

TOM BABIN



FROSTBIKE

*The Joy, Pain and Numbness
of Winter Cycling*

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THE JOY, PAIN AND NUMBNESS
OF WINTER CYCLING

by Tom Babin



For Lani



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PROLOGUE



The question emerged courtesy of a sour greeting the asphalt delivered to my hip. It was on the first corner of my commute home from work on my bicycle, a trip I had taken hundreds of times. This time, however, that corner was different. As I rounded the bend, I felt the rear end of my bike lose its grip, and my body rushed to fill the space my tire had just vacated. I slammed down on my hip first, followed by my shoulder, followed by my ego. It's not often that I crash like this, but often enough that I've recognized a series of reactions that occurs by instinct rather than reason, which explains why they are so ridiculously misprioritized.

1. First thought: "I'm never riding a bike again."
2. Pop quickly onto my feet, and then scan for bystanders to assess embarrassment level.
3. Check bike for damage.
4. Check body for damage.

This time, I went through the usual chain of reactions, but my brain took me through a fifth step.

Number five was a pair of flashbacks, or, if looked at another way, a snap assessment of a series of bad decisions that led me to my current predicament. The first bad decision was earlier that day, over the breakfast table, a bagel gripped in my teeth, as I pulled on my cycling shoes and scanned the morning newspaper's weather page. It was early November, a crisp, cold morning with a 30 per cent chance of the first snowfall of the season coming down that afternoon. Maybe I should drive my car today to avoid the snow, I thought. My bicycle was still running on smooth summer tires, and I didn't have time to install knobbier versions that would be safer on slick roads, so driving my car to work would be the smart decision. But I love riding my bike to work. It gives me energy, keeps me in shape and makes me a happier, better person. So I did the math and scoffed. A 30 per cent chance of snow means there's a 70 per cent chance it won't snow. "I'm going for it," I told myself.

Bad decision number two came eight hours later, as I stared out my office window at the powdery snow slowly drifting down from the sky. That's what you get for playing the weather odds. But all was not lost. "Look at that," I told a co-worker, who kindly expressed concern about my riding a bicycle home in such weather. "It's barely accumulating. Most of the snow is melting as soon as it hits the ground. I'm going for it."

Both decisions came racing back to my mind after my post-crash assessment revealed no damage to my bike, and only surface damage to my body. I considered my options while eyeing the nearby transit stop. I could hop on the commuter train and be home, with my bike, after two bus transfers, in about 90 minutes. But my typical bike commute takes only 35. If I slowed my pace to account for the slippery conditions, especially on the corners, I could still be home before the bus. I fingered my tired bald road slicks that had served me so well all summer long but had suddenly turned against me. Would they hold up once more this season, before being relegated to a box for the winter? Would they get me home, just once more?

It may seem like a no-brainer. Take the bus, moron. But there were other factors at play in this decision. Although I had been bicycle commuting off and on for years, I had recently started a cycling blog for the newspaper I worked at, and as such, had become, like many bike commuters, a cycling

proselytizer. I had learned how a new cycling movement was making streets, and cities, better all over the world, from Minneapolis to Copenhagen to Portland to Vancouver. Cycling infrastructure, such as new traffic lanes for bicycles, was breaking the car's hold on our cities, and scaling them back toward people. Cities that encouraged cycling were seeing declines in traffic deaths, more vibrant street life, healthier citizens and reductions in pollution, especially carbon emissions. Such work gave me a new appreciation for my own bicycle commute. I had begun simply as a way of squeezing a workout into my time-crunched schedule – I could never seem to find time to hit the gym, so I figured a bicycle commute would get me to work and keep me in shape. It did that in spades, but I also found a new perspective on my city. Riding a bike opened my eyes to areas of my community I had failed to note when barreling through in my car. Now, as I dug deeper into the personal and societal benefits of cycling, I had become an evangelist. I admonished unsuspecting friends and co-workers for wasting beautiful summer drives to work inside a car. I gushed about how bicycle commuting energized my mornings. I smugly ate massive protein-heavy lunches in front of befuddled sandwich munchers and crowed about how I was still getting leaner because of all the calories I burned commuting. I berated city planners in my blog for their failure to build adequate cycling lanes to encourage more people to commute by bike. With all that rattling around my brain, I couldn't let a little winter stop me. What would people say?

So I straddled my bike, checked that everything worked, clicked into my pedals and pushed off. I rode slowly at first, getting a feel for the slippery roads. On corners, I slowed to a crawl, the buzzing pain in my hip a constant reminder that leaning too much into a turn would mean a cruel reunion with the pavement. Thirty minutes later, I was in a groove. I kept my body upright, cornered carefully, and my confidence grew. I was slow, but making progress. As I turned into an upscale residential area on my way home, darkness had fallen, the snow muffled the sounds of the city, and something happened. I started to enjoy it. A ride that had begun as a fight against nature had turned transcendent. Traffic was light as residents huddled against the weather, and my tires cut a black path through a field of white. Light from streetlamps was reflected by the snow, creating an orange glow that gave the city a otherworldly illumination, instilling in me a strange sense of contentment, even peacefulness. My body's movement kept me warm, and even my hip was feeling better. In the darkness, I could see into the lighted windows of the homes I passed, solitary figures watching massive flat screens or huddled over computers, and I pitied them. Hiding from the weather, they had no idea of the beauty they were missing just outside their door, the kind of beauty that can only come from solitary, endorphin-induced bliss in the hushed tones of winter. That's when I crashed again.

This time I went down on the opposite side of my body, creating matching hip bruises as a kind of seasonal karmic reckoning for my winter hubris. My body went through its usual reactive process, steps one through five, but this assessment was different. This hip hurt more. My bike also took some damage; the expensive shifter I had just upgraded hung by a pathetic spring, shards of plastic on the road already being buried by snowfall. And worse of all, there were witnesses. Four teenage blondes in a massive sport utility vehicle slowly drove past with their windows rolled down. "Are you OK?" they asked. "Are you, like, hurt?" My damaged ego waved them on, even as my damaged body was screaming for a lift home.

I walked my bike the rest of the way home, which gave me lots of time to think. How could one bike ride put me in such diametrically opposed states of mind; euphoric at times, victimized at others? Riding a bike is famously meditative – "cycling tracks will abound in Utopia," said author H.G. Wells. I had ridden home from work thousands of times, but this time, something was different. It was winter. Normally, winter brings an end to conversations about the benefits of urban cycling, especial-

in winter cities like mine, the prairie Canadian city of Calgary. I can't remember how many times I have heard people say spending tax dollars on bike lanes in a winter city is a waste of money because they will be impossible to use for six months of the year. Even fellow evangelists like me tend to address such arguments with a shrug and a what-are-you-gonna-do-about-it attitude toward the season. Winter is the enemy of cycling in most people's minds.

If that's the case, however, how could I have experienced such a wonderful moment on my bike in the snow, before the crash? I wanted more moments like that, without the punishing after-effect. It got me wondering. If there is a way to experience more of those blissful moments, perhaps those widely held assumptions about the impossibility of winter cycling are all wrong. Maybe riding a bike in winter can be something wonderful.

