

Chapter 1

The Myth of the Founder and a Company's Capitals

My great-grandfather, Fritz Hoffmann-La Roche, was a visionary entrepreneur. From 1896, he pioneered the nascent pharmaceutical industry, overcoming countless hurdles and challenges. He even nearly went bankrupt. But by the time he died, he had built a multinational corporation that still operates today as one of the largest and most impactful pharmaceutical companies in the world.

I love to look back on this story. And yet there's a problem with it. This story is too much centered on the achievements of one person.

We often hear business success is the result of individual genius, entrepreneurship, and persistence. We are told that founders are a special breed, and different from us. That they see solutions where others see obstacles. That they see the future, where we can only see the present. And that they succeed, not because of circumstances,

This chapter is written in André's voice.

but because they are destined to win and do what it takes to fulfill this destiny.

We know this myth not just from my great-grandfather but also from some of the world's richest men of today, such as Elon Musk, Bill Gates, and other Silicon Valley billionaires. Musk cofounded PayPal, predicting the future of online payments. He also cofounded the electric vehicle pioneer Tesla and turned it into the most valuable car company in the world. And he continues his entrepreneurial ventures today with companies such as SpaceX, Neuralink, and xAI, pioneering everything from space industry to artificial intelligence (AI). Gates brought modern computing to the masses, popularizing PCs through Microsoft's Windows and Office software. Both built business empires that advanced human progress and propelled societies forward.

But these mythologies, just like my great-grandfather's, are misleading. Not factually, but they miss the bigger picture.

Fritz Hoffmann-La Roche was exactly as I just described. But he was also a child of his time and the world around him. To succeed, he could bank on several "capitals" that were uniquely available to him. These included the financial capital, which was given to him by his father, father-in-law, and other family members and associates. And they included social, natural, and human capital, all available in Basel, the city on the Rhine River where Fritz was born and spent almost his entire life.

This chapter is about these capitals. We will explore their role in conjunction with the success of Roche, the company in which my family has a controlling share to the present day. And we will show how they are just as relevant for us in today's and tomorrow's capitalism as in that of Fritz and his family at the end of the 19th century.

Financial Capital

It's hard to understate the importance of financial capital, yet easy to overlook it. My great-grandfather, who was born in 1868, was

fortunate to have access to financial capital at a time where only a few people had the opportunity. When he came of age, new companies using chemical and pharmaceutical processes started to emerge in the city. And in 1893, he joined one such company, Bohny, Hollinger & Cie, which produced flooring wax and soap in the city, which operated a department store with some nascent pharmaceutical offerings.

As Fritz gained experience in the company, his vision started to develop: if a company could industrialize the production of sanitary and pharmaceutical products, he figured, it could supply drug stores everywhere, and become as successful as any other industrial company. But to get there, he needed a lot of things to come together. The first thing, of course, was money. Thanks to his father, Friedrich, a successful businessman, that was not an insurmountable challenge. His father soon invested the substantial sum of 200,000 Swiss Francs into Bohny, Hollinger & Cie, and Fritz was subsequently promoted, becoming an authorized representative of the company.^(a)

The idea of pioneering the pharmaceutical industry was a promising, if risky one. By the time my great-grandfather entered the scene, industrialists were already successful in heavy industries like steel or coal, railroads, and textile. Once a successful industrial process was identified, the way to success was well-defined: you invested the capital necessary to build a factory, and from there, the rest followed; you installed novel machinery, hired personnel, bought commodity inputs in bulk, and finally, sold the industrial products in newly established markets. It was the recipe of industrialists such as Robert Owen (textile, UK), Andrew Carnegie (steel, US) or Ernest Solvay (chemicals, Belgium).

Pharmaceutical products, though, were still largely made in artisanal pharmacies, with a local pharmacist concocting the

^(a) Technically, Fritz received power of attorney, meaning he had the legal right to represent the company, for example, by signing contracts on behalf of the firm.

different products their pharmacy offered. But Fritz had an inkling this sector, too, was ripe for industrialization.

Just as important as having capital, though, is maintaining your access to it. That was as true in the late 1890s as it is today. Fritz was confronted with this timeless reality sooner than perhaps he wanted to. He soon fell out with his conservative partners in the business who disliked his modern style and saw himself forced to either double down on his prior investment and take over the whole company or write off the loss. With the financial help of his father and the company's factory head, Max Carl Traub, he was able to choose the first route. They founded the new company Hoffmann, Traub & Co. on April 2, 1894.

