

AMERICA'S GOLDEN AGE

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NOVELS BY NEWT GINGRICH AND PETE EARLEY

VENGEANCE

TREASON

DUPLICITY

AMERICA'S GOLDEN AGE

Trumpism and an Era of
Limitless Possibilities

NEWT
GINGRICH



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Introduction

This book about 2076 has roots that go all the way back to my teenage years.

I was fourteen years old on October 14, 1957, when the Soviet Union shocked every American by launching a satellite, Sputnik 1, into orbit. I immediately began reading *Missiles and Rockets* magazine, which was the trade report on the space industry.

I had a lively interest in the future exemplified by Isaac Asimov's magisterial three-volume Foundation series. Asimov introduced the idea he called psychohistory, which encouraged historians to use their knowledge of the past to project possibilities (not certainties) about the future. I had found my career.

When I switched majors from political science to history as an undergraduate at Emory University, I told the history department head I was going to study history as a vocational degree. My goal was to use it to make history. That was in 1965. I think it is fair to say, sixty-one years later, that I followed through on that idea.

At Tulane University as a graduate student, I taught a course on the Year 2000 during the summer program of 1969. It asked

students to think about what the world would look like when they reached age forty-nine—in the year 2000—and explored topics such as technology, social change, politics, and the future of civilization. Notes and photographs from the class are in Tulane’s archives.

I relied on a number of thought-provoking books about the future, including Kenneth Boulding’s *The Meaning of the 20th Century: The Great Transition* (1964), Daniel Bell’s *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (1976), and Bruce Mazlish’s *The Railroad and the Space Program: An Exploration in Historical Analogy* (1965).

When I came back to the United States from working on my doctoral dissertation in Brussels, I was hired by West Georgia College with an understanding that I would work on more than traditional history. Then, in 1970, the landmark book *Future Shock* by Alvin Toffler (which was greatly influenced by his wife, Heidi Toffler, as well) was a huge success. It popularized the ideas that I had been teaching—and that others had been writing about in less accessible books. I was fortunate to work with the Tofflers in the 1970s and participated in a section on anticipatory democracy that they included in a later edition of *Future Shock*.

During that same period, the Tofflers published their much more powerful work, *The Third Wave*, and I helped introduce them to General Donn Starry and the US Army’s Training and Doctrine Command. Much of the impetus of the Airland Battle Doctrine grew out of the Tofflers’ vision of the rise of an information age with real-time capabilities overwhelming the Industrial Era systems. Coached by the leaders of the army’s Training and Doctrine Command and by a remarkable adviser named Owen Roberts, we applied the techniques of historically informed

planning to make a number of breakthroughs that most people had thought were impossible.

Given this long background of looking forward, it was natural that as we began planning the 250th anniversary of the signing of the Declaration of Independence (something that Vince Haley began talking to me about over a decade ago) I would once again look forward.

The natural next culmination point is the 300th anniversary of our founding in 2076. As an optimist, I believe in America, and I think it is likely that we will have a golden age of culture, prosperity, and safety by 2076.

And thus this book.

America is truly on the edge of a golden age—and it is nearer than you may think. A combination of scientific, technological, cultural, political, and entrepreneurial patterns is coalescing to produce an explosion of economic growth, a dramatically higher standard of living, and a range of choices in lifestyle and careers. The scale of change and its synergistic effects in some areas will enrich and empower similar changes in other areas. This will move us into a new era of productivity, wealth, health, and safety.

Furthermore, the scale of President Donald J. Trump's Make America Great Again reforms in reducing regulatory red tape, shrinking the role of government, expanding investments in new technology and economic growth, and arousing entrepreneurial energy and talent will accelerate the development of a dramatically wealthier and safer America. So on a wide range of scientific, technological, cultural, and entrepreneurial fronts, we are on the edge of enormous productivity, prosperity, and safety. These will add up to a truly golden age.

