

Rebirth of a River

By Pat Ohlendorff-Moffat

To a lot of Torontonians, the Don Valley is simply the quickest asphalt route to the 401. If motorists give a passing thought to the Don itself, the dun-colored stream that carves a deep, 38-kilometre-long way through the heart of the city, most of them assume it's a lost cause. How bad is the Don River? It's the filthiest thing that Toronto sends into Lake Ontario, the source of the city's drinking water. Posted signs forbid swimming and wading because of pollution. You can't even splash in the stream on a hot summer's day. If you do, your skin will probably itch, or - as happened to one member of the Toronto Field Naturalists - it might even peel off. In its lower reaches, the Don is a river in a coffin, straitjacketed by cement and steel walls, denuded of trees, deprived of a natural mouth. And everywhere, ugly refuse scars the banks. In the late 1980s, when the environment is the voting public's No.1 concern, Toronto's dirty Don is a shame.

It wasn't always this way. Many older Torontonians remember summer afternoons fishing or swimming in the cool current, or skating on the lower Don in winter, before all the road salt, chemicals and warm water discharges stopped it from freezing on all but the coldest days. But now, while Canadians self-righteously berate Americans for acid rain, and Brazilians for hacking down the Amazon forests, the natural resource closest to home speaks eloquently of abuse and neglect.

What would it take to revive the Don? Money, hard work, legislative clout, policing and creative thinking. But most of all, political will. Other cities with polluted rivers are rising to the challenge; the technology already exists. Twenty-five years ago, the only life in London's Thames River was red, wriggling mud worms. Today, the Thames serves as a source for the city's drinking water. Twenty years ago, Cleveland's Cuyahoga River achieved international notoriety as "the river that burned" when its pollutants actually caught fire. Today, Bob Wysenski, environmental scientist at the Ohio Environmental Protection Office, and coordinator of a remedial action plan to clean up the river, speaks of a renaissance. "If someone had told me back then that people would be jumping off their boats and swimming in the Cuyahoga," he says, "I would have laughed."

Yet compared with the Thames and the Cuyahoga, the Don's problems are relatively modest. It has never had to contend with the heavy smokestack industries that discharge into many urban rivers. And the paper mills and other industries that used to turn the Don unnatural colors have all but disappeared. Once at least two dozen sewage treatment plants spewed their outflow into the current; today only one remains. As well, after 1954, when Hurricane Hazel swept away most of the homes built along Toronto's river banks, the Metropolitan Toronto and Region Conservation Authority began buying up 2,000 acres of flood plain to keep it free of housing. Thus, one of the most difficult aspects of rehabilitation - wresting riverlands away from private owners - is already being done.

And there's another positive development. Already, the Don is beginning to attract a disorganized but enthusiastic band of advocates - concerned residents, naturalists, scientists, engineers, landscape architects, politicians and bureaucrats - who have been dreaming of ways to heal the river. We talked to them and to some experts who've coped with the problems of the planet's other polluted rivers.

They could offer no model, no example of a river; that had been completely restored. In fact, if the Don is nursed back to health, they said that it could become a blueprint for environmental cleanup. But over and over they confirmed that the techniques to do the job exist. If Torontonians are serious about keeping this city a healthy place to live, we could hardly do better than to save the Don, the city's most visible symbol of environmental mismanagement.

But the job will not be easy. Perhaps the best place to begin an inquiry into how to revive the Don is the one place where the river still remain - pristine, at the headwaters.

On the grounds of the Ministry of Natural Resources' district office in Maple, the little stream bubbles over polished grey stones. Here, it smoothes out into a clear pool. There, it spills over a natural dam of rocks and branches. "Look at the diversity of habitat!" exclaims Deborah Martin-Downs, an MNR employee with the encouraging title of "urban fisheries biologist." Fish thrive in these headwaters because the stream provides aquatic plants to nibble or lay eggs on, fallen tree trunks for underwater homes, and shade to keep the water cool. Here too, the water is rich with life-giving oxygen bubbled in by tiny waterfalls and eddies.

