

How do we go forward?


Movement

Studio Studio's Magazine

Spring, MMXXI

\$8.00



A close-up photograph of a mechanical component, likely a car part, illuminated by warm, glowing lights. The component is metallic and has a complex, multi-faceted design. It is surrounded by a network of thin, copper-colored wires that are also illuminated, creating a bokeh effect of soft, glowing circles in the background. The overall scene is set against a dark, almost black background, which makes the warm lights and the metallic surfaces stand out prominently.

This isn't a car.

But it should be.

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Twitter: @StudioStudioco1

Head of Design
Raphael Gutteridge

Managing Director
Morgan Abele

Design Associates
Victoria Bagley
Danae Biln
Aslan Campbell
Henry Lewis
Natalie Oh
Shreya Vanwari

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Toronto's newest explorer

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TTC ELECTRIC BUS PROGRAM

Studio Studio Case Studies

TransformTO, a climate initiative from the City of Toronto, includes a component where the TTC will try to have a bus fleet entirely consisting of electric battery vehicles by 2040. In Q3, 2020, the TTC became the largest electric battery bus operator in North America.



Vancouver maintains over 200 electric trolley buses, however, these are constrained by overhead wires, and its other traditional buses are still diesel powered.

Electric battery buses are a relatively new technology, with no bus yet having operated for 12 years, the average age of buses in service. The TTC's pilot program to introduce electric buses contains vehicles from 3 different companies:

- New Flyer Industries (Winnipeg)
- BYD (Shenzhen, manufactured in Ontario)
- Proterra (Burlingame, California)

While the City of Toronto's climate goals are targeted for 2050, the TTC aims to be completely carbon-neutral across its organization by 2040.

In light of this, and other vehicle electrification projects, a UofT study found that increased electrification of road vehicles will have an undue burden on the environment through the mining of resources like cobalt.



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MIGRATION

The Original Movement



MOVEMENT AS MIGRATION

An Extremely Opinionated Peice

Trains, cars, rockets, hot air balloons, ducks, planes, and boats. You may think that one of these things is different from the others, well you are wrong.

For centuries transportation has remained an essential aspect of modern civilization. But before colonization and the human apocalypse, other animals utilized movement. Ducks, butterflies, wildebeests, and whales have been travelling and migrating long before humans discovered their presence. The relationship between ducks and humans has only become more complicated as time goes on.

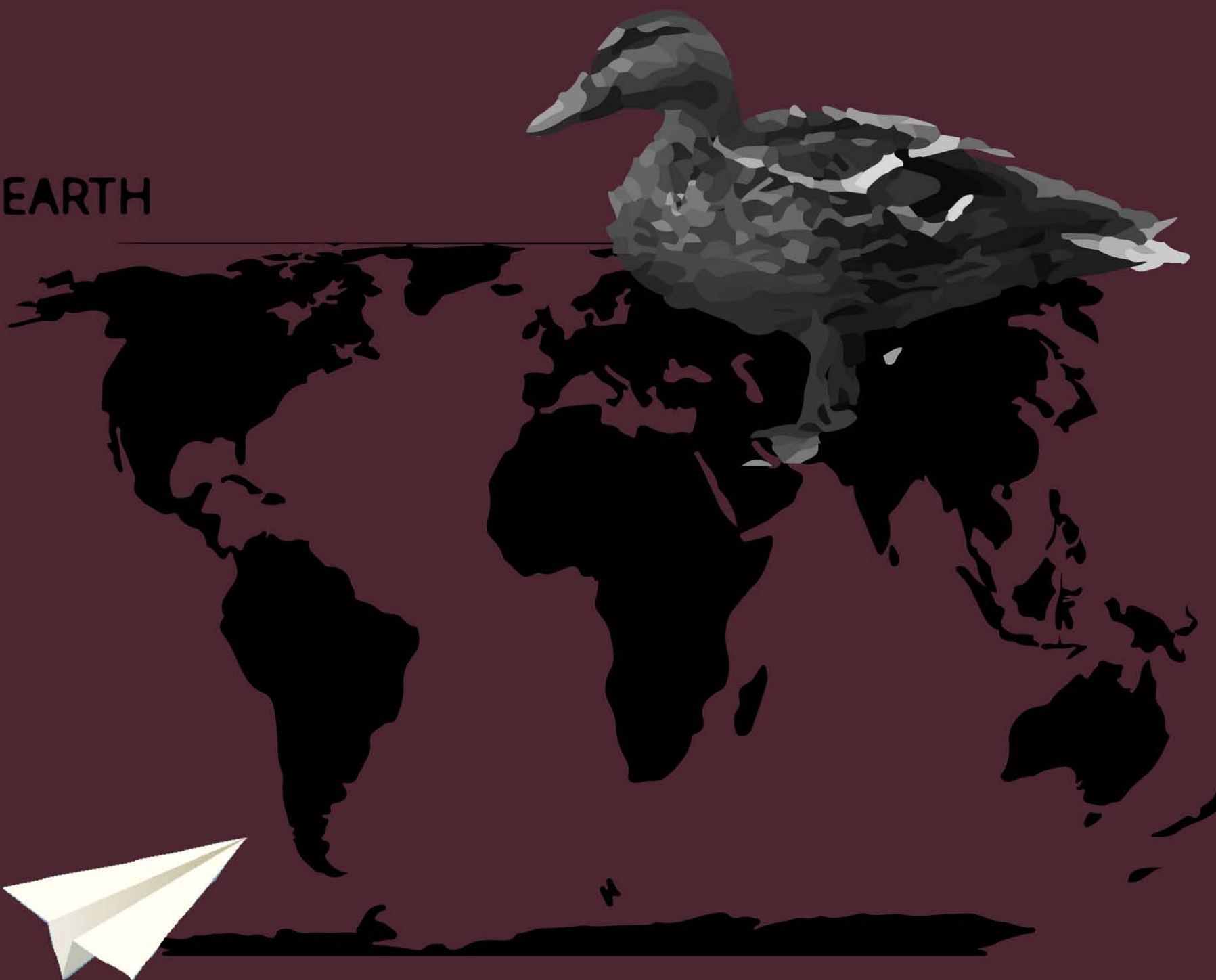
On a cold, gloomy day, have you ever thought of abandoning your responsibilities and running way to South America or Canada? Well, then you are just like a duck. Except unlike the ducks, humans bodies weren't built for constant migration. Ducks have special asymmetrical feathers that overlap one another and curved wings. Specific muscles power their bodies to help them fly. These animals were made for migration; their bodies were sculpted for extended travel and an adventurous lifestyle. Humans were not.

According to a random website I found online, 1 in 3 people experience common motion sickness. Motion sickness is caused when on moving transportation such as boats, planes, or amusement park rides. What do all of these things have in common? They are all man-made transportation modes. See, like ducks, humans have two very weak legs, but unlike ducks, that's all we have. Humans instead have large brains. Perhaps these brains were made to help us imagine other worlds that our bodies were too weak to visit. But if this was the case, our brains did much more. Not long after they came into existence, humans began to migrate as well.

