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## On the Deception of True North

Emma Hurley

Cedarville University, [emmahurley@cedarville.edu](mailto:emmahurley@cedarville.edu)

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# ON THE DECEPTION OF TRUE NORTH

*Emma Hurley*

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Compasses are scientific liars. They masquerade as infallible gadgets capable of redeeming even the most wayward. They claim integrity and promise to tell the truth unconditionally, but, left to their own devices, they will lead you astray. Rather than point to true north, the magnetized needle suspended in a compass orients itself with Earth's magnetic north pole. This so-called "north pole" is misleadingly located in Canada and is generated by the churning of liquid iron deep within the earth's belly, like a tumbling bowl of chili that refuses to settle after dinner. Thanks to its off-kilter geophysical properties, the earth's magnetic and geographic north poles are separated by about 500 kilometers.

Such a vaguely waving needle may suffice when the destination is at the end of the street, but what happens when an approximate direction is not good enough? What happens when the error is measured in hundreds of kilometers rather than a matter of meters? Because the magnetic pole does not align with the geographic pole, a compass-led traveler must continuously adjust their instrument, always accounting for the angle of declination, the difference between these two "north poles." It is not unlike sighting-in a bow to account for the distance

between the arrow and the bullseye. The angle of declination is represented on a map by isogonic lines that wrap their way around the globe like warped strands of longitude, serpentine and flowing, tracing the geomagnetic properties of Earth's core. The only places a compass can be said to be truly trustworthy are where the angle of declination is equal to zero, referred to as the agonic line. This special isogonic line winds about the earth, invisible and meandering, a meager band of accuracy in a world of wrongness. But compasses take deceit to the next level: if you take into consideration that in the realm of magnets, north poles are attracted to south poles and vice versa, compasses are actually pointing to a south pole. So, according to a compass, the North Pole is not a north pole at all. If you can't trust a compass to do what it says it will do, how can you possibly trust its advice on which way to go?

When human inventions fall short of truthfulness, we often revert back to the basics. Trees act as guideposts: it's a well-known saying that moss grows on the north side of tree trunks. These bryophytes, as non-vascular plants, are disposed to the damp and shadowy conditions found on the north side, protected from the direct sunlight of the

south-facing side. But this is not universally true; there are a multitude of factors that influence the growth of moss: the slope, the shade cast by other trees, even the species of tree. Some misleading mosses and deceptive look-alikes thrive in the southern sunlight, producing a thick blanket of green fur on the “wrong” side. These factors add a dyslexic component to the seemingly-simple task of reading the moss. Other times, there is no confusion or direction at all—there is simply no substantial vegetation, much less bryophyte-hosting trees.

When this world fails to provide reliable direction, we look to something bigger than our planet to light the way. The sun illuminates cardinal directions with its daily east-to-west journey across the sky, faithfully rising and setting, never tiring of following the same well-worn path every day. In the Northern Hemisphere, when the sun is perched directly overhead, it marks the southerly direction. A simple stake in the ground, cleverly dubbed a shadow stick, can serve as a solar compass, casting a shifting shadow that traces an east-west line. This strategy is reliable and effective, that is, until the clouds roll in, obscuring the sun and absorbing any hope of interpreting the shadows. And what happens when night erases the guiding light of the sun? Is all hope of direction lost?

When our galaxy falls short of giving us answers, we appeal to a directional anchor in the greater cosmos. The heavenly bodies have been guiding the lost and the searching for millennia; in looking to the celestial map, we join the saga

of countless expectant upturned faces. From the Phoenician mariners to the Magi to the runaway slaves, the history of humanity has looked to the stars to find home, hope, and freedom.

Polaris, the legendary North Star, is the most famous guiding light in the night sky. He dangles on the tip of the Little Dipper’s handle, part of the larger Ursa Minor constellation. In the black ink of space, the North Star hardly stands out; he is an unassuming distant glow, only the 48th brightest star, just a glimmering degree brighter than the specks of light around him. Unlike his ever-rotating neighbors, Polaris is the only star in the Northern Hemisphere to always appear stationary. No matter what time of the year you look heavenward, the North Star will be right where you last saw him, a celestial sentinel tethered to his post, a faithful guide forever pointing North. This is because of his position in line with Earth’s axis, almost directly above the North Pole. But even Polaris is an imperfect guide: The North Star does not actually align perfectly with the Celestial North Pole; it is seven tenths of a degree off and it is ever so gradually shifting further away.

My inner lostness is perpetually craving a source of direction that is consistently true, forever right, and never wrong. I want a North Star that is precisely aligned with the Celestial North Pole. I want a compass that will not only take me to true north without technical adjustments to account for declination, but one that will dictate every step along the way. I despise the feeling of second

guessing myself mid-step, with one foot poised haphazardly in the air, unsure where I should set it down. I get lost in the forests of future-questioning, unknown-speculating, worry-gnawing, decision-ruminating. Looking for mossy bark along these wooded paths is merely an impractical, impotent pastime.

When I feel the scalding pressure to make up my mind and commit to a decision, it hardly feels like the sun is shining; this kind of heat is internal. Clouds and fog and darkness all compete to wash away clarity and obscure the next step. Sometimes, in the darkness, the stars shine through. I know how to sift through the distant dots to find the guiding North Star, following the pointer stars of Ursa Major and landing on the handle of the Little Dipper. Yet I am still tethered to the topography of this earth; I cannot follow Polaris' direction as the crow flies, escaping the unseen valleys and mountains that lie ahead between here and there.

For all the scientific effort and natural observation we invest in defining it, "direction" remains abstract and indefinite. Our minds and hearts continue to stew over recurrent questions: What is the next step? Which is the right path?

Yet, in faith, still probing, still searching, I rejoice that the stars are not silent, that they testify heavenward, and I look up, somehow comforted even in my questioning.

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