

# A DIARY IN THE AGE OF WATER



A NOVEL

**Nina Munteanu**

A DIARY  
IN THE  
AGE OF  
WATER

Copyright © 2020 Nina Munteanu

Except for the use of short passages for review purposes, no part of this book may be reproduced, in part or in whole, or transmitted in any form or by any means, electronically or mechanically, including photocopying, recording, or any information or storage retrieval system, without prior permission in writing from the publisher or a licence from the Canadian Copyright Collective Agency (Access Copyright).



Canada Council  
for the Arts

Conseil des Arts  
du Canada



ONTARIO ARTS COUNCIL  
CONSEIL DES ARTS DE L'ONTARIO  
an Ontario government agency  
un organisme du gouvernement de l'Ontario

Canada

We gratefully acknowledge the support of the Canada Council for the Arts and the Ontario Arts Council for our publishing program. We also acknowledge the financial support of the Government of Canada.

Cover design: Val Fullard

Interior pen and ink illustrations: Nina Munteanu

eBook: tikaebooks.com

*A Diary in the Age of Water* is a work of fiction. All the characters portrayed in this book are fictitious and any resemblance to persons living or dead is purely coincidental.

*Note from the publisher:* Care has been taken to trace the ownership of copyright material used in this book. The author and the publisher welcome any information enabling them to rectify any references or credits in subsequent editions.

Library and Archives Canada Cataloguing in Publication

Title: A diary in the age of water : a novel / Nina Munteanu.

Names: Munteanu, Nina, author.

Series: Inanna poetry & fiction series.

Description: Series statement: Inanna poetry & fiction series

Identifiers: Canadiana (print) 20200204440 |

Canadiana (ebook) 20200204459 | ISBN 9781771337373 (softcover) |

ISBN 9781771337380 (epub) | ISBN 9781771337397 (Kindle) |

ISBN 9781771337403 (pdf)

Classification: LCC PS8626.U68 D53 2020 | DDC C813/.6—dc23

Printed and bound in Canada

Inanna Publications and Education Inc.

210 Founders College, York University

4700 Keele Street, Toronto, Ontario, Canada M3J 1P3

Telephone: (416) 736-5356 Fax: (416) 736-5765

Email: [inanna.publications@inanna.ca](mailto:inanna.publications@inanna.ca) Website: [www.inanna.ca](http://www.inanna.ca)

# A DIARY IN THE AGE OF WATER

A NOVEL

**Nina Munteanu**



*inanna poetry & fiction series*

INANNA PUBLICATIONS AND EDUCATION INC.  
TORONTO, CANADA



*For Kevin.*

*You are wise and kind and teach me to embrace the future.  
Through you, I believe; through you, I have faith.*

*For Martha, and all the mothers of this world.*

ALSO BY NINA MUNTEANU

FICTION

*Metaverse: The Splintered Universe Trilogy III*

*Natural Selection, A Collection of Short Stories*

*Inner Diverse: The Splintered Universe Trilogy II*

*The Last Summoner*

*Outer Diverse: The Splintered Universe Trilogy I*

*Darwin's Paradox*

*Angel of Chaos*

*The Cypol*

NON-FICTION

*The Ecology of Story: World as Character*

*Water Is...The Meaning of Water*

*The Journal Writer: Finding Your Voice*

*The Fiction Writer: Get Published, Write Now!*

*Desalination plants will ring the world's oceans, many of them run by nuclear power; corporate nanotechnology will clean up sewage water and sell it to private utilities who will sell it back to us at a huge profit; the rich will drink only bottled water found in the few remote parts of the world or sucked from the clouds by machines, while the poor die in increasing numbers.*

—Maude Barlow, *Blue Covenant*

*I believe that water could become Nature's gift to us, to teach us how to live in peace with one another and in harmony with the Earth—if we had the wisdom to listen.*

—Maude Barlow, *Water on the Table*

*Unable to perceive the shape of You, I find you all around me. Your presence fills my eyes with Your love. It humbles my heart, For You are everywhere.*

—Anonymous, Islamic poem

*To see us is genius.  
To feel us is madness.  
To know us is dangerous.  
To love us is sublime.  
We are the singularity.*

125.5.2 AW

*We are the water-keepers. The keepers of legends. We are the keepers of the memory of prophecy. These “memories” are recorded outside of time and space. The prophecy of Gaia speaks of the great dying of our friends, the breathers. They breathe us in to receive our gift, and then breathe us out with their gift inside us. Their extinction is also a gift, just as all taking is giving and all giving is taking. We are the water-keepers.*

*The first truth of water-keeping is that water cannot be kept.*

# THE LIBRARY

Kyo runs through the dying forest of the north. The last boreal forest in the world.

The rain earlier this morning left the forest dripping with living moisture and saturated the air with the scent of giant conifers. Their fragrance is intoxicating, a fresh pungency that lingers like the smell of fresh water. The giant buttressed trees rise like pillars out of soggy ground. They push past the mixed hardwood canopy and pierce the mist, announcing the future.

Lichen drips off branches and clothes the fibrous trunks in crenulated patterns. Moss covers everything. A filigree of green, silver, and russet plays in the breeze, dancing like a wild shadow.

Tugged by the wind, Kyo's hair flows behind her like a dark turbulent river as she leaps over rough ground, her skirt flying. Her four dark blue arms stretch out for balance as she navigates the obstacle course of fallen trees, tall ferns, and horsetails.