That ride home set me on a path. As I limped into the garage to park my bike, I looked up at the falling snow and made a vow that I would do whatever I could to recapture that feeling I experienced on my ride home, no matter how brief. I set out to discover the joys that only winter cycling can bring not only to individual riders, but also to cities and societies as a whole. I wanted the answer to a big, but seldom asked, question, hopefully with as little pain as possible: despite the cold and snow, the ice and slush, the darkness and dreariness, is happy winter cycling possible? I didn't know how I would answer that question, but facing a season without riding – a months-long interval of fighting traffic, recycled air, monotony and dry lips – I knew I had to try. As soon as my hips healed.

SEASON ONE

THE BIKE



CHAPTER 1



When Edward R. Jesson, driven by a bad case of gold-rush fever, burst into the Klondyke Hotel in Dawson City, Yukon in the winter of 1900 and excitedly showed his brother-in-law the tag for his new bicycle, the reaction was swift. “What the hell are you going to do with a wheel?” his brother-in-law asked. Then, Jesson’s brother-in-law gathered some of the nearby lollygaggers and old-timers, presumably to maximize the embarrassment he was about to deliver. “This brother of mine is going to try to get to Nome on a bicycle.” There was laughter all around. “He’s crazy.”

Jesson was many things – prospector, entrepreneur, and proprietor – but he wasn’t crazy. The American was still in his 20s when word spread of a gold strike near the Klondike River during the summer of 1896, prompting Jesson to blaze a path to Seattle to put together a proper prospecting outfit with dreams of striking it rich. Along with thousands of others rushing to the Yukon, Jesson headed north via the Skagway River, after which he ended up prospecting on the Kenai Peninsula south of Anchorage, at a place optimistically named Hope and Sunrise. Like nearly all of the Yukon stampeders, however, Jesson’s dream quickly soured. By 1899, he had all but given up on the mining business, instead opting to open a small store and post office in Star City, located about 200 kilometres down the Yukon River from Dawson. There were other ways to eke out a living during the gold rush.

None, however, captured the imagination like a big strike. So, in 1899, when word spread of a glittering new discovery on the western shores of Alaska, 1200 kilometres away in Nome, a new stampede began. Thousands of frustrated prospectors picked up stakes in Dawson and headed west, down the Yukon River trail, toward Alaska. Jesson couldn’t resist.

Despite the region’s sometimes horrendous cold spells, winter was the best time to make long trips in gold-rush Alaska. There were few roads, so traversing these areas in summer meant battling mud, insects and untamed brush. Winter, however, locked rivers into a frozen highway that offered at least the prospect of navigation. But it was rarely easy. Some parts of the river would freeze as smooth as glass making for easy transportation, encouraging at least one stubborn Norwegian, Jesson later recalled, to strap on ice skates to traverse the route, a scheme that ended when the Scandinavian broke through the ice on a big crack. More common than glass was a lurching, unpredictable obstacle course of ice, snow, rocks and earth. Rivers rarely freeze uniformly. Shallow patches and slow-moving eddies freeze first, cause backups and ice jams that create spillways that solidify unevenly. Blowing snow piles up and hardens in unpredictable ways, creating immovable boulders of ice fused with tree roots and spruce trunks. Cracks open, fill with snow, then refreeze, rendering the treacherous also invisible. For much of its distance, the Yukon River was about as similar to a skating rink as it was to Denali.

The challenge prompted feverish prospectors to try all sorts of ways of getting around Alaska and the Yukon in winter. Mules and horses were the most common, but few were hardy enough to survive the trip. So many horses were killed on the White Pass between British Columbia and Alaska on the way to the Klondike that it became known as Dead Horse Trail. One gold rusher recalled seeing at least one frozen horse carcass being used to clear snow from some parts of the Dawson-to-Nome route. The best way to get around the region was by dogsled, and in the summer of 1900, the Yukon River was teeming with mushers. Until Jesson had another idea.



The Yukon gold rush coincided with another kind of fever that was settling into the imaginations of many people farther south. Bicycle fever.

Only several years earlier, English inventor John Kemp Starley put together several great ideas to build the first commercially successful bicycle. The Rover, as he called it, was based on the “safety” model with two wheels of the same size on the double-triangle frame that is still used on bicycles today. It was a huge change from the famous, and dangerous, big-wheel-in-front tiny-wheel-in-back penny farthings that came the generation before. Today, we tend to think of penny farthings as an inseparable part of the Victorian era, but they never achieved mass popularity, mostly because they were expensive and terrible to ride. Crashes were so common the bikes became almost exclusively the domain of well-heeled adventure-seeking young men who didn’t mind having their skulls cracked. Today, several companies build penny farthing replicas, presumably for the type of consumer who craves both Victorian-era nostalgia and attention. Despite improvements in materials, riding one still feels like a suicide attempt. Mounting them is relatively straightforward, provided you kick off with enough power to step over the seat. They can be a thrill to ride, especially when you catch a gaggle of gawkers straining their necks to watch it pass by. Dismounting it, however, is a learned art that makes you appreciate why some manufacturers in the 1800s started building mustache-shaped handlebars so riders’ knees wouldn’t clip them when they were inevitably ejected over the front wheel. “Headers” were just part of the ride.

The other great technological advance of the late 1800s was the development of the pneumatic tire. Before veterinarian John Boyd Dunlop perfected the idea of stretching rubber around a wheel to soften his son’s bicycle ride, wheels were often made of wood or steel. Rides were so rough that penny-farthings were sometimes called “boneshakers.” The pneumatic tire suddenly made bicycles comfortable. With “safety” models gaining popularity around the same time, thanks to having two wheels of the same size thereby reducing those head-crushing crashes, all that was left for a bona fide consumer craze was somebody to bring it all together.

That somebody was Starley, who incorporated the newer, safer bicycle design with the more comfortable pneumatic tires, and voilà: the bicycle became a phenomenon. Bicycle clubs quickly popped up in cities all over Europe and North America. Bike races were the most popular sporting events of the time. In New York, races in the day’s biggest venues were regularly sold out, and organizers of a bicycle exhibition in 1896 at Madison Square Garden were forced to turn away as many exhibitors as they accepted for lack of space. Bicycles became symbols of feminism as women used them to get around where and when they pleased, prompting newspaper editorialists to scream about the moral decay being caused by bicycles. “Wheels,” as they were often called, were seen as vehicles of the future, and were greeted with the same kind of enthusiasm for technology that greeted the iPhone 130 years later. “As for the bicycle, there is little to be said about it,” wrote Charles Dickens in *All the Year Round: A Weekly Journal* in 1883. “The machine seems to have reached as near perfection as possible.” A similar sentiment is captured in the scene in the film *Butch Cassidy and the Sundance Kid* when Paul Newman and Katharine Ross wheel around on a bicycle while “Raindrops Keep Falling on My Head” plays in the background; a symbol of a changing world that was leaving the old outlaws behind.

This fervour found its way to the Yukon, where Jesson plunked down a bag of prospected gold weighed out to \$150 and headed over to the saloon to tell his brother-in-law about his plan to ride his new bicycle more than 1200 kilometres down the frozen Yukon River, from Dawson to Nome.

