



THE REALITY BUBBLE

BLIND SPOTS, HIDDEN TRUTHS,
AND THE DANGEROUS ILLUSIONS
THAT SHAPE OUR WORLD

ZIYATONG

'In a time of mounting global crisis, the kind
of radical curiosity that fills this book . . . has
become essential to our survival'

NAOMI KLEIN

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ZIYA TONG



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INTRODUCTION

IN LIFE, WE ALL HAVE a moment when we wake up to a bigger picture. For Ann Hodges, that moment arrived on November 30, 1954, at precisely 1:46 P.M., while she was lying on the couch. It wasn't so much an epiphany as a painful reality that struck her that day, when a lime-green "cosmic missile" streaked across the clear afternoon sky, crashed through her roof, bounced off a console radio, and flew smack into the side of her body.

As the only known person to be hit by a meteorite, Ann became an instant sensation. By nightfall, hundreds of people, including the national news media, descended upon her backyard, snapping photos of the extraterrestrial object, checking out the damage to her house, and looking in awe and horror at the jet-black, football-sized bruise the impact left on her hip.

Because she was napping, Ann had slept through the fireball's spectacular descent. Witnesses saw it blaze across three states; TVs began scrambling from the alien interference; and the sonic boom jolted a boy right off his bike more than one hundred kilometres away, in Montgomery, Alabama. As for the locals, when the shooting star finally hit ground zero in the town of Sylacauga, most of them thought they'd heard a plane crash or an exploding bomb.

After a few weeks, though, as with all freak accidents, the buzz died down. The reporters packed up and went home and the neighbours returned to their daily lives. And while the meteorite

certainly made an impression on everyone that day, only one person's cosmic perspective was forever changed. For Ann Hodges, the universe, with its meteors and comet showers and supernovas, was no longer a separate place somewhere "out there." Oh, no. The cosmos could come right into your house, if it wanted to, and slap you wide awake.

FAR FROM BEING IDYLIC and tranquil, the heavens are hell. You've got your raging flames, your choking plumes of poisonous gas; darkness, chaos, and violent destruction are pretty much everywhere. In fact, if you look up into the sky tonight in the direction of Sagittarius, just above the archer's arrow, there's a supermassive black hole in our galaxy that is, at this very moment, obliterating everything within its horizon.

That's the universe we live in. But it's not the way it *feels*. That you and I are relatively calm right now, that we aren't in a raw panic at the total and utter mayhem that dangles right above our heads, is because we live in a bubble, a physical one called the atmosphere. From space, this dome is clearly visible. It's a thin, bluish-white film that acts like a planetary force field: it blocks out lethal radiation, maintains temperatures within a tiny range (compared to the extremes of space), and incinerates most of the meteors that would otherwise pulverize the surface of Earth.

As human beings, we all live inside another kind of bubble as well: a psychological one that shapes our ideas about the everyday world. This is our "reality bubble." Just as rocks hurtling at supersonic speed find it hard to penetrate Earth's atmosphere, unwelcome facts and unfamiliar ideas almost never make it through the membrane of the reality bubble. It shields us from thinking about forces "out there" that are seemingly beyond our control and lets us get on with the business of our lives.

But problems arise with inflated certainty, and we see it over

and over again. Whether it's real estate bubbles, or stock market bubbles, or political bubbles, being in a bubble means, by definition, that we've got a warped perception of reality. And in the end, all bubbles share the same fate: inevitably, they burst.

So we might do well to remember that even our most stable conceptions of the world can be overturned. For over two centuries, the universe was understood to be governed by Newtonian physics, and then Einstein came along. But it doesn't always take a genius to expand our view of the world. Sometimes it just happens. For Ann Hodges, it happened when a meteorite torpedoed through her ceiling one afternoon. And for you, it may just be the book that you're holding in your hands right now.

HUMANS HAVE A TENDENCY to think we have an accurate picture of the world, but often we're wrong. That's because every person is born with a blind spot. In fact, we have two: one in each eye. In the same way that you would be unable to see all of the movie screen if you were given a crummy seat behind the projector at a theatre, situated at the back of your eyeballs there's an area where light receptors do not grow, because it's the exact spot where the optic nerve jacks into your brain. And yet, despite the fact that the area it eclipses is relatively large (nine full moons in the sky could fit in this broken field of view), most of us never even notice it.