THIS DUCK HAS BEEN SOMEHWERE...

BUT YOU HAVEN'T.

EARTH



Come down to Studio Studio.

Humans started inventing ways to travel and become like birds. We saw the duck soaring through the sky and fashioned ourselves a plane. But while these new innovative modes of transportation were being created, we failed to notice how our planet was slowly being destroyed by our attempts to explore it. Borders began to emerge, people spread out, lands were torn apart and re-built, wars started, and now we are stuck with a planet on the brink of extinction. Like many of the birds we tried to become in the process, we will all soon be dead probably.

Humans move because we are unsatisfied. After all, we are idiots who make mistakes and try to start fresh somewhere else. We are under the absurd notion that a new location will revitalize our souls and magically make us happy. As if the very act of motion can cure our sadness. Running, flying, swimming, humans need to leave because they aren't satisfied with where they are. We still aren't satisfied with the world even after we tore it apart and re-shaped it to match our preferences. Like any stubborn species, we looked at the fucked up mess we created and said, this didn't work. We took a good long look at our mistakes, took a deep breath and said, let's do this to outer space.

Next time you're looking up at birds flying through the sky, wishing you could soar away. Think about how that bird is looking down at you and not thinking much. Because that bird wasn't meant to think, it was meant to fly. And you weren't made to fly, so get over it.

Morgan Abele


Duck Expert as of Today



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IF PICKLES ARE PICKLED CUCUMBERS...

THEN ARE PICKLED BEANS...

ALSO JUST PICKLES?

If this cricket is a fish...



...than what are you?