Jesson’s brother-in-law can’t be blamed for his skepticism. For all the fuss being made about bicycles, few people ever saw them as viable winter vehicles. Even in the enthusiastic sporting

journals of the day, assumptions about bikes in the winter are the same as the ones held by most people today: ~~you'd have to be nuts to ride in the winter.~~ Cycling clubs spent their winters organizing racing and complaining about how horsemen and stagecoach drivers were hogging the road. Rarely, however, were they on their bikes. The idea of riding in the winter is rarely discussed, save this poem in the *London Bicycle Club Gazette* in 1878 titled "Ode to a Bicycle": "In rain or sunshine, frost or snow,/ Who goes with me where'er I go?/ And helps me seeds of health to sow? My bicycle." (The same ode goes on to thank the bicycle for saving the poet from an "angry cow.")

There is, however, little evidence that Jesson read British sporting journals while trying to eke out a living in the Yukon. That may be why he expresses in his journals an enthusiasm for the idea and the machine barely dampened by the near constant skepticism he encountered. Jesson wasn't the first stamper to see a bicycle as a replacement for a dog team – in fact, one New York entrepreneur even marketed a "Klondike Bicycle" that was a 50-pound four-wheel job with solid rubber tires and a frame wrapped with shrunken rawhide to prevent accidental warm-skin-on-cold-metal contact – but the idea was still seen as hare-brained by most stampers when Jesson was preparing for his ride.

When he finally acquired his bicycle, Jesson spent a week teaching himself to ride. It wasn't just staying upright that challenged him. What helped make the Yukon River traversable were the tracks in the snow and ice laid down by innumerable dogsleds that made the trip, similar in some ways to the tracks that cross-country skiers lock themselves into. Jesson had to keep his bike within those 18-inch tracks if he hoped to make progress. It wasn't easy, but he made enough progress to convince himself that getting to Nome was possible. Finally, Jesson began selling off his belongings and packing his bags. Then, as winter settled in, Jesson gave his bike a final tune-up, and pushed off onto the ice.

CHAPTER 2



I first read Jesson's journals in the middle of a cold snap only a few weeks into my first winter of bicycle commuting to work, and I was in desperate need of inspiration.

I didn't stumble into winter riding – nobody does that – but I didn't have a me-against-Mother Nature moment either. I had been commuting to work by bicycle for several summers, and had fallen in love. I was a cycling dabbler prior to that, getting wrapped up in the mountain bike craze of the 1980s during my high school years. Living close to the Rocky Mountains made it possible to hit single-track trails whenever I could convince fellow weekend warriors to join me. But life took over. A full-time job, marriage and kids made more close-to-home sports my focus. My mountain bike went into the rafters of the garage, only to be retrieved for leisurely Sunday jaunts that ended with ice cream or beer or both.

It was the traffic that convinced me to give bicycle commuting a try. I was living in Calgary, a prairie Canadian city of a million people that has swelled in sprawling spurts over the past fifty years based on the ups and down of the price of oil. We had bought a home in an older neighbourhood, so my morning commute wasn't excessively far – less than a dozen kilometres – but traffic congestion made it unpredictable in the way commuters the world over will recognize. Some mornings, it was a smooth ten minutes. Others, jammed traffic pushed it to 45 minutes or an hour, and wore on my patience. Being stuck in traffic chips away at one's soul – at least, it gives you lots of time to think about how your soul is being chipped away – and gives you plenty of time to plot escape routes. Minors included carpooling and public transit, neither of which was satisfactory. Carpooling was tough in a small office filled with co-workers from other parts of the city, and public transit was just as unpredictable as a car, with the added bonus of urine smells and overly talkative strangers.

But sitting in a line of cars one spring day, I watched a steady stream of bicycles sail past unobstructed. Calgary, at that time, was far from a haven for bicycles. The city boasted an extensive and well-used network of paved recreational pathways, but the number of on-street bicycle lanes was exactly zero. That meant that bicycle commuters tended to be of the young and male variety; bold, confrontational and aggressive. As I sat in my bottom-of-the-line Chevrolet minivan with booster seats strapped in the back and a cassette tape deck made useless by the Napster era, I watched as cyclists weaved through lines of traffic, hopped curbs to get onto unobstructed pathways, and used the gutter lane to fly past kilometres of cars unmoving on six-lane commuter routes. Cyclists seemed to thrive in the seams of transportation infrastructure, which gave them a freedom that made me envious. That weekend, I revisited the rafters of my garage. My old mountain bike was there, rusted and wilting, but I moved past it, and went for my wife's; a nice, well-used classic Raleigh mountain bike, with knobby tires and upturned bar ends. It had a little rust and was painted a rather feminine shade of purple, but I was in no position to worry about fashion. I wanted to reclaim my commuting hours.



I started gingerly, plotting out a route to work that avoided roads completely. Using a free city map from a nearby supermarket, I managed to find a route entirely on Calgary's off-road multiuse pathways, which completely dodged traffic, even though the slow, winding pathways, built for Sunday morning recreation rather than transportation, added to the distance by nearly 50 per cent. No matter.

got up early, stuffed a backpack full of work clothes, pulled on some shorts, and tentatively pushed out of the garage. That first morning was a revelation. Despite the extra distance on the path, I was shocked by how quickly I made it to work. Over the coming days, I started to notice the advantages my bicycle was offering. When collisions stalled traffic, I soared right by. When I came across construction of the kind that would have backed up traffic for hours on a road, I simply steered around it. Nothing seemed to stop me. I got faster as my legs grew stronger and I found shorter routes. As my confidence grew, I started leaving the pathways behind in some areas, entering roads and mixing it up with motor vehicles to shave off a few minutes. My initial fear of being flattened by an errant motorist never quite went away (it's still there today), but the more I did it, the more I started to understand the rhythms of the roads, and I found my place in them; however tenuous. Soon my bike commute was faster than my drive to work in my car, so it was easy to brush off occasional insults hurled by motorists who erroneously felt they should have exclusive use of the road.

Over the coming weeks, I also noticed some changes in myself. I started to feel stronger from the exercise, and had more energy through the day. My body was consuming more resources, so I ate more, even as I grew leaner, which annoyed my calorie-watching colleagues who eyed my massive lunches with envy. At the end of the day, rather than fitful nighttime sleeping, I felt my body craving rest, and I quickly fell into deep slumbers. I wanted to ride my bike to work every day. I was hooked.

This lasted through the summer and into the fall. As the days grew colder, I dressed for them, and encountered few problems. But when that first snowfall hit, I did what most people do with their bicycles. I unhooked the brakes, deflated the tires, and put it back into the rafters of my garage. Riding a bike is something you do in the summer, right?

But a funny thing happened that winter. Almost immediately, I started to feel tired and grumpy at work. Lethargy set in, which went beyond the usual Vitamin D-starved winter doldrums so many of us get. It didn't take me long to realize what my body was missing – what my mind was missing – was that daily bike ride. One of the nice things about riding my bike to work was that it did two things at once, commuting and exercising. As the dad of two busy elementary school-aged children, I found it nearly impossible to squeeze workouts into my schedule, so bike commuting was an easy solution. Without it, my workouts ebbed, and my body with it. Perhaps even worse, driving to work put me back in commuter perdition, stuck in my crappy minivan listening to grunge-era cassette tapes and loathing every minute of it.