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Despite the alarmist news of the day, many positive things are happening on the societal and cultural levels in America. We are moving toward a more work-oriented, dynamic, action-focused future with amazing opportunities for virtually everyone. As we start solving the problems of incompetent bureaucracy, unnecessary regulations, systematic dependence, and ineffective public policies, American achievement and success are going to accelerate.

If you go through technology- and science-focused developments every day and simply collect all the breakthroughs and achievements that are occurring, you will rapidly acquire an amazing catalogue of the better future being built right now. Aside from meteoric advances in artificial intelligence and robotics, we are seeing significant developments in biology, material science, nuclear physics, and a whole array of fields.

Even with all this happening, there is not the general sense of optimism, excitement, and eagerness that the facts would seem to justify. Instead, people focus on negative news, political gossip, and the endless stream of fearmongering distractions that flow through social media. But more precisely, our future doesn't feel as exciting and positive as it should because we are still in a period of deep conflict over what kind of country we are going to be—and what values we are going to embrace. In fact, you could say that America is at the edge of a golden age, but it is hard to discern it. The depth and intensity of conflict are clouding the horizon.

On one hand, the established government that grew out of President Franklin Delano Roosevelt's New Deal has become bloated into a cripplingly large bureaucracy that favors socialistic policies to sustain itself. Its political base is made up of powerful

unions, government employees, left-wing activists, cloistered academics, and the symbiotic news media. Through well-organized systems of self-sustainment and mutually reinforcing group-think, they have all adopted out-of-touch values—and are determined to impose them on everyone else.

On the other hand, we have an emerging coalition that wants America to work again. It has a deep belief in the unique traditions and history of freedom that have defined America for the last 250 years. This coalition wants to return America to being the undisputed, unimpeachable leader of the free world—and frankly, the world's sole superpower. These Americans are determined to break loose from the bureaucracy, and they deeply, angrily reject being told what to do, say, and think.

The current struggle is a matter of life and death for both movements. Within the left-wing establishment, there is a deep, passionate belief in a set of values that are anathema to Trump's Make America Great Again coalition and to the vast majority of Americans (see AmericasNewMajorityProject.com for massive amounts of data proving this). There is also a huge commitment on the left to systems that are filled with fraud, fail to deliver, and squander resources on a grand scale.

On the cultural level, the Left sustains itself and motivates its coalition by focusing on virtuous, human-focused goals: feeding the hungry, helping the downtrodden, sheltering the homeless, healing the sick, and so on (all of which are worthy of spending effort and resources on). The problem is that the enormous, expensive systems the Left sets up to address these issues have a perverse incentive to treat symptoms but never provide cures. Imagine what would happen to the left-wing mercy machine if employment skyrocketed, health care became fully transparent,

affordable, and available, and our other societal problems were solved. Without the taxpayers' money sustaining the machines and allies of the Left, its whole system would shrivel and become a minuscule part of its current power structure. Then it would have no coalition big enough to sustain its larger movement.

The only thing remaining would be a bureaucratic system that is sustained by taxpayer money and government weight. In full survival mode, it would focus relentlessly on protecting the old order from competition or technologies that threaten its allies. Faced with an entrepreneurial-driven wealth creation system that methodically exploits breakthroughs in science and technology, the old order would vanish.

Why It Will Be America's Golden Age

This is a book about the American Golden Age. It is not a book about a global or worldwide golden age. This is because it is virtually impossible to create the conditions for a golden age around the entire planet in the near term. Doing so would require economic prosperity and a cultural commitment to achievement, as well as a common commitment to the rule of law and effective self-government. These characteristics do not exist in large parts of the world—and are not likely to develop in some places in the next half century.

There will be substantial pockets of poverty. Many countries will still be run by violent, kleptocratic dictators and bosses. Other countries simply won't figure out how to run effective governments, sustain the rule of law, attract investors, or overcome religious, ethnic, tribal, and other divisions that lead to capital- and property-destroying violence.