Already high in the sky, the sun is a large blushing orb that bathes everything in hues of pink. Nam calls it Gaia's heart-light, a poem to heaven. Nam told her that the light was very different during the Age of Water, when the sun was sharper and shone brashly in a brilliant cerulean blue sky. Kyo imagines this sky the startling blue colour of Nam's winking eyes. Nam, like Kyo's other mentors, only has two arms and flesh the colour of the sand—not the electric blue of Kyo's own skin. Despite their differences, she thinks of Nam like a mother and secretly wishes she looked like her older mentor.

Kyo stops for a moment to catch her breath and listen to the forest. Cardinals, robins, and thrushes warble and flute loudly, as if complaining about destiny. Yet, they are the interlopers. According to Myo, they took up permanent residence in the north when the climate warmed during the Age of Water. The birds that had previously lived in the north had had nowhere else to go, and had perished. Kyo remembers Ho telling her that the piping plover used to lay its eggs directly on the sand of the northern beaches. The beaches are no more, casualties of sea level rise, erosion, and storm surges; the plovers that nested on them are also no more. But other birds are coming....

The bird symphony flows through Kyo, pulsing with the Earth's heartbeat. She catches the absolute pitch of a starling, tuned to 432 Hz as she aligns herself with nature's intimate frequency. Renge taught her that light, sound, and matter are expressed at different frequencies, and some are only heard by the heart. All movement follows its own path, expressing its relationship with the world. Even things that aren't moving have a potential for rhythm, internal clocks that beat their messages.

Kyo runs on, gathering coherent waves of vibration, intent, and motion into one continuous and harmonious rhythm. She understands that rhythm embraces a fractal continuum that ranges from microscopic to cosmic proportions. Cell division aligns with the planet's circadian rhythms; bees synchronize their flight with the phase of the moon; planets and stars exert gravity and frequency on each other, resonating with the harmonic music of the spheres. Her world flows in constant oscillation from high to low, particle to wave, dark to light, separating and uniting, creating and destroying, and back again. All through water.

It is then that she feels her sisters the most, the other Kyos—other blue beings like her—scattered over the world in small enclaves like hers. Each whispers a harmonic tone in a soft symphony of wisdom—frequencies from all over the world,

carried in the coherent domain of water vapour to resonate through her interstitial water.

They are waiting for her.

She shares their eagerness for the Exodus, but she also harbours a secret yearning for the past as though some hidden part of her has lodged there, like a tendril of a vine reaching across time, seeking resolution—redemption, even. What is holding her back in this drowning forest? It isn't the trees....

*There is always sadness in the end of things, but endings are also beginnings,* Kyo in Siberia whispers across the northern atmospheric river.

*We do not feel this Canadian sadness,* Kyos from Scandinavia chime in. *Perhaps that part of us still clings to the mundane comfort of familiarity, given that the maple still stands strong in northern Canada.*

But Kyo knows that is not true; the sugar maple—has been migrating north, scrambling to keep up with the beech, and realizing the native legend. Several are stunted, withholding the sap Kyo loves so much. Many are yellowing at the tips of their leaves and showing bare insect-infested crowns. Soon the maple will drown in the swamps of the north.

Kyo understands that she is holding her sisters back with this selfish sentiment and preoccupation with a past and a people she has only dreamed of. How is it that she alone stands apart from the rest? It is not her lack of adventure or faith. She embraces her future. Nam calls her Sprite; an endearment, she knows, but one based on Kyo's curiosity and yearning for adventure. If her mentor knew of Kyo's perverse and guilty obsession, she might call her something else. And certainly not with a wink.

Kyo stops at a small flowing creek, crouching to study the tracks in the muddy banks. She recognizes the giant paw marks and wide-swathed tail track of a three-metre-long beaver, a relative of the ancient giant beaver. If Renge was here she would peep with fear; but Kyo is not afraid of the huge rodent—even with its giant incisors. She focuses on the eddies that form

around the rocks. Renge told her that water's vitality relies on its rhythmic movement along surfaces and its shifting phases in a dance of synchronicity, chaotic yet self-organizing. It does this by embracing paradox.

Kyo involuntarily swallows down the truth and sits on a moss-covered boulder. She knows that her reluctance to leave has to do with the villainous Water Twins, who destroyed humanity because of their hatred for their own kind. She feels an unreasonable longing—as though a cord were tugging her back to them. The Water Twins were the first ones, the only ones from the Water Age, who had the power to instruct water, and they did so long before the new children of the forest learned how. The Twins unleashed a wrathful Gaia with their alien technology, frequency generators, and shamanic potions. Kyo has dreamed about most of it. Myo and Ho confirmed her vivid dreams with their historical documents. Why is she being plagued by accurate dreams of a time she has never experienced?

Kyo is convinced that the Water Twins somehow spawned the children of the forest—those like her. If not for the Twins, she might be normal, like the others. It is an outrageous supposition, yet she cannot shake it. The Twins destroyed the world, after all. Like Shiva and Kali. The Twins didn't look like the children of the forest, who came much later, after humanity had been all but extinguished. It is impossible that the Twins would be connected to her.

Yet that is exactly how Kyo feels. She desperately wants to believe that the Water Twins somehow did the right thing in causing the storms and eliminating humanity from the planet; she keeps dreaming that she is there with the humans, suffering as they suffered, until only a handful of females remained. Myo, who is far too forgiving, once suggested that the Twins did it to heal both the planet and all life, like a doctor removes a festering limb to heal the body. But how can you heal with hatred and destruction? And why is it so important to Kyo?

