

From: MOVE by Parag Khanna 2021

CHAPTER 1 MOBILITY IS DESTINY

Geography is what we make of it

Ask anyone who graduated from Georgetown's School of Foreign Service between 1990 and 2005 which one course they'll remember until the day they die. Their eyes will light up, a smirk will appear, and one word will come out of their mouths: "Map." A mere one-credit, pass-fail class quickly became so legendary that students intentionally failed its placement test just to take it. They were quickly joined by hundreds of other undergrads who just wanted to sit in, requiring larger auditoriums each year. All for the pleasure of witnessing the thunderous lectures of the encyclopedic and cantankerous Dr. Charles Pirtle, a human cannon of notable facts about every single country, capital, body of water, mountain range, and border dispute on Earth. In 2005, *Newsweek* magazine featured "Map of the Modern World" in its list of "College Classes for Masochists." We couldn't get enough.

Pirtle's noble objective was twofold: to combat geographical ignorance and, just as important, to demonstrate that the world map is an ever evolving collision of environment, politics, technology, and demographics. It's thanks to Pirtle that analyzing the interplay of these forces became my professional obsession. After all, high school geography class in the 1990s was hardly inspiring: It was basically earth science (mostly geology; no mention of climate change) with a static layer of borders on top. For most students, the study of geography sadly defaults to this *politi-*

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cal geography, as if the most arbitrary lines on our maps (borders) are the most permanent. In reality, states are more like porous containers shaped by the flows of people and resources within and across them. Without these, what is a state even worth?

This is a book about the geography that matters most to us: *human* geography. Human geography investigates the where and the how of the distribution of our species across 150 million square kilometers of land on six continents. Think of it like climatology, a deep science of how we relate to one another and the planet. Human geography subsumes hot-button topics like demographics (the age and gender balance of populations) and migration (the resettlement of people), but goes much deeper into our ethnographic composition, and even our genetic adaptation to a changing environment. Climate refugees and economic migrants, intermarriage and even evolution—all are part of the grand story of our human geography.

Why does human geography matter so much today? Because our species is in for a rough ride, and we can no longer take for granted a stable relationship between our geographic layers such as nature (where the water, energy, mineral, and food resources are), politics (where the territorial borders are that demarcate states), and economics (where the infrastructure and industries are located). These are among the major forces that have determined our human geography for the past thousands of years—and in turn, our human geography has shaped them.

But never before have the feedback loops among these layers been so intense and complex. Human economic activity has accelerated the deforestation and industrial emissions that cause global warming, rising sea levels, and massive drought. Four of America's most important cities are most at risk: New York City and Miami may drown, while Los Angeles is running out of water and San Francisco is blanketed by wildfires.

The chain reactions slamming millions of people in America apply to *billions* in Asia. Consider this: Asia's spectacular economic rise in recent decades was propelled by breakneck population growth, urbanization,

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and industrialization, all of which have spiked its emissions output. This has contributed to rising sea levels that threaten the teeming populations of its coastal megacities on the Pacific Rim and Indian Ocean. So the rise of Asia is accelerating the sinking of Asia—which could cause ever more Asians to flee across borders and spark resource conflicts. We push the system, then the system pushes us.

This seems an appropriate moment to take stock of how badly out of sync these layers of geography have become. We have wealthy countries across North America and Europe with 300 million and counting aging people and decaying infrastructure—but roughly 2 billion young people sitting idle in Latin America, the Middle East, and Asia who are capable of caring for the elderly and maintaining public services. We have countless hectares of arable farmland across depopulated Canada and Russia, while millions of destitute African farmers are driven from their lands by drought. There are countries with sterling political systems yet few citizens, such as Finland and New Zealand, but also hundreds of millions of people suffering under despotic regimes or living in refugee camps.

Is it any surprise that record numbers of people have been on the move?

Children of the twentieth century know the adages “Geography is destiny” and “Demography is destiny.” The former implies that location and resources determine our fate, while the latter suggests that population size and age structure are the most important factors. Together, they tell us that we're stuck where we are—better hope it's a well-populated and resource-rich country. Should we continue to buy into such determinism? Of course not. Geography is not destiny. Geography is what we make of it.

In my 2016 book *Connectography* I proposed a third axiom to explain the arc of global civilization: “Connectivity is destiny.” Our vast infrastructure networks—a mechanical exoskeleton of railways, electricity grids, Internet

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cables, and more—enable the rapid movement of people, goods, services, capital, technology, and ideas on a planetary scale. Connectivity and mobility are complementary, two sides of the same coin, and together they give rise to a fourth axiom that will define our future: *Mobility is destiny.*

So what's stopping us from using our connectivity to the fullest? The root of our collective inertia lies in borders—physical, legal, and psychological. The world's political map looks the way it does mostly for contingent reasons: where ancient civilizations settled, where European empires conquered and divided, and where natural features separate populations. Borders are where they are because that's where they've been. But the Earth is *ours*—not America's or Russia's or Canada's or China's. The question is: Can we discover a new cartographic pragmatism that brings political geography more in line with today's needs?

The management guru Peter Drucker warned that “the greatest danger in times of turbulence is not the turbulence itself but to act with yesterday's logic.”¹ We can no longer afford to be passive observers of how human geography unfolds. Instead, we must *actively* realign our geographies, moving people and technologies where they are needed while keeping livable places habitable. This requires an epochal shift in the organization of global civilization, a collective resettlement strategy for the world population. But if we get this right, we'll strengthen our odds of survival as a species, revitalize floundering economies, and forge a more sensible map of humanity.

Mass migrations are inevitable, and more than ever, they are necessary. In the coming decades, entire overpopulated regions of the world might be abandoned, while some depopulated territories may gain massively in population and become new civilizational centers. If you are lucky enough to be someplace from which you do not have to migrate—such as Canada or Russia—then chances are that migrants are coming your way. To paraphrase Lenin: You may not be interested in migration, but migration is interested in you.