The great achievements in raising people from poverty since World War II (over the last eight decades) have been in countries that were already orderly and developed (Japan, Germany, most of Europe, and some others) or in countries that acquired coherence, purpose, and bureaucratic structures that led to order (China, India, South Korea, Israel, Vietnam, Brazil, and some others). There were some countries that were on the verge of enormous success and then, thanks to the destructiveness of their political leaders, decayed into failure. Argentina, Cuba, Venezuela, and South Africa are four good examples of the power of politicians to destroy wealth, impoverish their country's citizens, and create misery.

It is important to recognize that the world is becoming more dangerous, not safer. There are several patterns that guarantee that our level of security will go down even as our expenditure on security rises. The largest factors in this increased sense of danger are familiar. Unless we remain vigilant, there is going to be a steady spread of nuclear weapons. Currently, the United States, Russia, China, India, Pakistan, the United Kingdom, France, and Israel have nuclear weapons. As I write this, we are fighting a war with Iran to prevent its developing nuclear capabilities.

Furthermore, all the technological breakthroughs I'm lauding will potentially have dark sides. Artificial intelligence and robotics could be weaponized to terrible effect. Increased connectivity across the economy will mean more opportunities for cyberattacks and data theft. The potential for hostile nations to weaponize space will mean that once limited enemies could dramatically expand their threat ranges. But all of these dangers can be overcome—or potentially prevented—if we consciously go into the future unafraid of them.

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So this is a book about a positive, dynamic, extraordinary American future. It is a serious effort to imagine what a potential golden age for America would be like on the 300th anniversary of the signing of the Declaration of Independence in 2076. It is also a book about a governing philosophy and an approach to solving challenges that has had an enormous impact on America—and will continue to do so for the next several generations.

When we are thinking and writing about the next five decades, the pattern must transcend the individual. We saw this with FDR's New Deal legacy, which has continued to dominate the thinking of the Democratic Party eight decades after he died. Similarly, President Trump's personality, charisma, and determination to achieve things is shaping history. But five decades from now, it will be the movement he started that will be decisive in shaping America's Golden Age. After all, he will be in office for only two more years. This leaves forty-seven years for Trumpism to operate under new leadership.

So this book is written on the assumption that Trumpism and the MAGA movement will define the next fifty years. There is an underlying belief that if President Trump can succeed in redefining the role of government—and the core principles of national security and trade policies for America's role in the world—he will be one of the most consequential presidents in US history. He will certainly be the most consequential since FDR.

In our work at America's New Majority Project, we have found issue after issue on which there are 70 percent, 80 percent, and even 90 percent majorities. In overwhelming numbers, Americans are patriotic and proud of it. Despite the media's liberal focus, most Americans are deeply committed to historic social and cultural values, such as equal opportunities rather than equal

outcomes for all, merit-based advancement, parents' rights to raise and educate their children as they see fit, an acknowledgment that there are only two sexes, and the list goes on. The natural Trump majority has grown out of these massive majority issues and in many ways has been the latest iteration of them.

The truth is, Trumpism's roots go back to Barry Goldwater's 1964 presidential campaign. It shares through lines with Ronald Reagan's historic televised 1964 speech "A Time for Choosing" his campaigns for governor and president, and his performance in both jobs. Quite humbly, I acknowledge that Trumpism's closest ancestor is the 1994 Contract with America and the aggressive reformism of the House Republicans when we won the first GOP majority in forty years.

When candidate Trump descended the escalator on June 16, 2015, he was already attuned to the base of support that would rally to MAGA and grow into a campaign that would first defeat sixteen other Republicans, including a number of governors and senators—and then defeat the establishment's "guaranteed next president," Secretary of State Hillary Clinton.