Kyo stands up with a shrug. No matter. Today is the day she has been both dreading and anticipating for so long. Today, she will finally learn some ecological history and make her personal atonement to Gaia, who must prepare for a new age. And then she—Kyo—will transcend her current existence to make the Exodus.

Nam instructed her this morning to go to the Age of Water Library in the small beech-maple grove for her last lesson. Nam has been like a mother to Kyo: tall and elegant, with wise maternal eyes the colour of deep water, and carrying the scent and air of Nature. *It is time to let go*, said her mentor. *Time to devote yourself to and fuse your life with the Mystic Law of Water.* Time to learn about humanity's legacy, all that humans have learned and done to prepare for their journey with water. A journey that will ultimately take them all home.

At the library, Kyo is meant to choose a work, or else be given one by Ho, the librarian. Kyo will then commit it to memory before burning it and offering it in the water-keeping ceremony, which will prepare them all for their final journey. Kyo hopes she will be worthy of her choice.

The door of the sacred library beckons through the dying sugar maple stand. It is a solid maple doorway embedded in a hillside covered in shrubs, ferns, and moss; it is hardly visible except to one who knows where to look. Kyo can always spot it from the faint blue glow that persists in the area. Every time she visits the library, Kyo sees blue balls or ribbons of blue light rippling or floating above her. When Renge tried to explain this light to Kyo, she described a phenomenon known as St. Elmo's Fire—bursts of eerie light that occur when an electric charge between clouds and the ground develop a static condition that breaks air molecules into electrically-charged particles. Gases turn into "plasma" and give off energy in the form of a glowing light. But Kyo sees the lights no matter what the weather, even on a perfectly clear day. She wonders if the trees are involved somehow. The library is mostly surrounded by

an enclave of maple, beech, and fir trees. She knows that the trees give off oily aerosols. Perhaps the aerosols are changing as the trees are changing.

Kyo approaches the solid maple door.

She knows which book she wishes to study. It is clearly ambitious of her. Ho will be cross with her for presuming such an undertaking. The textbook is over a thousand pages; it will take her at least six months to learn it. Confident that she will convince the old librarian, Kyo glances back at the forest of her birth and pulls in a deep breath, committing it to memory. Then she reefs open the heavy door and enters the place she will spend the rest of her life on Earth.

Ho meets her in the entranceway. Her stern face is already set in a scowl; she has anticipated Kyo. “Tell me that you have reconsidered,” she says gruffly.

“I have not,” Kyo says, her voice unwavering. “It will give me the truth, before the post-truth time.”

To her surprise, Ho does not pursue her line of questioning or offer a rebuttal. With a wave of her arm toward the main stacks, Ho says, “Very well, child. You have chosen, and that choice is yours to bear.” Ho points to the far stacks. “There.” She eyes Kyo with a strange look. “That is where you will find your answers.” She retreats to the side stacks, her attention presumably elsewhere.

Kyo finds a copy of Robert Wetzel’s *Limnology* on a lower shelf of the *L* section. It stands tall with a thick green-coloured spine. This is the book that Hilde, one of the Water Twins, had saved from the book burnings of the Water Age. A present from her limnologist mother. Hilde kept it hidden under her mattress. When CanadaCorp police burst into their home and dragged her mother away, Hilde was left alone with Wetzel. The limnology textbook was forbidden because its facts were no longer facts.

After some coaxing, Myo shared a most bizarre tale of that time, which led to the catastrophic storms and flood. What

the governments hadn't told their citizens—but what each citizen felt and knew—was that humans had lost the ability to reproduce. Then a spate of “virgin births” throughout the world spawned what seemed a new race of girls—“deformed,” blue, and often with strange abilities. Many considered them abominations, a terrible sign of what was in store for humanity—a punishment for their evil ways. Then, as quickly as they'd populated the world, these strange blue girls all disappeared without a trace. They simply vanished and became known as “the Disappeared.” Myo told her that some people called it a Rapture, a portent of the end times. Others suggested that the girls had all been murdered in an act of genocide organized by what was left of the world government.

Then Hilde's twin Hanna brought the storms and changed the world.

Kyo had dreamed about the storms and calamities. It happened so fast, within a few months—tipping points and titrations in a cascade of disasters in a world already rife with climate change. Both ice caps collapsed in concert and took out most of the world's coastal cities with dramatically rising seas, violent floods, and tsunamis. The seas acidified and the plankton rotted, releasing toxins and more noxious gases. Then, showing an unrelenting fury, Gaia burned the inland cities and countryside with scorching fires, unleashing widespread pestilence. Feverish temperatures raged. They brought wildfires, disease, and great hardship.

Forests burned. Towns burned. People burned.

Pests wiped out the food.

Abandoned by an impotent government, the masses fled north with what they could carry. Like fungal nodules on a root, northbound roads and highways sprouted tents and lean-tos. Temporary shanties colonized edges of decaying cities. They evolved into permanent slums, places where you could buy a dog at gunpoint to eat. Roads were filled with the detritus of humanity: dead technology, rusty appliances, and vermin-in-

fested furniture. Whole families scavenged abandoned cars as temporary homes and lived amid the rancid odour of rotting meat, human sewage, and diesel fumes. Nothing stayed fresh for long in the forty-five-degree temperatures. Markets were set up next to garbage dumps, selling contaminated fish and wilted lettuce. Vermin and disease chased people north with the heat wave.

Occasionally, a wave of migrants would overtake a previous wave, resulting in a violent skirmish over dwindling resources. When there is less for more, there is no sharing.

