USER FRIENDLY

How the hidden rules of design are changing the way we live, work, and play

Cliff Kuang with Robert Fabricant

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For my wife and daughter

—CLIFF

To my family and friends
Hopefully this will explain once and for all
what I do every day, and why it matters

—ROBERT

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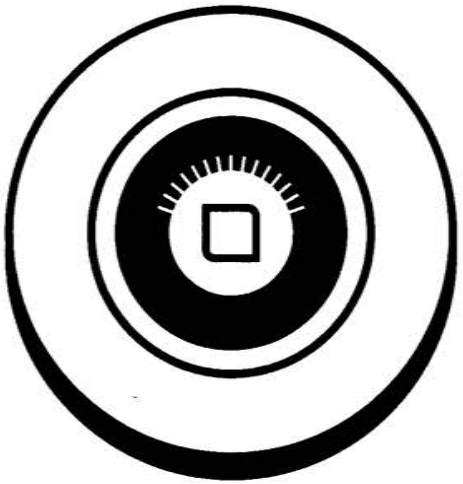
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Honeywell Round thermostat (1953)

2

Industry

Mladen Barbaric is a collector of strange problems. Barbaric packs these away like a naturalist, thinking: Maybe there's something here worth figuring out later. He grew up in Sarajevo, a teenager when in 1992 the Bosnian War exploded with terrifying fury. Muslims and Christians who'd been neighbors all their lives had suddenly decided that their futures depended on killing one another. Self-assured and intense even as a kid, Barbaric was always a meticulous planner. His mother thought it was weird how he could sit in a corner for hours, concentrating on a drawing or disassembling a radio one tiny screw at a time. When the shelling started, his father soberly laid out the dangers for him: A grenade could decimate

perhaps one wall in their high-rise apartment building; an RPG could take down two. This wasn't to scare the boy. Rather, it was practical advice about what shelter to take, depending on the explosions he was hearing and how close they were. And so Barbaric lay awake at night for weeks tallying the explosions he heard, then carrying that data to its logical end. Grenades were the most common thing, followed distantly by RPGs. Rockets, which could destroy three walls, were rare. Barbaric concluded that he simply had to make sure at least two walls surrounded him at all times. He lived for a year winding through alleys and basements, surrounding himself with walls within walls.

Soon after, Barbaric's mother managed to get seats aboard two rescue buses out of Sarajevo for herself, Barbaric, and his younger brother. Eight months later, the three were in Canada and reunited with Barbaric's father. His mother was lucky enough to become a blackjack dealer at a casino, which just barely supported the family. Barbaric tore through high school, then design school, with an immigrant's fear of having nothing. When big class projects were due, Barbaric would work for eight or ten hours, sleep an hour, wake up, and do it again for ten days at a stretch.

Today, Barbaric is CEO of a small but prosperous design studio called Pearl, located in Montreal. I asked him what, if anything, his childhood taught him about being a designer. He remembered how people changed during the war: how an adult neighbor stole a bunch of strawberries from a child, and a quiet boy who'd joined the Bosnian resistance transformed into a hot-tempered thug. "I assess people with a grain of salt," Barbaric said. "I don't know that I do it consciously. I just assume there's more. There's only one type of person I can't understand, and it's people who are dismissive." Later, as we were finishing our dinner, Barbaric started talking about the product he was working on now, admitting that it was a

big bet—a bet that a button might breed a new sort of Good Samaritan. This was a designer's way of looking at the world: the sense that if our better selves are within easier reach, then of course we'll be better people.[1]

Barbaric often fielded wild calls from people in the grip of their own great ideas. Bo Gillespie would have been an easy person to ignore. Freshly graduated from a mid-tier college, he had a Southern twang, old-fashioned manners, and none of the swaggering self-assurance of a startup bro. But, on the other hand, Gillespie was fully, naively committed to solving a problem that his mother had encountered. After her kids were out of the house, Gillespie's mother wanted to start working again. Real estate seemed like a reasonable career, given that she was in South Florida, where housing speculation was the state's unofficial pastime. Still, she worried. Her girlfriends would tell stories of men who'd cruise new neighborhoods, collecting open-house brochures. They'd make an appointment to see a house. If you were a woman, you'd take the call, set up a meeting with this pleasant-sounding man—*a fresh lead!*—gather up all the keys to the houses you were showing that day, get to your appointment fifteen minutes early, unlock the door, and sweep up after the contractors who'd walked through the kitchen once again in their dusty boots. When the fresh prospect arrived, you'd usher him in and shake hands with a great big smile. The door would click shut, and the two of you would be alone.