Two salient characteristics of the 2015–2016 campaign made it historic. First, from the beginning, candidate Trump was the most effective anti-Left candidate since Calvin Coolidge in 1924. Trump was not *National Review* educated or steeped in the principles and philosophy of modern conservatism; he was an instinctive antiliberal who understood why left-wing principles did not work and how intense the base felt about annihilating them. Second, candidate Trump instinctively combined two different roles in a way that made him devastatingly effective: He was both a charismatic leader and a movement leader. This is an important distinction. The extraordinary impact President Trump has had

over the last eleven years can be understood only by analyzing his role as a constantly evolving, amazingly energetic, charismatic figure—and his separate role as a consistent and determined movement leader. The two roles are radically different, and he blends them together with astonishingly effective impact.

One way to think about President Trump is that he is a total Gemini. One twin is completely existential; it has enormous energy and lives in the present; it is constantly doing something. The other twin is calm and determined, thinks in long horizons, and remembers constantly what it is trying to get done. The charismatic version of President Trump is vital because it has the energy and ability to focus on this second or this minute. This side of him understands Rush Limbaugh's principle that if you don't entertain your audience, you can't educate it. Limbaugh worked hard to keep people enjoying his show because he could teach them his philosophy only if they were listening. Likewise, Trump rallies are in many ways designed like the Limbaugh show. President Trump knows that he must entertain his crowd. His riffs, the music, the faux dancing, the random asides—all these components are designed to give the audience a good time and a feeling of authenticity. This is why his base keeps coming back.

The challenge for a charismatic movement leader is to figure out which parts of the movement are designed to educate its members and which parts are designed to sustain morale and attract new members. A major challenge of analyzing Trumpism is that its leader sends so many charismatic signals. It is sometimes hard to figure out which signals are simply meant to entertain and keep attention and which ones are meant to educate the movement's members and guide the movement in the long term.

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Furthermore, the nature of an extended Trump rally (often ninety minutes long) often drowns out the important movement instructions with interesting, sometimes spectacular, moments of entertainment or riffs of fantasy and speculation. However, if you watch President Trump over time and separate the entertaining noise from the serious, recurring messages, you can begin to see what Trumpism stands for and what it is trying to accomplish. Someday there will be an encyclopedia of Trumpism and maybe even an authorized version with an introduction by President Trump. For now, we must sort out the consistent long-term patterns from the random maneuvers—and the ideas that come and go but reflect the charisma more than the movement.

Understanding the uniqueness of Trumpism, how dramatically it replaced the political establishment and fits the desires of at least half the country—and how these qualities relate to the amazing breakthroughs we are seeing on the horizon—is a major step toward understanding why we can look forward to America's Golden Age.

Imagining the Golden Age

Imagine that it is 2076 and we are celebrating the 300th anniversary of the signing of the Declaration of Independence. Furthermore, imagine that the momentum of science, technology, and entrepreneurship has led to astonishing breakthroughs in human capabilities. Finally, imagine that those who are currently celebrating (rather than condemning) the 250th anniversary of the signing of the Declaration of Independence, the Constitution, and the history of America have won the cultural fight against the big-government socialist Left. Imagine that the country has regained the pragmatic, problem-solving, exciting, and achievement-centered patterns that led it from being a tiny country on the edge of the Atlantic Ocean to the wealthiest and most powerful nation in history. What would this American Golden Age be like?

Based on the patterns already developing, we can project a large part of the coming golden age. In some ways we are the heirs of H. G. Wells and Jules Verne, writers who in the late nineteenth and early twentieth centuries wrote about technologies that

would be developed generations later. For example, Wells's description of nuclear war in 1914 (in *The World Set Free*) was written before the science to wage such a war had been completed—and forty-one years before the first atomic bomb was tested. Verne, in many ways, invented science fiction with *From the Earth to the Moon*, *Around the Moon*, *Around the World in Eighty Days*, the amazingly advanced submarine *Nautilus* in *Twenty Thousand Leagues Under the Sea*, and other acts of imagination. All of those were written in the 1860s and 1870s—a hundred years before the Apollo missions.

