



# the cottager's to cloud col

Their soft science can help us  
understand the weather, but we wonder  
if there's more to see in clouds

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# guide

# Collecting



**HIGH OVERHEAD, TWO** volatile partners—one earthy, the other ethereal—launch a turbulent, unpredictable dance. This could be little more than a brief infatuation, or one of those “never again” dates that’s as fun as freezing drizzle. But our lovers could also grow rapturous, operatic, even thunderously destructive. Say what you will about clouds, when water bonds with high-flying dust, things get dramatic.

“I love a blue-sky day as much as anyone,” says Gord Baker, a veteran canoe tripper and a manager at Ontario’s Algonquin Outfitters in Algonquin Provincial Park. But in a country that celebrates sunny skies, autumn colours, and mirror-smooth lakes, clouds offer a break from blue-sky ennui. “They just make the sky more interesting,” says Gord. “They add action and colour.”

“What’s a sunset without a cloud?” agrees Barbara Havrot, a Gatineau River, Que., cottager and a finalist in Cottage Life’s 2018 photo contest. Her winning shot featured a heavy-browed “shelf cloud” looming over her fleeing cottage family. “People don’t look up enough,” says Barbara, who’s known to brake for clouds. “Sometimes, I have to pull the car over to take a photo.”

Amen to that, says Gavin Pretor-Pinney, the founder of the British-based Cloud Appreciation Society (CAS). The magazine creative director turned author argues clouds are “the most dynamic, evocative, and poetic aspects of nature.”

After a seven-month sabbatical in comparatively cloud-free Italy, Pretor-Pinney returned to the U.K. determined to give clouds their due. After delivering an enthusiastically received lecture at a literary festival in 2004, he launched the CAS. Support has billowed skyward ever since. The Society now boasts around 66,000 paid members across more than 120 countries (including 1,400 members in Canada). They travel to “sky gatherings,” receive a cloud-a-day in their email inboxes, and, according to the CAS manifesto, pledge to fight “blue-sky thinking wherever we find it.” In short, it’s about revelling in the atmosphere’s messy dynamism—finding what Pretor-Pinney calls the “beauty and wonder in the everyday stuff” above and around us.

Speaking of the mundane, clouds are “in a nutshell, a collection of tiny water droplets,” says Peter Kimbell, a warning preparedness meteorologist with Environment and Climate Change Canada. Kimbell cut his cloud-watching teeth at his grandparents’ Ottawa River cottage. These days he scans the skies at a friend’s cottage in northwestern Ontario. “It’s great fun when you have a thunderstorm cloud bearing down on you and a safe place to retreat to indoors,” he says. And while the weatherman always checks for signs the storm could turn nasty, “when I’m at the cottage, I’m mostly in enjoyment mode.” >>

The sad truth—and a bummer for anyone whose childhood involved gluing fluff to blue construction paper—is that “clouds are not actually bits of cotton wool that float about,” says Colin Goldblatt, an associate professor at the University of Victoria’s School of Earth and Ocean Sciences. “It’s better to think of them as a process rather than a thing.”

When rising air cools—typically by 10°C for every kilometre of altitude, until it reaches 100 per cent relative humidity—droplets form, as water vapour condenses on specks of dust, which become nuclei for each droplet. (At colder temperatures, ice crystals form.) You’ve seen this happen up close, when your breath freezes on a chilly day or a ground-level cloud, called “fog,” shrouds the cottage.

Although clouds can reach 18 kilometres into the atmosphere and stretch out in layers like a big, grey flannel sheet, they spring from objects that are almost microscopically small. A single cubic metre of air can contain billions of nuclei—sea salt, flakes of clay, bits of mineral, forest-fire soot, and urban pollution. A droplet’s girth is measured in microns, mere thousandths of a millimetre. It might take a million droplets slamming together in the cloud’s aerial mosh pit to form one raindrop that’s heavy enough to fall.

Meanwhile, the phase change water undergoes as it shifts from vapour to liquid or ice releases tremendous amounts of energy. A large thunderstorm can pack the power of an atomic bomb, much of it supplied by the latent heat of condensation and freezing. You see this on a modest scale in the kitchen. “When you boil water, you add heat to create water vapour or steam,” says Kimbell. “When you go from a vapour to liquid, you reverse that process and release heat.”