As soon as the snow melted off the streets that spring, I was back on my bike, and thinking about how I could overcome the next winter. On a bike, you aren't bombarded by the sights and sounds of our digital age, so it gives you time to think – another thing I missed during my winter in vehicular exile – so I spent the summer pondering something that turned out to be a big question. It seemed to be a simple inquiry, but when I first started thinking about it, I had no idea how involved it really was. Eventually, my search for its answer took me around the world, and changed the way I look at transportation, our cities, our attitudes, and, most importantly, myself.

Is it possible to happily ride a bike in winter?

CHAPTER 3



On foggy winter morning in Vienna in the mid-2000s, during which the thermometer reached -20°C , Michael Embacher checked over one of the strangest bicycles he had ever owned, which is saying something considering he has perhaps the world's greatest collection of rare, unique and downright bizarre bikes. He was standing on the edge of a frozen lake, one of many that dot the Austrian capital region, below trees turned to icicles by hoar frost. He went through the checklist. Frame? It was secure, despite being more than 40 years old. Back tire? His last attempt at riding this bike failed because of a puncture, so he gave it a squeeze. It was solid, despite the dozens of spikes that protrude from it menacingly. Front blade? In place of the front wheel was an ice skate blade had been fixed to metal rods connected to the front forks. The rods were intact, the blade sharp. He was ready to go.

Gingerly, he stepped onto the ice, and mounted the bike. It had a single fixed-gear transmission, which meant that, unlike the freewheels installed on most bikes, he wouldn't be able to stop pedalling. The drivetrain was threaded directly onto the rear hub so his pedals moved in co-ordination with the back wheel, forwards or backwards. This type of transmission is standard on track racing bikes, and has been increasingly adopted by urbanites, especially bicycle couriers, who say it gives them more control and durability, because of its simplicity. It also, however, meant that Embacher's bike had no brakes. Fixies, as they've come to be called, can be stopped by putting reverse pressure on the drivetrain. But it takes practice. And Embacher had never tried it on ice. And never with a back wheel riddled with medieval-looking spikes that threatened to brain him if he took a tumble.

I first spotted the Capo Elite "Eis," as Embacher, calls it, years later when the bicycle appeared in the pages of Embacher's book *Cyclepedia: A Century of Iconic Bicycle Design*, a lovingly designed coffee-table tome featuring photographs of his collection. The bizarre hybrid jumped out at me, so I managed to track Embacher down in Vienna and left him a telephone message. He returned my call within minutes and, in his German accent, enthusiastically recounted the story of his bizarre ice bike.

For years, Embacher had lusted over the bike after he had seen it around his home city in the hands of its creator, an 88-year-old bicycle fanatic who was a member of the city's small but passionate cadre of collectors. Embacher was perhaps the most prominent member of this group, with a massive collection that includes such odd jobs as a military-issued folding bike designed for paratroopers, and a pink Swedish bike made of plastic that was shipped to customers in pieces like an Ikea bookshelf. The owner of the "Eis" had built the ice bike originally by modifying a pair of 1966 frames from Capo, a small but well-regarded Austrian bicycle maker formed in the 1930s by two former pro bike racing brothers. Likely inspired by photos from the 1930s when an ice bike craze took over Vienna, the owner removed the front tires from his Capos and affixed a kind of skate blade on a tripod, thus building one unique ice bike for himself and one for his wife. By the time Embacher spotted the machine, the wife's had fallen into disrepair, but the designer was still taking his out during Austrian winters, so he refused to sell it. "It was in his collection, but he used it every day," Embacher told me. "He was emotional about the bike. He didn't want to sell it." Embacher cooled his heels, but when his first book came out, things changed. Seeing the care that Embacher took with his collection of old bikes, the old man caved. Embacher had his bike.

Embacher makes a point of ensuring all the bikes in his collection are roadworthy, so on a winter morning bleached by fog, he found himself on the shores of a frozen Austrian lake nervously straddling his newly acquired Capo Elite "Eis." Off he pushed, and into the mist he pedalled.

Embacher says he was surprised by the speed of the bike, and its handling. The spiked tire propelled him swiftly, and he found the skate blade offered great control. Provided he didn't lean into his turns too much, he had no problem with the bicycle's manoeuvrability. He bombed around on the ice with smile on his face, even if he couldn't see because of the fog. But that lack of visibility brought some new meaning to the ride, which Embacher recalled to me with gusto. "It was really a fantastic ride," he said. "It was really an amazing day. With the fog, I couldn't see the horizon line, so it's like I was riding into nothing." Then he laughed. "It was like a rebirth." Embacher's wasn't the first bicycle built for snow and ice. Almost as soon as the first bicycles started gaining popularity, ingenious entrepreneurs were modifying them for use in winter. There are dozens of U.S. patents dating to the late 1800s for ice and snow bikes. In April of 1892, for example, John Stevens, an inventor living in Hartford, Connecticut, who later went on to create several contraptions to help lower caskets into graves, submitted a patent application for an "Ice Velocipede." In its quaint Victorian style, the schematic drawings included with the patent make it look like the great-great-great-grandfather of the Capo Elite "Eis," complete with a miniature ski in place of the front wheel and deadly looking spikes out back. "(To be) used on surfaces covered in by snow or ice, and is also constructed as to be readily changed so as to be used on ordinary roads like other vehicles of its class," the patent optimistically reads. Other inventions from the time include those that look more like tricycles, with two skis at the back flanking a front tire that more closely resembles the blade of a circular saw. Hussong's "Ice Velocipede" from 1885 lacked pedals; the user operated two hand cranks back and forth to move the machine across the ice, which I imagine would build users' bodies into something completely opposite of those you see on professional cyclists today, with spindly superfluous legs dangling below longshoreman's arms, rather than the reverse.

Researching these ancient models was the first step in my winter cycling journey, because to answer my big question, I quickly realized I need to pose a second, smaller question, one that arose every time I mounted my wife's purple mountain bike and warily eyed the snow in front of me: what is the perfect winter bike?

In the time I had been bicycle commuting, I had adopted a mantra I came to know as "learn as you go," or, perhaps more accurately, "learn as you screw up." I decided to apply that mantra to my pursuit of my big question about winter cycling, so as the temperature dropped and the days shortened, I decided to learn as I went. Within a few days, I had an easy answer to my initial question. The reason you don't see many bikes with ice skates for front tires is because you don't need them. In fact, I found that I didn't need anything special for winter cycling. For the first few weeks of winter, the snowfall was light and it melted quickly, so the roads and pathways stayed clear, and my ride was as smooth as it had been in the summer. As the weather grew colder, I traded in my shorts and T-shirt for some narrow-legged pants and a hoodie, and life was good. Winter cycling, it seemed, looked an awful lot like summer cycling. It was fun and easy and fast. Then the snowstorm hit.

By this time, I had taken a new job that was farther from home, so my commute had climbed to about 16 kilometres each way, which, on a good summer day, took me about 35 minutes. The hardest part was the river valley that lay between home and work, which meant I encountered hills on both ends. In the summer, I came to view the hills as a challenge – I actually enjoyed the heart-pounding climb that came at the end of all my rides. But when the snowstorm hit, the hills took on a new and menacingly slippery personality.