So as we set off for our tour of 2076, we have good examples from the past that imagining can be productive and stimulating as well as predictive. Here are some of the big takeaways from 2076.

The change that will affect most people involves our current sick care system turning into a true health care system. The focus will be on constant self-analysis and finding ways to keep us healthy rather than ways to fight sickness. With the great breakthroughs in biological knowledge to come, we will solve the challenge of more than two hundred types of cancer. Many of our current afflictions, including sickle-cell anemia, Alzheimer's disease, kidney disease, pneumonia, and others will be problems of the past. The average person born in 2076 will expect to live to age 140 and have the energy and capabilities of today's sixty-year-old when he or she dies. Dr. Michael Roizen, the longevity officer at the Cleveland Clinic and a world-renowned student of research on aging, outlined this revolution in his 2022 book *The Great Age Reboot: Cracking the Longevity Code for a Younger Tomorrow*.

The continued growth of nanoscale technology will have profoundly changed procedures such as colonoscopy and inspecting

your heart or brain for problems. One part of the revolution in maintaining good health rather than waiting for disease to force us into sick care will be the level of detailed, timely, convenient, personal knowledge that will be available to strengthen self-management of disease avoidance. With the continued evolution of artificial intelligence, everyone will have a digital health companion. It will keep permanent track of every aspect of our health and recommend changes in nutrition, exercise, and medicine as we go through life. These health companions will acquire intimate knowledge of their human partners' needs. They will not only keep a lifetime record of every health aspect, available instantaneously when needed, but will also be constantly scanning breakthroughs in medical knowledge and medical technologies to make sure their human partner always receives the best options and advice as rapidly as they are developed.

Furthermore, artificial intelligence will have combined with robotics and autonomous self-directing capabilities to provide support on a personalized scale we currently can't imagine. Hospitals, hospice, and long-term care will largely be replaced by robotic personal support companions that have interactive personalities and a tireless ability to provide help around the clock. They will also enable elderly people and those with significant physical and mental challenges to live much fuller lives by enabling them to undertake activities that on their own would be impossible. These personal support assistants will be tied into an information system that will maintain data about their patients and be able to scan for better procedures worldwide.

As an example of the development of this kind of real-time sharing of information, the current F-35 fighter jet has been designed so that every F-35 in Europe will be able to share

information and coordinate across the continent. These kinds of distance-eliminating real-time communications and analytical systems will make new approaches and capabilities in health care possible on a scale we have not even begun to understand.

The health care payment system will have evolved to give each citizen maximum information about price, quality, outcome, and convenience so they can choose the health applications most appropriate for their situation. The result will be the kind of constant improvement in products and services combined with constant downward pricing pressure due to competition that we normally see in commercial markets. This will take a great deal of the cost out of the health system while increasing its acceptability and approval.

The dramatic change from sick care to health care and from secrecy about cost and quality to a transparent open health care system will have been matched by an enormous, possibly bigger, shift in learning and work. For the young, the new technologies will dramatically expand our ability to learn and empower us to do a lot of productive work. Furthermore, as our health improves, the meaning of age will change dramatically. People will have more energy and enthusiasm and stay active much longer. The meaning of work may change as people discover that there are a lot of different things they like to do in their free time. Retirement in the Industrial Era sense of stopping work may be replaced by waves of alternative activities as people pursue hobbies, part-time jobs, and opportunities to work with others in volunteer activities. There are already in the relatively well-off healthy aging population levels of travel, learning, and contributing to society that would have seemed alien and unattainable a half century ago.

I have a friend who makes history tapes for a service that markets them to people who are interested in learning. He told me that his market was mostly retired dentists who finally had time to learn and were fascinated by history. As a history teacher, I have always thought that history is much better understood when you have lived long enough to have a history yourself. It is hard to get young people interested in studying the past because they have no personal experience of having a past. Another good friend, Elizabeth Lev, a professor of art and religion and an expert on the Renaissance, runs a successful tour business in Rome. Her most enthusiastic tour members are people who have lived long enough to have some sense of perspective. It is harder to teach Michelangelo to a nineteen-year-old who has no sense of how history has evolved than it is to intrigue a more mature person into thinking through all the complexities that went into Michelangelo's approach to art and religion.