In these ripples, brook trout once flashed, and salmon spawned after their marathon from Lake Ontario. The pressures of agricultural settlement pushed out the salmon in the mid-19th century, and the brook trout in the 1940s; but today there are still sunfish and perch, sculpin and dace, and even a pair of adventurous trout that escaped from the ministry's hatchery. Contrary to popular belief, there are fish left in the lower Don, too - creek chub, white sucker, blacknosed dace and longnosed dace. Martin-Downs calls them "the big four," but the term is ironic. Because of silt and pollutants, most of those fish grow no bigger than a finger. Yet it's conceivable that some day Torontonians could enjoy sport fishing the entire length of the river. Probably not brook trout- but warmer-water fish such as largemouth bass, perch and pike - if the rest of the Don were rehabilitated to be more like these few kilometres of healthy headwaters.

That will remain a dream until a solution is found to the Don's biggest problem: the polluted urban runoff that regularly flushes it out. Back in 1793, when John Graves Simcoe and his wife, Elizabeth, first boated up this river, huge forests covered the region, their spongy soils absorbing rainwater, releasing it over several days to percolate down to the river. But soon the forests gave way to rooftops, roads and sidewalks, gutters and storm drains that rushed water out to the river in minutes. The results: rapid flooding, bank erosion and tons of silt that buried fish habitats and clogged the Don's marshy mouth at Ashbridge's Bay.

Today the runoff is far worse, carrying with it grease and oil, lead and other metals, herbicides and pesticides, road and sidewalk salt; and dog excrement from the parks. It deposits 154,000 cubic yards of polluted silt in the Keating Channel at the Don's south end each year, which the Harbour Commission officials order to be dredged up and deposited on the Leslie Street Spit at a cost of \$1 million annually. No wonder fish have a hard time. No wonder people couldn't swim in the Don even if the water were still deep enough.

Up in Vaughan Township, 200 residents have banded together to force developer Rudy Bratty to alter plans for an entire subdivision, so as to avoid creating any runoff problems at all. "The time is past when we can accept deterioration of the river as an inevitable part of development," says Margaret Cranmer-Byng, vice-president of the Thornhill Vaughan Residents Association, as she strolls across a wooden pedestrian bridge over the Don. A red-tailed hawk soars up toward the tableland above the river opposite, where Bratty will soon break ground for 58 new houses. The final blueprints for that development represent a victory for the residents' association. After years of lobbying all the way to the Ontario Municipal Board, her group convinced the town council to pay Bratty \$6.2 million for 23 acres of tableland slated for development, freeing it for public use instead. As well, they won a 50-foot setback at the edge of the tableland for a pedestrian path. In a conciliatory gesture, the developer also sold the town 60 acres of flood plain (non-developable land) for \$2 flat. The victory also brings benefits for Torontonians downstream: The zoning bylaw requires Bratty to provide storm water management both during construction and in the servicing of the new neighborhood.

Just how he meets that commitment is up to his engineers. But current technology offers several options. According to landscape architect Glenn Harrington, a consultant hired by the residents, the key is to reverse the principle of conventional gutters and storm drains and instead "hold the water back from the river as much as you can, and get it into the ground."

One option is to create shallow storm water retention ponds, or manmade marshes, to collect water, settle and clean sediments, and release the water gradually to the river. Marshes are

natural water filters, because many wetland plants such as cattails actually take up heavy metals and organic pollutants. Or, suggests Harrington, Bratty's engineers might construct eavestroughs to direct water to lawns and gardens rather than to storm drains. Yet another plan involves replacing conventional gutters and storm drains with simple ditches to allow runoff to soak into the soil. "These options are natural," points out Harrington. "They slow the water, cool it, put it back in the soil and cleanse it."

Preventing new sources of urban runoff is much easier than undoing what has already been done in Toronto's older neighborhoods. If Metro were to collect and treat every drop of storm water as if it were sanitary sewage before releasing it into the river, the provincial government estimates it would cost no less than \$2.5 billion. But there are many other, more affordable remedial measures. Municipalities could clean out the rotting refuse that contaminates catch basins (under the gutter gratings) twice rather than just once each year. Local governments could also equip those same catch basins with traps for oil and grease, suggests Harrington. Or, around plazas and other paved areas, they could dig "dry wells" - holes in the ground filled with rocks, which trap contaminated rain and meltwater and sink it into deep soil, cooling and filtering it on the way.