The last tipping point came in the form of an epigenetic-induced illness that involved heat shock proteins in humans. People dropped like flies to insecticide. Virtually everyone south of the forty-ninth parallel succumbed to rampant cancers, fatal heat stroke, heart failure, and other complications that heat shock proteins—suddenly switched off—no longer shielded against. Those in the north were spared the epidemic but suffered a deluge of catastrophic tornadoes, hurricanes, ice storms, and floods.

Humanity finally joined the sixth age of extinction. If it had not been for the Intervention, humanity would have been completely wiped out. If not for the Intervention, Kyo would not be standing here. But she knows nothing about the Intervention, what brought it about and how it ultimately saved humanity—what is left of humanity, that is. She finds it odd that none of her dreams included this milestone event.

Nothing she's read or heard explains it. And her mentors have offered nothing, except that the Intervention was responsible for helping to bring about the present conditions. It's as though a black hole swallowed the struggles of humanity along with its salvation. Renge told her only that of the few thousand humans who remain scattered on the planet, all of them are female. Some, like Kyo, are not of the same mold. Kyo glances down at her four articulating arms with something close to regret; while she finds her extra limbs useful, she can't help but wish

she was like the other humans who have two arms and aren't blue. She just wants to be normal, like the rest of humanity. But she knows she is not normal: five years ago, Kyo and her thousand-some blue sisters mysteriously emanated, fully formed, all over the planet. They appeared only in locations of particular electro-magnetism, infrasound frequency, and anomalous gravity. For instance, this region of what used to be northern Quebec experiences a slightly lower gravity than the rest of the planet.

In an attempt to suggest that Kyo embrace her uniqueness, Myo let slip that only Kyo and her sisters can access the past with their dreams. Myo has therefore made it her task to document all Kyo's dreams in the Gaia Virtual Library.

Kyo knows that Wetzel will not answer her questions, but at least the textbook will provide her with more information about the world before the Intervention. It will tell her what followed to create the world she now inhabits.

Kyo snatches the heavy textbook off the shelf.

Something beside it tumbles to the floor. Still clutching Wetzel in two of her four arms, she looks down at the object her careless ambition has knocked down. The object lies entombed within a felt-like layer of grey dust, remnants of some kind of organic wrapping. Perhaps a decomposed paper bag. A chrysalis in a cocoon, thinks Kyo with a half-smile.

Intrigued and hardly aware of her escalating breaths, Kyo picks up the dust-covered object with a third hand and carefully wipes off the thick "felt" with her fourth hand to reveal her prize. A leather-bound book.

The book is about the size of an old Water-Age tablet. The dark brown leather cover is worn at the edges and cracked. A ragged corner is torn and part of it hangs like a mountain climber clinging to a cliff. The leather is darker on its outer edge, where it has been oiled by the repeated handling of probing fingers. The book is bound by a leather string, wrapped three times around its waist. A treasure wrapped in rags.

There is no title. Her breaths hitch in sudden realization.  
*Great Gaia! It's a notebook!*

Kyo pries it open with her dark bluish hand. The cover cracks open with some resistance; it pulls away like the husk of a fruit, revealing soft yellowed pages. Handwritten notes in an awkward marriage of fluid cursive and stilted print run neatly along the lines. The black ink strokes—probably from a fountain pen—express a kind of hieroglyph of words, sketches, and symbols that suggest both academic confidence and personal insecurity. The handwriting is open enough for her to surmise that it is in a woman's hand. An intelligent woman. Kyo's fingers track the lines across the surface of the first page. She feels its cool smoothness and inhales the slight mustiness of the paper.

She doesn't realize she is trembling until she catches sight of her shaking blue hand. The date—April 12, 2045—is scrawled at the top left of the page. Below is a term and its definition, followed by narrative. It marks an entry of some kind.

She flips the pages, careful not to tear or fold them, and skims the writing. There are many entries; each is dated and begins with a defined term. Many of them cite Wetzel as the source. Some pages only have a definition, but most definitions are followed by narrative. Some entries include elaborate ink drawings, sketches, or maps.

Excitement pumps through her chest as realization dawns:  
*this is a personal journal from the time of the Water Twins!*

*But whose journal is it? Is there a reason why this diary was placed right next to Hilde's copy of Wetzel's Limnology?* Kyo looks from the textbook to the diary that cites it and ponders. She looks behind her, to where Ho lurks among the stacks. Is this her doing? Wetzel became the bible of the Water Twins. But this private account from that same time promises to be far more tantalizing. Its placement in the library, next to Wetzel specifically, suggests great relevance.

Kyo opens the Wetzel text to its title page, where in the same

hybrid cursive and print is written: *To my dearest Hilde, Your loving Mother, Lynna.*

*It is the same handwriting! Hilde's mother is the author of the journal!*

With a last glance in Ho's direction, Kyo carefully replaces Wetzel's *Limnology* on the shelf and, clutching her new prize, moves to one of the tables by the back windows that face the maple-beech forest.

Under the dappled flowing light, she opens to the first page and reads....

# THE DIARY

APRIL 12, 2045

FETCH: *The distance that wind or waves travel uninterrupted across open water.*

—Robert Wetzel, *Limnology*

I remember every nuance of my mother.

Her deep laugh. Her willowy gait. Her scent, fresh and bracing, as though she'd captured the outdoors. The way she filled a room with her wise and gentle essence. How she spoke, in a lilting cadence, words delivered like sparkling clear water. The way she winked at me with conspiratorial joy and called me *meine Wassergeist*, my water sprite. Her name was Una.