By 2076, people will have true lifetime learning with 24/7 availability and astonishing convenience and flexibility. The difference between a learning-centered system and an education-centered system is enormous. This will mean the end of the great academic bureaucracies of steadily declining competence but growing cost and political power. It may be one of the greatest revolutions between now and our 300th anniversary. The modern Industrial Era school was designed to train people for the requirements of an industrial society: showing up on time, sitting in rows, and listening to the teacher (or foreman). People learned to do what the system required them to do to function and at the same time and pace as the rest of the team so the industrial factory could operate. All these characteristics of modern primary

education came out of the Industrial Era. They have almost nothing in common with how adults operate in the Information Age—or how we will operate in the future.

Colleges and universities have an equally obsolete model in which people who enjoyed college and excelled in their topics then define what other people should learn and when. The modern college curricula reflect the habits and values of the people who like working in college. They are not a reflection of the modern world or the requirements of achieving success after graduation. Universities and colleges have become even less productive because of the dominance of left-wing ideologies that indoctrinate rather than educate. Roger Schank's work on effective learning clearly outlined the obsolete model of academic requirements being created by academics whose only frame of reference is their own limited academic backgrounds. His outline of the intellectual failure of modern education was devastating, and his work was some of the earliest on artificial intelligence and cognitive learning.

By 2076, this expensive, age-defined, classroom-bound system of being dictated to by people who do not know much and have not accomplished much outside a classroom will have decayed and been replaced by dramatically different systems. There are glimmerings of the diverse, decentralized, often self-directed and work-oriented learning systems of the future when we look at places that have high productivity and enthusiastic participation. Compare the amount of information being imparted in a typical classroom with the volume of information available from Google, ChatGPT, Siri, Claude, and other systems. If you were to measure the total information being transmitted via the internet and the total being transmitted by schools and universities and then

project this pattern out fifty years, you would begin to see vastly different potential learning behaviors.

One of the most dramatic changes will be the rise of apprenticeships as a powerful introduction to the world of work and learning. In our time in Switzerland and Liechtenstein, it has been driven home to my wife, Callista, and me that apprenticeship systems can be enormously effective in producing a skilled, dedicated, and rapidly learning workforce. (Callista, as the US ambassador to Switzerland, has decided to make the Swiss apprenticeship system a major study focus of her time here.) The Swiss model starts people working at age fourteen or fifteen. They spend part of the week being paid by the company and part of the week in school. Unlike in the United States, where apprenticeships and vocational-technical schools have too often been seen as lower-value dead-end pathways, in Switzerland and Liechtenstein the number of companies with CEOs who started as apprentices is impressive. This is the case because the Swiss apprentice system lets companies recruit and train people in unique requirements from an early age. The gap between the requirements of real work and the standards set by virtually all schools is astonishing. Furthermore, the rate of learning in work environments or by young people who pursue their own interests is many times as high as the rate of learning in a bureaucratic teacher-dominated school setting.

One of the related challenges of getting Swiss, Liechtensteiner, Taiwanese, or other companies to manufacture in the United States is getting the American workforce to operate at a high level of performance day after day. The culture that produces Swiss watches of impeccable complexity also produces apprentices who assume that they will have to focus and produce

competently. To compete at the high end of the emerging world economy, the culture of learning and performance in the United States will have to improve dramatically. Given our first 250 years of adaptability and flexibility, I am confident that the American people will shift from the structured mediocrity of the last stages of bureaucratic industrialism into the intense focus on excellence in the emerging age of empowered creativity.

