry points out that studies have shown this to happen only in rats and at very high doses to which humans would never be subjected.

Smith, who has a 5-month old son, recently found two plastic soothers in the pharmacy, one made with phthalates, one without. "When it's very easy to make plastics without these toxic ingredients," he says, "what's the problem in getting these things out of plastic?"

No plastics-related chemical is as controversial, however, as bisphenol A. Concern is igniting around this substance, and an expert panel of the U.S. federal Center for the Evaluation of Risks to Human Reproduction will decide once and for all whether bisphenol A endangers reproductive health. The panel was to meet this month, but that has been postponed to allow for further public comments. Numerous animal studies have found evidence of reproductive toxicity. That wouldn't be so alarming except that BPA, as it's known, is used extensively in products that come in contact with our food and drink.

It's in the polycarbonates that make the transparent plastic used in water bottles, water coolers and baby bottles. Ditto the coatings that line metal food cans and water supply pipes, artificial teeth and dental sealants.

Last month, a California environmental group found the chemical leaching from baby bottles. Since then, parents have become more concerned.

Specialty baby retailers report that Evenflo, one of the few manufacturers that make glass baby bottles, is sold out across North America. The U.S. company won't confirm that, except to say glass has seen "increased demand."

Baby on the Hip, a new store on Queen St. E., says its BPA-free plastic baby bottle has become a top seller. The plastics industry says levels of BPA in polycarbonate bottles are too low to be harmful. But more than 100 independent studies have shown that mere traces of BPA can have reproductive effects.

Research on newborn lab animals has found abnormal tissue growth or genetic changes. The chemical looks and acts like a synthetic version of female hormone estrogen, and many scientists blame it on certain sex-related trends being seen in society, such as higher rates of prostate and breast cancers.

"The evidence seems pretty good that links it to certain endocrine-disrupting effects like decreased sperm production or earlier onset of puberty" says Clare Wiseman, who teaches at the Centre for Environment at the University of Toronto.

The plastics industry points to a smaller number of other studies, however, that show no harm.

"There have been a lot of assertions, but there's no scientific evidence that there is an issue there," says Cathy Cirko, Toronto-based vice-president of environment and health for the Canadian Plastics Industry Association.

"There have been studies coming out around the world indicating that, for bisphenol A, there's not a health concern.

"Allegations with respect to leaching are unfounded. Those studies have never been replicated. You have to go to Health Canada and the (Federal Drug Administration) in the States for the real science."

Wiseman says people should take the "precautionary approach" until the final analysis. Recently, she bought two water bottles, but after discovering what they were made of, retired them to the cupboard. She also finds herself consciously making other decisions about plastic, such as buying ketchup in glass containers instead of plastic.

Last year the Canadian government selected BPA as one of 200 chemicals in need of further assessments for safety. Starting next month, companies will have to provide data showing the chemical's safety or face regulation.

Some think that as we learn more, our lives will change significantly.

"I think the plastics issue is sort of evolving along the lines of the smoking issue," De Baeremaeker says.

"There was a time when people said smoking didn't harm you, and those who said it did were crazy people.

"Finally people are realizing that what we're using in our day-to-day lives is killing us, just like the lead in our pipes, the (volatile organic compounds) in our paints."

Plastics may be getting hit hard on the environment and health, but in fact plastics have also contributed to improving these critical aspects of our lives.

They allow people to walk with artificial limbs, and see with contact lenses. They have also allowed blood to be stored much longer than in the past, Wiseman says.

"One phthalate has been found to double the shelf life of blood. So there's a need to weigh the risks and the benefits."

A number of arguments can also be made to support the notion that, by leaps and bounds, plastic has helped the environment.

Plastic bags, for one thing, take much less energy to manufacture, distribute and recycle than paper ones, because they're thinner and lighter. The industry notes that, similarly, it takes less energy to make a plastic bottle than a glass one, or manufacture vinyl siding compared with aluminum, or fashion pipes out of plastic instead of steel.

Plastic has made cars lighter, meaning we use less gas. Insulation and wrap for homes and buildings has cut down energy use, saving million of barrels of oil versus other kinds of insulation. In appliances like refrigerators, plastic parts and insulation have vastly improved energy efficiency.

Perhaps more debatable is a recent argument by manufacturers to counter consumer demands for reduced packaging. They say that without layers of foam or other plastics, items might more easily end up damaged and replaced.

What's not debatable is the convenience plastic has brought to our lives.

For busy people that may outweigh any risks.

Even Smith, of Environmental Defence, says his household hasn't eliminated plastic food wrap. They just never put it in the microwave, he says.

Newbold says he "remains a user" for convenience sake, too. "It's a two-edged sword," he explains. "Plastics serve a purpose. They keep foods fresh, protect us from foodborne illness. We have to weigh that against the potential for health and environmental damage."

His rule of thumb? Be concerned, "but don't go overboard." Plastic has been evolving for a century, but most of its growth happened after World War II

[Illustration]

Carlos Osorio toronto star Lerrie Phillips sorts plastic containers at the Dufferin transfer station, as the city awaits delivery of a \$1-million optical sorting machine.

Credit: Toronto Star