The idea of creating industrialized pharmaceuticals may have been a good one, but it was not as easy to make it work at the time. The company's first product, a wound disinfectant called Airol, did not sell well at first.^(b) But instead of giving up, Fritz powered through. He set up shop in Milan in 1895 and started to buy land and build a purpose-built pharmaceutical plant in Grenzach (Germany) from May 1896 onwards. At that point, however, his business partner Traub wanted out. He thought the quick expansion of the company—which was not based on any proper income through sales—was a huge risk to his investment. He asked Fritz Hoffmann-La Roche to pay his stake off. Once more, Fritz could do so only with the (now very reluctant) financial help of his father in September 1896, and the company F. Hoffmann-La Roche & Co. was registered on October 1, 1896. (Fritz had married Adèle La Roche by now, and added her name to his, resulting in the Hoffmann-La Roche company name.)

Personal persistence and pharmaceutical breakthroughs would help him as well in the years to come, but it was the financial capital his family backers provided which kept Fritz in business. And it ultimately paid off. By 1898, the F. Hoffmann-La Roche

^(b) It did become very successful in Russia in a later point in time as Alexander Bieri, Roche's historian, pointed out.

company put its first successful pharmaceutical product onto the market: Sirolin, a cough syrup that contained an active ingredient called *thiocol*. It was sold for over half a century and constituted the first true global “blockbuster” for the firm. At the eve of World War I, before the company even celebrated its 20th anniversary, sirolin and other novel “Roche” medicines were sold everywhere from Paris to St. Petersburg, and from Yokohama to New York. (Over time, F. Hoffmann-La Roche started to use the name *Roche* for short, primarily because it found this part of the name the one that translated best to other languages and countries.)

When recounting the story of successful founders and companies, we tend to brush over fundraising as if it comes naturally. But as this little story suggests, financial capital is not available to everyone. Getting access to it depends as much on one's network as on one's business ideas. It makes the responsibility of those who have it crucial. Deploying financial capital for one venture or another helps set the course of history of entire communities, cities, and society at large. The story of Roche is a good historical example, but there are just as many in the present day. Indeed, financial capital has played just as big of a role for the most successful entrepreneurs of recent times. Consider the stories from Apple, Amazon, Google, and Meta.

Many people are familiar with the legend of Apple: college dropouts Steve Jobs and Steve Wozniak founded Apple back in 1976¹ in Wozniak's garage in Silicon Valley. But within a year, Jobs realized that the company needed funding to grow. At that time, it was former Intel employee Mark Markkula who put in a significant amount of money and became Apple's largest shareholder.²

Similarly, when Jeff Bezos started Amazon in 1994, he immediately looked for seed funding. Just like with many other entrepreneurs, it came from his parents. They provided Bezos with \$300,000,³ enough to keep the company going until a second round raised \$8 million from venture capital fund Kleiner Perkins in 1995.⁴ As for Google founders Sergey Brin and Larry Page, they had been tinkering around with a search engine at Stanford

since 1995. But Google Inc. only came into being as such, after a \$100,000 investment by Sun Microsystems founder Andy Bechtolsheim in 1998.⁵

Finally, Meta, the company Mark Zuckerberg among others founded as Thefacebook.com in early 2004, received its first funding of \$500,000 barely three months after its incorporation in a Harvard dorm room, and less than a year after the project was conceived. The money came from PayPal cofounder and venture capital investor Peter Thiel.⁶ And speaking of PayPal founders: Elon Musk, who now is mostly known for Tesla, SpaceX, and X, started out as an entrepreneur founding Zip2, an internet 1.0 business search company. He may have got closest to bootstrapping, starting out with only \$15,000 in its initial funding round, of which just under half came from himself and his brother. Even so, the majority investment in that first funding round, came from a third party: Greg Kouri,⁷ a Lebanese American businessman who also joined Zip2 in an operational role early on.

This is not to take away anything from the achievements of these incredible entrepreneurs. But it bears repeating: the financial capital these companies received at the time of their inception and in the immediate years following was crucial to their success. Without it, the great innovations these men created for the world, may have come to nothing. This matters, because what is true for the world's largest technology and pharmaceutical companies is also true for companies working on technology, sustainability, or climate today. Creating a sustainable *and* prosperous economic system is the great and unmet challenge of the 21st century. We'll need visionary entrepreneurs to create companies that rise to that challenge, just as we had entrepreneurs rising to the challenges and opportunities of the internet era of Bezos and Gates, or the industrialization era of my great-grandfather. But we'll also need funders to provide these entrepreneurs with the financial capital they need. For many among them, finding the right capital has been perhaps their greatest hurdle.

So how do you get access to financial capital?