Over the next half century, work will regain its former status as a key to a healthy life, and a variety of work-preparatory approaches will emerge. The various technological revolutions are going to open enormous opportunities for people to pursue interests and ideas that give them an inherent sense of value. The Industrial Era fostered a life of intense work followed by a decisive break as workers retired. In the heavy industries of 1720 to 1960, that was a perfectly reasonable pattern for people who were physically exhausted. I had relatives who were steelworkers in the 1950s. The heat in their workplaces and the physical stress of the job made it impossible for them to work much beyond age fifty. Knowledge workers are totally different; they are not physically broken by late middle age, and they generally like staying busy and doing things that involve their mental creativity and sense of problem solving and achieving.

The shift toward apprenticeships and work that is exciting—and personally satisfying—will lead to a dramatic decline of prolonged adolescence as a cultural pattern. The return to a young adult model from the adolescent model will lead to a remarkable range of changes. In societies with a young adult model, people are expected to work and behave like adults from puberty onward. Benjamin Franklin's being apprenticed at age twelve was not

unusual for his time. He quickly learned to earn money and to be responsible.

The pattern of young entrepreneurship and learning to work and make money at an early age is deeply built into the American system. Thomas Edison's first job was selling newspapers and candy at age thirteen. Henry Ford worked on the family farm and then at age sixteen became an apprentice machinist. John D. Rockefeller at age sixteen was a bookkeeper, which he said taught him what he would later need to know to manage Standard Oil. Of course, some people will shrug these off as old examples that don't tell us much about 2076. Here are some modern examples of encouraging young adult rather than adolescent behavior: Bill Gates wrote his first computer program at age thirteen. Six years later, he and Paul Allen cofounded Microsoft. Steve Jobs interned at Hewlett-Packard at age twelve and at twenty-one cofounded Apple Computer with Steve Wozniak. Richard Branson founded two companies at age sixteen. Elon Musk wrote a video game program at age twelve and sold it for \$500. Jeff Bezos went to work for McDonald's at age sixteen. Peter Thiel founded *The Stanford Review* at age nineteen.

In the agricultural economy that dominated early America, it was normal for everyone in the farm family to pitch in and contribute. Whether that meant gathering eggs in the morning, milking the cows, or helping with repairs, young people learned from an early age to be young adult contributors to their family's economic well-being. Similarly, at the other end of the age spectrum, grandmothers and grandfathers continued to help in a variety of ways. There was a sense that everyone had chores to do and everyone had a role to play in making farm work and life possible. This

sense of making a lifelong contribution to a better society—and to your family, friends, and neighbors—will return as we learn how to socialize the emerging Information Age, maximize its strengths, and minimize and control its dangers.

This transition from encountering a revolution to understanding its strengths and weaknesses and developing methods for maximizing its strengths and minimizing its dangers is nothing new. With the rise of the automobile, we had to develop rules of the road. The traffic light is a social invention. The lines on the road to mark lanes are a social invention. Pedestrian crossings with lights are a social invention. The requirements for registering vehicles, getting a driver's license, and proving car ownership are all social inventions. The same pattern occurred with aviation, and there was a transition from the unconstrained stunt pilots of the 1920s (many of whom crashed and died) to the rules of the sky, which were developed and enforced by the federal government. We are currently going through a similar process with enormously powerful new tools that both enable and threaten us. By 2076, we will have learned how to use all the new capabilities in positive, life-enhancing ways. At the same time, we will have learned which elements and practices can be destructive.

I am not suggesting that 2076 will be entirely positive. I believe deeply in the human condition. From Adam and Eve onward, the human story has included hubris, uncontrolled appetites, overwhelming emotions, and a host of behaviors and thoughts that are destructive. When I was teaching during the surge of challenges to the old order in the 1970s, I would say to rebellious students, "If you can find a sin or an act of deviancy or a pattern of self-destruction that is not already described in the Old Testament, I will take seriously your suggestion that you

represent revolutionary new values and ideas. Until then, I will consider you just the latest wave of generational change which has occurred throughout human history.” In all the years I made that challenge, no one ever brought me a genuinely new sin.