That morning, the snow raced out of the sky as if in a hurry to accumulate, but I managed to fight through it on roads until I reached the top of a pathway that angled down a hill into the Elbow River valley and, eventually, toward my destination. I stopped my bike and eased towards the crest of the

hill to gauge the condition of the paved pathway that snaked downward. The snow had already proven slick. I had wobbled my way this far by trying to stay within the tire tracks of cars that had come before, but drifting out of those narrow confines forced me into a panicked handlebar shake as my heart leapt into my throat. It was unbecoming, and dangerous. Those near-crashes made me wary of the speed I would pick up going down the hill. When I looked down, however, I was surprised that I didn't see a pathway blanketed with shimmering wet sleet, rather a distinct trail pockmarked with footprints and streaked with the tracks of cyclists who came before me. It played with my ego. Perhaps I was being dramatic. If other people had already braved this hill, why couldn't I?

I pushed off, squeezing the brakes hard, and started down the slope. At first, it was smooth going. But as the slope steepened, I struggled to keep my speed down. I clutched too hard on the brakes and locked the wheels, putting me into a full skid. Before I knew what was happening, gravity was pulling me down at its own pace, no matter how much I gnashed. I was losing control, so I put my feet down, something any mountain biker will tell you is a bad idea, which hastened my fall. In the next moment I was removing myself from a snow-caked bush after a slow-motion crash that would have been hilarious had I seen it on YouTube and involving somebody else. Sheepishly, I walked the rest of the way down, only to slip off my feet as I neared the bottom of the hill. Sitting on my ass as blowing snow enveloped me, that question I thought I had quickly answered came back to me. I may not need Embacher's ice bike, with its spikes and skate blade, but perhaps there is something to the idea of finding the perfect winter bicycle.

CHAPTER 4



Early in my career as a reporter, I worked for a small-town newspaper in Alberta. On weekends, life in a small-town Alberta isn't exactly bustling for an aspiring newspaper reporter. Nothing happens, especially in the winter when the whole town is at the hockey rink. To combat that, and ensure the pages of the newspaper got filled, I got in the habit of wandering. On slow weekends, I'd seek out new locations in the pursuit of stories, which usually ended with earnest write-ups about craft fairs or the personality of a new bull at the nearby bison farm. On one particularly quiet day, I passed by a small frozen lake and noticed a shack on the middle of the ice. It was a cold day, so I pulled my car over, grabbed my camera and set out toward the shack, intending to tell the story of a lonely ice fisherman so committed to his hobby that he had braved the coldest that winter could offer. But when I stepped out of my car, I heard a buzzing that drew my attention. I walked toward the sound, around a bend in the lake, and came upon dozens of vehicles and what seemed like hundreds of people gathered on the ice around a path in the middle of the lake that had been cleared of snow. Tearing around the ice were dozens of motorcycles. I had stumbled upon the little-known world of ice racing, in which motorcycle riders on studded tires race around the ice while friends and family members drink beer stored in snowbanks. Three hours later, with a camera and a pen frozen into uselessness (note to aspiring northern reporters: use a pencil), I had my weekend story.

On one particularly slippery commuting moment years later, the image of those motorcycles and their studded tires inexplicably popped into my head. Despite my initial crash on the hill, I managed to make it to work that day, and thanks to a few days of driving, some favourable weather and some city snow plowing, I managed to resume my commutes shortly thereafter, with little drama. But I was still worried about the next snowfall. My experience on the hill taught me to pay attention to weather conditions, and when the snow did come again I needed to be prepared.

I had quickly given up on the idea of replacing my front tire with a skate blade because I wasn't riding on a frozen lake. I needed the traction of a tire because my rides consisted mostly of plowed pavement dotted with patches of snow and ice. As those slippery patches began to appear with more frequency, I remained wary, but found ways around them. Mostly, I simply avoided them or dismounted and walked. If I was forced onto ice, I found riding directly over it worked, provided I didn't turn, lean, brake or descend a slope. Packed snow, I quickly learned, was little problem. The knobs on my mountain bike tires could find good traction. Loosely packed slush, however, was dangerous. Not because it was especially slippery, but because it seemed to lift and carry my bike in unpredictable ways, and because it was usually found in the gutter lane of a road that was filled with motorists who expressed their displeasure with sharing the road by passing as closely as possible while I wobbled over the slush. Worst of all was something called snirt, a mixture of snow and dirt pounded into the consistency of mashed potatoes that offered no traction and even less certainty. So even after a few weeks of winter riding, I still lacked confidence on the slippery bits.

During one of those crossroads crash moments – a millisecond between the times you feel your back tire slide out from under you and you either hit the pavement or shakily recover, the image of those ice motorcycles popped into my head. If their two wheels could find traction on ice, why couldn't I?

The key, I soon learned was to use studded tires. After the fact, it seemed like a bit of a no-brainer but I hadn't thought of studded bicycle tires before because I didn't feel I needed them. But that

changed. Winter is different everywhere, and Calgary's winter character is ice. The region is stricken (or blessed, depending on your perspective) with a unique weather phenomenon called chinooks, a warm, dry *föhn* wind that blows over the Rocky Mountains periodically through the winter, and offers a welcome respite from the cold. Not only do chinooks bring in dizzyingly quick temperature changes – in 1962, a chinook brought the temperature up in southern Alberta to 22°C (71°F) from –19°C (–28°F) in one hour; that's a 41-degree C (99°F) change – but they also melt snow quickly. When the warm winds die down, however, that ice water refreezes and we're left with roads and pathways snaked with channels of newly formed ice. These were the moments when studded tires seemed like a good idea.

There's nothing revolutionary about studded tires. Winter riders have been using them for generations. There are all sorts of studded bicycle tires available in bike shops these days, in a range of prices, but because I was still riding a decade-old girly purple mountain bike that was slowly breaking down from the rigours of commuting, it seemed silly to spend good money on new tires. So after I asked around a bit, and did a little Internet research, I convinced myself that I could build my own.

Off to the hardware store I went. I emerged with a \$9 box of flat-headed screws and, naturally, a roll of duct tape. I dug out an old pair of knobby tires from the garage and, for the next few hours, aided by my skeptical eight-year-old son, I drilled dozens of small holes through the tire. Then, I ran the screws through the holes so the sharp ends protruded. I finished by coating the inside of the tire with duct tape so that the blunt ends of the screws wouldn't puncture the tire tube. Voila: DIY studded tires. They weren't perfect. Some of the screws protruded a little too far, and more than once I snagged my jacket (the money I saved by DIYing the tires ended up being spent on a new jacket; there's a lesson here), but, happily, the spikes made some plain old mountain bike tires look a little bad ass. I felt like Mad Max in a toque. But I still didn't know if they'd work. I needed to test them. The tires rolled fine on asphalt, provided I didn't lean too much into the turns because that would bring the studs into contact with the road and the vibration would make my jaw bounce. What I really needed was some ice to test them. So one Sunday morning, I awoke early and headed to the lake where the idea first entered my mind. If these homemade studs can work on a frozen lake, I reasoned, they would work anywhere.