Latent heat makes the air still more buoyant, powering updrafts exceeding 100 kilometres per hour. But what goes up must also come down, and storm clouds develop a roiling collection of updrafts and downdrafts powerful enough to juggle hail. (Slice a hailstone in half, and you may see rings left by its up-and-down, freeze-thaw journey.)

In other words, clouds are floating, ethereal weather machines, constantly shuffling heat and moisture through the atmosphere and pumping out rain and snow. And with a few violent exceptions, they make it all look easy. The marshmallow exterior of a fair-weather cloud, for example, hides trillions of droplets, all scattering wavelengths of colour equally to produce that pristine white. Dark clouds, on the other hand, carry a heavy water content, making it harder for light to pass through. And that green tint that sometimes precedes a storm? The cause is still up for debate, but one theory is it’s light scattered through payloads of ice and water. >>

## CLOUD ATLAS

### *Cumulus*

The first cloud you drew as a kid, this puffy, floating cauliflower is a low-level (up to 2,000 metres in altitude), convective classic.

#### WEATHER FORECAST

Usually a short-lived fair-weather cloud—unless it bulks up. (See cumulonimbus.)

#### COTTAGE FORECAST

Get outside!

#### PRETOR-PINNEY SAYS

“It looks so damn comfortable. Who hasn’t dreamt of falling asleep in the cumulus’s plump, white folds?”

### *Cumulonimbus*

The T-Rex of the skies rises up to 15 kilometres, often with a posse of “accessory clouds,” including the wall cloud, the shelf cloud, the lid-like pileus (from the Latin for “felt cap”) incus (“anvil”), and the udder-like mammatus.

#### WEATHER FORECAST

A bringer of rain, thunder, lightning, and sometimes hail. Also known to toss in the odd tornado or microburst.

#### COTTAGE FORECAST

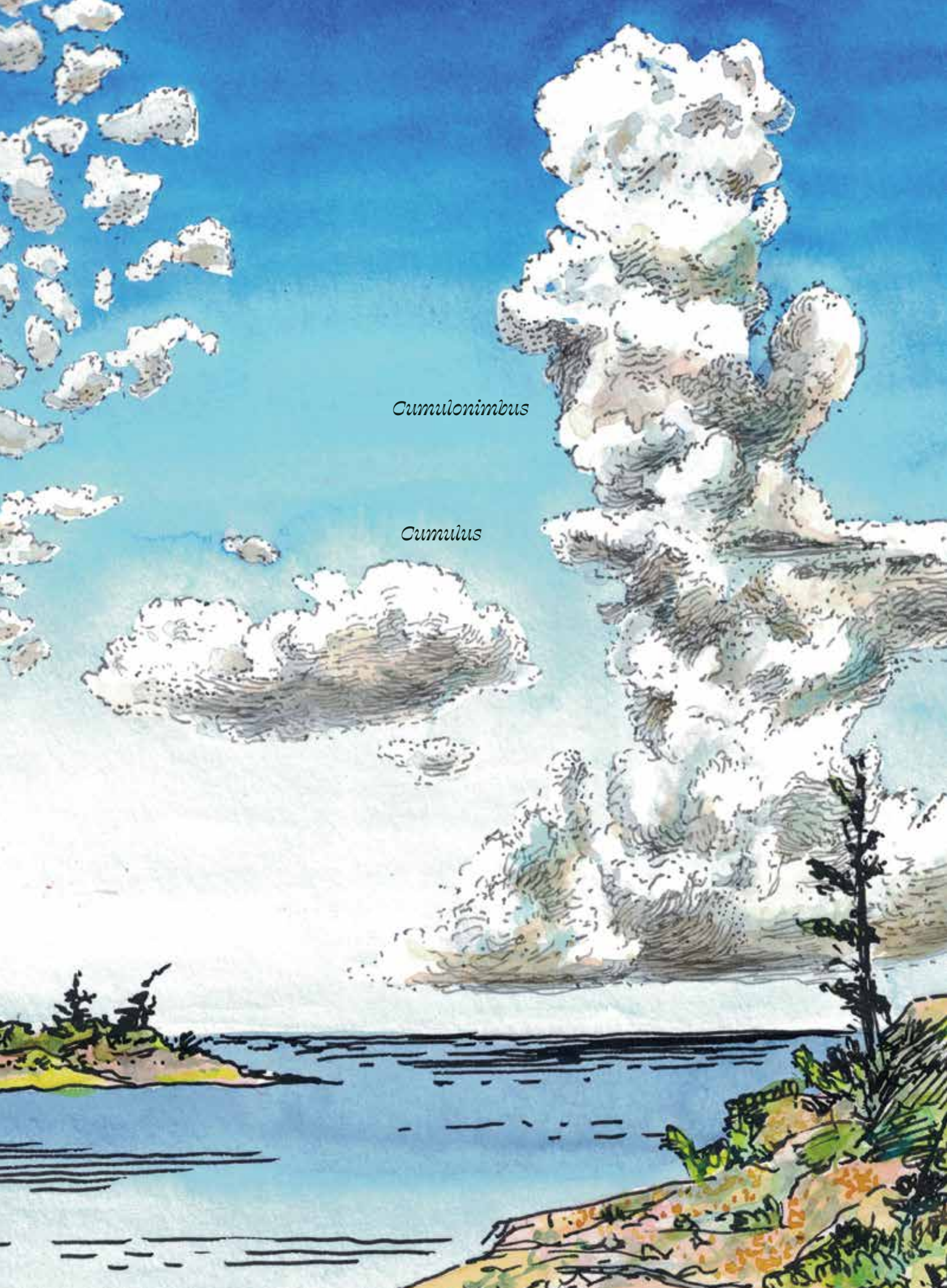
Best admired from a distance, and when the lightning begins, indoors.