Social Capital

If my great-grandfather was able to fund his innovative start-up back in the 1890s, it was primarily because his father and father-in-law had the financial means to do so. But that immediately raises a second question: where did *their* money come from? There is a narrow answer to this question, of course, which is that both men had successful businesses themselves. But the longer answer is that they were both members of the *Daig* families that controlled much of Basel's economic development since medieval times. Like other leading families, the Hoffmann's and La Roche's got their capital by building out the silk industry in the city. Both families played their individual roles, leading companies and taking up posts as mayors or aldermen. But taken together, the families were an important constituent of Basel's social capital.

Social capital is more intangible than financial capital, but just as important in building successful ventures. According to *Britannica*, it consists of three dimensions: the interconnected networks of relationships between individuals and groups, the levels of trust that characterize these ties, and the resources or benefits that are both gained and transferred by virtue of social ties and social participation.⁸ Fritz was at the receiving end of centuries of this kind of social capital accumulation in the city of Basel, which had started in medieval times. As people moved to emerging urban centers, they provided their host cities with an invisible, yet powerful engine of development. In the case of Basel, immigrants imported knowledge from elsewhere, such as the silk industry in Northern Italy and southern France. They got attracted by the city's religious liberty, and its relative autonomy from lords and bishops. Their entrepreneurial drive turned the city on the Rhine into a prosperous industrial and commercial center. There was a network of free citizens and artisans within the city walls, and trust among them. And as this process accelerated, these entrepreneurs also secured a leading role for themselves in the city's political and economic life. The leading families among them became known as the *Daig*.

As elsewhere, events of the 19th century disrupted the status quo in Basel. The revolutionary spirit that came from nearby France led the citizens of Basel's countryside to demand self-rule from the city. It led to a political division still in place today, with the historical Canton of Basel split into Basel-City ("Basel-City"), and Basel-Landschaft ("Basel-Countryside"). But the changes weren't only political. Newcomers from outside Basel and Switzerland moved to the city to start up new businesses, too, notably in the chemical industry. It led, over time, to the decline of the silk industry, and the rise of a new one. My great-grandfather and his family embodied continuity amid this turmoil. With the creation of F. Hoffmann-La Roche, they helped Basel into the next golden era built on pharmaceutical and chemical prowess—one that would go on to sustain itself until today. But if they succeeded in this transformation, it was in large part thanks to the city's social capital. Fritz could acquire land near the city, hire both skilled and unskilled labor, and insert his new company in the trade and finance links the city had with the outside world, thanks to the social capital present in the city and his access to it.

Today's leading entrepreneurs built their success in a similar way. They had access to similar networks and lived and worked in regions with an abundance of social capital.

The founders of Apple, for example, could lean on a former Intel employee for their seed capital, and took a page from a nearby company—Hewlett Packard—to start up their company from a garage. At Google, Larry Page and Sergey Brin stormed the tech scene in the 1990s, after having had their beginnings in Stanford University. That both these trillion-dollar companies started in the Bay Area, was by no means a coincidence. Already by the 1960s, *Silicon Valley*, as the area was also known, had emerged as the world's leading center for computer technology and venture capital. Its social capital included university researchers and their innovations, such as Stanford; military bases and their contractors based around San Francisco; the region's history of entrepreneurship, including tech pioneers such as Bill Hewlett

and David Packard (who started out in 1939); and an openness to immigrants from around the world, including Asia. Apple and Google's founders may have become the poster boys of Silicon Valley, but they didn't create it.

Many entrepreneurs explicitly seek out regions with high social capital to succeed. Mark Zuckerberg may be unique in combining two such places. You could argue that Facebook's core strength wasn't so much its technological innovation, but the social capital it was built on, both as a company and as a social network. Other companies had built similar features to their websites and become initially more successful. But Facebook had something its competitors did not have: its network was made up of Harvard students, allowing it to lean on the social capital of the university. Having high-profile and well-connected students as first users, Facebook first expanded to other renowned US university campuses, and then internationally and across the US from there. Then, to become the company Meta is today, Zuckerberg also tapped into the social capital of Silicon Valley. According to Scott Kirstner, a journalist of the *Boston Globe*, Zuckerberg moved to Palo Alto after Peter Thiel, one of the founders of Silicon Valley-based PayPal, invested in his company when others in Boston would not.⁹ And it wasn't just Thiel's money that made the company so successful afterwards. "So many of the Facebook employees have come from top Internet companies like Yahoo, eBay, and Google that the culture that has been built at Facebook is fundamentally more consumer Internet savvy than if it would've been built anywhere else on the planet," Jim Breyer, a partner at VC firm Accel, told Kirstner back in 2007.¹⁰