There hadn't been snowfall in a while, so the lake was clear and clean, and judging by the pickup trucks parked next to ice-fishing shacks, it was thick enough to hold my weight. Yet, I was a bit nervous. There must be an ancient part of the human brain that instinctively prevents us from taking bicycles on ice, because I couldn't seem to bring myself to take the leap. I did a few laps of the parking lot and tested out my studs on some packed snow. With the studs arranged off centre, rolling upright and straight made for a smooth ride. The screws only engaged with the ground when I leaned into a turn. I ambled into a few corners on some packed snow to get a feel for the studs, and I was surprised by how much security they offered. At least, they made me feel secure; I still wasn't sure the feeling was real. I still imagined myself kissing asphalt prior to every turn. My confidence rose with every corner, and I realized that, until now, I had been significantly adjusting my riding on slippery roads. In the summer, it's natural to lean deeply into turns, but I had subconsciously stopped doing that in the winter. My turns on snow and ice were slow, gradual, upright and, I realized, a little wussy. For a passerby, it must have been like watching a senior citizen steer a bumper car. The more I rode on my studs, however, the closer I got to the world of reasonable turning.

Finally, I decided it was time. I walked onto the ice of the lake, took a deep breath, and pushed off. Going in a straight line was no problem. My back tire slipped a little when I pushed the pedals too

much, but it was mostly smooth going. I couldn't, however, ride straight forever. The shoreline approached, so I had to turn. I spread my legs to stop any sudden falls, leaned gingerly into a turn and to my surprise, the studs grabbed hold of the ice and kept my bike underneath me. Success. Modest success, but success nonetheless.

I circled around the lake a few times, my confidence growing until I pushed things a little too hard and frightened myself with a slip. My homemade tires weren't perfect – I hadn't placed the studs exactly right, so not every turn was as smooth as I would have liked – but I figured that a store-bought pair of studded tires would solve that problem, if I ever decided to spend the money on a pair.

More importantly, I felt like I had cracked some kind of secret winter cycling code. There was a solution to the problem of ice. In fact, it was the first real challenge of winter that I had overcome, and it felt good. For the first time, I felt like I had some control over the winter. I had already extended my riding season by more than a month, and now I felt like I could ride indefinitely.

The studded tires I built remained on my bike, and as the snow and ice solidified for the season, I turned into a convert. I started recommending them to anybody who asked, and a few who didn't. Eventually, my DIY tire screws started drifting and tearing away and, in the midst of a warm spell, I removed the shredded rubber, and I never felt the need to replace the studs. They had done their job by giving me the confidence I needed to figure out how to better ride on winter roads. Without them, I encountered the occasional slip that sent my stomach lurching, but I was becoming a better winter rider, and was better able to recognize the danger zones of loose slush and black ice. I also adjusted my route to work, in an almost subconscious way, in an attempt to find the sweet spot between roads that were too busy, and roads that weren't busy enough for a snowplow to clear, and my knobby mountain bike tires carried me through the season with few problems.

For weeks, I rode in a zone of winter cycling bliss. I felt like I had found my place. The joys of cycling were coming back to me. I felt strong and healthy, and I started to embrace cycling in a way that was slightly different than in summer. I started to realize that riding a bike in winter isn't just different than other kinds of cycling; it's different than everything else. Two tires cutting through the snow blends fulfillment and recklessness into a unique feeling of empowerment. Sure, riding in poor weather is something every cyclist does eventually, but besting the rain or the early morning chill is more accident than accomplishment. Besting winter on a bike, however, is an act of defiance. It's a challenge to one of the few remaining intrusions of nature into modern life. I often think about literature in which winter is a metaphor for death. Poet Thomas Hardy was hardly subtle when he wrote "Winter's dregs made desolate" in "The Darkling Thrush." Later, he called the wind to a "death's lament." Yet, cycling through such apparent desolation made me feel so good that I started to think Hardy was a drama queen. I was beating down our harshest weather with little more than my wits and some steel. That feeling is what gives a good winter ride its transcendence. A nice ride in the summer is something to brag about to your friends. A good ride in the winter is something you quietly put adjacent to your heart; an unspoken victory filed away for times of weakness and need, to be pulled out when you require a reminder of what you are capable of. And I was doing it all on an aging purple girls' mountain bike.

Then, one day, that all changed. I saw it: a machine that forced me to rethink everything I had learned about the perfect winter bike.

CHAPTER 5



In the 1990s, a group of jocks, idealists and moderately masochistic athletes with something to prove mostly to themselves, would gather in the middle of winter in snow-covered fields around Alaska. Inspired by the epic Iditarod sled dog race that cuts through the snow from Anchorage to Nome, this group would set out on long – I mean long – off-road bike races through the snow. These races were sometimes 500 kilometres, sometimes up to 1600 kilometres in the case of Iditarod Trail Invitational a.k.a. the Iditasport. Part of the group was a motley crew of mountain bike enthusiasts and dedicated tinkerers who were always looking for an edge by modifying their bikes to better traverse snow and ice.

One year, a bike enthusiast named Steve Baker appeared with a bike design that nobody had seen before. Baker, who had been tinkering with winter bike ideas for more than 15 years under the company name Icicle Bicycles, building everything from sturdy road bikes to models with elevated chain stays, had been crafting wider tires for some time. But this year, he had managed to weld together three rims and affix them to a bike frame with unusually large forks. The result was a kind of Frankenbike, a mutant mountain bike with massively wide tires.

Most people did little more than chuckle at the creation, but when the bike seemed to get past patches of snow and ice that trapped traditional mountain bikes, fellow Alaskan Mark Gronewald took note. Gronewald saw how the wide tires seemed to enable the bike to float over the snow, while bikes with skinnier tires tended to break through and become lodged. On ice and rocks, the wide tires also seemed to have more stability and the ability to roll over larger obstacles. Gronewald, also a tinkerer, went home to think. He did little more than that until 1999, when Gronewald and his friend, fellow winter bike enthusiast John Evingson, visited the Interbike Trade Show in Las Vegas. The annual event is the industry's biggest showcase, and draws all the big industry names alongside small-scale builders and retailers like Gronewald and Evingson, who built and sold bikes through their company Wildfire Designs in Palmer, Alaska.

While browsing the booths and catching up on industry trends, the pair came across a man named Ray Molina, a Texan who made a living guiding mountain bikers into Mexico. Molina's problem was that traditional mountain bikes got mired in the Mexican sand, sinking deep into the loose areas and refusing to budge until the rider got off and pushed. Molina figured wider tires would fix the problem so he designed wheels with three-and-a-half inch tires that required low pressure in order to seemingly float over the sand. He had set up a facility in Mexico to produce them. What he hadn't quite figured out, however, was how to build the perfect bike frame that could accommodate the tires.

When they saw Molina's wheels, Gronewald and Evingson had one of those eureka moments. They both imagined those massive tires cruising over the Alaskan snow. They arranged for delivery of a few of Molina's tires, and when they returned north, they got to work, Gronewald designing around those huge wheels, and Evingson, an iron and pipeline worker, welding frames. Drawing up full-scale drafts on paper, Gronewald came up with a few important innovations to accommodate those massive wheels. The tires, for example, were too wide for traditional hubs. Rather than design a custom-built ultra-wide hub, Gronewald was determined to design a bike that used commonly available parts so they could be easily fixed if something went wrong. To accommodate those thick tires, he managed to incorporate a traditional hub that was off-centred but still enabled the wheel to rotate around it. They started calling their designs fat bikes, based on the girth of the tires.