The world of tomorrow is not only full of mobile people but is de-

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fined by the mobility of *everything*. Everyone has a mobile phone, meaning communications, Internet, medical consultations, and finance are all accessible anywhere; nobody goes to a “bank.” Both work and study have migrated online; the ranks of digital nomads have exploded. Ever more people are living in mobile homes and other movable dwellings. Even “fixed” investments have become fungible: We can 3D print buildings, set up factories and hospitals anywhere, generate electricity from solar or other renewable sources, and have drones deliver us anything we need. As we move, so does the supply chain: Labor and capital can perpetually shift to new land, generating fresh geographies of productivity. Mobility is the lens through which to view our future civilization.

The concept of mobility blends the material and philosophical. It raises questions such as: Why are we moving, and what do those shifts reveal about our needs and desires? Then there are political and legal questions to explore: Who is allowed to move? What restrictions do we face on movement and why? And last but not least, there are normative questions: Where should people go? What is the optimal distribution of people around the world? Mobility is also an intangible and spiritual experience. Pause and appreciate how fluidly our anatomy carries us. Moving stimulates creativity, the process of witnessing ways of life coming together. Philosophers such as John Dewey meditated on the aesthetics of moving freely both in nature and the social milieu, eloquently arguing that such interaction imbued life with meaning. Walter Benjamin spent a decade reflecting on the significance of the glass-covered arcades built in mid-nineteenth-century Paris and the wandering *flâneurs* they invited. To move is to be free.

Are you ready to move? Is your welfare at risk from political and economic crises, technological disruptions, or climate change? Would circumstances be better for you and your family somewhere else? What is stopping you from going there? Whatever it is, you will need to get over it. For billions of people, perpetual mobility is becoming the norm. Movement may become an end in itself: One won't just move; one will *always* be moving. But perhaps, as we move, we will rediscover what it means to be human.

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Today's Human Geography



The current human population is just under 8 billion. Nearly 5 billion people reside in Asia, 1 billion in Africa, 750 million in Europe, 600 million in North America, and 425 million in South America.

Migration makes nations

Most of humanity has never crossed a border. Even today, most people live their entire lives within the country where they were born—but that doesn't mean they're not migrants. Counting the number of people crossing borders is a terribly incomplete and skewed way to understand migration. According to the International Organization of Migration (IOM), about three times the number of people migrate internally as internationally.² That includes those who have no choice but to uproot themselves: the estimated 40 million internally displaced peoples (IDPs), mostly due to political violence but also climate change, who have by definition been forced to migrate domestically. The story of people on the move is equally about these migrants as it is about the international jet set.

Arguably the greatest migration in human history has been unfolding for decades just due to urbanization *within* countries. In 1960, only

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1 billion people lived in cities; today that figure stands at more than 5 billion. For the vast majority of the world population, moving from countryside to city has brought unimaginable changes in life experience, from education to work to health.* The influx of manpower into coastal Chinese cities doesn't just track to China's rise into an economic superpower—it was the engine. *China has more internal migrants than the world has migrants.* The same process is well underway in India as youth stream into Delhi, Bangalore, Hyderabad, and other up-and-coming commercial hubs. None of this appears in statistics as international migration, yet it has been one of the primary drivers of growth through wage gains and remittances to rural families. One doesn't have to cross a border to feel the power of migration.

Yet urbanization also feeds greater international migration. As the German geographer Ernst Georg Ravenstein explained more than a century ago, many people come to major cities as a stepping-stone to further opportunities abroad. With the relentless growth of the world's four-dozen megacities (those with more than 10 million inhabitants) and teeming second-tier cities, approximately 1 billion more people are predicted to move into cities in the coming decade. It's a safe bet that many will arrive there to get a passport.

To move is human

The story of mankind begins with a single step. The first upright beings set foot out of Africa nearly 2 million years ago, crossing a land bridge to Eurasia in the geography of today's Red Sea and Sinai Peninsula. Over the thousands of millennia that followed, our protohuman ancestors interbred and gradually emerged as a unique species—*Homo sapiens*—

* The gap between wages of people in cities and regions continues to grow and now stands at about 1.5 times higher in core cities. William Gbohoui et al., "A Map of Inequality in Countries." *International Monetary Fund Blog*, November 6, 2019.

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about 300,000 years ago. Paleontologists believe that between 135,000 and 90,000 years ago, a severe African drought spurred *Homo sapiens* to fan out of Africa into the terrain of the Neanderthals in Europe. But unlike our Neanderthal competitors, *Homo sapiens* used their lighter, more upright bodies to cover longer distances when hunting and gathering with their bone (then stone) tools. Early man outran and outlasted his rivals.

We are told that speech is a key differentiator between humans and other primates, but why did we learn to speak at all? Linguists believe that human languages developed about a hundred thousand years ago, not incidentally because of the increasing interactions among these migrating *Homo sapiens*, who needed to communicate while covering several hundred kilometers of hunting range. Climatic events such as the Last Glacial Period of twenty-five thousand years ago pushed humans all the way across Siberia and over the land bridge to North America. But as northern latitudes once again became habitable just over eleven thousand years ago, intensifying Eurasian migrations gave rise to the entire Indo-European family of languages that boasts 3 billion speakers today.

Great migrations permeate all of recorded history and our oldest mythologies. According to the Hebrew Bible, the Jews suffered a long period of slavery under Egyptian pharaohs, until a great exodus miraculously returned them across the Sinai to their ancestral land of Canaan. We use the German term *Völkerwanderung* to describe the early centuries AD during which Germanic, Slavic, and Hun tribes invaded the declining Roman empire. Facing persecution in Mecca, the followers of the Prophet Muhammad sought refuge in the African kingdom of Abyssinia, but also became missionary conquerors, establishing the early caliphates and converting followers as far as Southeast Asia. The reason that allegedly up to 10 percent of Asian males between the Caspian Sea and the Pacific Ocean claim lineage to Genghis Khan is because the Mongols were nomadic and polygamous conquerors who intermarried with local tribes.