Her smile came from that childhood place where the world is simple and pure. It made her eyes crease into a million golden rays. Her hair was a nest of dark curls that she sometimes pulled back, especially when she worked in the shed behind the house.

When she came inside, she brought in the smell of rain and leaves that she wore like an old coat you never want to throw away. Una sensed how the natural world worked. She'd had little formal education, yet she seemed to know more than most of my university professors. She had a keen and passionate mind, which she applied to a strong environmental ethic.

I know she loved me fiercely. But that fierceness—which extended to her passion for the planet—also had negative consequences. Like the time when she was arrested at a

demonstration in Nathan Phillips Square. I was sitting in my first-grade class, listening to Ms. Belanger tell us about trees, while the RCMP arrested demonstrators protesting the ludicrous American proposal to construct the Rocky Mountain Trench Reservoir in British Columbia. When school was over, Una wasn't waiting at the front gate to take me home. I watched as my classmates left with their parents or caregivers until I was the only one left. Then I started to cry. Our neighbour finally came to take me home. Mrs. Kravitz said I should stay with them until my mother came home from jail.

I know that she didn't mean for it to happen, but I still felt abandoned.

After apologizing to me, Una explained that building the Rocky Mountain reservoirs and associated pipelines threatened to inundate and destroy several small towns and Indigenous communities in the Yukon and British Columbia. Canadians had to support their government in the fight against the U.S. predator who was wooing us with promises of shared wealth. It was like the U.S. was saying, *give me all your candy and maybe later I'll share some with you*. Only the candy was all ours to begin with. "Imagine our home and our neighbour's home suddenly under water," she said to me. "We would all have to move away so people three thousand kilometres away can fill their swimming pools. If the Americans have their way, all of Canada will become their reservoir."

Una sang all the time. German folk songs that her mother used to sing to her. Songs like *Muss i denn, Die gedanken sind frei, Kein schöner Land in dieser Zeit, Wenn ich ein Vöglein wär*, and Goethe's tune *Sah ein Knab ein Röslein stehn*. Each day was like a glittering drop in a flowing narrative of gems. She had a way of imparting deep wisdom while either entertaining or comforting me.

One day stands out. She was wearing a bohemian, layered dress that smelled of the forest. Her dark hair was pulled back in a loose ponytail. Several rogue strands hung over her right

eye. It was the day Ralph tricked me at second recess into giving him my favourite Pokémon card—a sparkly Charizard. I burst into the back shed where Una was fixing our neighbour's chair and I just stood there, trembling with emotion. She immediately saw that I was upset and coaxed out my story.

Una then squatted to my height and looked directly at me with her intense green eyes. “Don’t make the mistake of thinking the bully is your friend. He was never your friend. He will never be your friend.” Then she placed her hands gently on my shoulders and added with dreadful calm, “You can play with the bully. But don’t make him your friend. Demand his respect. Or *you* will become the bully....”

Then she pulled me close to her in a deep embrace and whispered, “come, *Wassergeist*.... You liked sparkly Mew just as much. Now she will be even more special.” She winked.

I burst into grateful tears as she held me. Then she left the broken chair she was fixing and took us into the kitchen, where she made us some hot chocolate and told me silly stories about the chickens in the yard.

Una died today. I’ve lost my mentor. My friend. My link to compassion, wisdom, and unity. She would have been sixty-five. She should have lived another thirty years at least. Why do I feel like she’s abandoned me? I had so wanted my little Hildegard to get to know her grandmother better.

I fear what I will become....

AUGUST 22, 2045

*LIMNOLOGY: The study of inland waters—associated with aquatic ecology and hydrobiology—that includes lakes (both freshwater and saline), reservoirs, rivers and streams, springs and wetlands, and groundwater. The study encompasses ecological systems (within the fields of biology, chemistry, physics, and geology) interacting with their drainage basins (watersheds) and the atmosphere (that integrates the entire hydrological cycle).*

—Robert Wetzel, *Limnology*

I'm a limnologist. I study inland waters. I conduct valid field and lab experiments using controls. I'm a scientist. I use the scientific method to discover cause-and-effect relationships by asking questions, then carefully gathering and examining evidence in an unbiased manner. This usually involves constructing a hypothesis to test and analyze data in order to draw conclusions. It's all based on clarity and logic.

I'm actually lucky to have a job.

There aren't that many jobs for limnologists in Canada, especially considering that this country was once steward of over a fifth of the world's fresh water. Mother used to call Canada the wetland of the world—not because a quarter of the world's wetlands were in Canada, but because of our roles as preservers of Nature and water. Unfortunately, wetlands—like limnologists—have been going the way of the dodo since the

Conservative government passed Bills C-38 and C-45, which reduced freshwater protection. The bills gutted the *Canadian Environmental Protection Act* and the *Fisheries Act*, Canada's major water-policing legislation. The energy sector went crazy, turning pristine lakes into tailings ponds. Environmental consultants morphed from limnologists and hydrologists into water engineers and technicians. The destruction of aquatic habitats and the massive diversion of bodies of water became collateral damage. The same happened on a larger and more terrifying scale when, the same year I turned five, the United States put an entire party of climate deniers and greedy short-sighted business men into power.

Trump, then president of the U.S., accused the Chinese of creating the concept of climate change to destroy America's competitive capacity. On its first day in power, the new American administration wiped all mention of climate change off its website and dismantled the Environmental Protection Agency. The new head of the EPA—another climate change denier—was a pro-industry statesman who had sued the EPA on numerous occasions for interfering with progress. The first thing he did as EPA administrator was deregulate on behalf of industry profit.