#### PRETOR-PINNEY SAYS

“A cumulus with ambitions to take over the world.”



### *Alto cumulus*



*Cumulonimbus*

*Cumulus*

*Cirrus*





## *Cirrostratus*

### CLOUD ATLAS

#### *Cirrus*

High (5,000 metres or more) ice-crystal wisps, surfing winds of more than 160 km/h.

#### **WEATHER FORECAST**

May be the fine-weather precursor to an approaching weather system.

#### **COTTAGE FORECAST**

"See in the sky the painter's brush, the wind around you soon will rush." In other words, *carpe diem* while the cirrus is visible.

#### **PRETOR-PINNEY SAYS**

That cirrus are "harbingers of a 'deterioration' in the weather only adds to their fragile beauty—aren't the most delicious things the ones we know can't last?"

#### *Cirrostratus*

A thin whitewash of ice crystals above 5,000 metres.

#### **WEATHER FORECAST**

Is the layer a uniform veil?  
Expect an incoming warm front that brings persistent rain within a day. Are the strands wispy?  
Could just be light drizzle.

#### **COTTAGE FORECAST**

Look for spectacular optical effects as light strikes the crystals, including sun dogs and haloes around the sun and moon.

#### **PRETOR-PINNEY SAYS**

"High milky veils, which most people barely notice."

Despite all the physics involved, the life and death of clouds seems almost organic, even human. Like us, they're continually becoming and dying, forming and dissipating. Yet the absence of cloud is always temporary. "They have a contradictory quality of being both ephemeral and enduring," says Pretor-Pinney.

Cloud cover has varied throughout the planet's deep history—sometimes dramatically. But computer models mimicking the future role of climate change struggle with clouds' micron-level physics. At the level of individual droplets, "there are not enough computers in the world to run the data and model it," says Goldblatt.

Some change is certain in a warming world, if only because the atmosphere holds about seven per cent more water vapour for every degree rise in temperature. Meanwhile, humans keep adding to (and sometimes subtracting from) cloud-forming nuclei with aerosols, or more air travel, or cleaner ship exhaust.

"In cottage country, because of a warming climate, we might expect more risk of convective storms, hotter weather, and more evaporation," says Goldblatt. The planetary impact, however, depends on the mix of cloud cover. High ice-crystal clouds boost planetary warming. Low, dense clouds have a net-cooling effect. There's recent evidence that fewer low clouds over the ocean have contributed to recent warming. But the ultimate result, says Goldblatt, remains "a very big and very difficult question in climate science."

In an old *Peanuts* comic, Lucy, Linus, and Charlie Brown lie on a grassy hill. "If you use your imagination, you can see lots of things in the cloud formations," says Lucy, asking Linus and Charlie Brown what they see. Linus spies Biblical scenes, the outline of British Honduras, and "the profile of Thomas Eakins, the famous painter and sculptor." When Charlie Brown's turn comes, "I was going to say I saw a ducky and a horsie," he says. "But I changed my mind!"