A similar tale played out about 800 miles north of San Francisco, in Seattle. Many people know part of the origin story of Microsoft: how Bill Gates and Paul Allen met in a Seattle high school; how they got passionate about the one computer the school had, and, how as college students, they created a software system to make computers, such as those of market leader IBM, yet more user-friendly.¹¹ The rest of the story is history. But when you pick each of the foundational elements of Microsoft's founding apart,

you see how they're all enabled by social capital. To begin with, it was one Lakeside high school teacher, Bill Dougall, who wanted his students to have access to a computer terminal, Paul Allen later recalled.¹² Dougall approached the Lakeside Mothers Club for the endeavor, and they "agreed to use the proceeds from [their] annual rummage sale to lease a teleprinter terminal for computer time-sharing." Allen and Gates were among the computer's most avid users, thanks to the open-minded Lakeside teachers, and the forward-thinking, well-off Lakeside mothers. "They could have hired an outside computer expert to do the scheduling system," Gates later said.¹³ "Teachers could have insisted that they teach classes on computing, simply because they were the teachers, and we were the students. But they didn't. If there had been no Lakeside, there would have been no Microsoft."

In the years following, Allen and Gates went ever further in pursuing their love for computer programming, and Seattle's social capital allowed for it. While they were still in high school, Paul Gilbert, a college student at the University of Washington, helped the two get access to the university's Sigma mainframe computer, which was more powerful than the Lakeside one, and could be used for data processing, Allen recalled.¹⁴ "If not for all the time [we] spent on UW computers, you could argue that Microsoft might not have happened," Allen told the university back in 2017. Finally, it was Gates's mother who introduced the two to John Opel, the then-chairman of IBM.¹⁵ Both Gates's parents were active in Seattle's King County chapter of United Way, a nonprofit, and it was here that Mary Gates met Opel, who was also on the organization's board. From Lakeside high school to the University of Washington to United Way: all these organizations were part of the social fabric that Allen and Gates tapped into on their way to founding Microsoft.

Many years later, as Jeff Bezos was considering where best to build Amazon, Seattle had already been transformed by Microsoft's presence. It was because of Microsoft's role in making Seattle a tech hub, then, that Bezos decided he would set up shop there.

Brad Stone, a journalist who wrote the book *The Everything Store: Jeff Bezos and the Age of Amazon*, added an interesting detail to that social capital story: “Bezos chose to start his company in Seattle,” he wrote, “because of the city’s reputation as a technology hub and because the state of Washington had a relatively small population [. . .] which meant that Amazon would have to collect state sales tax from only a minor percentage of customers. While the area was still a remote urban outpost known more for its grunge rock than its business community, Microsoft was hitting its stride in nearby Redmond, and the University of Washington produced a steady stream of computer science graduates.”¹⁶

Natural Capital

Natural capital is the next building block for many successful companies. It arises when people can turn the natural environment they encounter into an asset, or into an input for their business. That happens in a variety of ways and benefits companies both directly and indirectly. Let’s take a look at Roche.

Borders, especially natural ones like mountain tops or rivers, can be very limiting. They keep people from crossing them because of the dangers they pose, separating communities from another. But borders can also be inviting. They can bring people together when humans find out how to cross and bridge them, turning obstacles into connection points.

Basel represents both these types of borders. It is built on a crucial junction of the Rhine, one of the longest and widest rivers on the European continent. For millennia, the river was a symbol of the power of nature over man, because it was so hard to cross. (In fact, even today, the river is a natural border among France, Germany, and Switzerland, a division that started millennia ago.) But starting in Roman times, people also started to see how they could bridge the river, literally. And they learned to use the river’s strength—its impressive length and current—to their benefit. As humans learned to master the river, the Rhine became the vein through

which European economic life flowed. It became the longest navigable river in Europe, and the one carrying the lion's share of the region's trade. The cities along the Rhine, from Rotterdam in the Rhine's delta; over Duisburg, Dusseldorf, Cologne, Bonn, Mainz, and Mannheim in Germany; and Strasbourg in France, are still today among the most populated and prosperous ones in Europe, benefiting from the Rhine's natural riches.

The same applies to Basel. The Swiss border city lies hundreds of kilometers upstream to the Rhine, closer to its source than its delta, and at a double crossroads. It is here where some of Europe's most impenetrable natural borders meet, and the Rhine takes a 90-degree turn toward the more open lands that follow. To its southwest are the Jura mountains, separating Switzerland from France. To its northeast is Germany's Black Forest, which has always fascinated and frightened those who journeyed in it and remains to this day a barrier between Germany and its neighbors. Basel, then, was a meeting point: one between France and Germany, with which it both shares a border. And one between Switzerland and the river road to the sea. For centuries, it had the only permanent bridge over the Rhine, connecting not just two of its city neighborhoods, but the wider world around it.