In the meantime—unbeknownst to the public—the Center for a New American Security, along with the military and several key corporations, was playing climate change war games. They were militarizing the environment. Then the United States pulled out of the Paris Climate Accord in an individualist attempt to “make America great again.” I remember Una quoting Xi Jinping, president of China, who said about Trump's America: “Pursuing protectionism is like locking yourself in a dark room.”

I got a job because I'm a water management “engineer”—not a limnologist. There is no pure research to expand our worldview; there is only caretaking the view we've been given.

I cycle everywhere in town. I avoid the subway; the cars are full of beggars, who shuffle up and down, aiming desperate eyes at you. Their stares painfully remind you of your precarious

privilege. When I cycled to campus this morning, I had to go around a construction site right in the middle of King's College Circle. They've torn up the whole circle from Knox College to Gerstein. I was forced to enter University College through the west entrance. The grass is long gone. The circle isn't used for much these days. The odd soccer game perhaps. I saw several CanadaCorp trucks amid the University of Toronto construction vehicles. What are they doing there? In the hallway a few days ago, I overheard Cécile in engineering talking with my boss, André Charron, about "wTaps." They hushed right up when I approached them, and my gut just twisted with cold, suspicious thoughts. What are these "wTaps"? Why don't I know? I heard a rumour somewhere—probably from Daniel—that CanadaCorp will eventually convert all citizen water usage to a public metered system, eradicating private taps in houses.

My stomach churns with my mother's dire prediction: that water utilities will eventually dwindle, and that we will be left with far less than the bare necessity. We've been on an individual water quota of thirty litres per day since 2029. That was sixteen years ago. What's next?

I can see the signs. The low whispers and sideways glances of upper management. The nervous shuffling of everyone else. Now there's all this construction.... And no one even knows what they're building.

Here's what I think: CanadaCorp is funnelling Canadians the same way it funnels our water. Eventually, we'll all be like grey water, repurposed through an intricate network of pipes and conduits, recycled over and over again until we can't distinguish pristine from waste. Perhaps that's all moot. What is pristine? Would I recognize it if I tasted it?

SEPTEMBER 12, 2045

*TIPPING POINT: The moment of critical mass, the threshold, the boiling point. In epidemiology, the tipping point is that moment when a small change tips the balance of a system and brings about a large change. An example is when the normal spread of influenza throughout a population turns into an epidemic... Ideas, behaviour, messages, and products sometimes behave just like outbreaks of infectious disease. They are social epidemics.*

—Malcolm Gladwell, *The Tipping Point*

What I do is no longer science.

Daniel calls what we do “status quo science.” Daniel is my lab’s most proficient and reliable technician. He’s also the lab’s only conspiracy theorist, deftly negotiating Oracle, the deeply infested quagmire of alternative facts, rumour, and conspiracy theory, to emerge with that rarified, almost extinct creature: truth.

Daniel joined my team last year. I tell myself that I hired him because of his exemplary credentials—he came with excellent references from McGill University in Montreal—but he was so young! Dark puppy eyes, a perfect mouth set in an innocent boy’s face, and the sharply curious mind of an unrelenting detective. I told him to grow a beard and hired him.

Daniel caught me in the cafeteria with his latest theory this

morning. “Did you know that Raytheon is mining our glaciers?” I rolled my eyes at him—more rumours from Oracle—but I sat down with my java to listen. He was better than TV. Besides, if this news was even partially true it was truly alarming. He then went on babbling about some device Raytheon scientists are creating to suck all the water from our glaciers. Something similar, I thought, to the fog collection devices in the Oman, South Africa, China, and other desert countries.

Canada’s glaciers contain as much water as all our rivers and lakes put together. They also feed freshwater to most of our big northern watersheds. If the glaciers go, so do the rivers and lakes, not to mention the groundwater, our giant reserve. Pretty well most of Canada’s water. Since Una took me on a cross-Canada trip across the Rockies to the Northwest Territories, I have been fascinated with glaciers and ice fields. I eventually decided to focus on them during my studies at university. I was sad to hear that one of my favourites—the Athabasca Glacier—is no more. Of course, I knew it was happening. It was losing close to ten metres of ice every year. And then, like a tipping point, like a runaway reaction of some viral disease, it suddenly accelerated way beyond that. Like a bubble bursting. Some things we just can’t model.

Glaciers carved and fed water to our Great Lakes during the first Great Melt after the ice age, some twenty thousand years ago. I was only two years old when University of Toronto scientists documented the declining levels in the Great Lakes and determined that ancient fossil water from the Great Melt forms the bulk of the Great Lakes’ water. Scientists also noted that evaporation was already greater than precipitation. With exports, water uptakes, and associated loss, the water levels are steadily declining. Once lake levels fall below eighty percent of their historic volume, they will reach a tipping point. After that, the water will *never* return. That’s how the Great Lakes will become the *Great Puddles*. Precedent was set a long time ago with the Aral Sea.

Una told me about the Aral Sea. A hundred years ago, it was the fourth-largest inland lake in the world. In just four decades, the Soviets' intensive irrigation project shrank the lake by half. By 2014, over-extraction and major river diversions dropped levels by an additional sixteen metres. By the time I was two years old, the Aral Sea—once half the size of England—had shrunk to the size of Montreal.

It's no coincidence that of the dozen largest inland lakes in the world, eight of them are in Canada. It's no coincidence that CanadaCorp needs water engineers.

I'm a limnologist. I'm fracked.