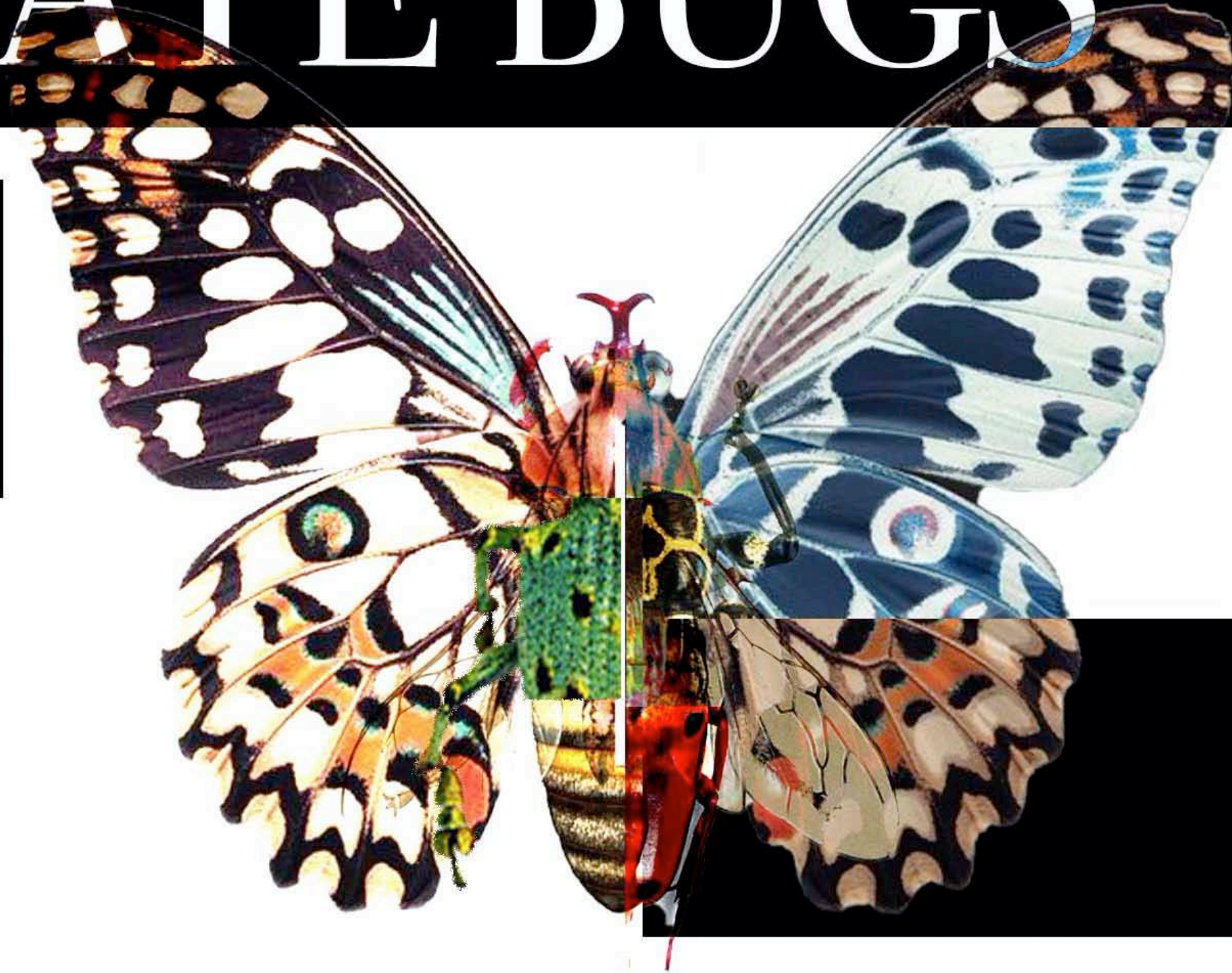


SYNTHETIC / nATURE

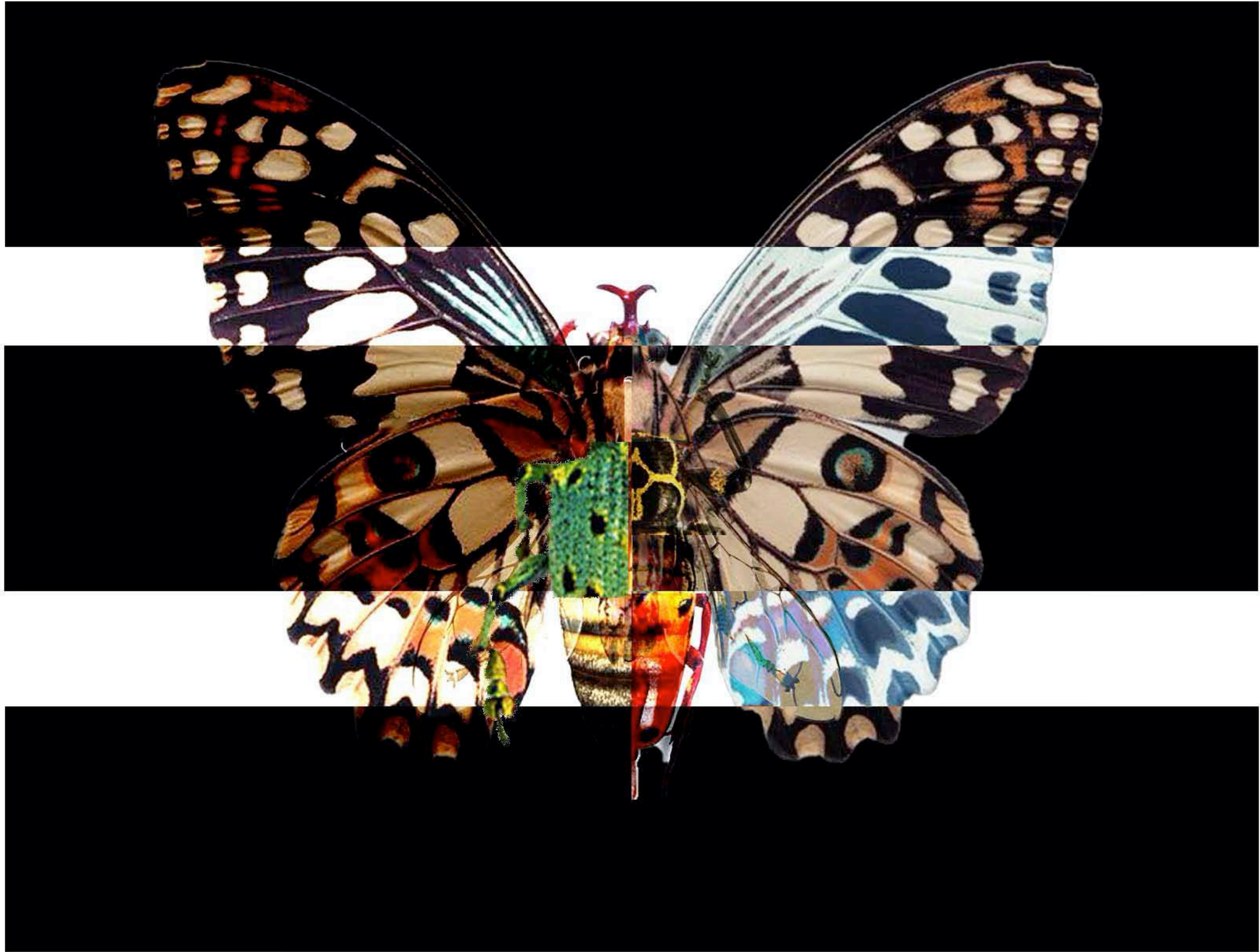
Danae Biln (b. 2002, Vancouver)
Digital Collage

This series underscores the absurdity of natural beings. Upon first glance, these displays look like filtered subspecies within their insect classification, whether it be a type of butterfly, moth, or dragonfly. However, through deeper inspection of each bug, sectional parts of other insects become discernible in the body. This work displays the realism that synthetic bugs can project due to the fact that the Earth is a nightmarish sphere that spits out real creatures that are far more unrealistic.

I HATE BUGS









If a tree falls
in a forest,
did it ever
really
matter?

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In space, no one can hear you scream

"Look again at that dot. That's here. That's home. That's us. On it, everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king and peasant, every young couple in love, every mother and father, hopeful child, inventor and explorer, every teacher of morals, every corrupt politician, every "superstar," every "supreme leader," every saint and sinner in the history of our species lived there--on a mote of dust suspended in a sunbeam.

"The Earth is a very small stage in a vast cosmic arena. Think of the rivers of blood spilled by all those generals and emperors so that, in glory and triumph, they could become the momentary masters of a fraction of a dot. Think of the endless cruelties visited by the inhabitants of one corner of this pixel on the scarcely distinguishable inhabitants of some other corner, how frequent their misunderstandings, how eager they are to kill one another, how fervent their hatreds.

"Our posturings, our imagined self-importance, the delusion that we have some privileged position in the Universe, are challenged by this point of pale light. Our planet is a lonely speck in the great enveloping cosmic dark. In our obscurity, in all this vastness, there is no hint that help will come from elsewhere to save us from ourselves."

-Carl Sagan (1994)



Public Transit Requires Contemplation



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Faster: the Story of the Boeing 2707

Raphael Gutteridge



Photo: Boeing

1961's Project Horizon by the Federal Aviation Administration (FAA) told President Kennedy that the future of aviation was supersonic¹. This was not a report of blind optimism, further saying that for private industry to accomplish this it would need serious backing by the US Federal Government, something FAA director Najeeb Halaby was in favor of doing². At the time, American, British, French, and presumably Russian aircraft manufacturers had been studying supersonic concepts³. The future was supersonic and the United States wanted to be first.

The first of these designs to capture the public imagination was the iconic Anglo-French venture of Concorde. It could fly at twice the speed of sound, cruise at an altitude of 60,000 feet, and carry up to 120

people⁴. For several decades, Concorde would bounce across the Atlantic, synonymous with wealth and speed.

The United States of America, already beaten by the Russians into space, wouldn't tolerate being beaten by the British or French into supersonic supremacy⁵. American companies Boeing, Lockheed, Curtiss-Wright, North American, and Pratt & Whitney all responded to a government request for SST (Supersonic Transport) proposals⁶. Boeing would be the winner of this competition, naming their concept the 2707, likely a play on their already popular jet the 707.

Concorde, the clear competitor to Boeing, was

to use aluminum in its construction. This favourite metal of the airline industry is light but melts at the speeds the 2707 was to fly at. The speed limit of Concorde was built into its construction, something Boeing wanted to avoid. Their solution to this air friction problem was to build an airframe of strong titanium. A titanium airplane wasn't the only clean sheet innovation proposed by the Boeing engineers.

With sleek, ultra aerodynamic wings, Concorde would need to land at an incredibly steep angle. Its long nose would prevent the pilots from seeing the runway during this critical phase of flight as well as during taxiing.

To allow the pilots to see where they were going, the Concorde team gave it a "droop snoot" where the nose of the plane would drop down while on the ground or taking off and landing.

Initial designs of the Boeing 2707 didn't include this feature, instead choosing to build a variable geometry wing, which would be extended to provide the airliner with lift during takeoff and landing, and retract to provide aerodynamics in supersonic flight. A variable geometry wing on a 300-person, titanium airliner in the 1960s was completely revolutionary and highly complicated. The feature wouldn't last, however, with engineers eventually scrapping this design in favour of a more Concorde-like wing and droop-snoot.

The mechanism of the

snoot were designed, one of which had a double-jointed configuration.

All of these complicated moving parts added significant weight to an aircraft that was supposed to be able to burn 100,000 pounds of fuel in an hour. Weight was a problem the 2707 had all too much of, with engineers constantly redesigning to make it lighter. In order to maintain proper balance of the aircraft, an intricate sensor system was installed in the landing gear to measure where weight was distributed. This only added to the complications.