Michael Hough, a Toronto-based consultant known internationally for his books on ecologically sensitive urban design, proposes other options; incorporating porous materials into the construction of sidewalks and other paved areas to permit snow to melt straight down, and exploring the possibility of using storm drains for storing excess water capacity. And Bob Wysenski describes one of Cleveland's more ingenious solutions to harmful runoff: on discovering that even during heavy storms, the storm sewer system was only one-third full, the city installed a computerized system of inflatable balloonlike dams in its network of 12-foot-high sewer pipes. When one area threatens to overflow, the system automatically retains the water in underused pipes upstream.

Although Toronto has yet to adopt Cleveland's high-tech solution to runoff, it is starting to act on the problem. The province will soon install a \$1.5-million experimental storm water retention pond on a Humber River tributary to disinfect runoff by new ultraviolet light technology, and a similar, \$12-million scheme at the eastern beaches. If those projects work well, planners may consider the idea for the Don.

Some experts say that the city should let nature help with the job by nurturing marshes and woodlands that prevent erosion along the Don's banks. Aird Lewis, a director of Trees for Today and Tomorrow, a year-old, nonprofit organization dedicated to reforestation throughout southern Ontario, says his group will begin planting 100,000 trees along the Don next spring, at a cost of \$300,000. "Every good thing will happen when you replant trees," says Lewis. "Trees stop upper-slope erosion, they increase the birds and wildlife, and the shade can take the water temperature down. It's the most cost-effective thing you can do."

Contaminated runoff is a problem all along the Don, but its middle reaches are also plagued with stronger poisons. While the storm sewers are supposed to carry rainwater, the sanitary sewers carry waste from houses and factories - raw human sewage (and other effluvia such as used condoms, tampons and the odd goldfish), diluted by water from showers, washing machines, dishwashers, factory drains and industrial coolants. The city's sewage treatment plants can't always cope with the stuff that goes in legally, let alone that flushed through by industrial accidents and illegal dumping, because the only remaining sewage treatment plant on the Don provide, about one-quarter of the river's flow, it's a special problem for this river. As sewage treatment plants go, the North Toronto plant just west of the Leaside Bridge is a backwater. Built in 1927, a cluster of surprisingly handsome red brick buildings with green copper roofs, the plant processes a mere eight million gallons of sewage per day, chiefly from East York and Toronto, compared with the 180 million gallons at the main plant on the lakeshore. Plants like this one were never designed to treat modern industrial waste metals like zinc, copper or chromium, poisons like cyanide and arsenic, toxic chemicals like PCBs, PCPs, solvents - that local industries send to the plant's intake. The plant works mainly by gravity and natural biological action. Dirty

water and solid wastes cascade in odoriferously from the trunk sewer up the hill. The sewage moves through a series of screens canals, settling tanks, aeration and disinfection chambers, digesters and dewaterers. Some heavier solids - organic and industrial - settle out in the tanks; waste eating bacteria remove more. Finally, at the plant's south side, water 90 per cent free of solid waste, but still laced with chemicals, races into the Don and out into the source of Toronto's drinking water.

In the treatment plant's eight large aeration tanks, where billions of protozoa, ciliates, rotifers and bacteria that occur naturally in sewage do their digesting work, the liquid is the color of tea. But lately, it has been topped with mysterious light tan foam that puzzles the plant's chemists. The supervisor, Chris Monteith, thinks it may be caused by an industrial discharge, and might be interfering with the bacterial action, making it harder to meet the environment ministry's effluent guidelines. "Over the past two or three years, we've had more difficulty operating the plant," he admits. "Although our effluent quality is as good as any other conventional treatment plant in Ontario, things just don't run as smooth as they used to." In 1991 the Municipal Industrial Strategy for Abatement, the provincial government's program to stop all toxic pollution, will come on line, bringing far stricter limits on industrial sewer discharge and more enforcement clout. But for now, the North Toronto sewage plant is struggling. And passing along pollutants to the Don.

According to a recent regional abatement program study, 86 per cent of the fecal coliform bacteria (an indication of sewage) that pollute the Toronto waterfront comes from the Don. Even the aging North Toronto plant can't account for it all; another culprit is combined sewers. In older sections of the city, the sanitary and storm sewers run through the same pipe, During heavy storms they overflow, so that at storm sewer outlets along the river, raw sewage laced with chemicals dumps directly into the Don. Since 1965 Toronto alone has spent \$223 million separating combined sewers, and in the last several years East York has spent \$5 million toward separating the sewer feeding the North Toronto plant (it needs another \$10 million to finish the job).