OCTOBER 13, 2045

*STABLE CHAOS: A precept within chaos theory, which suggests that order emerges spontaneously from chaos as synchronous self-organization. First coined in 1989 by James Gleick, who referred to the example of Jupiter's Great Red Spot: "The spot is a self-organizing system, created and regulated by the same nonlinear twists that create the unpredictable turmoil around it. It is stable chaos."*

—James Gleick, *Chaos: Making a New Science*

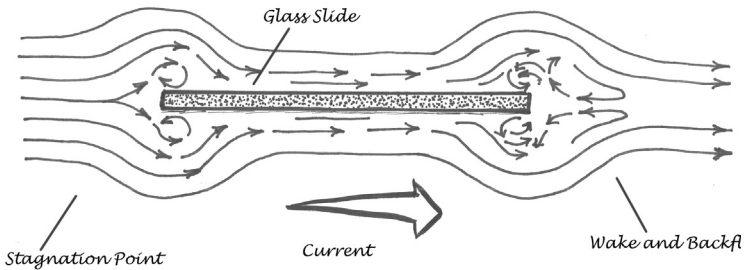
Late last night, I was rummaging through my old papers, hoping to create some order in my cramped CanadaCorp office. But chaos always surges in, like a rogue wave eroding my carefully constructed sandcastles. Chaos comes in the most unlikely places. This time it was in the form of my very first paper, published in the scientific journal *Hydrobiologia* when I was still an undergrad.

Forgetting about cleaning my office, I sat down to read the paper, turning over the tattered blue cover page to see what forgotten truth lay beneath. I read the abstract. It stirred both fond and disturbing memories. I inhaled a long, almost shuddering breath and let myself remember....

At the time, two decades ago, the thrill of discovery had surged through me like a vortex. As with most discoveries in science, I'd stumbled upon it while looking for something else.

I've never felt more like a scientist than I did right then. I think it was Albert Szent-Györgyi who said that “a discovery is an accident meeting a prepared mind.”

My accident happened during my Honours field study season at Concordia University in Montreal—long before I came to U of T to teach and work at CanadaCorp. I'd chosen to study periphyton (attached algal) communities affected by agricultural runoff in the Eastern Townships. To conduct my research, I immersed devices that held glass slides in various orientations (parallel or facing the current) in rural streams and visited them frequently over the summer. What I didn't expect to see was that the periphyton, made up of mostly diatoms (algae with silica shells), colonized the slides in a non-random way: they consistently preferred the two edges of the slides that were parallel to the current. Excited by my discovery, I asked my supervisor if we could study this diversion further. He agreed, and so began my foray into fluid mechanics, water movement, and its biological manifestations. The result was the paper I held in my hand that discussed this curious phenomenon, now known as the edge effect.



Periphyton thrived in turbulence. I postulated that drift velocity was reduced on the slide's edge, where turbulence was greatest; algae had a greater chance of colliding and settling on the slide edge than on the more shear laminar flow along the slide's central face. Turbulence created opportunity. Turbulence

also reduced the diffusion gradient of materials around algal cells, resulting in a higher rate of nutrient uptake. Turbulence created a kind of “stable chaos,” which enhanced vigour, robustness, and communication.

I’d rediscovered one of Nature’s most intriguing and fundamental qualities: at the boundary where two different entities meet—liquid with solid, land with water, freshwater with salt water, fast water with slow water—life thrives most vigorously, and most precariously. Ecologists have a name for this zone of paradox and opportunity; they call it an *ecotone*, where two “communities” collide and interact. At the root of this vitality lies movement: turbulence, swirling, excitation, exchange, learning, adaptation, and evolution.

I used the term “stable chaos” to describe this precarious stability generated from chaotic interaction. Akin to Jupiter’s Great Red Spot.

I then heretically considered a connection between increased periphyton growth and the water’s own increased vigour in the turbulent zone. I still remember the thrill that sent the hairs on the back of my neck standing as I suggested—with absolutely no scientific proof—that water possessed its own vital and life-giving properties. I posited that water wasn’t just the medium in which “stable chaos” occurred; indeed, water made “stable chaos” possible. It was the very basis of biological organization. Water was “alive.”

Of course, they edited that part out. And, of course, I accepted the edits and buried my ridiculous notion.

What shocked me last night was the realization that this unresolved premise has nagged me to this day. Perhaps more shocking is that my heart tells me I am right. I know this makes me a heretic. Water alive? What a ridiculous notion! And yet...

Naturalist Viktor Schauberger—who was both mocked and revered for his intuitive approach to Nature—wrote, “the majority believe that everything hard to comprehend must be very profound. This is incorrect. What is hard to understand is

what is immature, unclear, and often false. The highest wisdom is simple and passes through the brain directly into the heart.” Many years ago, philosopher Karl Popper wrote, “There is no such thing as a logical method of having new ideas, or a logical reconstruction of this process.... Every discovery contains an irrational element or a creative intuition.”

Back then, I was too insecure and immature to pursue what my heart told me. Now, I’m too cynical and invested in my current hegemony to listen to it.

So here it is: stable chaos can only manifest where chaos self-organizes into some kind of order or stability. The phenomenon results from negentropy, a kind of energy input, traditionally considered a property of living things, but which commonly occurs wherever there is water. For stable chaos to even exist, a dynamic equilibrium based on some sort of cooperative interaction must be maintained. Cooperation lies at the heart of transforming existing structures, generating new forms, maintaining processes, and bringing rhythm to movement.

