Unus Multorum
By Emily Zhao

They are creatures as common as the grass they browse, and as unassuming as the picket fences that confine them. Swishing their tails and chewing their cud, they are a quintessential staple of American summer road trips--cows litter every nook and cranny of the U.S. countryside.

Most people drive right past these modest ruminators.

"*Look, cows,*" adults remark, and children might peer curiously through the window of the sedan, their foggy breaths pulsing momentarily against the glass. But as soon as the novelty wears off, cows meld back into their pastoral backdrops... and we watch them pass with the clouds in the sky.

Like trees, spoons, mobile phones, and other things we take for granted, they become *unus multorum*-- one of many-- average, common, unremarkable.

Nevertheless, farmers have long-observed peculiarities in their placid bovine companions. These thousand pound behemoths can see in a near 360 degree panoramic view, making “cow tipping” a myth. They are highly social creatures who become beside themselves with anxiety when left alone--yet sick cows voluntarily quarantine themselves. And most curiously, although a single cow grazing in a field will amble in a seemingly random direction, when observed over time as a herd, a pattern reveals itself-- all the cows will turn to graze the same way with eerie consistency.

The theories and subsequent studies snowballed through the scientific community. They were lining up with the sun's rays to fend off cold weather, or they were simply ensuring safety as a group, or they were smelling the weather or reading global air currents. With admirable perseverance however, the cows always chose the same grazing orientation, night and day, come rain or shine, patiently striking down each hypothesis the brightest among us confronted them with.

Then, in 2008, German scientists used satellites to chart the standing direction of 8,500 individual cows across six continents. After months of cattle-mapping, they confirmed a mystifying discovery. Every cow was like a compass needle, perfectly aligned with the earth's magnetic north-south axis. In other words, consciously or unconsciously, they sense the planet’s pull, creating a global magnetic field made entirely of cows.

We cannot interview our four-legged friends to ask why they do this, so instead we must infer. Currently, biologists believe they have developed and retained this ability from the ages past when herd animals traversed vast plains devoid of visual landmarks. After all, there is well documented evidence that other species use magnetism to migrate impossibly long distances. Butterflies must navigate annual transcontinental flights over ever-changing landscapes, in spite

of their paper-thin frames. In the unforgiving blue depths, whales traverse entire oceans between their breeding and feeding grounds. Flies, bees, slugs, goldfish, and deer-- all arguably 'travelling' animals-- join cows in line with the magnetic axis while at rest, forming a universal, living magnetic field.

Even as scientists unravel the mechanics of magnetic sensing in different animals, and even as we add to the ever-growing list of creatures observed to use this ability, what we have uncovered thus far is merely the tip of the bull's horn.

"Look, cows!" someone in your life may remark while cruising down a countryside highway. You might admire the herds dotting the picturesque farmlands, or you might avert your gaze and let the cows drift by with the skies and the fields. But we know, now. We know that the cows are just one of many.