Gronewald was soon spotted riding around Alaska on his new designs. At first, people would laugh at him. It's easy to see why. Fat bikes, on first blush, look like they were designed by a cartoonist. The tires seem absurdly wide, like a mountain-bike monster truck. But by February 2000, Evingson and Gronewald had built four fat bikes for use in that year's Iditasport, for themselves and a couple of friends, at a cost of about \$5,000 each (a set of tires alone ran more than \$1,000). "People were sort of snickering at us when they first saw the bikes," Gronewald later told me, with a laugh. "The bigger tires make a huge difference, and people started to see that. (Other riders) would see the bigger tracks and try to ride in them, and they still couldn't make it. We were just armchair riders and we were leaving some of those pros in the dust."

Soon, fat bikes started being ridden to victory in the biggest of those Alaskan races, and people started taking them seriously. Racers and recreationalists were coming to Gronewald and Evingson with money to spend. Their company became the first to commercially offer fat bikes for sale. They were, however, far from a runaway success. The market, even in Alaska, for expensive winter bikes was just too small. In 2000, they told the local newspaper their dream was to sell 25.

In the meantime, however, modifications kept coming. Gronewald and Evingson and other Alaskans improved on the hubs and spokes, and offered recessed cross tubes to protect their precious bits when dismounting the bikes in deep snow. Better tires meant the air pressure could be toyed with, offering soft rides that negated the need for expensive suspension systems, and more pressure when the ground was harder. Fat bikes, however, remained on the fringes. It was tough to envision huge consumer demand for a machine that carried on the tradition of seemingly delusional Alaskans cycling through the wilderness in the middle of winter. "They were a hard sell. I could just see the suspicion on people's faces when I talked about them," Gronewald says. "Every one I sold was a hard sell."

Others, however, had similar visions. Down in California around the same time, Dan Hanebrink, a former NASA engineer, was growing frustrated with his attempts at building the ultimate off-road bike. It was the early 1990s, and the veteran mountain biker was living in Big Bear Lake, California, where he could scratch his cycling itch all summer long. Come wintertime, however, his bike became useless. He still wanted to ride, but his derailleurs gummed up with wet clay, and snow packed into his tires, robbing them of traction. His attempts at winter off-road biking usually ended with him walking, wet and shivering, back to his car for the drive home. "I wouldn't accept that," he told me.

Unlike most frustrated winter cyclists, however, Hanebrink could do something about it. Soon, he was mulling ideas about building a better winter bicycle. He put his aerospace-engineer-trained brain to work – he had long worked around cars and motorcycles, in addition to his work with NASA – and before long, he had a mental image of that winter ride. Most bike engineers count their victories by shaving a few ounces off the weight of a frame. Hanebrink focused on a part of the bike that also drew the attention of those winter trail riders up in Alaska: the tires. What Hanebrink had in mind was a bicycle that operated on a different principle than most off-road bikes of the time, which used knobs on the tires to grab the earth and propel riders forward. Hanebrink envisioned fat tires, fatter even than the mountain bike tires that had come to dominate the North American bicycle market through the 1980s and '90s, and fatter even than those that were being tinkered with in Alaska. He was thinking about tires from a motorcycle or quad. Eventually, he settled on golf cart tires, wider and with a smaller diameter than traditional bike tires, inflated to balloon levels that wouldn't grip the snow so much as cruise over it. He soon developed a frame that could accommodate such tires, but his prototype had the same problem as the mountain bikes that drove his frustration in the first place. The bike seemed to float over the snow just like he had envisioned, but the knobby tires made it difficult

pedal. He tried several different types of tires, but none seemed to propel the bike forward in the way he wanted. Then, he had an idea.

Hanebrink loaded his bike into the back of his truck, and drove out of the snow toward the coast. He was headed for the beach. Anybody who has ever been stymied in an attempt to take a pleasant bike ride down the beach knows what Hanebrink was after: loosely packed sand acts, to a bike, in much the same way as loosely packed snow. It can be hell to pedal through. Tires sink into the sand and stick – end of ride. That’s exactly what Hanebrink found. The bike wouldn’t move forward in the way he wanted. But when he dismounted and looked back, the sand sent a message that he never received in the snow. He got down on his hands and knees and looked back at the marks the tires left in the sand. There were large square holes left by the knobs of the tires sunk deep into the beach. The tires may have been floating on the sand like he wanted, but the treads of the tires were getting mired. Pushing the bike with enough force to dislodge those treads from the sand was using a huge amount of energy. Immediately, he drove to a friend’s house and, using a bread knife, cut the knobs off the tires. Back later at the beach, Hanebrink had his own eureka moment. “It was a huge breakthrough,” he says.

More than 20 years later, I came across the Hanebrink X-Bike, or Extreme Terrain bike, in a television news clip from Antarctica. Helen Skelton, the tough and tiny host of BBC Kids science show *Blue Peter*, had become the first person in the world to ride a bike to the South Pole. Her vehicle of choice was a custom-designed Hanebrink, built without any plastic, which would crack in the cold. It had a leather seat, and brakes were installed only on the back wheel to reduce weight. Images of her riding over the pole on those eight-inch wide tires were beamed around the world. For anyone who ever heard the stories from the golden age of Antarctic exploration, of Amundsen and Scott’s deadly race across the ice, and Shackleton’s harrowing plight to stay alive, the image of this cute-as-a-button adventurer, with her TV-host smile beaming from beneath her fur-lined hood, her mittens looking two sizes too big, was an arresting one. I, however, couldn’t take my eyes off her bike.

After I heard Skelton’s story, I got in touch with Hanebrink to hear the story of how his bike made it to the pole. Hanebrink seemed gratified with Skelton’s South Pole adventure, but seemed to view it as a bit of a sideshow. In his mind, the bike’s usefulness in extreme conditions had already been proven several years earlier when polar explorer Doug Stoup, the first American to ski to the South Pole, used Hanebrink’s X-Bike to bomb around Antarctica, racking up more than 300 kilometres on the odometer before a huge Antarctic storm grounded him. The experience earned the bike a spot in *Time* magazine’s “Best Inventions of 2003.” Stoup was never able to come up with financing for a cycling assault on the pole, though, which opened the door for Skelton.

By then, however, Hanebrink had moved on to bigger ideas (he told me with some satisfaction that he forced the BBC to pay for Skelton’s bike, despite their hints that offering it free of charge would be good publicity for him). Hanebrink was after a mass market. He had moved on to creating an electric version of the X-Bike, which he was focused on selling for about \$7,600 US, compared to the \$6,000 price for his pedal-powered model.

That mass market, however, was proving tougher to conquer than the South Pole. Up in Alaska, mainstream success also eluded Gronewald, even when he started outsourcing frame building to keep his costs down. With a limited market in Alaska, he could never seem to get over the hump.