It is this natural capital that made Basel into the crossroads it was when my great-grandfather was born there: a city where merchants, researchers, and immigrants from all of Europe had been meeting for centuries, and where some of them had stayed and contributed to the city as it developed. As early as the Renaissance, thinkers such as Erasmus of Rotterdam had come here because of the city's welcoming climate for free thinkers, but also its blossoming printing and paper industries, enabled by the city's abundant river water. In the 19th century, the Rhine played a similar enabling role for the chemical industry and indeed the pharmaceutical industry. The Rhine allowed for the easy import of inputs. It played a role in the processing and production of industrial goods. And it transported finished goods back out of the city and to Europe and the world.

But natural capital isn't only about geography. In many companies, Roche included, the most important natural capital is the natural inputs that go into their products (a company's nature-related "dependencies") and the effect their sold products have on the environment (nature-related "impacts").

One example clarifies the dependency side: Tamiflu, an anti-viral medicine to treat the flu and other influenza viruses. Roche has been producing Tamiflu since the late 1990s, helping patients and public health systems around the world, and generating billions of dollars in sales.¹⁷ At the origin of Tamiflu of course lies a multimillion-dollar R&D effort, led by excellent scientists, in this case from Roche's US partner Gilead Sciences. But Tamiflu also has a very natural key ingredient: shikimic acid,¹⁸ harvested from the star anise flower, native to Vietnam and Southern China. The same is true for many other drugs and medicinal products, and not just herbal ones. Nature is a crucial building block, or dependency, for virtually any company. Even the world's most valuable company in 2024, Nvidia, could not make what it sells without silica, glass, aluminum, and copper,¹⁹ to name just a few of the inputs that go into its powerful GPU processors which power the most hyped technology of our time: AI.

For other companies, the reliance on natural capital is even more clear-cut than is the case for Roche or Nvidia. Basic industries such as mining, oil, and gas, are explicitly dependent on the natural capital of the place they own or operate. The same is true for the agricultural, food, or chemical industries, and so many others. The historical *modus operandi* for obtaining natural resources in many primary industries is straightforward, if flawed. The governments that most often own the mines, sources, or fields these companies operate in, put a price tag on the commercial exploitation of their natural resources, either handing a concession to the highest bidder or selling the properties outright. It has been a common practice since at least medieval times, and it has worked well—economic development wouldn't have been possible without it. But the method is also flawed, because it is based primarily

on the price these resources fetch in the market. In most cases, these contracts do not adequately account for the negative externalities the exploited resources cause at the time of use, nor those that emerge from their extraction itself, nor any impacts their exploitation will have on future generations.

By now the point should be clear: when we pay attention to it, we see that natural capital is omnipresent in any company's history and present, and indeed, in the global economy at large. The British journalist Ed Conway put it well in his 2023 book *Material World: The Six Raw Materials That Shape Modern Civilization*²⁰: "While terms like the Stone, Bronze, and the Iron Age are typically used to refer to distant, forgotten eras," he wrote, "Actually our reliance on physical tools and materials has exploded rather than is diminishing. Given how much sand and rock we still blast from the planet, we are still firmly embedded in the Stone Age. Our need for steel and copper has multiplied in recent years. This then, is also the Iron Age, not to mention the age of copper, of salt, of oil and lithium." Without these natural resources, Conway continues, "we might, just about, be able to live . . . but we could not thrive without them . . . They helped us build our world, and we would be thrown in chaos if we were to lose access to them."

On the other side of the equation are a company's impacts on nature. They are often not all that positive. Roche is, historically speaking, no exception. A study the company's management commissioned a few years back found that the "impact costs at the Swiss sites compared with Swiss revenues were found to be in the order of 6% of net sales."²¹ It is a relatively low cost, the then assessor, the Natural Capitals Coalition, said, but its greenhouse gas emissions and water use still lead to negative impacts (The Natural Capitals Coalition today continues its work as simply the "Capitals Coalition," after having merged with an organization studying social and human capital.)