This airliner

exclusively) would both stand something to gain. This would be an airplane that airlines wouldn't be able to resist buying, either because of domestic pressures by the US government or the allure of the American SST over the smaller Concorde.

Figures in the range of two billion US dollars (15.7 billion in 2021) were projected as the total production costs, which don't take into account the projected one billion dollars to develop a prototype aircraft. When the Space Race was in full force this likely seemed to be a good decision. Threats of Concorde cornering a market for possibly hundreds of planes must have been serious to American airline manufacturers. In the early 1960s, the urgency of Najeeb Halaby could only have felt warranted. After all, with each



droop-snoot would also be a source of problems for Boeing engineers. Their designs were heavy and gave little clearance for ground objects while in the down position. Three major iterations of the droop-

promised to be the future of air travel. Businessmen and travelers (in contemporaneous documents using the pronouns "he/him"

passing year, rocket launches put more and more Americans into space. The moon wasn't even a decade away.

Of course, predicting the future is hard to get right.

Photo: Qantas

For Administrator Halaby and President Kennedy in 1961, any predictions they made would have been coloured by the technological optimism of rocketry and jet-powered airliners. The SST was just the next step.

As the seasons passed, the US Government continued to funnel money into the project. A project this complicated was going to take years. Deliveries weren't projected to start until the later Seventies. Halaby's own report concluded that the SST project was going to be a massive undertaking for all involved. In the end, it proved to be too much of a burden. In 1970, Senator William Fulbright would give the US Government the opinions of sixteen leading economists on the SST program, only one of which would be in favour of continuing with funding the project⁷. If the escalating costs and constant redesigns hadn't been enough for Congress to continue funding, the oil crisis only a few years later would be.

Besides, air travel was heading in a different direction anyways. The economists questioned by Senator Fulbright would mention the Boeing 747 project, which was developed at the same time as the 2707. If the 747 could secure half a billion dollars (3.9 billion, 2021) of private investment year after year, why couldn't the 2707, which relied on government subsidies to keep going⁸?

The Boeing 747-100, the

initial model of the aircraft, would carry 366 passengers on journeys that could exceed 5,000 miles (8,050 km), albeit at slower speeds⁹. These slower speeds, however, would mean that the technology to build this plane already existed and wouldn't burn hundreds of thousands of pounds of fuel per hour.

Fuel burn was another massive source of criticism for the project, with the growing environmentalist movement fearing pollutants being distributed so high up in the atmosphere¹⁰. Other concerns involved the sonic booms that daily supersonic flights would create over inhabited areas¹¹. These issues would later be credited to its rival Concorde. In a market that could theoretically sustain up to 500 supersonics, only 14 Concorde would enter service with just two airlines. Meanwhile, Boeing is still producing newer variants of the 747 more than 50 years on.

The 2707 represented an optimistic vision that would never come to pass. It was supposed to be a faster future where all of humanity was only a short hop away on a supersonic aircraft. One could fly across oceans for day trips or conduct business on a timetable unavailable until the widespread adoption of the internet. While the idea of SSTs being universal seems ludicrous in a post-Concorde world, at the same time as the 2707 was under development, Buckminster Fuller and Constantinos Doxiadis

were developing the concept of "ekistics," and coming up with plans to connect the entire world on one single power grid¹². These principles of modernism that sought to unite the globe under one identity would launch the Boeing SST into development, but new perspectives in the early Seventies would bring it to a stop. The optimistic vision of Halaby, Kennedy, and the Concorde developers would simply fade into a kind of nostalgia for a time when faster always meant better.

Notes:

¹Joshua Rosenbloom, "The Politics of the American SST Programme: Origin, Opposition and Termination," *Social Studies of Science* 11, no. 4, November, 1981. 404.

²Joshua Rosenbloom, "The Politics of the American SST Programme: Origin, Opposition and Termination," *Social Studies of Science* 11, no. 4, November, 1981. 404-403.

³J. T. Dymont, "Canada's Role in the Second Decade of the Space Age – Inner Space Supersonics," *SAE Transactions* 6, section 4, 1968. 2849-2850.

⁴<https://www.baesystems.com/en/heritage/bac-concorde>

⁵Joshua Rosenbloom, "The Politics of the American SST Programme: Origin, Opposition and Termination," *Social Studies of Science* 11, no. 4, November, 1981. 404.

Boeing 2707 factsheet:

Length: 318 feet

Height: 50 feet

Mach: 2.7

Passenger Capacity: 300

Engines: GE4/J5P (custom made by GE)

Cruise Altitude: 70,000 feet

Range: 4,000 miles (6,440 km)

Airframe Material: Titanium

Expected Production Run: 200 aircraft at a unit cost of \$40 million (1972) or \$258 million in 2021

Total US Government Funding: \$864 million (1971), \$5.58 billion (2021)

Notes (cont.):

⁶J. T. Dymont, "Canada's Role in the Second Decade of the Space Age – Inner Space Supersonics," *SAE Transactions* 6, section 4, 1968. 2850.

⁷Phillip Boffey, "15 Top Economists Oppose SST," *Science* 169, no. 3952, September, 1970. 1292.

⁸Ibid.

⁹<https://www.aircraftcompare.com/aircraft/boeing-747-100/>

¹⁰"The SST Defeat: Symbol of a New Awareness," *Science News* 99, no. 14, April, 1971. 229.

¹¹Richard Hellman, "THE SUPERSONIC TRANSPORT-Not All Smooth Flying," *Challenge* 15, no. 6, July/August, 1967. 35.

¹²Nikos Katsikis, "Two Approaches to 'World Management': C.A. Doxiadis and R.B. Fuller," in: *Implosions/Explosions: Toward a Study of Planetary Urbanization*, ed. Neil Brenner (Berlin: Jovis, 2014), 480-505.

Other Sources:

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Steiner, George. "Needs and Prospects of SST." *Challenge* 12, no. 9, June, 1964.

Withington, H.W. "The Economics of the US SST Program." *Defense Transportation Journal* 26, no. 1, January/February, 1970.