When Gillespie's mother would go out on house showings, she'd call her son, tell him where she was going, and say, "If I don't call you back in twenty minutes, then you call the police." Gillespie would nod and silently wonder what on earth he'd tell 911 to convince them that his mother was in trouble at the twenty-first minute of waiting. Then Gillespie thought, "What if there were a button she could push herself, that would tell the police exactly where she was

and who she was?"[2] Gillespie called on Barbaric to design it. But Barbaric was hesitant because he was used to inventors who were giddy about a half-baked idea. He delicately told Gillespie not to be too wedded to their concept sketches. After all, what did a bunch of young men really know about being a woman who felt threatened?

Barbaric had prepared for this moment by inviting Dr. Dusty Johnstone into the process soon after he took the job. She was a friend of his wife's who'd spent her career studying sexual assault, and when Barbaric had first invited her to consult on the project, she quickly told him that the idea for an emergency-call button was hopelessly wrong. After months of working together, the time came for Barbaric and Johnstone to show Gillespie what all that work had yielded. During a presentation at Barbaric's office, I watched from the back of the room as Barbaric summarized all the technical details of what they'd invented and all the nuances of the product they were trying to create. Then Dr. Johnstone stood up with a scene-stealing confidence that snapped the room to attention. It was all a bit of self-conscious stagecraft that Barbaric had orchestrated—leading with the things Gillespie was expecting to hear, then throwing in a curveball of a guest to take the conversation in an entirely new direction. The point was to help Dr. Johnstone's insights land with a declamatory thud.[3] The chief provocation she had to offer was that the scenario Gillespie had imagined, an attack from a stranger lying in wait, is so extraordinarily rare that it clouds the truth: 80 percent of all assaults are by someone the victim knows.

"It occurs at house parties and bars, around people you know and people you've seen before, in the bedroom of the friend you've known for twelve years," Johnstone told the room. In such circumstances, dialing 911 is absurd, because the very act means escalating a precarious, uncertain situation into an outright confrontation.

You'd never think to dial 911 if you're unsure that you're actually being attacked, or if you're afraid of embarrassing yourself. Johnstone's message to Barbaric and Gillespie was that creating a new way to dial 911 wasn't enough. You instead had to create an alternative to it. Johnstone finished her presentation, and the room shifted uncomfortably. "Any questions?" Gillespie politely raised his hand: "Can you make this any more complicated?" Everyone laughed.

When Johnstone and Barbaric had first started talking, Johnstone had told him that keeping someone safe was sometimes as simple as a bystander butting in at the right time to ask, "Hey, are you okay? Do you want me to call one of your friends?" or a woman being savvy enough to say, "Oh, look! My friend is texting and I have to go!"[4] *That's all it takes.* The idea had rung in Barbaric's ears.[5] It was clear enough that this wouldn't ever work in some cases—for example, the darkest scenarios of outright assault. But in so many others, what if a woman had a plausible excuse within reach, anytime she actually thought, *Hey, I wish someone were here to help me out?* A way of asking someone else to intercede? As Johnstone finished her presentation, Barbaric got up to take over. "We have to decide what problem we're trying to solve," he announced. "So let's dive into the rest."

When Barbaric is trying to sell a new idea, his eyebrows lift up in a soothing, wide-open expression. Presently, his eyebrows went to work. The gadget would be a button the size of a dime that a person could pin anywhere—on a bra strap, a key fob. It would call the police if you tapped the button three times. But the more interesting thing is what would happen when you pressed it once. Rather than calling 911, a single press would beckon a network of friends or bystanders, whoever was closest, asking them to come find you and check in to see if you were okay. That's what gave the product its

name: Ripple. It was the equivalent of making an excuse available at the press of a button—while simultaneously ensuring that help was on the way. "We need to recognize that if we don't consider these psychological issues, we're not going to get the right effect," said Barbaric. The wrong effect would be a button that escalated a problem, when all a woman wanted was an easy pretext to get out of a difficult situation.

The striking idea of creating an ad hoc, on-demand network of guardian angels didn't quite make it through the next two years of product refinement, owing to fears about legal headaches. But the central insight did. When Ripple made its debut on the Home Shopping Network in 2017, it had become a reinvention of the very idea of 911: At the push of a button, you could demand a call from a specialist, trained to figure out what kind of help you'd need. When you pushed the button, it would ping a concierge to call or text you. You might be in the midst of an uncomfortable closing time at a bar, or car problems, or any other chancy situation. The concierge would call to ask what was happening—providing a plausible excuse to dip out of whatever situation you were in, if needed—and figure out what help to lend. But thanks to Johnstone's urging, Ripple had remained more than a user-friendly version of 911. It was a service for the great many times when you knew you needed help but simply didn't know what *kind* of help you needed.