Another historical example further highlights that companies, Roche included, can have a very negative impact on nature when they ignore the impacts of their operations. When Roche was still

active in the chemical industry, in the 1950s and 1960s, notably, it used the Rhine and its riverbed as an open sewer, and a landfill for waste. So did many other chemical companies in the region. Managers of the plants at first didn't know any better. Dropping waste in a landfill or into the water had been a practice for decades, if not centuries. And even when the harmful effects of their activities became apparent, companies still did not do anything about it. There was no alternative, it was believed. It was generally accepted that industrial waste was an unpleasant but necessary side effect of industrialization, and the progress, jobs, and wealth it generated. But the environment did pay a hefty price, both immediately—with the Rhine's water quality—and in the long term—through the hazard posed by the open-air landfills along the Rhine. By the turn of the 21st century, waste production had long stopped. But the question of what to do with the landfills of the past remained. I'll write more about that in Chapter 7.

Going forward, however, companies will need to be much more aware of the natural capital they are built on and help preserve it. That is because their—and our—prosperity depends on it.

The Hidden Natural Capital of US Big Tech

Natural capital is an indirect or latent asset that benefits a company in myriad ways. America's tech hubs are perfect examples.

It's often forgotten, but the US military presence in Silicon Valley and Seattle is one reason the tech industry took off there. "Defense contracts during and after World War II turned Silicon Valley from a somnolent landscape of fruit orchards into a hub of electronics production and innovations ranging from mainframes to microprocessors to the internet," historian Margaret O'Mara pointed out in a New York Times commentary in 2018.²² It means that "the

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American tech economy rests on the foundations of the military-industrial complex,” and that “whether their employees realize it or not, today’s tech giants all contain some defense-industry DNA.”

But what does that have to do with natural capital? Everything. From the early 20th century, the US Navy had several bases and a shipyard in or near San Francisco. Seattle similarly was home to a large naval base. The reason for these choices was obvious: there were natural harbors giving access to the Pacific, hilltops overseeing land and sea, and, in the case of Seattle, timber, used in all kinds of construction, including that of ships.

Once the military settled on America’s West Coast cities, however, it led to a whole set of side effects and spin-offs. Prime among them was ARPAnet, a military computer network developed in the 1950s and 1960s in California.²³ The idea of ARPAnet was to have computers communicate with one another from coast to coast—it was the original concept of what would later become the internet. More broadly, the army’s contracts spurred innovation and benefited the regions’ entire ecosystem, in both big ways and small. ARPAnet, for example, was developed at Stanford, giving researchers and the institution itself the chance to play a leading role in computer technology. The military’s orders of microprocessors gave companies such as Intel the space to grow. And remember Bill Gates and Paul Allen’s teacher, Bill Dougal? He was a veteran navy pilot, who had served in Seattle’s naval base. The tie-ins also continue until the present day. The military is still one of the largest clients of not just Microsoft, but also Elon Musk’s SpaceX, Page and Brin’s Google, and the other big tech companies mentioned previously.²⁴

As said, the role of natural capital in developing the tech industry is indirect. There is nothing as such about the shape of the San Francisco or Seattle bays—or any other natural capital of the regions,

for that matter—that made them, and not another place, a better breeding ground for tech start-ups. (As an aside: Silicon Valley does get its name from a natural resource: the silicon that is used in the computer chips that many Silicon Valley companies once produced. But this silicon was sourced from a variety of places around the world, not just the San Francisco Bay Area. It is one of the most abundant materials present in the earth's crust.) But you do need to know about the regions' natural capital, because it played a critical role in other industries present there. Without them, Silicon Valley would likely not have existed in the way we know it today. It explains why efforts to create the next Silicon Valley elsewhere often amount to nothing—if they lack a powerful government industry backing them up.

Human Capital

Finally, we need to account for human capital. The financial, social, and natural capital my great-grandfather could count on explain why he was able to create Roche. But they cannot explain how the company got through the many existential crises it faced in the first 50 years after its founding. To understand how the company got through these ups and downs requires understanding Roche's human capital.

Human capital is about the individual talents and skills of the people that work in your organization. It is about a great manager, an inventive researcher, a talented sales representative, a factory worker with an eye for detail. My great-grandfather, and every generation of owners of Roche since, could count on each one of those, and more.

From the very start of Roche, Fritz understood the importance of human capital. According to Roche's company historian,

Alexander Bieri, Fritz was an “exceedingly modern man when it came to what today would be called ‘diversity.’” He hired people from other countries and religions, like his longtime deputy Carl Meerwein (a Dutchman), the Jewish scientist Markus Guggenheim, Roche’s first proper head of research, and, later, many Russians who fled their country’s revolution in the chaotic last days of the Russian Empire. Most important, perhaps, in 1896 Fritz hired the young chemist Emil Barell, the Catholic son of a poor carpenter from Piedmont who emigrated to Switzerland. Such a hire would probably not occur anywhere else in a Protestant city like Basel, Bieri noted. But this focus on talent, whatever their background, proved to be a recipe for success, literally. It was Barell, notably, who came up with the active ingredients and recipes for many of Roche’s early drugs, including the heart medication Digalen (introduced in 1903)²⁵ and the painkiller Pantopon (launched in 1909). Nor did Barell’s impact stop on the product side.

