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the future of our garbage

and its effect on the environment

Photo taken by Martin Schmidt

By: Maria Yampolsky

Many people may think of Reduce, Reuse, Recycle as nothing more than a chant they were taught in kindergarten to remind them to put cardboard in the blue bin and use both sides of a piece of paper before tossing it, but this maxim is applicable on a large scale to all Torontonians, now more than ever. In 2016, the City of Toronto managed almost 900,000 tonnes of waste, with 48% of this quantity going to landfill. The city published a statement sharing that these numbers do not represent a sustainable lifestyle.

Garbage is considered all disposed objects or parts of objects that are non-recyclable and non-biodegradable. In Toronto, our garbage almost entirely goes to landfill, which is a form of waste disposal where a section of land is used to bury or pile up waste materials. This method may be quick and easy, and it does not require any high-tech machinery, but its environmental impacts are detrimental.

Landfills contribute to air pollution, groundwater pollution and the deterioration of soil fertility. 90 to 98% of the gas produced by the decomposition of organic materials in a landfill is made up of methane and carbon dioxide. Both are greenhouse gases and are known to cause climate change, contributing in turn to rising sea levels and loss of polar habitat.

As rain falls on these sites, much of the organic and inorganic constituents are dissolved, forming a leachate that carries ammonia, highly toxic organic compounds, pathogens, and toxic metals. If this leachate escapes it will pollute the groundwater supply and infiltrate connected surface water supplies. Canada is very fortunate to have a prodigious reserve of fresh water, but being the valuable resource that it is, fresh water needs to be protected from pollutants. Polluted fresh water can lead to the spread of disease, damaged crops and loss of aquatic life.

When this garbage is buried within the earth, leachate and landfill gases can seep into the soil. Fertile soil is already scarce in Canada, with only 7% of its land being suitable for farming, and a large portion of that is being overtaken by urban sprawl. Potential farmland can be destroyed by a nearby landfill or by being the site of one.

Incineration is another method of removing waste, though a very controversial one. When waste is burned, we are left with two products: energy and gaseous emissions. Incinerators are beneficial economically, as the waste is used for fuel. They are also very damaging environmentally, as both greenhouse gases and toxic gases, such as ammonia, are released.

With all sorts of electronic waste, such as laptops and batteries, being thrown in with the garbage, it is no surprise that toxins are released from these dumps and incinerators. This brings up the issue of sorting. Waste management systems suffer every time a green bin is lined with a plastic bag, every time someone accidentally tosses recycling in the trash or trash in the recycling, every time that old phone battery gets thrown in with the candy wrappers. Materials that should be recycled often end up in landfill, as well as other materials that have no place being buried in the earth. People make many mistakes when sorting their waste, and that is what leads to household waste becoming a toxic, destructive force.

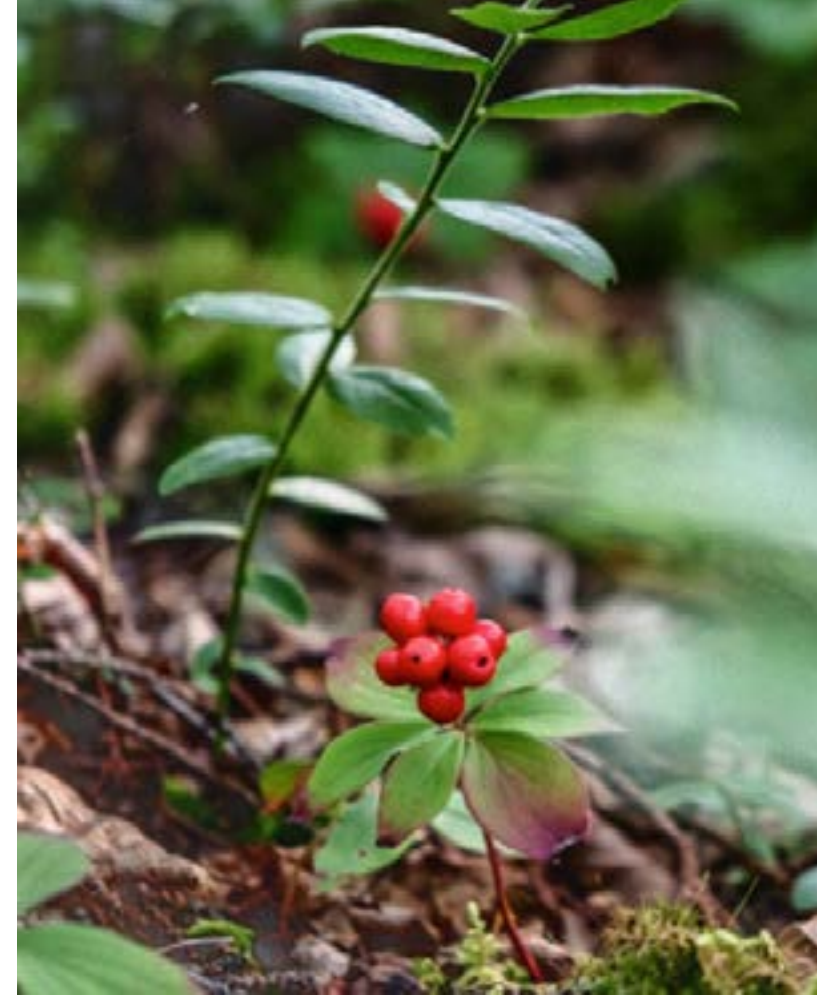
In 2011, a Finish company called ZenRobotics produced a robot that was able to sort through household waste and pick out the recyclable materials. The system combined machine learning, Artificial Intelligence and computer vision to allow the robot to easily and rapidly identify materials

that could be diverted from landfill. This is not the only example of a computer accomplishing this task that people find so arduous with little trouble, with a Spanish company and an American company developing similar products. So why hasn't the world picked up on this trend?