Ripple was ingenious insofar as it showed how you might solve a problem hiding in plain sight—and useful insofar as it illustrated how obvious problems aren't obvious at all once they're scrutinized. Bo Gillespie had wanted to solve a problem inspired by his mother's fears; Dr. Johnstone had spurred a deeper understanding of the social context that superseded those fears; and Barbaric, the war refugee from Sarajevo, and been primed to invent something built upon the social capital he'd seen fall apart in his childhood. Each brought some kind of

assumption to the process. And yet every one of the people involved had held on to an unspoken faith that stands behind the products surrounding us. The designers who create them assume that better product design can be wielded to solve almost any problem, even those on a societal scale. Ripple was an extreme case, embodying the idea that a literal button—and redesigned feedback—could address the sprawling challenge of finding just enough help at just the right time. It was, of course, a wildly ambitious aim; nearly every startup fails, never mind one aiming to remake the way we seek aid. Yet in smaller doses every day, we assume that we can usher in a better world by inventing new and better *things*. This is such a pervasive ideal that it seems self-evident. But it wasn't always. You can trace it to the dawn of the twentieth century, when an abiding faith in consumption as social progress birthed a new profession: the industrial designer.



It was 1925 and Henry Dreyfuss, wearing his trademark brown suit, stood vigil in front of the sparkling new RKO theater. He was there to solve a problem that had bedeviled the theater's owners back in New York: They'd invested a tidy sum in this new showplace and no one was coming in. The location was good. This was a prosperous stretch of downtown Sioux City, Iowa, and the RKO theater hosted popular traveling vaudeville shows and newer, better movies. Yet the happy families and farmers mostly scuttled past the theater's twinkling new marquee and the plush red carpet blanketing the sidewalk on their way to the shabby competitor down the street. Dreyfuss was standing around so that he could just watch them, and see if he might understand them.

In an era before marketing consultants or business strategists, Dreyfuss had gotten the job simply because he seemed to know something about theater design. He was, at the time, just twenty-one,

but already known as a wunderkind designer of Broadway shows. His success had allowed him to start styling himself more as an engineer of consumer demand. When Dreyfuss first arrived at the theater in Sioux City, he lowered prices, ran triple features, and gave away free food—still, none of it worked. After spending three days just observing, he ventured into the theater lobby to eavesdrop on what customers there were saying. Then he overhead someone say how afraid they were of messing up such rich carpet with their muddy shoes. Dreyfuss looked back at the slick tongue of carpet lolling in the theater's glossy maw and saw how intimidating it must have been to the "farmers and workmen."[6] The problem he'd been sent to fix—a theater design that wasn't drawing crowds—ended up not being the problem at all. It wasn't that the theater wasn't nice enough. It was rather that, having been conceived on some drawing board in New York City, the theater was too nice for the practical and unassuming Iowans.

The next day, Dreyfuss had the carpet ripped out and replaced with a plain rubber mat. Then Dreyfuss returned to the theater and waited. First a couple of people came, then a few more, then a few more and a few more, until it was filled. His trick had worked. It seems strange that a floor mat could really make people feel like they belonged. But it was Dreyfuss's myth, which he elevated because it captures an ideal about design: By understanding someone else's life—abashed, prideful, confused, curious—you could make their life better. By understanding how he or she thought, you could reach past the obvious problem and into the problem that they couldn't quite articulate, the one that they might not even think to solve. Dreyfuss turned the question from *what* to make and how to make it, into *whom* to make it for. A designer, Dreyfuss would later say, was "a man of vision who is not a visionary."[7] Design meant a certain kind of deference. The brown suit he wore was, in fact,

a statement of purpose. The only color Henry Dreyfuss ever wore was brown: brown pajamas, brown bathing suit, and, especially, a brown suit, which he wore every day, all of it fastidiously tailored. Today, brown seems like a drab choice, but in an era of gray and black, it marked a certain suave polish: distinguished but not foppish. It was a uniform meant to place him as a man of business, rather than a man of art.

Dreyfuss traveled an unlikely path to get there. He'd grown up quickly after both his grandfather and father died within a few months of each other. At sixteen, his talent for drawing had landed him a scholarship to a tony private school, which planted a seed in his mind.[8] The Society for Ethical Culture, founded in 1876 by Felix Adler, was both resolutely progressive and radically secular. Inspired by Kant, Adler didn't believe that morality was God-given. Instead, it resided in people choosing for themselves. The ethos was a revelation to young Dreyfuss. How many times had his neighbors, who'd heard about his dead father and knew how he worked to support his mother and brother, wished God's grace upon them all? Here was a school that told young Henry not to wait for God. That it was his responsibility to raise up everyone else, the people just like him.