The first World War constituted a major challenge for Roche because several of its key markets, including the Russian, German, and the Austro-Hungarian Empires, collapsed politically, economically, or both. The October Revolution was a particularly bitter pill for Roche, so to speak, because the Russian Empire had been its single largest market until then. With the arrival of the Soviets, Roche’s presence was all but wiped out. To make matters worse, Fritz Hoffmann got ill shortly after, and died in 1920. The company’s future had never looked so bleak. My great-grandfather’s premature death at age 51 came at a time that his sons, Emmanuel, my grandfather, and Alfred, were too young to take over. So, it was Emil Barell, Roche’s trusted scientist, who stepped up. He navigated the company through what were perhaps the three most turbulent decades of its history. He recovered some key markets in the 1920s, including Germany, and introduced yet more successful drugs such as the sedative Allonal (launched in 1921), and

Prostigmin (which is still on the list of World Health Organization essential medicines today²⁶). But even with those achievements under the belt, Barell faced yet another set of existential challenges in the decades that followed.

To begin with, Fritz's son Emanuel, my grandfather, who had been working at Roche's Brussels office, died in a car crash in 1932, at only 36 years of age. His son, Luc, my father, was barely 9 years old at the time, meaning that the family stewardship of Roche hung by a thread. Second, Roche's main production site, just across the German border from Basel, became increasingly difficult to operate after members of the *Nationalsozialistische Deutsche Arbeiterpartei* (the Nazis, for short) of Adolf Hitler came to power in 1933. The Nazi government froze the assets of foreign companies, for example, and restricted exports. That made it hard for Roche, which thrived thanks to exports of products and imports of raw materials, to operate in Germany. The Nazis also politicized how companies were run, enforcing Hitler salutes, among other decisions. In that context, Roche was seen by the Nazis as having a "Jewish problem" because the company had Jewish members on its board of directors, and as several senior managers, including Barell, were married to Jewish women.²⁷ Roche managed to actively redeploy much of its Jewish personnel to safer places, such as the United States. But the company at large remained at risk for the duration of the war. Finally, after Germany unleashed the Second World War, Roche was once again brought to the brink of bankruptcy in the 1940s because it lost access to many of its international markets due to breakdown of trade across the European continent.

If Roche and its founding family got through these crises, it was thanks in large part to the steadfast leadership of Emil Barell, who remained chairman of the board until the 1950s. During these years, Barell not only steered Roche through the turbulence; he even managed to grow the company. As far as Roche's

“human capital” was concerned, there was thus no equal to the Swiss chemist.^(c) (These accomplishments notwithstanding, Barell also had his shortcomings. Roche historians describe Barell as having an authoritarian bent and point out that he also made strategic and personal mistakes at times. These included misreading the major role that vitamins would go on to play in the pharma industry and falling out with one of Roche’s most talented managers, Robert Boehringer, leaving the latter to reach considerable success at Geigy, a Basel competitor of Roche, instead.²⁸)

Roche’s human capital was marked by those at the top, but also those at the base of the company. In the early years, Roche could count on many among Basel’s European immigrants to join the company in its production sites. This skilled and unskilled labor force enabled Basel’s industrial revolution, both in the chemical and pharmaceutical industry. They did so at a hefty price, however: many of the blue-collar workers of the city lived in shantytowns and earned only a modest wage. They nevertheless made critical contributions to Roche and other companies, without which these companies would not have been able to grow at the scale and speed they did.

Today, Basel’s former working-class neighborhoods look nothing like they once did, and the low-skill, low-wage workers of that time have made way for one of the most educated and well-paid labor forces in the world. As a result, Basel is one of the most prosperous cities in the world, with the best quality of life.^(d) It didn’t

^(c) Says Roche historian Alexander Bieri, “Barell’s impact on Roche and its hometown of Basel was so great, in fact, that he got two honorary degrees from the University of Basel, and a street named after him in the German border town of Grenzach, where Basel’s production site was based.”