For most of history, clouds were named Charlie Brown-style, for what they did (rain cloud), or what they looked like (horsie). When British pharmacist Luke Howard pioneered modern cloud classification in 1802, he added the scientific gloss of Latin, but appearance still mattered. Howard's cumulus cloud, for example, is Latin for "heap." Then there's stratus ("layer"), nimbus ("rain"), and cirrus ("lock of hair").

Later additions included altitude ("alto" for mid-level) and more descriptive adjectives. The result is two- or three-part names, some invested with a poetic or even comic sensibility. Consider the cumulus humilis (hardly anyone else does)—a low-level, humble heap of fluff. Or the stratocumulus castellanus, a castle in the sky with diaphanous

battlements. Pretor-Pinney is particularly chuffed by asperitas (“roughness”), an ominous cloud with a wavy underbelly first suggested by the CAS and formally adopted by the World Meteorological Organisation’s International Cloud Atlas in 2017.

Names give humans a grip on these amorphous objects, with practical payoffs. It’s good to know that a billowing cumulonimbus may bring thunder and lightning. Or a cirrocumulus “mackerel sky” promises unsettled weather. (“Mackerel sky, mackerel sky. Not long wet. Not long dry.”) “I’m not an expert on all the cloud names,” says cottager Gord Baker. “But I know enough to take proactive action.”

There’s also growing evidence that the mindful appreciation of the sky is good for you. Studies suggest the kind of awe that comes from watching the slow unfurling of a cumulus or the windswept hooks of cirrus uncinis (a.k.a. mares’ tails) could reduce inflammation, anxiety, and stress while boosting immune function and sense of wellbeing. The mere act of elevating your gaze, writes University of Waterloo psychology professor Colin Ellard, seems to help your brain switch gears from mundane tasks to Big Thoughts. As he writes in his book, *Places of the Heart*, looking skyward towards clouds, mountain peaks, or even the vaulted ceiling of an ancient cathedral helps “dissolve the earthly chains that bind us to the prosaic events of ordinary life.”

Of course, cottagers already know this. Call it feelings of transcendence, flow, mindfulness, or just relaxation, they’re all a regular byproduct of gazing skyward from docks, hammocks, and canoes. The key, says Pretor-Pinney, is to take the time to do it—to observe the heavens and seize the opportunity that clouds present. It means “being prepared to stop what you are doing, wherever you are, to spend a few moments” gazing upward, a practice that’s “good for the mind, good for creativity, and good for the soul.”

For Barbara Havrot, clouds are daily performance art. She records time-lapse videos from her cottage window—the morning mist swirling off the river, the clouds building overhead and sweeping towards the east, and the sunset eventually burnishing their bellies. This summer, she hopes to share the fascination with her grandson. “I’m really looking forward to looking at clouds with him.”

And when Barbara and her grandson look high overhead, they’ll see a mix of air, dust, and water create something beautiful and fleeting—a moment to be briefly held and appreciated, before being released into the busy torrent of life.

Keep looking up, says Pretor-Pinney. “To spend some time with your head in the clouds,” he adds, “helps you keep your feet on the ground.” 🐾

Writer Ray Ford favours cirrus clouds lacing the blue skies near his Powassan, Ont., home.

## CLOUD ATLAS

### *Alto cumulus*

Mid-level (2,000 to 5,000 metres high) lumpy clouds, often forming a layer of similar-sized cloudlets.

#### WEATHER FORECAST

Settled conditions, at least in the short term.

#### COTTAGE FORECAST

Book a seat and order drinks for the sunset (or sunrise) show, as a succession of reds, oranges, pinks, and yellows illuminate the ruffled cloudlets.

#### PRETOR-PINNEY SAYS

Alto cumulus are like “layers of bread rolls in the sky.”

### *Nimbostratus*

A thick, largely featureless but sometimes ragged grey blanket reaching up to about 5,000 metres. The U.K.’s Met Office calls it “probably the least picturesque of all the main cloud types.”

#### WEATHER FORECAST

Rain or snow. Lots of rain or snow.

#### COTTAGE FORECAST

Two words—Monopoly tournament.

#### PRETOR-PINNEY SAYS

“Not exactly a dull cloud... but it wouldn’t get far in a cloud beauty contest.”





*Nimbostratus*

*Altostratus*