Then, one year, Gronewald received a prototype fat tire and a request to test it out. The tire came from a representative of Minnesota bicycle company Surly. Surly initially gained popularity by being on the front lines of industry trends through the 2000s and 2010s. They found a niche by being at the right place at the right time, by offering well-made fixed-gear bicycles to young, hip urban riders who had started building their own after being inspired by downtown bike couriers. Gronewald was

flattered the company had noticed his design, and knew the company was working on some kind of model with wider wheels, but didn't think much of it. He was still struggling to sell every bike he built, so he couldn't imagine a big company pouring much money into the designs.

Then, in 2005, Surly's catalogue featured a new design called a Pugsley that looked completely bizarre to most people, except, perhaps, for a few people in Alaska, including Gronewald. The Pugsley looked like a traditional mountain bike, but had four-inch-wide tires, a two- or sometimes three-fold increase in size over traditional mountain bikes. It was a bona fide fat bike, similar to the ones Gronewald had been selling for years. It was the first time a major manufacturer had mass-produced a fat bike, earning the company reactions that were not unlike those Gronewald first noted: curiosity and skepticism. Gronewald says he was surprised how similar the Pugsley was to his design, right down to the off-centred hub.

Within five years, however, fat-biking had grown into one of the fastest growing sectors of the North American bicycle market, worth tens of millions of dollars. By 2012, fat bikes had become so popular that Surly could barely keep up with demand. Today, several companies market different fat bikes, and the Pugsley is seen as a pioneering model, one of those bikes bound to go down in industry lore as a groundbreaker, like the Specialized Stumpjumper or Schwinn Black Phantom.

Hanebrink is still pushing his designs, and grumbles a bit that he deserves a bigger chunk of the winter-bike industry and credit. Gronewald, however, has given up trying to sell fat bikes, and has grown accustomed to people telling him he was ripped off. He's a little more philosophical about it, saying there's no way he could have pushed the bikes into the mainstream the way a big industry player like Surly has. "It's just the way business goes," he says, a little ruefully. "The early innovators, they have the mind to innovate but not for business." These days, when Gronewald hits the trails of Alaska and sees fat bikes everywhere, cruising through the snow alongside cross-country skiers, he doesn't feel bitter, except, perhaps, when people see his designs and accuse him of knocking off Surly's. He's happy he had a hand in popularizing the sport. "I had no idea it would get this huge," he says. "I think it's a good thing as an alternative to driving and getting people out and active in winter. I could be bitter, but life is too short."

There's a group of purists who feel the Alaskans deserve the credit for inventing the fat bike (likewise, Hanebrink feels he deserves a little love), but that's not completely fair. Surly may have built on the designs of the Alaskans, but without the company's marketing muscle, and the ability to offer lower prices thanks to overseas manufacturing, fat-biking would still likely be a fringe hobby for a group of quirky Alaskans. Surly's success has made things tough for both Gronewald and Hanebrink, but it's hard to imagine how fat-biking could have progressed so far without Surly. Gronewald and Hanebrink may simply be the latest victims of American capitalism.

By the time I had begun dabbling in winter riding, fat bikes had become a kind of you-gotta-try-this cult hit. Only weeks into winter and all of the bike shops in my city had sold out. "We can't even get them from the manufacturer," one bike-store owner had told me. Thankfully, the store still had a few demo models for customers to try out. So one Friday morning in December, after I had convinced the only other person I knew with the day off to join me (my 60-year-old father, who is also one of the hardest cyclists I know), I loaded a couple fat-bike demos on a rack on the back of my minivan, and we went in search of some snow-covered trails.

We ended up in Fish Creek Provincial Park, a kind of jackpine Central Park for Calgarians that has originally been a getaway on the fringes of the city, but had become an urbanite playground as the city sprawled around it. The park's mountain bike trails weren't exactly Olympic calibre, but there was a fresh snowfall on the ground, and for a couple of fat bike rookies, we figured that would be enough.

As we pulled on our tuques, we chuckled at the absurdity of the machines. We had borrowed a pair of Salsa Mukluks, a competitor to the Pugsley's early designs, and with massive tires built by Surly, they looked rather ridiculous, like a caricature of a mountain bike drawn by a six-year-old. They lacked suspension, and as soon as I mounted it I knew why. As we pedalled over the parking lot toward the trails, the tire pressure was so low that I gently bounced along as if riding a rocking horse. We passed a mom piling her kids onto a sled and she stared with a bemused look on her face. I blushed. What had we got ourselves into?

We rode up into the packed snow of the trail trepidatiously at first, testing out the snowy tarmac. The bikes rolled along smoothly. Traction, which is sometimes impossible to come by in winter, was easy to find. Riding the trail felt no different than the summer. We were giddy at the prospect of riding a bike over snow that wouldn't dump us at every opportunity, but at the same time we were in a bit of disbelief. Both of us had spent our lives negotiating snow and ice and we had developed a sense of its limits, so we didn't quite trust the security we felt on the low-pressure tires. So I started putting them to the test. I rode up the shoulders of the trail, and went hard at the dips and rises, searching for the boundaries. Try as I might, I couldn't slip. The bike seemed tailor-made for loose-packed snow. The riding was slow – the huge tires and low gearing had us spinning furiously to generate little velocity – but we were so taken with our stability we hardly noticed.

After we had a few kilometres behind us, we came across a pair of cross-country ski tracks laid in the snow, an informal set venturing into the trees. In the summer, this was a single-track trail made for mountain bikes, but in the winter, covered with snow, it was mostly ignored. In fact, if this skier had never broken the trail, we would have missed it. We shared a quick glance and we were gone, veering off the safe trail that had been packed by the legions of hikers who had come before us, and into the good stuff. Loose virgin powder, not exactly a skier's dream – the snow was only as deep as our calves – but a good test for our fat bikes. We geared down and plowed into it, our massive tires churning out dry snow behind us. For more than an hour we took these trails, some of them laden with cross-country ski tracks but most forgotten for the winter. We went up hills and down, negotiated downed logs that were covered by snow, climbed over rocks and through frozen gullies. We were hurt only occasionally. One steep hill was too much for us and as the slope increased, the snow proved too loose and slippery. A couple of times, we hit pockets that brought us to a standstill – the bikes sank too deeply into piles of snow the consistency of icing sugar, and we simply couldn't push through them. What we did find, however, was the joy of discovering something new. Trails that we had closed off from our minds when the first snow fell were now accessible. It opened up a whole new way of thinking about cycling and about winter. It was fun.

One other thing happened before we pulled back into the parking lot at the end of the day. At one point, as we followed some ski tracks through the trees, we were suddenly dumped into a clearing. Before we knew where we were, we found ourselves in the middle of a frozen creek, the ski tracks moving off downstream. We stopped, worried about the strength of the ice, and worried about breaking the rules of parks that require cyclists to stay on designated paths. But I couldn't resist dawdling on the ice a bit. I took a couple of big loops before making my way back to the trail. The rocks on the banks of the creek were frozen in place, secured by hardened mud. The water was frozen thick enough to support my weight, creating a smooth tabletop interrupted regularly by chunks of churned ice, driftwood and soil. My mind couldn't help drifting back to the story of Jesson as he prepared for his trip more than 100 years before. The Yukon River was a far cry from this modest fingerling of a creek, but as my fat bike found a path through the ice, for the first time I could understand what drove Jesson. Riding a bike up a frozen waterway would never be easy, not with a

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