Unfortunately, that's not the end of the problem. Hundreds, perhaps thousands, of households and industries in Toronto's older sections are illegally hooked up to the storm sewer rather than to the sanitary sewer, Even where sewers are separated, some raw sewage still reaches the river through storm sewers. The province's five year-old, time consuming "search and disconnect" program so far has fixed 115 of Metro's illegal connections at a cost of \$12,000 each, but dozens remain. So do an unknown number of dumps and landfill sites that may be leaching poisons into the Don, its tributaries and its storm sewers.

It will be difficult to muster the public will to clean up the Don as long as those parts of it most of us see from the Bloor Street Viaduct, the Gardiner Expressway and Lakeshore Boulevard seem so ugly and desolate. In fact, along with runoff and pollution, esthetics is one of the river's major problems. But visitors who clamber down into the valley are struck not only by the neglect here, but also by the unexpected beauty.

Two indomitable valley lovers guide me down Pottery Road into one of the river's most maligned portions, where it flows forgotten through its expansive flood plain, cut off since 1958 by the traffic on the Don Valley Parkway. Charles Sauriol, now a vibrant 84 year old, co-founder of Trees for Today and Tomorrow and one of the first executives of the Metro Conservation Authority, is author of three books on the valley (including *Remembering the Don*), enlivened by 30 years of cottaging at the river's forks. Helen Juhola, past president of the Toronto Field Naturalists, has spent years hiking the Don and its tributaries. She seems to know the name of every life form in the valley, even the tough salt resistant weeds that have found their way from the Maritimes to take root in the increasingly saline soils near the expressways.

This stretch of the Don is used as a giant dump. Despite posted signs warning of a maximum \$1000 fine, the valley is littered with refuse. At one spot, a whole set of rotting wood and foam theatre seats spills over the ground. In the river itself, silt-laden tires and all upended picnic table

clog the stream. And in one stretch, a shocking testimony to combined sewer overflows, fluttering flags of toilet paper drape the lower branches of trees.

Yet here, deep in the valley, a pair of great blue herons cruises silently over our heads like prehistoric gliders, their long, stilt like legs trailing gracefully behind. And of special interest to my companions, a kingfisher lets forth its characteristic rattle somewhere up in the crack willows that brood over the stream - a sure sign that plenty of small fish are left in the river.

Juhola marvels at the urban wilderness in Toronto's midst, used by hundreds of species of birds as a migration corridor. Despite the garbage, this is one of the richest portions of the valley, both naturally and historically. There's Todmorden Mills, Toronto's first industrial community, dating from the late 1700s. There's the century old brickworks at the Bloor-Bayview exit, championed by a residents' group called Friends of the Valley which the Conservation Authority will probably turn into a public park. There's also the Bloor Street Viaduct, a breathtaking piece of early 20th century engineering when viewed from underneath its soaring, ornate arches. For Sauriol, the valley's past suggests possibilities for the future. As he marches along the bike path that runs from Pottery Road to Cherry Street, begun last year by the city for \$1 million, he declares, "Everybody's said, 'The dirty, stinking Don,' but look at the potential for beauty, for recreation!"

So it isn't as if no one cares. There are valiant attempts each year to improve the esthetics of the Don. This spring, the banks of the East Don from the forks up to Lawrence Avenue will be officially designated as parkland, and named The Charles Sauriol Conservation Reserve. The Outing Club of East York also plants 3,000 trees each May near the Science Centre in groves dedicated to Sauriol; each spring, the Toronto Field Naturalists hold a ravine cleanup, while the provincial environment ministry sponsors a summer work program for students to haul the tires and old machinery out of the stream. But Juhola believes far more can be done to prevent the dumping in the first place. "Metro Parks should cut off all vehicle access to the lower Don, except for their own trucks," she says. Until that changes she predicts dumping will continue.

All the Don's problems, it seems, converge in the Keating Channel at the river's mouth. Here the river is imprisoned by walls of steel and concrete. Yet even here, a few planners and politicians dream undaunted of building riverside recreation and even residential complexes on the assumption that some day the Don will be clean.