It wasn't but a few years after graduating that Dreyfuss became a stage designer. He badgered his way into his first real job—in a way so storybook as to suggest a self-conscious reenactment of the 1920s American fable. Eighteen years old, Dreyfuss went to see a show on Broadway and despised the set. Afterward, he strode up to the stage door, asking the doorman if he could speak with the director. Johnny, the doorman, turned him back. So Dreyfuss returned again every day for a month, getting to know Johnny, sharing Johnny's pipe. Johnny, eventually, got Dreyfuss an audience with the director, Joseph Plunkett: "There's a fine young designer

downstairs, Mr. Plunkett." Plunkett asked Johnny what made him so sure about this young man's talents. "He told me so himself," said Johnny. Dreyfuss stepped in and promptly told Plunkett his sets were "rotten." Plunkett was stunned. Dreyfuss said he could do better, for twenty-five dollars a week. Plunkett, eager not to be outdone in showmanship, made it fifty.[9] Years later, it was Plunkett who would dispatch Dreyfuss to Sioux City.[10]

Dreyfuss was an almost immediate success on Broadway, designing lavish sets, such as a giant piano case, thirty feet long and twenty feet high, that would fit four pianos inside it, their keyboards side by side, to be played by four glittering showgirls, elbow to elbow. He was always watching the audience to see what drew them. "I got to the point where I could guarantee with almost mathematical certainty that certain combinations of color, light, and line would bring a wave of applause when the curtain rose," he later told a reporter.[11] It was a telling quote. Dreyfuss built his career on the faith that there was an underlying logic to what people wanted.

Maybe because of his quick success, Dreyfuss viewed his work with a mix of pride and disdain, the latter thanks to smarmy clients who didn't pay their bills.[12] Just as he was registering his dissatisfaction, Dreyfuss began hearing about "industrial design," a new profession invented by ad men such as Walter Dorwin Teague. Dreyfuss had heard that Norman Bel Geddes, who'd given him his first theater apprenticeship, was diving into this new profession, and he knew that Teague had announced in 1926 that he was quitting advertising altogether.[13] Teague came up designing magazine ads for housewares, and, as those ads become more and more commonplace, he realized that for the product to sell, it had to sell itself. These sinks and irons and latches and kettles and washboards and door locks had to be more beautiful and more useful than what a person already had. So while the profession of industrial design started literally with how good a product looked on the printed page, it began to reach into questions of what a product should be about—what kind of story it should tell to the consumer.

Industrial design, and the very idea that the stuff of everyday life could be remade, helped transmute Dreyfuss's gnawing pickiness into something purposeful—into an abiding idealism that things should be better. He saw a great landscape of terrible junk that no one had ever tried to dignify through thoughtfulness.[14] Having complained his way onto Broadway, he tried complaining his way into a new profession. He'd peer at a lock and find the maker's name or kick at a bathmat in the shower to find the imprint, then look them up. *Don't you know how lousy this is?* He'd write a letter describing his burgeoning approach to design, with his signature taking up half the page. *Your product would be much improved if . . .* He'd even ginned up a slogan: "Design is the silent salesman."[15] The lure never drew many bites. Discouraged and burned out, Dreyfuss bought himself a ticket to Paris, and eventually found himself in Tunis, where, the night of his arrival, he lost all his money playing roulette.[16] Dashing, well-dressed, and suddenly in desperate need of a job, he became a tour guide for American Express. His place was the markets, full of hawkers touting rugs and fabric and spices, birds squawking from reed cages, and meat hissing as it roasted over ashy coals. The labyrinthine bazaar would force casual visitors to buy their way out or else stay lost. Dreyfuss knew whom to indulge and what to hustle past in the maze of consumer temptation.[17] But he was still waiting for his chance to be not just the guide in that maze but the designer of the maze itself.



Dreyfuss had a talent for timing: Even while he was trying to bull his way into a nascent American design profession, America itself

was on the verge of a transformation that flowered in the wake of World War I. America had entered the war in 1917, just two years after Henry Ford had first unveiled his idea for an assembly line, at the Panama-Pacific Exposition in San Francisco. Wiry and energetic, self-aggrandizing and monomaniacal, Ford was inspired by the slaughterhouses of Chicago, in which the carcasses of cows were hung from the ceiling and conveyed across the room as workers broke them down in stages. His own factory lines initially broke down the car's manufacture into eighty-four discrete, repeatable steps. Before, workers buzzed around the skeleton of a car, and it grew in place. Now the workers would stay still as the car arrived in front of them—thus eliminating all the extraneous milling about, and whittling the time it took to build a car from twelve hours to a mere ninety minutes. It was so fast that visitors to the expo could order a car and pick it up by the time they left. Ford lent his expertise to the war effort, personally helping other manufacturers retool themselves on the assembly-line model, and helping America imagine war at an unprecedented scale. Machine-gun production climbed from 20,000 a year to 225,000; using Ford's techniques, rifle production swelled to 500,000 a year, along with more than a billion bullets.[18]