Cooperation allows ideas between two open-minded individuals from different cultures to be exchanged. Movement and change do not happen without some element of cooperation. Even antagonism involves cooperation—even if it is to engage in reciprocal deception and acceptance.

Stable chaos is a covenant.

So, what of my covenant with CanadaCorp?

I tossed the paper down on my worn oak desk, feeling the walls shrink around me. The walls of my office are filled with wall-to-wall shelves of limnological research. Much of it mine. Mostly on the phenomenology of glaciers.

That paper on stream periphyton in *Hydrobiologia* could have been controversial and ultimately rejected by the scientific community; instead, it demurred to traditional science and was embraced as groundbreaking.

I was very young then. I gave in.

What's my excuse now?

Why did I take this job with CanadaCorp? When I joined CanadaCorp on the University of Toronto campus five years ago, I knew what they were. I knew about their affiliations with China, America's Water Management Authority, and even Raytheon, who'd funded my Master's research. I knew that they were stealing water from the world. I knew that what they pursued betrayed what I believed at the core of my being.

Perhaps I thought I could make a difference from the inside.

Of course, I know why I really did it.

Hildegard. My precious five-year-old daughter. She was a year old when I signed on. It was a world in which, to save my child, I must save my enemy. Or so I told myself.

To save myself, I invoked the divinity of science. It's my saviour. My grace. That place on the edge of chaos where objectivity and non-bias reign in the name of validity and accuracy. I live in that place of grace by embracing stable chaos.

But how long can a human being remain here, teetering in a desperate balancing act between human and cipher? Order and chaos? Life and death? Yes, life in the ecotone is more intense, but at what cost?

Soon I will fall from grace. I will join the human race. And die.

ALL RIGHTS INQUIRIES should be directed to [inanna.publications@inanna.ca](mailto:inanna.publications@inanna.ca)

HOW TO ORDER:

Individuals: Order through your local bookstore or directly from Inanna Publications at [www.inanna.ca](http://www.inanna.ca)

210 Founders College, York University,  
4700 Keele Street, Toronto, ON M3J 1P3  
Phone: 416.736.5356 | Fax: 416.736-5765  
Email: [inanna.publications@inanna.ca](mailto:inanna.publications@inanna.ca)

Returns: Generous returns policy. Returns of undamaged copies accepted up to 12 months from invoice date.

All trade orders for Canada and the US, as well as academic and bulk orders, should be directed to:

UNIVERSITY OF TORONTO PRESS DISTRIBUTION  
5201 Dufferin St.  
Toronto, ON M3H 5T8  
Phone: 1-800-565-9523, (416) 667-7791  
Fax: 1-800-221-9985, (416) 667-7832  
Email: [utpbooks@utpress.utoronto.ca](mailto:utpbooks@utpress.utoronto.ca)

Examination copy requests: Faculty members, teachers and instructors may order complimentary examination copies. Requests should be emailed to: [inanna.publications@inanna.ca](mailto:inanna.publications@inanna.ca) or sent by regular mail to our office at: 210 Founders College, York University, 4700 Keele St. Toronto, ON M3J 1P3

In the U.K. our books are distributed by:  
GLOBAL BOOKS LTD.  
Website: [www.globalbooksales.co.uk](http://www.globalbooksales.co.uk)  
Phone: +44 (0)7963 210830

SALES REPRESENTATIVES:

The Literary Press Group of Canada  
502-234 Eglinton Avenue E | Toronto, ON M4P 1K5  
e: [sales@lpg.ca](mailto:sales@lpg.ca)

## ACKNOWLEDGEMENTS

This novel was created listening to the inspirational and moving works of Iceland's Sigur Rós, particularly *Dauðalogn*, *Heaven in a Wild Flower* by Bill Douglas, and *Space Age Love Song* by Flock of Seagulls.

Significant parts of this novel were written in the following cafes and fine eateries in Toronto, Niagara on the Lake, and Vancouver: Contra Café, Mercurio Espresso Bar, Zaza Espresso Bar, Krave Coffee, The Beacher Café, Bodega Henriette, Stir Coffee House, Astoria Shish Kebab House, The Poet, The Prince of Wales Hotel, and Anne's Coffee House. Thank you for your welcoming, inspiring settings and especially for your excellent coffee.

I consulted the wisdom and science of many authorities in the areas of ecology, limnology, neurobiology, biotechnology, and others. Any mistakes are mine, not theirs.

My sincere gratitude goes to Luciana Ricciutelli, Publisher and Editor-in-Chief at Inanna Publications, whose insightful and immaculate editing and comments have made this a better book.



*Photo credit: Jane Raptor*

Nina Munteanu is a Canadian ecologist and novelist. Her novels include: *Collision with Paradise*; *The Cypol*; *Angel of Chaos*; *Darwin's Paradox*; *The Splintered Universe Trilogy*; and *The Last Summoner*. In addition to eight novels, she has authored award-winning short stories, articles, and non-fiction books, which were reprinted and translated into several languages throughout the world. Recognition for her work includes the *Midwest Book Review* Reader's Choice Award, finalist for *Foreword Magazine's* Book of the Year Award, the SLF Fountain Award, and the *Delta Optimist* Reviewers Choice Award. Nina's latest non-fiction book, *Water Is...*—a scientific study and personal journey as limnologist, mother, teacher, and environmentalist—was picked by Margaret Atwood in the *New York Times* as her #1 choice in the 2016 "The Year in Reading." She lives in Toronto. [www.ninamunteanu.ca](http://www.ninamunteanu.ca)