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The fourteenth-century Black Death killed an estimated 100 million people and led to the splintering of the vast Mongol empire. In Europe, farmers and laborers moved to places where land quality was better and to towns where wages rose due to worker shortages. Up to 90 percent of the population in some Arab territories vacated their infected villages and fled to cities. During the centuries-long Little Ice Age that followed, expanding glaciers and crop failure pushed Eurasian populations to search for more reliable farmland, and also inspired the Dutch and Portuguese to undertake oceanic navigation, spurring their colonial expansion.

Migrations of the colonial era were both voluntary and involuntary. English immigration to establish colonies in America began in the late sixteenth century. Throughout the seventeenth century, these early settlers were joined by pilgrims in search of profit and Puritans and Quakers seeking religious freedom. Over the four hundred years of the transatlantic slave trade, an estimated 13 million Africans were shipped to North America, the Caribbean, and South America. In Asia, the British and Portuguese empires moved millions of Malay and Indian merchants across the Indian Ocean, and East Asians spread across the Pacific to both North and South America. More than a millennium of Chinese emigration into the Malay peninsula, across the Tang, Ming, and Qing dynasties, dramatically contributed to making Southeast Asia the ethnic melting pot that it is today.

The nineteenth century is widely referred to as the “age of nationalism” due to ethnonationalist movements resisting Europe’s dynastic empires. Yet it was *also* the age of mass migrations, as the Industrial Revolution created huge demand for both agricultural and manufacturing labor. Millions of farmers were lured to factory jobs in cities, while steamships and railways transported millions of workers, slaves, and criminals across the British empire—especially across the Atlantic to North America. Sixty million Europeans moved en masse to America, including 1.5 million (40 percent of the population) fleeing

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Ireland's potato famine, followed by several million Italians escaping rural poverty.

Nationalism had a phenomenal run of success in the twentieth century as well, with decolonization movements bringing an end to Europe's global empires and giving birth to dozens of new countries. And even though the end of World War II settled much of the world map—it did not settle the world's people. Millions of refugees shifted from Eastern to Western Europe, and from Europe to America. Both before and after the Holocaust, hundreds of thousands of Jews fled Europe to America and Palestine, with even more arriving after the creation of Israel in 1948. The partition of India and Pakistan in 1947 displaced an estimated 20 million Hindus, Muslims, and Sikhs—still the largest mass migration in human history.

Postcolonial ties brought millions of Indians and Pakistanis to England, as well as Vietnamese, Algerians, and Moroccans to France. During these postwar decades, severe labor shortages in Europe combined with high unemployment in Turkey lured waves of *Gastarbeiter* (guest workers) to Germany (and its smaller neighbors). In America, the 1965 Immigration Act repealed quotas on the national origin of immigrants, leading to a surge of Latinos from the Caribbean and Central America and waves of Asians from China, India, Vietnam, and elsewhere.

Recent decades have added yet more impetus for large-scale resettlement. Civil wars and state failures, such as Afghanistan in the 1980s and more recently Iraq and Syria, have forced millions to become refugees. The Soviet Union's collapse three decades ago continues to drive millions of people across its former republics spanning Eastern Europe and Central Asia. The Gulf oil boom brought millions of Palestinians and South Asian migrant laborers to Kuwait, Saudi Arabia, and the UAE. Migrants physically built some of today's most modern states. To move and to build—this is the essence of being human.

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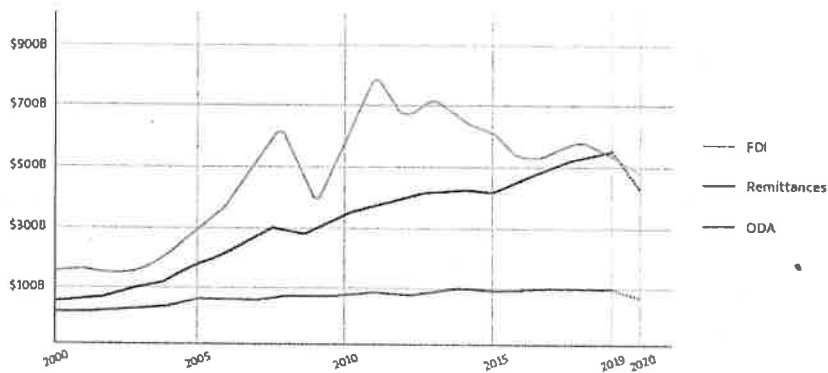
Migrants make the world go round

Many believe that protectionism, populism, and the pandemic mean we have reached peak migration, but let's look at the economics. Over the past half century, governments have borrowed to the tune of \$250 trillion (more than triple global GDP) to finance everything from roads to retirement plans. While this has paid for modern civilization as we know it, aging countries are now staring down the barrel of economic stagnation unless they attract migrants and investors, and the tax-paying activities they bring. Without younger generations to make use of homes, schools, hospitals, offices, restaurants, hotels, malls, museums, hotels, stadiums, and other facilities, many countries risk permanent deflation—both demographic and economic.

Migrants are a small share of the world population, but their weight has only grown over time. By the late nineteenth century, international migrants represented a sizable 14 percent of humanity, about 225 million out of a total population of 1.6 billion people. Then World War I and the Spanish flu flattened those waves. A century later, we stand at approximately 275 million migrants, a lower share (3 percent) of a much larger population (8 billion). It might therefore seem that we have not come very far, yet today's figure in fact represents a far more meaningful accomplishment. Why? Because unlike nineteenth-century migration—comprised of the desperate exodus of Europeans and Chinese, as well as British colonial subjects forcibly circulated across the empire—today we have mostly voluntary movement of peoples among nearly two hundred sovereign nations. Furthermore, whatever their number, migrants today represent 10 percent of global GDP (slightly less than that of China or America), including almost \$550 billion in annual remittances transferred across borders in 2019. (This figure also dwarfs total foreign aid, which has remained stagnant at around \$100 billion per year since 1980.)