But the revving war machine also paused the globe's biggest economies. Every finance minister in the world knew that when the war ended, their economies would restart all at once, producing a race for industrial supremacy. In this, the United States had an edge. Its factories, which had swung the war, would now be tasked with delivering prosperity for its citizens. Americans naturally shaded the promise of machine-made goods with a moralizing gloss. Richard Bach, the curator of industrial art at the Metropolitan Museum of Art in New York, neatly summarized that ethos in a lecture before his peers: "If all products were hand-made few of us could afford them. Therefore it is left for us to give the machine its proper place. If good designs are not available for the man in the street, the system which produces these designs must be undemocratic and wrong." That speech is like the X-ray of a primitive fish crawling onto land: its bones hint at the mechanisms that will propel countless descendants to come in the user-friendly world. Bach equates mass production with democracy; he implies that good design is a kind of manifest destiny for market societies.

The war had come on the heels of the Machine Age. Yet America still betrayed an odd anxiety about its own ability to *create* that seems almost incomprehensible today. The anxiety sprang from how heavily American manufacturers leaned on Europe to tell them what they should be making. By comparison, the French saw themselves as the pioneers of a new aesthetic, suited to the times, with clean lines and radically pared-down decoration. To bring that point home, France's cultural grandees passive-aggressively resolved to finally hold an exhibition in 1925, the Exposition International des Arts Décoratifs et Industriels Modernes, which had been delayed a decade by the war. The exhibition would implicitly place France as the leader in this new age of "industrial art," while also bringing all the countries of the world together to show their own achievements and—here's the passive-aggressive part—be diminished by comparison. Every country was invited but one: Germany, which had become a pariah after the Great War, despite the fact that the Bauhaus was already recognized as a leader in the industrial arts. And every country that was invited showed up, save two: China, which was facing the prospect of civil war, and the United States.[19]

That decision had been made at the top. Herbert Hoover—fat-cheeked, self-assured, infinitely practical, and, at the time, America's secretary of commerce—had gotten the invitation to Paris. The preparations would have to begin soon to put on the show. He asked

around, wondering if the United States should venture its own pavilion in Paris. After the answers came, he shrugged and shook his head: "The advice which I received from our manufacturers was that while we produced a vast volume of goods of much artistic value, they did not consider that we could contribute sufficiently varied design of unique character or of special expression in American artistry to warrant such participation."[20] This was a breathtaking humiliation, made more stunning by how public it was.

It was indeed a pivotal event to have skipped out on: An obscure young architect calling himself Le Corbusier debuted on the international scene with a design for the French pavilion, dedicated to "L'Esprit Nouveau."[21] The "machine for habitation" was made up of clean white planes of concrete and filled with radically austere furniture, stripped of any decoration. "Decorative art, as opposed to the machine phenomenon, is the final twitch of the old manual modes, a dying thing," Le Corbusier explained. "Our pavilion will contain only standard things created by industry in factories and mass-produced, truly the objects of today." His ideas dovetailed with those of Peter Behrens, the grandfather of the Bauhaus and widely considered the first modern industrial designer. Within a few years, the Bauhaus would grow to dominate the era's design ideology, advocating radically spare designs that would reflect the new ways that goods were made and, as Behrens said, "invite use." By contrast, America had no grand theorists, no guiding principle for its creations. Even her biggest boosters didn't believe in the originality of American design. The self-doubt stemmed from a self-awareness that American markets had always understood "taste" as something to be imported. All this would change in the short span of a few years, as mass-manufactured goods became less about familiar, decorative objects driven by fashion and more about

new gadgetry for the home. The idea that America could only copy the heritage of the Old World was overthrown by a powerful new voice in the markets: women.

In the United States after the Great War, low-income immigrants were transforming into the new middle class. That rising tide of better prospects brought with it a profound sense of displacement that was unevenly distributed across the sexes; where men were finding new jobs and new professions, women had to reconcile two competing threads of American promise. On the one hand, women were more powerful than ever: They'd gained the right to vote and were marching for access to contraception, the power to control their family planning. Yet they were still yoked to the household—an all-consuming endeavor in the time before electrical appliances. How could women square those greater opportunities outside the home with the constant obligations within it?