The best way to *see* what you cannot see is with your own eyes. So let's take a look. Cover your left eye and use your right eye to look at the dot above. Now, with your eye still trained on the

dot—staying aware of the cross but not focused on it—begin to move your head slowly towards and away from the book. You should notice that at a certain point the cross suddenly vanishes; it disappears from sight. Remarkably, this blank spot doesn't register as some sort of void. Instead, our brain compensates for the emptiness, and with our own perceptual version of Photoshop it even fills in the right background colour. Our blind spots are perfectly camouflaged. We are blind to our blindness.

Now, you might think that a blind spot this obvious would have been detected long ago, but it wasn't until a French physicist named Edme Mariotte was dissecting an eye and came across the bundle of nerves connected to the retina, that he wondered if it might be blocking our sight. Doing some vision tests with his own eyesight, he discovered what was soon to become a mini-sensation in the 1600s. It delighted the nobles of the royal court, who revelled in the magic trick of making each other disappear without blinking an eye. Legend has it that across the Channel, King Charles II would play this visual trick with his prisoners, visually decapitating them with his mind's eye before later executing them in real life.

Of course, blind spots are not only *in* our eyes; they are also in our surroundings. The French for “blind spot” (*angle mort* or death angle) says it all: every year in the United States alone, 840,000 car accidents happen because we can't see something very large driving at us until it crashes into our field of view.

THE PHILOSOPHER LUDWIG WITTEGENSTEIN once said that “the aspects of things that are most important for us are hidden because of their simplicity and familiarity.” Put another way, we often can't see what's right in front of our noses. We've all experienced it: looking everywhere for your keys when they are staring right at you from the kitchen counter.

Individually, we can be blind to the obvious, but collectively, as a society, we can be blind as well. Here's a curious fact to consider: in the twenty-first century, there are cameras *everywhere*, except where our food comes from, where our energy comes from, and where our waste goes. How is it, then, that the most powerful species on the planet is blind to how it survives?

You might say that modern humans interface with nature as though we live in a bubble. It's the reason why, in the United Kingdom, one in three young adults don't know that eggs come from chickens, a third of children believe that cheese comes from plants, and a whopping 40 percent of youth have no idea that milk comes from cows. For these kids, food comes from where you'd think it comes from: "Duh," the supermarket.

Now, it's not the case that young people aren't smart; it's just that their focus has shifted. The average child in the United States spends forty-five hours a week looking at electronic media and only half an hour of unregulated time outdoors. That being the case, we shouldn't be surprised that the cultural world fogs over the natural one. Immersed in this environment, the average American kid is able to recognize one thousand corporate logos but can't name ten plants or animals native to the area in which they live.

Adults don't fare much better. From inside the bubble, the origin of our greatest source of energy—the fuel that powers our global economy—is also a big unknown. If you take a moment to ask around, you'll soon discover that the average person has no idea what oil is. The liquid we pump into our gas tanks to get to work doesn't come from the pulp of dinosaurs, but every tank of gas *is* powered by a thousand tons of ancient life. So which dead species fuel our daily commute? And what caused those giant graveyards that pressure-cooked into the rich black oil fields we drill for energy?

Finally, we are exceptionally blind to what we waste. From excrement to trash to toxic waste, we live with the illusion that refuse can be made to disappear or, with the push of a button, be magically flushed away. That our waste goes somewhere, that our own pollution finds its way right back into the food we eat, the water we drink, and the air we breathe, is one of the reasons the human race is in such deep shit today.

The kicker is our ignorance as a species would be a lot easier to write off if we weren't also so intelligent. After all, we are the smartest animals on Earth. We are the primates with superpowers. We can fly at the speed of sound and communicate across the planet at the speed of light. Our species has figured out how to hack DNA and change the very codes that govern life.

But the problem is that *life* is disappearing.

Scientists tell us we are currently in the midst of the sixth great extinction. On land, from armadillos to zebras, animal populations are plummeting. In the sea, fish stocks are crashing and coral reefs are bleaching. Glaciers are melting. Droughts are increasing. Wildfires are raging. The population is exploding and the climate is changing. The creep of catastrophe nears day by day, and yet when we reach out our arms . . . it is only to take another selfie.

That somewhere in the back of our minds we know civilization is teetering on the brink explains our cultural obsession with the zombie apocalypse. These dark fantasies don't come from nowhere. We all know that things are going very wrong, but living in a bubble means that, for now, we get to ignore it. Instead, we playfully channel our collective unease, mocking our own fear of a seemingly imminent societal crash. From TV shows to survival guides, we "joke" about building bunkers and stockpiling weapons and food supplies. In cities around the world, tens of thousands gather in "zombie walks" dressed in

ghoulish makeup and rags, limping along in a low-rumble chant for one, singular desire.

And what is it that the zombies want? The zombies want *braaaaains*.