^(d) The story between Barell and Robert Boehringer is tragic, Roche’s historian Alexander Bieri says. Robert Boehringer “most probably was the only friend Barell ever had. He stemmed from the famous ultra-pietist Boehringer family, which also set up Boehringer Ingelheim and Boehringer Mannheim, but originated from the region around Stuttgart (known in German as the Piet-Cong and typically also home to a number of anthroposophical homeopathy companies). Some of Boehringer’s more esoteric views—his brilliance, wit, and sharpness notwithstanding—were at odds with the Roche company culture right from the start. In the end, the two very opinionated men fell out with each other only to reconcile at Barell’s death bed.”

get there by sheer luck. As Roche and other industrial companies matured, so did their and the city's approach to employment. Roche heavily invested in upskilling, R&D, and university partnerships in Basel and abroad, and today counts as one of the most highly skilled workforces in the world, with about 100,000 employees spread between its Swiss headquarters (where 14,200 employees from 105 nationalities are stationed) and dozens of other locations worldwide.²⁹

I don't share this story to boast about Roche, but as a reminder that human capital, too, is something you can build up over time—or that you can squander. In its first half century, my great-grandfather and Emil Barell contributed in a significant way to Roche's human capital. But if the company hadn't fostered the workforce that made their vision become reality, it would have never been able to become the powerhouse it is today. In fact, that legacy continues. Today, I believe that people come to Roche not merely to have a job, but to work together toward the company's purpose, which is “doing now what patients need next” (more about this later).

It is a lesson too for some of the most technologically advanced companies of today. I mentioned Jeff Bezos's Amazon previously. His company has brought consumers enormous benefits. Its innovations span from creating an online “everything store,” to AI algorithms of same-day delivery and customized recommendation, and from Kindle e-book readers you may read this book on, to amazing Amazon Prime video content. But there is another side to this medal. Many of the people making the seamless Amazon customer experience a reality, work in warehouses or delivery services in states without labor representation or strong protections, and are stuck in low-wage jobs. Rather than to support its employees in their quest for better protections, the company has been found in at least one instance to dissuade its workers from organizing and hire anti-union consultants.³⁰ It would be hard to argue that this is a good way to strengthen your human capital, or create sustainable, inclusive prosperity.

Moreover, Amazon can lean on the abundant human capital of many of the world's deindustrialized cities to fuel its engine, just

as Roche could lean on the abundant human capital of the industrializing Basel urban area when it first entered the scene. There is nothing wrong with that, if it represents a transitional phase for business and the economy. But if people permanently remain in low-skill, low-wage jobs, the situation is more problematic. Of course, some developments are out of anyone's control. One reason the Roche's workforce could upskill over time was technological progress, and that can go either way—some technologies augment people's work, others replace it. But valuing employees is not all circumstantial. It is also due to the choices you make as a company. Roche became a better employer because of the Roche union, and its interactions with local and federal authorities that pushed for better labor relations. When confronted with these pressures and demands, company management and ownership made a choice: to make good employee relations a cornerstone of Roche. Today, more than 60% of Roche employees are members of the Roche Employees' Association union.³¹ The organization maintains regular contact with the "people and talent" department and company management. It weighs in on salary policies, employee-friendly working arrangements, and aims to secure Basel as an industrial base. And it represents employees on investments committees, the employee profit-sharing and pension committees, and the safety and environmental protection committee.³²

★ ★ ★

I have shared the story of Roche's "capitals" because they matter to our family company's history. Over 125 years, many more milestone moments occurred that explain why and how Roche became the leading pharmaceutical firm it is today. But the capitals are the foundations on which our company's success has been built from the very beginning. They are the foundations on which entire capitalist economies and societies are built, I would even say.

We've seen illustrations of how financial, social, natural, and human capital are everywhere, for every company. But we've also

seen hints of how they are not always acknowledged, and sometimes even taken for granted. That is a problem, because these capitals, like financial capital, can either grow or decline over time. Whether they do, and to what extent, depends on the contributions we all make to them, whether we accumulate capital, or spend them.

There is something quite special about natural, social, environmental, and human capital. They are neither entirely public nor entirely private goods. That makes them both extremely valuable and extremely vulnerable. They are valuable to all of us, so it is up to each of us to leave them in a better state than we found them. But they are vulnerable, and can be extracted, so we'll always be tempted to consume them for our own benefit, rather than to invest in them.

There is one final thing to know about "the capitals." They are inseparable and interdependent. Consuming or investing in one will influence the other. But for a long time, we pretended that wasn't so. We believed that we could build an economy based only on financial capital. That there could be endless growth because there were endless resources. At times, and in certain places, we also pretended that human and social capital were freely available, and that they did not require investing in or contributing to. Conversely, we thought it was possible to preserve our natural capital, even as the economy increasingly encroached on it. My father was the embodiment of that era. Our next chapter is about him and the people who shaped this era.