For now, landfills are cheap and easy, though strict regulations, such as those set by the government of Ontario, are making it a pricier practice. Soon, it will be a matter of price, and shortly after it will no longer be a matter of price, but a matter of space. Landfills take up more space than we have, especially with the rate Toronto is growing at. We need room to establish residential areas and important services, and the land that has been dedicated to landfills will soon be used up. What then?

Only 7% of Canada's land is suitable for farming

It is likely that Toronto will start using incineration as its primary method of garbage removal, but the environmental repercussions are still there. In our world of ever-evolving technology, an obvious solution to reducing them is proper sorting using robots. The City of Toronto has multiple stations set up where people can leave their electronics to be properly recycled, though many people have no idea they exist. Computers could eliminate the consequences of human error, but by no means would it be ideal. As long as waste is being created and materials continue to be disposed of, the condition cannot be ideal, but this should not stop us from trying our best to achieve the cleanest garbage management system that we can.



Photos taken by Chloe Hung

A Dirge

5 MILLION
5 MILLION
5 MILLION

The climate in Vancouver was also an unforgiving murderer, but one of a more cold-blooded nature. It loved symmetry and its sharp pellets of ice were always in thick diagonal sheets one day and at slant vortices the next.



“Why did you die when the lambs were cropping?
You should have died at the apples’ dropping,
When the grasshopper comes to trouble,
And the wheat-fields are sodden stubble,

And all winds go sighing
For sweet things dying.”

-Christina Rossetti

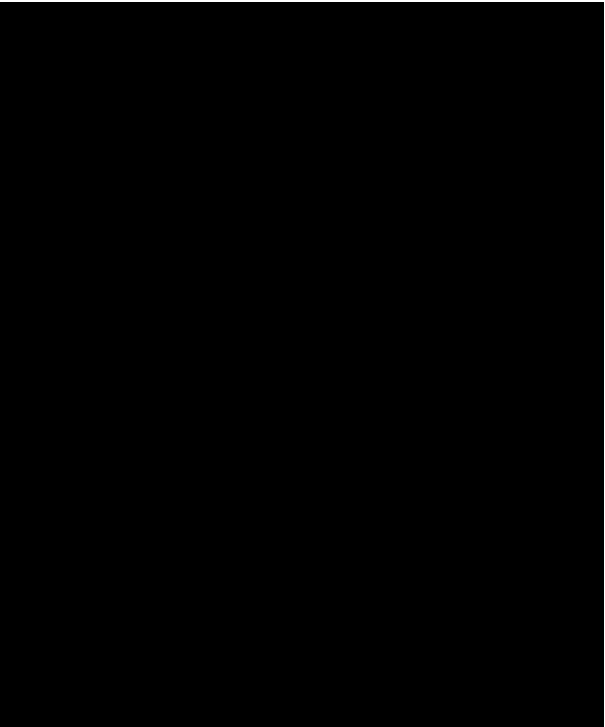
The sweltering heat licked their brown faces and coiled around their cracked skin like an unsparing predator. But when a farmer’s soul is tinged even with the slightest trace of hope, he has to venture through the dizzying haze of the sun, past the emaciated bodies torn greedily by hovering vultures, only...only to witness the same old sight of their will being vanquished by yet another drought.

“FARMER SUICIDE TOLL IN INDIA NOW REACHES 5 MILLION”

For now, I’ve had enough.

“THE NORTHERN HEMISPHERE EXPERIENCES ITS WORST

ICE-STORM”



I’ve always wondered why you gave up the joy of tasting apples and apricots under the shade of the dying sun; how you no more longed for the exhilarating scent of fresh moss, soaked by the languid stream as it duly ran its course through my hilly terrains. Don’t you ever care to take a glance at the glowing magician who appears in a star-sequined black dress every night? Doesn’t your heart flutter in the rain anymore or hop to a chorus with the cicadas as they crave for a single peek at them?

You, humans, have been so infected with greed for wealth that you barely feel the air choking, hopelessly moaning and crying for help as its lungs could not take any more poison. For once, could you not relate to the sorrowful account of the lost butterflies, struggling hard to retrieve their way back home in your concrete dome. Or bat an eye to my children flapping their hands in agony while their children underwater suffocate under your heaps of waste?

So I plead for you to stop, to wake up and act. Don’t just be. Don’t be this ignorant of me, for I never judge or class you. In my realm, you are as free as the kites soaring up to undiscovered heights, neither a citizen nor a consumer restricted by the myriad rules imposed in the glittering cage of your society.

For only in the peace of my breath, you will ever be complete.