It's worth asking whether we could fend for ourselves if there were no societal means for survival. Because when you think about it, our system of society works precisely because we conform to it, like brainless zombies. The human population is almost eight billion strong, marching to a capitalist drumbeat of *eat, work, shop, and sleep*. Now, it might be one thing if we loved it, but we don't. I mean, seriously, have you ever met anyone in your life who loves the rat race?

So, given that humanity faces dire consequences *and* that most of us don't even like what we do, the question is: Why do we do it?

The big myth, I will argue, is that we are brought up believing there is no other way. We are simply told that this is how the system works. But what if there is another way? What if this "real world" we're so invested in isn't that real at all? What if we could scrub away the fog of humanity's biggest blind spots so we can see more clearly and begin to uncover what is beyond our reality bubble?

Proust famously said, "The real voyage of discovery consists not in seeking new landscapes but in having new eyes." And so our journey must begin right where we are: by seeing the ordinary, everyday world we live in, in an extraordinary new way.

IN JOHN CARPENTER'S 1988 cult classic sci-fi movie *They Live*, a drifter named John Nada gets hold of a pair of special sunglasses that reveal "truths" that ordinary citizens can't see. Putting them on and looking at magazine ads, billboards, or the TV, he sees

their real messages: to obey, consume, conform, and stay asleep.

As a modern parable, the film struck a chord. Its influence can be seen in films, video games, and street art, like Shepard Fairey's Obey series, and in Hal Hefner's political posters and web memes. The film's secret conceit is this: if only a pair of glasses like this existed, people might begin to question why reality is not what it seems.

Luckily, something like that *does* exist.

In this book, we will venture into the unseen world around us, but instead of fictional sunglasses we will be using scientific lenses to bring hidden views to light. That's because scientific instruments are, in a very real way, our new eyes, giving us superhuman abilities to see and hear well beyond what our senses perceive.

On true crime shows, we often catch a glimpse of what modern science can reveal. A nice, tidy living room might appear perfectly ordinary to the naked eye, but once investigators have sprayed luminol—a chemical that reacts with iron in hemoglobin—and flicked off the lights, the chemical's neon-blue glow illuminates blood splatters on the wall, revealing a grisly crime scene.

We have a tendency to think that seeing is believing, but there is so much that we don't see unaided. The same is true for the world around us. Our vision is feeble compared with the most advanced scientific tools. Telescopes allow us to see galaxies over thirteen billion light years away, and using electron microscopes, we can zoom right down to the atomic level to see and touch the very building blocks of our universe.

In the pages ahead then, reality will at times seem bizarre and disorienting. Like falling down a rabbit hole into Wonderland. We will shrink in size, grow into giants, and even find ourselves understanding the languages of other animals. Applying this scientific lens to the world around us radically alters our old ideas about the world, allowing us to question what surrounds us, what sustains us, and, perhaps most importantly, what controls us.

AS A SCIENCE BROADCASTER and journalist, I have spent more than a decade interviewing and learning from the world's top scientists and thinkers. One of the great advantages of working with scientists from many different fascinating fields is that it has given me a broad spectrum of scientific knowledge to draw from, allowing me to share and communicate expertise from a wide range of disciplines. These different disciplines are like pieces in a puzzle. Individually, each gives us a clue as to what's going on, but only by putting them together can we see the bigger picture.

And now more than ever, we need to see clearly, because we are at a critical juncture in human history. Our species is locked on a deadly collision course, one that threatens to extinguish life on Earth precisely because our vision of reality is incompatible with scientific truth. Instead, what we call "common sense" thinking has blinded us for far too long.

In this book, we will examine ten of humanity's biggest blind spots. Section One begins with an introduction to the blind spots we are born with as individuals, and reveals how science and technology allow us to see beyond our biological limits. With this new form of sight, we will journey through the everyday world to uncover what our own eyes are unable to perceive.

In Section Two, we will look at our collective blind spots and investigate how as a society we engage in willful blindness. We'll focus on the most critical aspects of our basic biology—our food, energy, and waste—and see how science has radically transformed the support system our lives depend on, and engineered a world that to the average person is almost entirely opaque.

Finally, in Section Three, we will examine intergenerational blind spots. These are ways of thinking about the world that seem natural or inevitable but are in fact inherited world views passed on from generation to generation. Here we will examine how we navigate the grand dimensions of time and space like the proverbial fish that knows not the water in which it swims.

Carl Sagan once said that “our species needs, and deserves, a citizenry with minds wide awake and a basic understanding of how the world works.” This book is a humble effort to respond to that need. So let us begin.