That dilemma birthed the field of home economics, led by a new generation of women writers like Christine Frederick, who was a journalist for *Ladies' Home Journal*. Frederick and her peers, such as Mary Pattison, had an ingenious answer to the problem of resolving the persistent drudgery of maintaining a home, and the promise of greater freedoms: Create more free time. For those first-wave feminists, home economics was about fostering more efficient housework so that women could pursue more "individuality and independence"—the chance to be more fulfilled, more influential. The era's undisputed master of time-saving was Frederick Winslow Taylor, whose school of "scientific management" advocated watching every action on a factory floor for wasted seconds. Henry Ford was one of his early devotees; Christine Frederick was another. In Taylor's ideas, Frederick saw a way to connect women's work to broader notions about modern progress—and a way to boost how

society valued a woman's labor. After first hearing Taylor's gospel at a three-hour speech, Frederick called on her readers to "eliminate lost motion" and standardize how long each chore took—from mixing a layer cake (ten minutes) to cleaning a bathroom (twenty minutes).[22] Dozens of other writers and columnists took up the same cause; Mary Pattison offered a novel expansion of it, emphasizing the value of the tools women bought and the power they wielded through those purchases. She called it a "moral responsibility" for women to demand improvements in their tools, for the betterment of all—"molding the future conditions under which purchasing must be done."[23] Women were on the leading edge of consumers *using* things they bought, using their dollars to demand that products be more thoughtful.

Even as American women were cottoning to the idea that their purchasing power was an invisible hand for the greater good, businessmen were realizing that they had been missing a greater opportunity. In 1929, the American Management Association held its annual conference at which the keynote speaker, a merchandising consultant, declared, "There was a time when our best things were hand-made, our poorest made in mass production. Cheap, nasty poor-taste things were turned out by the machine. The reverse seems to be beginning to be true." The speaker went on to urge attendees to "sell beauty to the public." At that same conference, a typewriter executive said that in 1926, all his wares had been black. By 1929, three years after introducing a few other colors, only 2 percent were. E. B. French reported that at KitchenAid, a redesign of the mixer had cut its weight in half, cut the price, and made the mixer better looking, too. Sales had jumped by 100 percent.[24] There was a burgeoning sense that it wasn't enough to merely make things cheaper than they had been—rather, things had to be made to be more desirable as well.

That dawning awareness was perhaps best exemplified in Henry Ford, and the myopia that nearly sunk his business. For eighteen years, the Model T never changed, because Ford assumed that customer tastes were static—that the only way to improve the Model T was to make it more efficient every year, and thus cheaper to buy. He famously groused that his cars came in any color "so long as it's black." This worked, for a time: In 1921, Ford owned two-thirds of the American car market; by 1926, it was half that, thanks to General Motors, which offered a wealth of models in a range of colors and configurations. By 1927, Ford's alarming decline couldn't be ignored any longer.[25] The company shut down nearly all its factory lines, spending $18 million to retool them around a new car, the Model A, which came as a sedan or a convertible in a profusion of colors with myriad options such as a rearview mirror and a heater. It was a hit; while the Model T launched Ford, the Model A saved it.

Yet these new ideas—of consumption as social progress, and aesthetic appeal as an engine for consumer demand—sprang up beneath a looming cloud. On the very same day that those manufacturing leaders were meeting to discuss how beauty could be used to mold consumer demand, October 29, 1929, the Dow Jones Industrial Average fell by 12 percent, ringing in the Great Depression.[26] This should have ended the nascent field of industrial design before it began. In fact, the opposite happened: Industrial design came to be seen as a cure for flagging markets, thanks in no small part to people like Henry Dreyfuss.

After a month working as a tour guide in the bazaar of Tunis, still stung by his lack of success haranguing manufacturers about how bad their wares were, Dreyfuss made his way back to Paris, where a stack of correspondence lay waiting for him at his hotel. There was

one series of telegrams whose message had stayed constant: Would Dreyfuss please come work at Macy's, to redesign anything that he wished? This was a jaw-dropping opportunity. Dreyfuss was broke, and despite his epistolary bluster he had no real qualifications for the job. Macy's wanted him, it seemed, because it had heard about the design practice that Dreyfuss had been trying to start; there weren't many others purporting to do that job at all. Macy's, at the head of a new retailing boom, was offering him a ticket home.[27]

When he finally arrived back in New York, Dreyfuss's first priority was a tour of Macy's one-hundred-plus departments. Its giant building represented a new way of shopping, which was a revelation for consumers raised in the era of mom-and-pop general stores. Macy's, much like the Sears catalog, was built upon the new wealth of choices that consumers now had: There were aisles and aisles of the same thing, made by different companies, competing on the shelf. Dreyfuss ran his hands across hundreds of items, from pocketknives to electric stoves. True to form, he hated them all.[28]

This prickliness belied something more than just distaste. Dreyfuss realized that fixing any of them required an intimate knowledge of how they were produced, the ability to know enough detail about the process so that he could actually catch a decision as it was being made, with an eye to something greater than simply manufacturing products cheaply. It wasn't enough to just add a pleasing shape to an essentially finished product.[29] Broke from a string of debts owed by his Broadway clients, and on the doorstep of a brand-new profession, Dreyfuss turned down the job, later explaining to a reporter that the Macy's executive had "the cart before the horse."[30] Without talking with the manufacturers, without knowing how something was made, how much a change might cost, what to sacrifice and what to save, Dreyfuss couldn't do anything at all. He was perhaps the first American designer to articulate and then act on the idea

that design wasn't just styling—it sprang from a knowledge about how things were made and what was possible.