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The Rise of Remittances



Remittances have been rising in lockstep with international migration, while aid has stagnated. Foreign Direct Investment (FDI) has been volatile due to financial crises and protectionist policies.

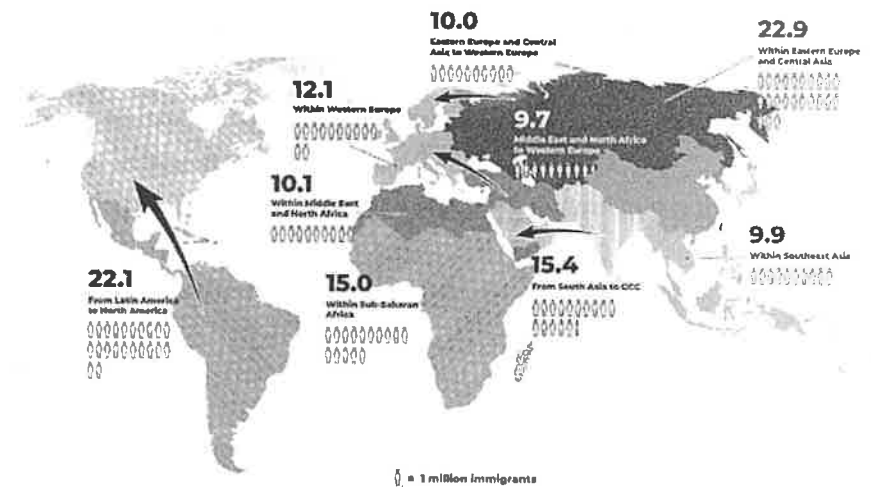
Unfortunately, humans have a much more difficult time moving across borders than money does. Countries have been open to the (relatively) free movement of goods and capital—but people, not as much. Migration is one of the primary, and most sensitive, arenas of sovereignty: controlling who comes in and out of one's territory. The US has imposed significant restrictions on asylum seekers and chain migration (especially Latino families), and Australia has set up migrant processing centers in the jungles of Papua New Guinea that have become semipermanent holding camps. Italy and other European countries have paid off Libyan militias to keep migrants from crossing the Mediterranean. The Universal Declaration of Human Rights doesn't guarantee anyone the right to reside in another country—only the receiving country decides that.

We do not have a binding global migration framework—and probably never will. But there are deeply rooted regional patterns in the flows of people, shaped by family histories, business needs, and cultural preferences. Half of all foreigners in America are Mexican or Latino; members of the European Union enjoy almost fully free migration and other privileges in one another's country; Southeast Asia has largely open borders, and

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most cross-border migrants are from within the region or from China and India. We use terms like “insider” and “outsider” to denote national distinctions, but in reality, our world is already a collection of regional *mélanges*.

People on the Move: More Regional Than Global



Most migration takes place within regions or between adjacent regions. The largest migrant stock remains among the former Soviet republics of Russia, Eastern Europe, and Central Asia, followed by the South Asian population in the Gulf countries

The largest flows of people in the world are *within* these organic regions. The former Soviet Union region spanning Eastern Europe and Central Asia represents the biggest migrant pool at 25 million people, followed by the circulation of primarily Latinos around North and Central America (20 million), sub-Saharan Africans within Africa (15 million), South Asians to the Gulf countries (15 million), EU citizens within the EU (12 million), Arabs and North Africans within the Middle East (10 million), Eastern Europeans into Western Europe (10 million), Southeast Asians within their ASEAN (Association of Southeast Asian Nations) group (just under 10

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million), and lastly the fewer than 10 million Arabs and North Africans that have moved to Europe.³ This also suggests that the two-tiered division of humanity into “North” (North America and Eurasia) and “South” (Africa and South America) persists. Five point five billion people live on continents with reasonable prospects, while 2.5 billion don’t have a plan or opportunity to escape. Most migrants don’t make it very far—yet.

Voting with the feet

The coming age of mass migrations won’t just be a continuation but an acceleration. The swirl of humanity will only get more intense as each of the forces shaping our human geography gathers steam:

- *Demographics:* Lopsided imbalances between an aging North and a youthful South able to provide the labor force the North needs
- *Politics:* Refugees and asylum seekers from civil wars and failing states, as well as those fleeing ethnic persecution, tyranny, or populism
- *Economics:* Migrants in search of opportunity, workers laid off due to outsourcing, or employees forced into early retirement by financial crises
- *Technology:* Industrial automation displacing factory and logistics jobs, while algorithms and AI make skilled jobs redundant
- *Climate:* Long-term phenomena such as rising temperatures and sea levels and falling water tables, but also seasonal disasters like floods and typhoons.

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In day to day life around the world, all these parallel trends amplify each other—so much so that we can even state their relationship as an equation:

demographic imbalances
+ political upheaval
+ economic dislocation
+ technological disruption
+ climate change

X

connectivity

=

accelerated mobility

These variables also interact in complex and unforeseen ways. Pandemics wipe out millions of people within the span of a few years, while climate change does so cumulatively via droughts and other natural disasters. Both heighten economic and social uncertainty, which drives down fertility. So, too, do financial crises and labor automation, which also force people to move in search of jobs and an affordable life. The bottom line is that everything drives migration, alone and together.

The Covid-19 pandemic and its aftermath will reinforce these pre-existing trends. To be clear: The coronavirus lockdown was a stunning break from recent decades of intensifying resettlement—

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but it was artificial and temporary. It did, however, prompt people everywhere to rethink where they live and begin looking for better options. People are ditching “red zones” with inadequate healthcare for “green zones” with better medical systems and “blue zones” offering greater climate resilience. *We are all in search of the right combination of latitude and attitude.*

The future of human mobility points in just one direction: *more*. The coming decades could witness *billions* of people on the move, shifting from south to north, from coast to inland, from low-lying to higher-elevation, from overpriced to affordable, from failing to stable societies.