Photo: Boeing



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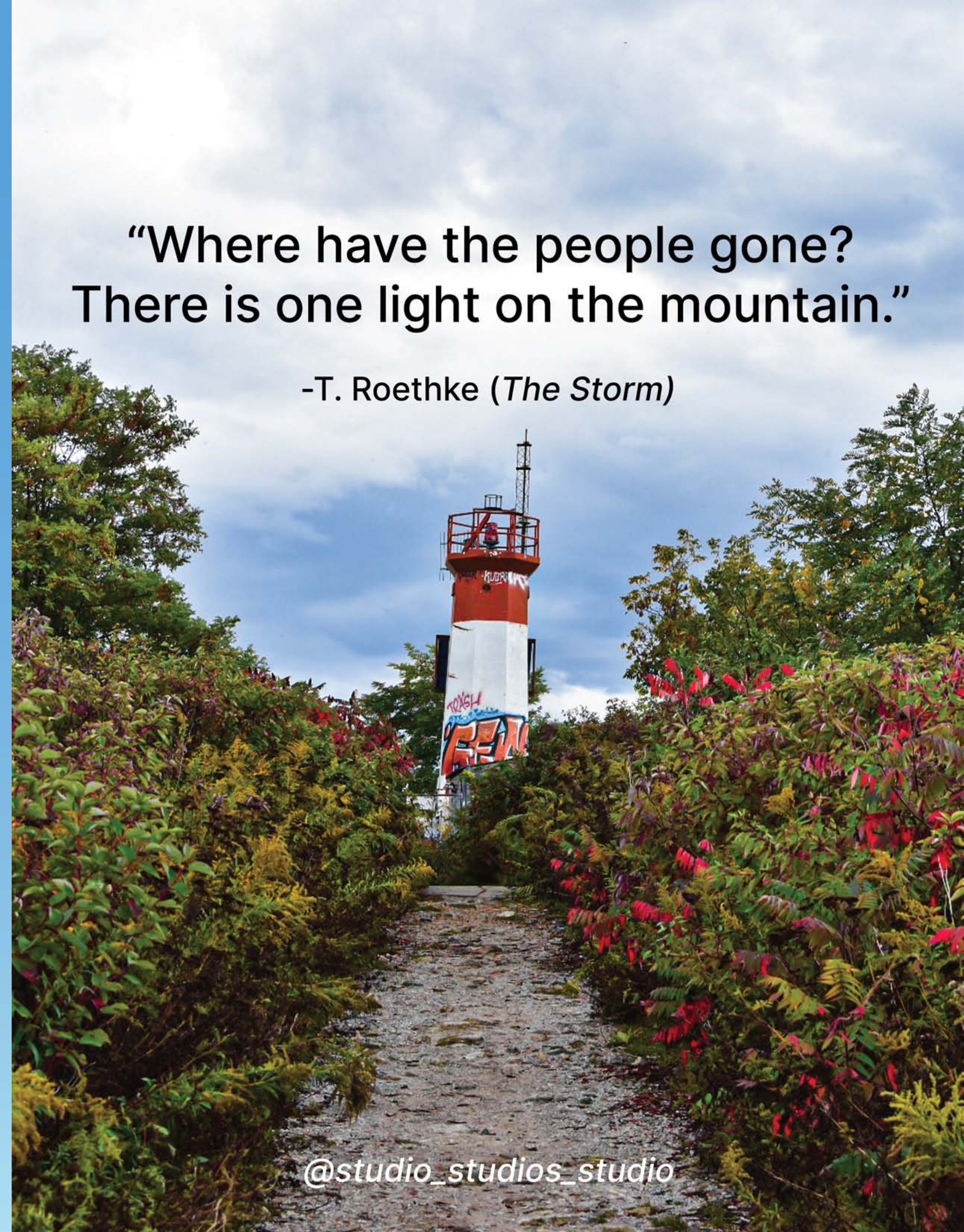


The future of our cities is at
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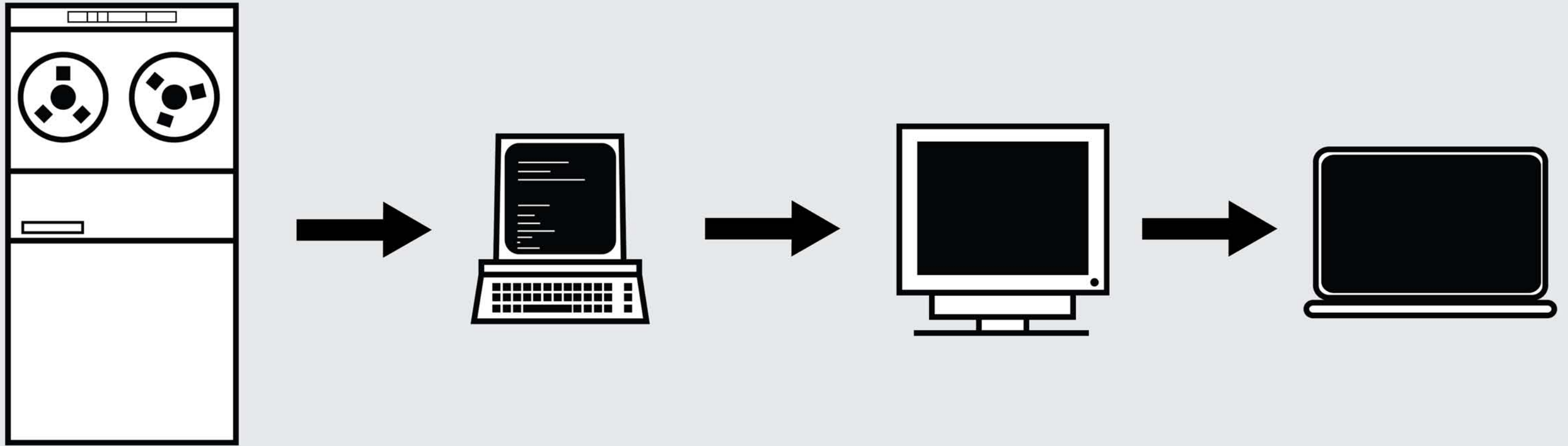


“Where have the people gone?
There is one light on the mountain.”

-T. Roethke (*The Storm*)