After refusing the Macy's job, Dreyfuss set up an office on Fifth Avenue with nothing more inside than a borrowed card table, two folding chairs, a telephone, and a twenty-five-cent philodendron, and nothing to do other than look out the window and make watercolors of the things he hoped to redesign.[31] He put out a request for a business manager. Then, while he was still waiting at the window, a black limousine pulled up on the street below. An elegant woman stepped out onto the sidewalk and came to the door. The buzzer rang, and after a few moments he ushered her in, sitting her down for a brief interview. When she left, Dreyfuss told his secretary, "That's the girl I'm going to marry." A few months later Dreyfuss and the woman, Doris Marks, bought a ring at a pawnshop and tumbled into a cab, rushing downtown to City Hall to say their vows while the cabbie whistled the "Wedding March."[32]

In founding a business together, Doris and Henry played the roles that fit within the era's expectations. Henry was the genius and Doris was the hard-nosed business manager. But Doris, a stern and elegant daughter of New York's recent aristocracy, helped craft Henry Dreyfuss's vision.[33] She abhorred ostentation, and that aversion worked its way into the studio's workmanlike ideology. Dreyfuss bootstrapped their business, designing an avalanche of anonymous stuff that spoke to the new plentitude of daily life in the 1930s: pens, egg beaters, waffle irons, dental chairs, rubber mats, playpens, school desks, razor boxes, cold-cream labels, a piano.[34] By the early 1930s, he had worked himself up to interiors for airplanes—and managed to become one of the poster children for this odd new profession called industrial design. "Dreyfuss brings to his work no special aptitude for mechanics and only a moderate gift in the handling of materials," noted *The New Yorker* in 1931, in one of the first glossy

profiles anywhere of an industrial designer. But "he has to a high degree a sense of the ultimate use to which commodities will be put, *a feeling for the comfort of the man* who is going to use the fountain pen for writing more than as a decorative adjunct to his desk." (Emphasis mine.) This is the spine of the user-friendly world, unchanged whether you're talking about smartphones or toothbrushes or driverless cars: a deference to the complexity of understanding people as they live.

Dreyfuss was gleeful when describing what miracles might come from a life made easier at the edges: a peanut butter jar with sloped shoulders so that every last bit could be scooped out with a spoon; a shaving brush with a handle of the right proportions so as not to mess your hand with lather; and a stove with cleverly shielded handles so that the users never burned their hands. And while these examples might sound banal to our ears, they were a revelation in their time. It was stunning to hear that someone actually spent their days applying creativity to details that had always been overlooked. Dreyfuss was sketching a vision of life as the sum of innumerable details, irritations, and fixes—arguing that leisure, gained by a few seconds here and there, contributed to social progress. He had fully internalized the tenets articulated by home economists, in which the products people bought were the link between the individual pursuit of happiness and the steady growth of industry.

Dreyfuss wasn't just selling the idea that product design was tantamount to social progress. He was also trying to convince American businesses why they should care. What he had to offer was the elixir of sales growth. In the progressively lean years of the Great Depression, manufacturers battled one another over decreasing demand and became more desperate to find novel ways to spark consumer lust.[35] Christine Frederick herself was one of the

loudest advocates for "consumption engineering." As the historian Jeffrey L. Meikle wrote in his sweeping survey *Design in the USA*, "This new expert would anticipate 'changes in buying habits' and create 'artificial obsolescence' by convincing people that 'prosperity lies in spending, not saving.'"[36] But no one would spend more on the same things they already had—manufacturers had to convince people that what they were offering was something new and better. This was the milieu Henry Dreyfuss was stepping into: a new era infused with the idea that sparking the urge to buy might well save the country from ruin; that the only way to make people buy was to make things better than they'd ever been.