No doubt there are billions of people who will die in the countries in which they were born. Indeed, let’s assume that more than half of the most populous countries are too sedentary, old, infirm, unwilling, or unwelcome elsewhere to leave home. That means that at least 1 billion Indians, 1 billion Chinese, 700 million Africans, 200 million Brazilians, the same number of Indonesians, 100 million Pakistanis, and another 1 billion others remain geographically immobile. That still leaves *4 billion* people who may be both eager and capable of migrating.

Almost all of those 4 billion are young. Just over half the world’s population was born in the three decades since the Cold War ended. This includes most millennials (Gen-Y) and all of Gen-Z. As of 2020, they represent more than *60 percent* of the world population. We often talk about a world that’s aging, but right now, the world is more young than old—and the primary reason humanity is getting statistically older is because today’s youth are barely having any children. Thus, when we talk about “the people,” it’s wrong to envision yuppie, middle-class, two-income, two-child households living in suburbia. That isn’t true in America, Europe, China, or anywhere. The largest category of people in the world is best described as young, single,

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childless, and struggling in cities. If you are not one of them, you are in the minority.

Furthermore, if you are not Asian, you are definitely in the minority. Asia represents not only 60 percent of the global population (versus only 25 percent *combined* for North America and Europe), but also almost all of the countries with the largest number of young people in the world. *China and India each have more millennials than America or Europe have people.* In recent years, about two-thirds of Asian migrants have remained within the region, but as the West’s demographic imbalances become more acute, Asians will be in ever higher demand worldwide. There are presently more Chinese outside of China than Indians outside of India, but soon that will reverse: Whereas China’s population will soon begin to decline, India’s is much younger and continues to grow—and with all of South Asia (including Pakistan and Bangladesh) much poorer than China, its youth are much more motivated to move. Geopolitically, the world seems like it’s turning yellow, but demographically it’s unquestionably turning brown.

Wherever they hail from, today’s youth are the largest and most physically and digitally mobile generation in human history. Where they’re going, how they’re living, and what they’re doing *today* reveals what social, political, and economic models will prevail—and which ones will fail—*tomorrow*. Countries that are losing citizens today are likely to wither tomorrow. By contrast, countries gaining youth today may well thrive tomorrow.

What will the *next* three decades—between now and 2050—hold for those under the age of thirty *today*? What geopolitical, economic, technological, social, and environmental circumstances will they face? Where are they going? Which societies will be the winners and losers in the twenty-first century? These and other great questions of our time are being answered as young people vote with their feet. To know the future, then, we must follow the next generation into it.

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Survival of the mobile

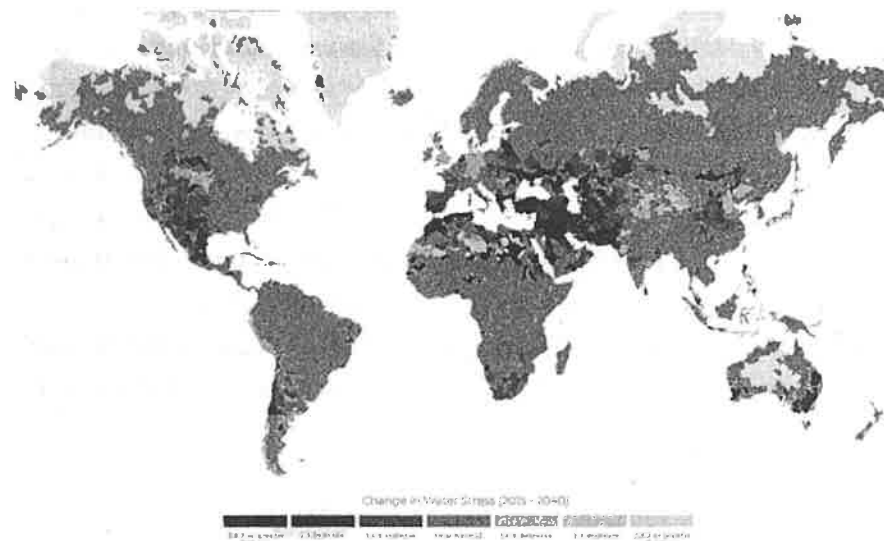
Baby boomers remember the Cold War “Doomsday Clock” that warned of impending nuclear destruction; scientists moved the needle closer to midnight as geopolitical tensions escalated. Today’s youth are much more familiar with the “climate clock” that counts down to when the Earth’s temperature rise hits two degrees Celsius. As climate activist Bill McKibben has written, “It is far too late to stop global warming, but these next ten years seem as if they may be our last chance to limit the chaos.”⁴ It’s safe to assume we will fail to limit the chaos. Philosophers such as Roy Scranton tell us that we need to “learn to die.” That’s equally unlikely. The more interesting question becomes: What will we do to survive?

Mankind has long been on the move in search of the right climate, settling along rivers and coastlines in the temperate latitudes. As we learned to control fire, herd animals, build sturdy shelters, and pump groundwater, we spread more widely, with cities becoming the locus of populations and growth in the industrial era. But the intense resource consumption required to fuel urban life for billions of people has caused skyrocketing carbon emissions, scorching temperatures, and record ice melt, rendering ever more swaths of the Earth unlivable.

There are many ways to beat the heat and retreat from the sea—but no survival is possible without freshwater. Ancient civilizations of the Nile, Tigris, Indus, and Yellow River valleys were built on irrigation. Today two-thirds of the world’s population lives near rivers, and agriculture consumes 70 percent of our freshwater. But with groundwater depletion accelerating and rainfall declining, rivers are drying up. Farmers from Brazil to Africa to India already face crop failure year after year. Those who are bonded to their land amass huge generational debts, commit suicide, flee to cities, or join the hordes illegally migrating across borders. One season without rain or one week of “zero day” water shortages is all it takes to push farmers and city dwellers to chase more fertile and hydrated lands.