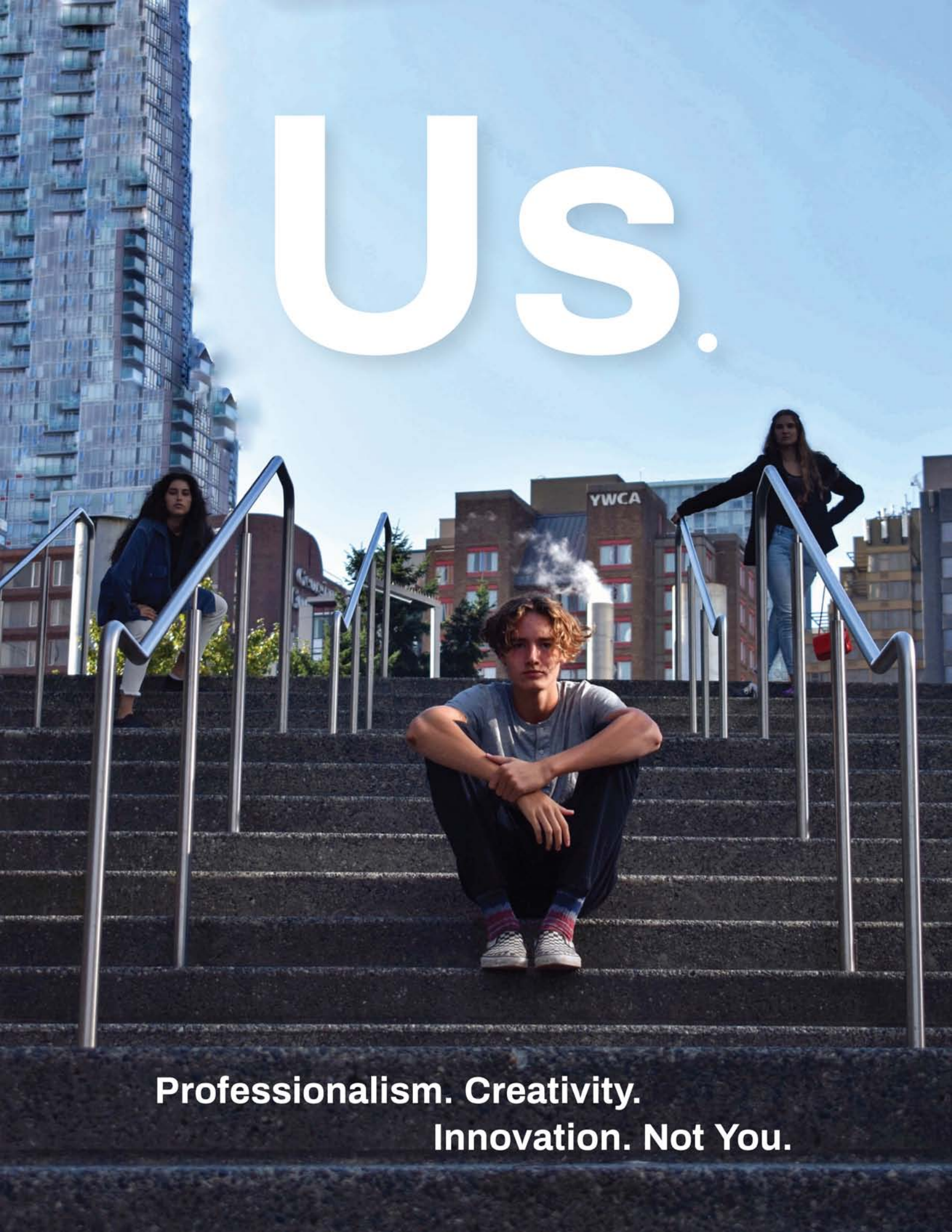
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IF PLUTO ISN'T A PLANET...

THEN WHAT THE HELL AM I?





Fashion implies danger

A risk we continue to take

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TURN OFF YOUR
PHONE

CLOSE YOUR
CORNERED BEEF



**MULTITASKING
IS IMPOSSIBLE**

STUDIO
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Is Change Good?

Change Changes. Do you?

by Victoria Bagley (@vibinwithvicky)

Looneys, toonies, tuppence, half-dollar, quarter, penny, hay-penny: change. Change exists solely to facilitate the efficient exchange of goods and services. Actually, that's a lie. Change is art, sentimentalism, and collectables-- and at the tail end of that-- a means to represent a hopefully equitable exchange of goods and services (but in this capitalist society, what is equitable anyway?) Sorry, let me rewind.

Coins. I'm talking about coins. Reach into your pocket right now. Do it. What do you feel? The round, metallic feeling of knowing you possess fractional portions of a dollar? No. It's 2021. You do not carry coins. Coins are useless to you. Now, what coin is the most useless to you? Not the quarters or loonies or toonies that you might find

yourself using at a vending machine or a parking meter or at the subway (if you are fool enough not to carry a card) but pennies. Now, if you reside in the northern unicorn of a country that is Canada, pennies are pluto! But in the United States of America,



@siora18 / unsplash.com

pennies continue to represent the smallest possible unit of currency: one one-hundredth of that good old American green. You already know that pennies are illogical; write me a check for one penny and you know that I do not have enough money to produce a penny, even given the appropri-

ate machinery. In fact, I would need 1.7 cents to make that one penny. Therefore, annually, the US government loses 70 million dollars of tax money minting the penny and for what? It must be

for convenience right? Wrong. Studies examining opportunity cost of the penny showed with absolute certainty that the average American loses significant time each year fiddling with the pesky coins. Well, maybe having pennies in your pocket will increase the likelihood of your dropping some change into a cup on your way to Walmart. Wrong again. Firstly, we

already established that you do not have any pennies in your pocket because they're heavy metal useless pieces of trash. Secondly, the very same studies also concluded that the existence of pennies does not increase individual charitable contribution. What reason possibly could there be left now to keep the penny, knowing that we lose time and money by using them? Is it sentimental to you, American? To that, I would like to ask you how you think Abraham Lincoln, the savior of the slaves, would feel about having his face stamped into a rusty poop-colored coin worth just 1/26th what a penny would have been worth in his day as thanks for all he has done for our great... sorry... I'm getting carried away, but while I'm off topic, did you know that in 1972 the American penny was worth what a nickel today is, and those good old fashioned rugged Americans found a way to function just fine without needing a coin 1/5th of its value? Plus, Canada eliminated the penny when it was only 1.6 times more expensive to manufacture than pennies had value, as opposed to the American 1.7 that Americans continue to mint to

this day. Anyways, the existence of a penny isn't even a partisan issue; it boils down purely to sentimentalism. I do not see what is so great about the past that we need to preserve in spirit through less-than-worthless, costly brown circles, especially when nobody makes any money from the penny, excepting Jarden Zinc Products in middle-of-nowhere Tennessee.

So we are agreed then. Pennies are useless. But I would like to go a step further: nickels. Nickels are worth five cents but cost nine to produce. Need I say more? Change changes. Can you? Indeed, I'd like to assert that all physical representations of money at this point in time are useless too. Our society is nearly cashless and coinless. And going even further, what better way to dismantle our capitalist society than entirely eliminating currency? What if we were

all to work, completing essential jobs for our society as the brilliant philosopher Plato would have wanted in his Republic and skip the money? With every job being equally important for the maintenance of our society, total equity could be achieved and we would tear down capitalism, the patriarchy, sexism, racism, and it would be an end to all bigots, Bop-its(tm) and Cheez-its(tm).



drown.

drown.

drown.

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By Morgan.

LED
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ED ENTRY



The Triumphant Return.

IF PICKLES ARE PICKLED CUCUMBERS...

THEN ARE PICKLED BEANS...

ALSO JUST PICKLES?