Industrial design seemed like a miracle cure in Depression-era America. In one of his first press interviews, Dreyfuss told a magazine reporter about a man who'd been pestering him to design a better flyswatter. Dreyfuss refused to see him at first, but eventually admitted the man to his office and sketched him a flyswatter for free: The paddle had concentric rings like a pistol target, which made swatting flies into a game. Months later, Dreyfuss got a thousand-dollar check in the mail, a royalty offered in gratitude. Sales had gone wild.[37] Dreyfuss's first great hit from the era, the Toperator washing machine, sold through Sears, looked a little bit like a robot from Fritz Lang's *Metropolis*. There are ideas in it that you can recognize in objects all around us today. He avoided any joints that would be hard to clean—which happens to be one of the chief design concerns in modern medical appliances. And, in a nod to the consumer's psychology that is now ubiquitous in modern apps and gadget interfaces, Dreyfuss bunched all the controls together so that the user could readily understand all its functions. Sears sold twenty thousand of them in six months. Other designers had similar successes, and there were enough of them for manufacturers to begin to believe that designers could conjure demand from thin air. In

February 1934, near the peak of the Depression, *Fortune* ran an article on Dreyfuss, "New Product Designs Start Stampede," in which the reporter claimed that a Dreyfuss-designed check-writing machine caused a salesman to weep and a repairman to faint.

These visions of success brought forth two intertwined goals: modernizing how products looked, and rethinking how they worked. Overseas, in Europe, the Bauhaus stewarded that ethos, summarized in the old saw that form follows function. Yet that design movement had a shortcoming, insofar as the Bauhaus's most iconic products were all geared toward an elite consumer who could understand and appreciate its aesthetic. In America, the lens was more practical and market-oriented. It was coarser. Goods had to look different for a consumer to know they were indeed better. Thus, the men who roosted over the newfound profession of industrial design leaned heavily toward looks. If you're familiar with design from that era, then you probably picture an airplane in polished steel, or a radio looking much the same, covered in chrome. These echoes were intentional; they were, at one point, dogma. Charismatic, silver-tongued designers such as Raymond Loewy and Norman Bel Geddes wanted to imbue their designs with a palpable ethos of progress. So they stripped away the heavy, historical flourishes of the Victorian era in favor of "streamlined" metallic forms meant to evoke the speed and efficiency of the era's symbols of forward progress: the airplane, the locomotive, and the automobile. The application of these forms was indiscriminate and universal, encompassing everything from refrigerators to pencil sharpeners, all of them meant to look as if they had been tested in a wind tunnel. The new streamlined aesthetic clothed every product in the same metaphor. Where streamlining made airplanes slip through the air with less wind resistance, streamlined household goods eliminated "sales resistance."[38]

Dreyfuss, thanks in no small part to his wife's influence, held a more sober view that presaged how the user-friendly world would develop; his instinctual deference toward everyday life is still recognizable in how the discipline of user experience is practiced today. Not only that, Dreyfuss's belief in the market foretold a future in which businesses would see their fortunes bound up in how well they understood their products' users. For him, styling was secondary to both finding better solutions to problems people had taken for granted and the ceaseless pressures on the businesses that made those goods. As the historian Russell Flinchum wrote in his seminal book about Henry Dreyfuss, "He was beginning to define an approach that was friendly to big business but still allowed him to criticize the status quo, that was protective of the consumer without being patronizing." Dreyfuss described design as an act of translation between the companies that made things and the consumers who used them.[39] "The strength of the designer's influence on industry and the public rests in this double role," he wrote. "He is in the happy position of making both the producer and the consumer happy with the same egg beater or the same electric refrigerator."[40] Designers, by aligning consumer design with business incentives, thus became high priests of the faith that better goods meant better lives all around. Such faith remains the unspoken message embedded in how new products are invented today. Consider the story that opened this chapter, that of Mladen Barbaric and Bo Gillespie, and how they tried, after years of testing and reworking, to create a new alternative to 911. The two of them weren't just interested in solving a problem for its own sake, nor were they merely trying to exploit a business opportunity. They presumed that business, product design, and social progress were all so intermingled that you couldn't separate one from another.

The timbre of Barbaric's process was coolly professional, rational, and ordered. Things were different ninety years ago, when

the newfangled idea of industrial design was imbued with a kind of mania. Dreyfuss himself approached his work with a showy, gonzo dedication to understanding whom he was designing for. To create tractors for John Deere, he learned to drive a combine and played at being a farmer; to create a sewing machine, he took sewing classes alongside the ladies. The method was a precursor to modern design research—a sprawling industry that would eventually capitalize on the talents of anthropologists, psychologists, and social scientists. But Dreyfuss's enthusiasm had its limitations. What he didn't have was a full-blown process that could embody his motivations, which were clear enough and defined around humans rather than machines. Decades later, that ethos would be known as "human-centered design." Yet centering things around human beings wasn't as obvious as it seems. The precondition was a new ethos of how machines should fit into everyday life. The catalyst was World War II.