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Rising Water Stress Across the Planet



Freshwater availability is projected to decline in almost all regions of the world over the coming two decades. The Middle East and North Africa, as well as the southern United States and eastern Australia, will be among the most affected geographies.

The term “Anthropocene” (defined by Webster as “the period of time during which human activities have had an environmental impact on the Earth regarded as constituting a distinct geological age”) initially gave us a false sense of control over the environment, but now we see that it signifies a self-destructive feedback loop.* Even if some of today’s most ambitious proposals are undertaken immediately—stopping all coal-powered electricity generation; replacing fossil with nuclear, hydrogen, wind, and solar power; and planting 1 trillion trees across Russia, Canada, Australia, Brazil, and America—greenhouse gases already accumulated in the atmosphere may have an even more severe impact on planetary life than they have had to date. For billions of people, staying put means

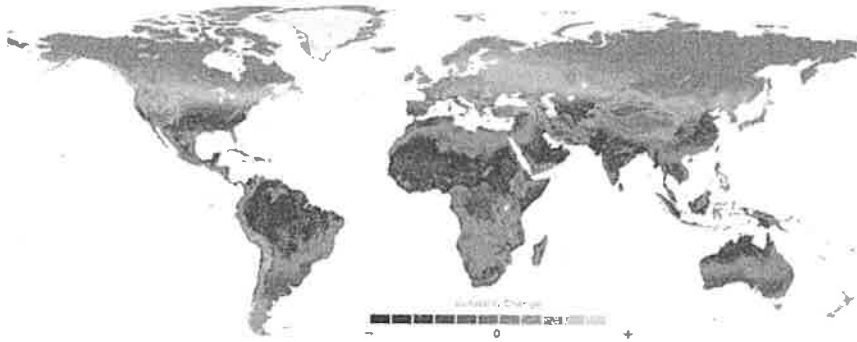
* Georgetown environmental historian J. R. McNeill has methodically documented this “great acceleration” of the man-technology-nature nexus.

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inevitable suicide. Political sovereignty has been a defining feature of our geography for only three centuries—but our seas will be rising for the next several centuries. Ask yourself which force will give way.

The climate doesn't care about our political boundaries, and people too will clamor ever more to overcome them. Climate stresses cause migrant swells. The 50 million climate refugees today already outnumber political ones. According to the National Academy of Sciences, another degree of temperature rise could push 200 million people out of the "climate niche" to which they have become accustomed.⁵ And a further degree beyond that could mean the decimal place moves one further, turning 1 billion or more of humanity into climate refugees.

How Fast Will It Get Hot?



The optimal geographies for human habitation are shifting as temperatures rise. Regions in black will have average daily temperatures above thirty degrees Celsius and become unsuitable for human habitation by 2070 or sooner. Lighter shaded regions will become more suitable for settlement over time.

Mitigating the effects of climate change no longer appears plausible, and few will wait until the worst case scenarios come true to abandon wherever they have called home. We must focus instead on adaptation—and for most people, to adapt will mean to move. Poor Central American farmers who lose everything in a cyclone and Africans wiped out by

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drought will simply take what's left and move north. As the rich lose a home in a forest fire or a yacht in a typhoon, they invest in land and bunkers farther inland and at higher elevations, or in Norway and New Zealand. Whether rich or poor, ever more people are, like our ancient ancestors, chasing the climate niche.

Running from the robots

While climate change drives us away from our traditional habitats, robots are chasing us away from the stable jobs we once knew. Outsourcing and automation have already devastated America's industrial workers, forcing them to move to cheaper places in search of new jobs. Asian workers were the beneficiaries of supply chain shifts, but today no country is investing more in ramping up industrial robotics than China, pushing tens of millions of Chinese workers into the rootless gignomy.

Covid-19 will accelerate automation efforts worldwide as companies seek to reduce dependence on vulnerable humans. In the US, up to 3 million truck drivers could lose their jobs to autonomous vehicles, and 2 million real estate agents to proptech apps. Amazon's warehouses will eventually manage themselves without people. The unsung heroes of the Covid lockdown were undocumented migrants laboring on farms and in meat processing plants, but they won't be rewarded: They will be automated by machines that can crush weeds, plant seeds, and pick crops. Latino farmhands might as well move on to Canada to help expand farming there, and Romanians to Russia.

Many current job creation engines will be wiped out before today's youth even join the labor market. There's no point in aspiring to install 5G telecom networks or solar panels when all of that will have been done already. Other major sectors, from education to hospitality to retail, have yet to be digitally overhauled—but they *will* be. One estimate suggests that at least 375 million people will have to switch "occupational catego-

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ries” due to artificial intelligence and automation. Will their new job be located where their old one was? Not likely.

The race against the machines is survival of the richest. Coders, engineers, and others with top-tier skills stay ahead of robots and algorithms by designing them, while poor workers serve as cogs in the manufacturing, logistics, or retail machinery until they become disposable. At the same time, young people don’t want to work like robots either. In France, village bakeries are being replaced by semi-automated grocery stores and even baguette vending machines. Youth aren’t interested in waking up at 3 a.m. to bake bread anyway, so they move.

If countries tax corporate robots and redistribute profits, they can become more equitable welfare states without needing larger populations. Today, however, only Germany and Japan could conceivably muster the political will for such a move without their companies rushing to outsource. Either way, they remain migration magnets because they offer jobs in finance, media, education, tech, medicine, logistics, entertainment, retail, and other professions. According to the Small Business Administration (SBA), US states where these sectors are growing are the same states where populations are growing: North Carolina, Oregon, Washington, Virginia, Georgia, Utah, Colorado, California, and Texas.⁶ The lesson is clear: Follow the people.