Squad Goals




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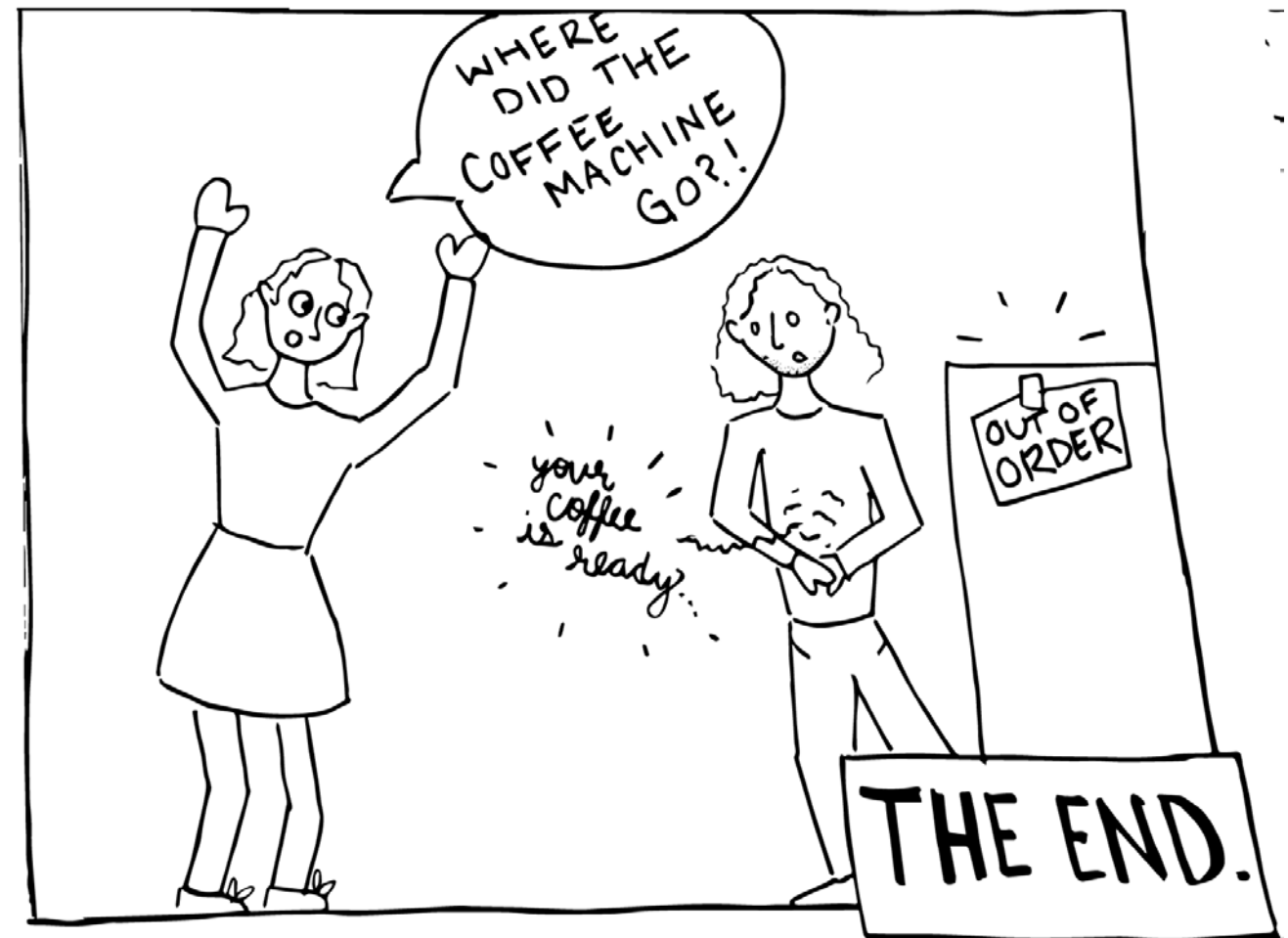
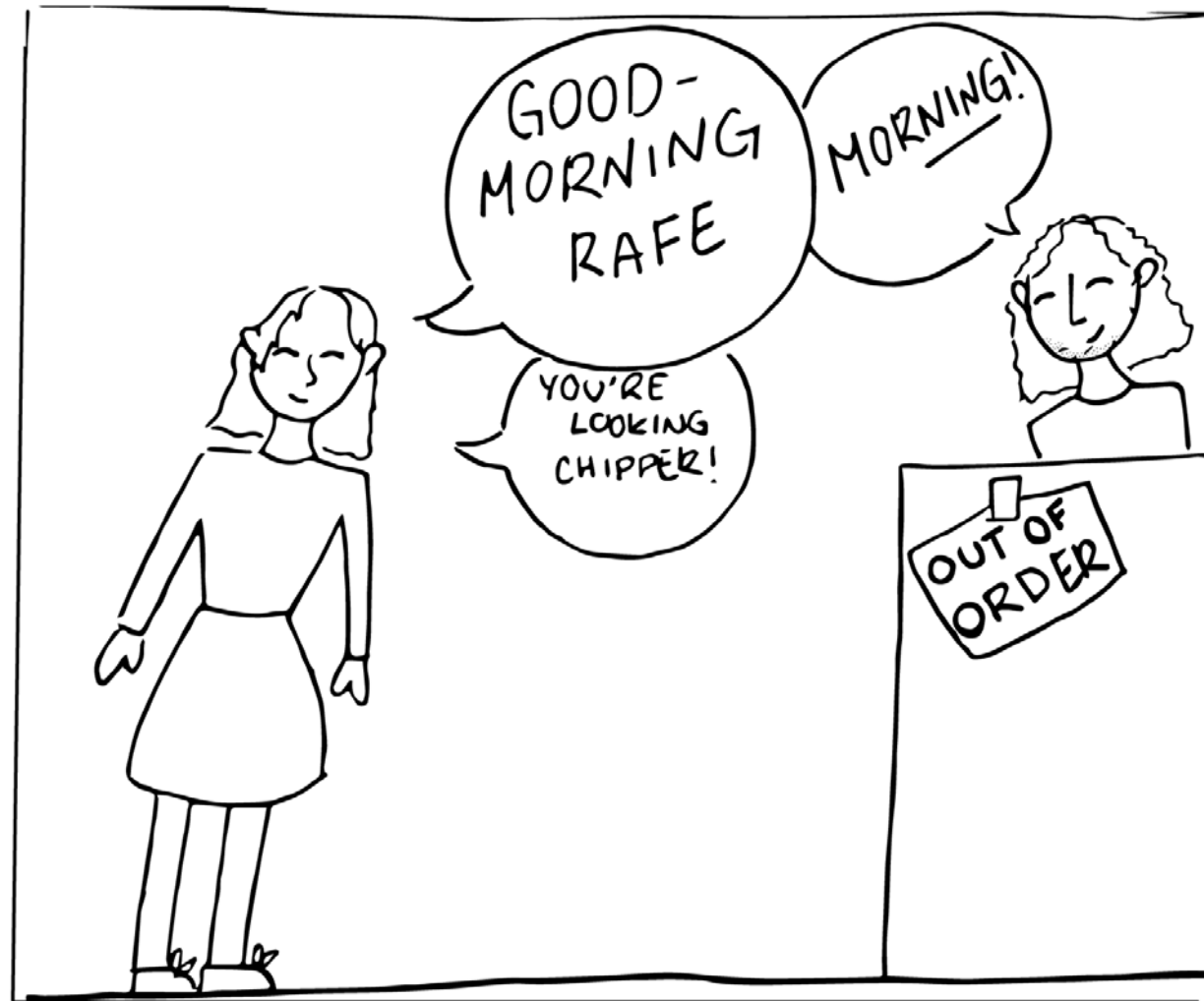
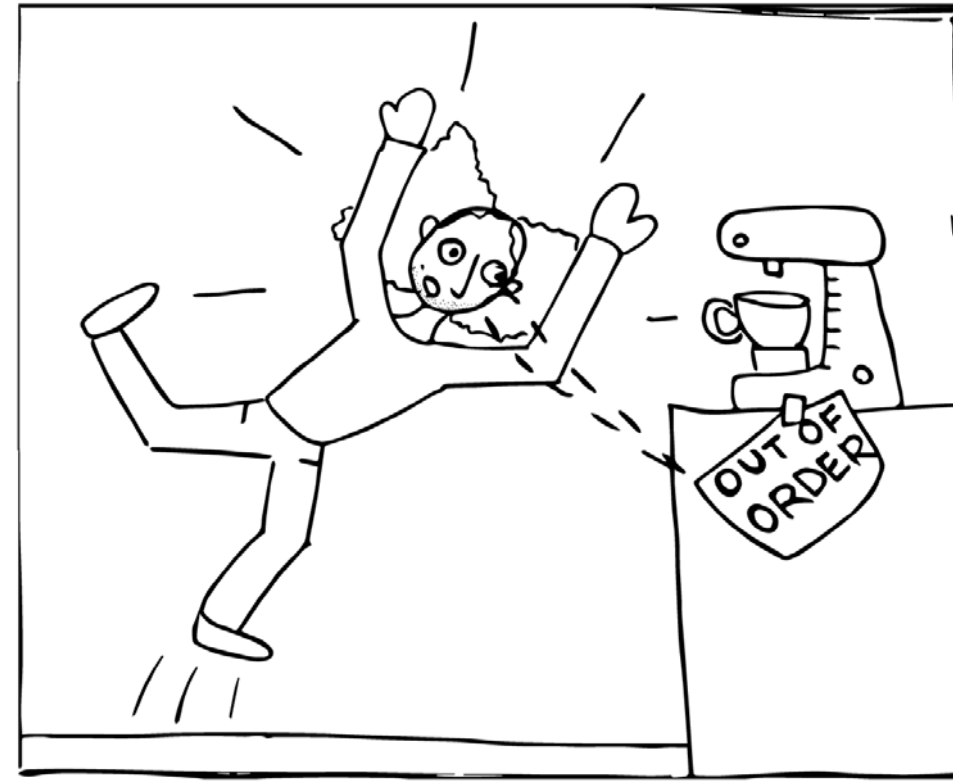
"I know not how it falls on me,
This summer evening, hushed and lone;
Yet the faint wind comes soothingly
With something of an olden tone."