For three years, Toronto environmental planner David McCluskey has been quietly working on an open-ended plan to invigorate the lower Don. Along the new bike path, which he helped build, he envisions historical plaques with bits of history or artists' renderings of sites as they used to be. "People are becoming interested in industrial archeology," says McCluskey. "We have the Don Jail, the Riverdale community - we can establish the connections of the river to the founding of the city."

In these nether regions, ground is about to be broken for a massive housing project. The new St. Lawrence Square, to occupy 70 acres bounded by Eastern Avenue, the railway tracks, Parliament Street and the Don, will be home for 12,000 people. Jane Weninger of the environmental protection office at Toronto's department of public health, who sits on one of the project's planning committees, hopes that the new project will provide impetus for improving the Don's water quality and linking the lower stretch with the wilderness corridor farther north. "We can enhance the edges of the water, improve the wildlife habitat and have trees and bulrushes," she says.

That's like the thinking of one of Toronto's reform councilors, whose dream centres on the very dregs of the Don. Jack Layton stands atop the cement retaining wall at the right-angle turn of the Keating Channel, which since 1909 has served as the river's mouth. With a wave of his arm, he dismantles the tangled tiers of expressways, a stone's throw across the water, that cut off public access to the channel. As chairman of the Gardiner Lakeshore Corridor task force, Layton wants to shove back the expressways a few city blocks (the tracks stay put) to open up 11 acres for public housing for 3,000 people. He would also bring the Gardiner down to ground level, with easy access to both the new housing development and the high tech industry complex be

envisions in the wastelands southeast of the channel. The cost? For starters, \$80 million to restructure the expressways. But the bulk of that can be returned, Layton figures, by the value of the development that could go in, much of it with provincial assistance for low cost housing. The task force report is under municipal and provincial review; Layton predicts acceptance by the early 1990s.

It isn't only city level politicians and planners who have dreams. Rookie MP Dennis Mills (Lib., Broadview-Greenwood) actually campaigned last fall with the Don River cleanup as one of his platform planks. He talks of spending \$25 million for a water purification plant, and of calling in the troops from Canadian Forces Base Borden to "take a warlike approach to cleaning up the valley." He's organized an international conference and trade fair next fall to showcase pollution reduction and cleanup technologies. Mills, a former vice-president at Magna International, takes a megaproject approach that gives naturalists like Helen Juhola the willies. But if his ideas can be tamed, his enthusiasm at the federal level may do much for the Don.

Saving the river will be a huge undertaking. But now environmental issues top the public's priority list and bureaucrats, particularly at the provincial level, are cranking out reports that relate to the river's fate including a remedial action plan for the Toronto waterfront and a watershed management study focusing on the Don.

So how long does it take and how much does it cost to clean up a river? That depends on how clean we want it to be. Clean enough for birding, canoeing, sport fishing? Clean enough for swimming holes? A decade or two seems reasonable for real improvements in the major problems of runoff and pollution. That's about how long it took to start restoring the Thames. That's how long it took to rescue Lake Erie from phosphorus strangulation in the 1970s.

At this point, no one is foolhardy enough to quote a price for a total Don River cleanup, other than to say it would cost hundreds of millions of dollars. But there's another thing, "You can't anticipate the benefits," advises Bruce Kershner, Lake Erie coordinator for Great Lakes United, a Buffalo based U.S.-Canadian coalition of 200 citizens' organizations and governments. "Suddenly you may find tourism, or recreation industries, or an economic revitalization of the waterfront. Those benefits, I assure you, will more than cancel out the costs."

The first item on the agenda is to set the priorities. And Bill McLean, head of the Metro Conservation Authority, suggests that's almost as difficult as actually doing the work. "There's going to be a trade-off, a downside that may not be acceptable to everyone," he says, pointing out that good storm water management methods like slowing drainage from paved areas could create safety hazards. "The only way is a cohesive approach. But when you're dealing with municipalities, government ministries and citizens' groups, that's not something that just pops off the wall."

That's all the more reason for starting now. There's a catchy concept going round these days: the notion of the "healthy city," the idea that a community cannot be truly healthy if its land is contaminated, its air polluted, its drinking water laced with exotic chemicals. "A city the size of this, with all the power and wealth," says Sauriol, "it's unthinkable to have a dirty stream running through it. Why not make this the continent's finest greenbelt?" If Torontonians are committed to the concept of a healthy city, then they are going to have to reclaim the most polluted part of their cityscape the sad, abused, but still vital Don.

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