A quantum future

Over the past two decades, millions of Americans who abandoned rust-belt districts of Michigan, Pennsylvania, Ohio, and other northern states wound up in California, almost by default. Since 2015, however, California has been losing residents, especially to lower-tax Texas and Arizona. Yet the entire southwestern US is suffering from intensifying heat waves, water shortages, and volatile immigration policy. Despite the popularity of Las Vegas, Phoenix, and Tucson, large tracts of America’s desert regions

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might need to be deserted—and those who fled the Great Lakes may well return sooner than they think.

To end up where one started seems a pointless circularity. And yet over a certain time horizon, we can engineer the logic behind it. Take another example: The UK’s 2016 Brexit decision pushed business and investment away from the country, with British talent taking their skills and money to Canada, Portugal, the Netherlands, Switzerland, Sweden, and a half-dozen other countries. But Britain has an educated population, a large economy, ample freshwater, and will fare far better than most places as climate change accelerates. So those that Brexit pushed away may eventually return despite Brexit—along with a new wave of migrants recruited by a wiser government.

Human geography is getting fuzzy. As people find themselves regularly on the move, we are experiencing a phase shift like when matter transitions from solid to liquid to gas: molecules heat up and loosen from one another, vibrating more rapidly. One might even say that humans are becoming like particles in quantum physics, their velocity and location always in flux. It would be nice to return to some semblance of stability, but that’s not how things work in a quantum world. Instead, the complexity of today’s world makes it increasingly difficult to settle permanently anywhere. Highly paid digital nomads and billionaires with multiple passports as well as the migratory underclass of Filipino maids and Indian construction workers are all part of the diverse and growing global demographic of quantum people.

There’s also no reason to believe that the rising tide of political refugees and asylum seekers will stop—but plenty more reasons suggesting it will continue. Across the postcolonial landscape of Africa, the Middle East, and parts of Asia, nations began to decay from overpopulation and corruption almost as soon as they were born. In recent decades, the multiple Iraq wars and the Arab Spring have pushed millions of Arabs from North Africa to Syria into Jordan, Turkey, and most recently Europe—perhaps never to return to the home nations that have been shattered be-

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yond recognition. As Paul Salopek wrote in *National Geographic* in 2019, “More than a billion refugees and migrants are on the move today, both within countries and across borders, fleeing mass violence and poverty. This is the largest tide of rootlessness in human history.”⁷

The term “refugee” implies a narrow and transient group, but what we have is semipermanently resettled people, such as Syrians in neighboring states, Palestinians in Jordan, Afghans in Pakistan, and Somalis in Kenya. In Turkey, nearly 4 million Syrians hold “temporary protected status” but in reality may never leave. At the same time, they’re always at risk of being deported as a bargaining chip to extract concessions from Europe—as Turkey did in 2020 in pushing another wave toward Greece. These refugees regularly shift within Turkey, meaning more steps in their perpetual movement—and for those who are deported, yet one more. There are few safe bets for tens of millions of refugees, asylum seekers, and undocumented migrants. The US has pushed several million Mexican and Central Americans back across the border over the past decade, Spain continues to expel North Africans, and China booted Burmese migrants back into Myanmar as the coronavirus struck. They thought they had made it—until they were forced to move again.

Violence and resource stress are daily facts of life in the teeming megacities of Latin America, Africa, and South Asia. Today’s fastest growing cities are not those in China’s hyper-modern Greater Bay Area but cities such as Lagos, Karachi, Cairo, Dhaka, Manila, Istanbul, Jakarta, Mumbai, Kolkata, São Paulo, and Bangkok—most of which rank worryingly low in climate resilience. The vast slums in these and other megacities are home to an estimated 1.5 billion people. Cities that recycle shipping containers or subsidize 3D-printed housing, offer mobile health clinics, and create jobs in urban farming and installing solar panels may pacify the poor underclass. But such initiatives are still few and far between. In the coming decade, we will either see such innovations scale or we will witness large-scale revolt against marginalization and oppression. There is also a third scenario—mass exodus—as people flee to towns

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closer to resources and at higher elevation. Which will it be? The answer is: all three.

How do we know which places will gain or lose people in the years ahead? Some places have every strike against them: They have too few young people, are politically volatile, economically uncompetitive, and ecologically vulnerable. These are the places from which people want to flee. At the other end of the spectrum are places that have it all going for them: robust demographics, stable politics, prospering economies, and environmental stability. Those are the places everyone wants to go to. The catch is: How we would describe one country today may not be true tomorrow. What place can be sure of its stability when so many newcomers arrive? Its own desirability could quickly destabilize it. This is what some feel has already happened to Europe and America; Canada could be next.

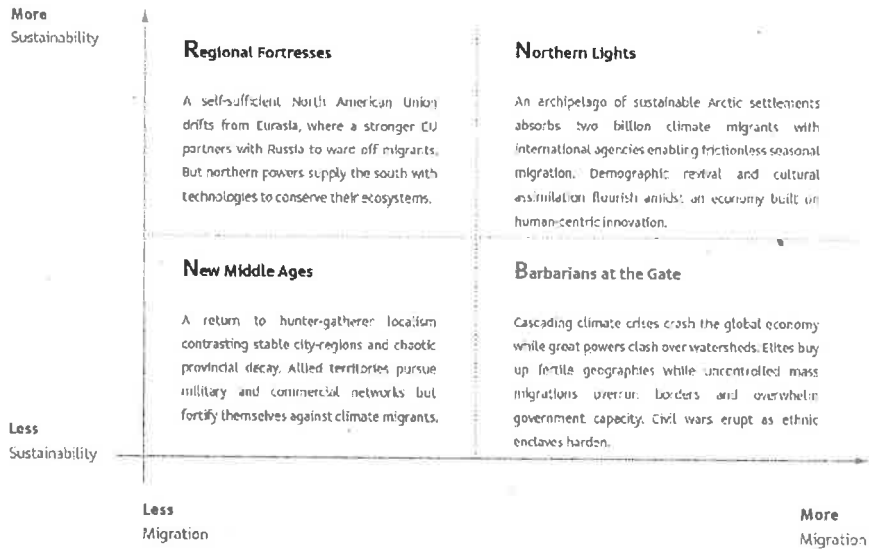
But unpredictability is no reason to stand still. On the contrary, it’s precisely why so many people move in the first place—and find themselves moving again and again. Mobility is our response to uncertainty: flight from what we cannot fight. The future is a moving target—and so are we.