-Emily Brontë
(I Know Not How It Falls On Me)



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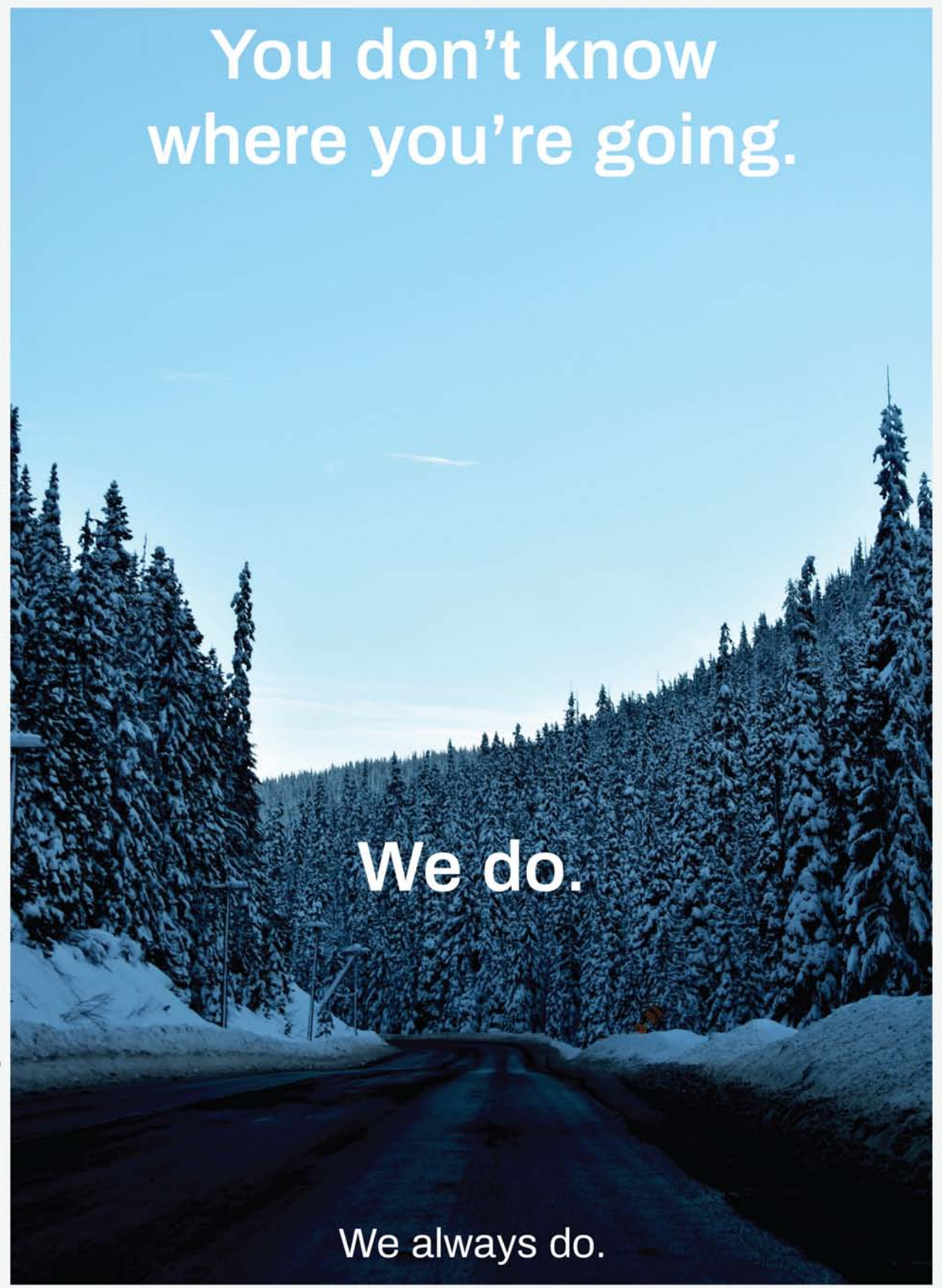
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You don't know
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We do.

We always do.



Why do we go forward?