One Future, Four Scenarios

I’m not the daydreaming type, but sometimes during a long hike, I fall into a light trance. My mind slips into visions of a world in which disparate communities across the globe freely and peacefully connect and exchange, and people circulate as they please. Sadly, we are a long way from that dream today. At the moment, our human geography is emerging more by accident than design. That leaves us little choice but to build a range of scenarios for how the combinations of mobility, authority, technology, and community will unfold in the years ahead.

The four scenarios depicted here represent divergent visions for our future playing out along the axes of migration and sustainability.

Which Path Will the World Take?



Four scenarios for the future. All are likely to play out simultaneously in different parts of the world.

In the upper left, “Regional Fortresses” most closely resembles today’s status quo. Clean energy investments are ramping up, but migration is limited. The rich countries of the North are far more focused on their own climate resilience than supporting deprived regions. They selectively promote sustainable farming or other survival measures in impoverished regions, but mostly to bribe their people to stay away. North America, Europe, and Northeast Asia drift into self-contained systems with limited interactions, though they may coordinate where necessary to limit encroachment from the South. They could also be at perpetual war with one another as in George Orwell’s *1984*.

Another low-migration scenario portends the emergence of a “New Middle Ages” of even greater fragmentation. In this scenario, sustainability investments are abandoned and militaries forcibly seize water and energy resources from their own citizens or across borders. Waves of natural di-

sasters and man-made ecocides kill off large portions of the world population. Those that remain converge upon feudal city-regions that form alliances akin to the medieval Hanseatic League. This landscape has been captured in countless films, from *Hunger Games* to *Mad Max*. (Throw in killer robots and you get *Terminator*.)

In both these low-migration scenarios, the world population as a whole is clearly not better off. Climate change may be less devastating in a world of regional fortresses, but even with lots of robots supplanting foreign labor, we may lack the young workers needed to rejuvenate our societies and lead a more convenient life. If we’re headed into a new Middle Ages, then the world will be much less than the sum of its parts—and potentially on the fast track to human extinction.

Moving to the bottom-right quadrant, we find a world similarly unable to coordinate sustainability efforts but with far more “Barbarians at the Gate.” Climate change wreaks havoc on the global economy, “water wars” break out over watershed regions, and masses of migrants force their way into livable regions, their overwhelming influx ruining habitats. At the same time, the rich buy up climate oasis zones for themselves and their dependents, building armed moats around them. The sci-fi disaster film *The Day After Tomorrow* perhaps best captures this combination of political and climatic chaos.

Only one scenario, “Northern Lights,” involves advanced planning for large-scale human resettlement and environmental regeneration. Economies move rapidly toward carbon-neutral energy, vast tracts of transnationally financed and governed zones (mostly in the northern hemisphere) absorb billions of migrants, and large investments are also devoted to rehabilitating the southern hemisphere. The world achieves both resource efficiency as well as managed cultural assimilation. No movie has yet been made about this scenario. We will have to write the script.

What might be the pathways and stages for getting to a Northern Lights world? In the first phase, today’s populism and pandemic restric-

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tions may limit migration to the national and regional level. But within a decade, as economies recover and baby boomers retire, labor shortages will worsen and a younger generation of more migrant-friendly leaders could take the helm. At the same time, climate effects may kick in even more severely, compounding the need for migrants to relocate and governments to deploy them to cultivate habitable terrain. Serious geo-engineering efforts will get underway to limit CO₂ emissions and solar radiation, as well as fortify the ecology of devastated regions. Eventually, we might well stabilize the environment and safely repopulate the Earth.

But the future won't give us the luxury of following one neat, predictable path. Plausible scenarios are never mutually exclusive; reality takes a zigzagging path, with elements of all four visions undeniably present. For example, environmental restoration may occur through conscious planning in a Northern Lights scenario but also via mass death in the New Middle Ages. Some degree of innovation, fragmentation, and inequality pervades all scenarios.

Importantly, we must never think that the collision of so many variables will play out evenly, either geographically or chronologically—which is why, as disparate places lurch across these scenarios, we move in search of a better life. Indeed, within a single vast country such as America, one can easily imagine elements of all four scenarios coming to pass in different regions at different times. This begs the question as to whether we can continue to rely on “the nation” as the anchor of our future. What matters more: places or people?

CHAPTER 2 THE WAR FOR YOUNG TALENT

Welcome to “peak humanity”

On October 16, 1975, national security advisor Henry Kissinger presented a memo to President Gerald Ford seeking approval for NSSM-200: “Implications of Worldwide Population Growth for US Security and Overseas Interests.” The proposal called for enhanced support for family planning and other population control measures in a dozen countries, such as India, Pakistan, Bangladesh, Nigeria, Ethiopia, Indonesia, Mexico, and Brazil. The White House hoped to steer the world population to 6 billion by 2050, “without massive starvation or total frustration of developmental hopes.” Those countries clearly never got the memo. When the world population did reach 6 billion (in 1995), the United Nations still forecast nearly perpetual growth toward 15 billion.

Today, however, the outlook is different. We can now foresee with confidence that the world population may peak as soon as 2045 and perhaps never reach 9 billion. How could we have miscalculated so badly? The answer is that we were wrong because we were right: Warnings about the economic and ecological perils of overpopulation are what prompted poor countries with high fertility to take measures to curb their breakneck population growth. Were it not for