Because I believe that humans will remain human, I do not expect our golden age to be a utopia. It will be extraordinarily wealthy. It will have enormous opportunities for productivity, learning, and adventure. People will generally live longer, healthier lives and have an amazingly greater range of choices in lifestyle and earning a living. But in the end, we will remain people. This means that evil will still move around the world, seeking to destroy the innocent. It means that some people, even when they already have everything, will have a sense of emptiness and fill it with drugs, alcohol, or some other vice. There will almost certainly still be an illicit substance industry earning amazing amounts of money from those who are addicted. Some people will inevitably be drawn into preying on others either directly or through cybertheft. Human trafficking is as old as humanity, and it is almost certainly going to exist in 2076. For genetic and environmental reasons, there will be people with significant mental challenges. A few people will be born with defects that will still be beyond our ability to cure or ameliorate. While most people with disabilities will be able to use new technologies and medical knowledge to focus on acquiring capabilities, there will still be some people who will face challenges too severe to overcome.

All of these problems will be multiplied if we approach the golden age with fear, greed, envy, haste, recklessness, and all the other flaws of the human condition. They will be lessened and mitigated if we pursue America’s Golden Age while holding on to the core American principles of freedom, liberty, and justice for all.

The Effect of Synergy

As I mentioned earlier, the most powerful engine of this coming transformation is the way various technologies and scientific breakthroughs will interact synergistically. With each new breakthrough in capability, there is typically an initial tendency to project only how that one breakthrough will evolve. Yet the truly powerful impact of new technology comes from its interaction with other technologies and other scientific breakthroughs to create powerful opportunities and capabilities on a scale we have never imagined.

Consider the impact of the railroad on the need to keep time. If several trains are going to intersect on the same track, keeping accurate time is a matter of life and death. In the early 1800s, the railroad engineer's pocket watch became a vital component of safe railroading. When the telegraph was developed and Morse code became an effective method of rapid communication, the world changed dramatically. There is a delightful small book, *The Victorian Internet* by Tom Standage (1998), that captures the stunning change that occurred when the telegraph enabled messages to go from India to Great Britain or from Washington, DC, to San Francisco almost instantaneously. I have a favorite example of this impact. Train robbers used to steal from people just as a train was leaving the station and then jump off at the next station. Suddenly, with the telegraph, law enforcement could beat them to the next station and arrest them there. Several industries grew up around Western Union and its ability to send near-instant messages.

One of the historic examples of the interactive, synergistic effect of technological changes came in the 1920s and 1930s with the development of aircraft carriers and carrier aviation. In its

earliest forms around 1919, at the end of World War I, carrier airplanes were small, underpowered, and slow. They could not carry torpedoes strong enough to threaten battleships. It is fair to say that battleships were still the dominant warships into the middle of the 1930s. Aircraft carriers were effective for scouting and directing ship-based long-range gunfire (which required putting radios into planes), but they were not a threat to the largest warships.

Suddenly, airplane engines became much stronger and torpedoes much more powerful and compact. That combined change shifted power dramatically away from battleships and toward aircraft carriers. The first great proof of that synergistic effect came on November 11, 1940, in the Taranto harbor in southern Italy. The Italian fleet was attacked by twenty-one British Fairey Swordfish biplane torpedo bombers. The British had developed a shallow-running torpedo that could be used in the harbor. The Brits disabled three Italian battleships and damaged a heavy cruiser. The balance of power in the Mediterranean changed overnight. The Japanese studied this attack and developed their own shallow-running torpedo for the attack on Pearl Harbor over a year later. On December 7, 1941, the United States had four battleships sunk and four more damaged in Hawaii. A revolution in naval warfare was underway.

As an example of thinking outside the box, the next great breakthrough was a function of electronic intercepts and a handful of brilliant people sitting in a basement painstakingly breaking the Japanese naval code. The miraculous American comeback at Midway in June 1942 was made possible by the brilliance of the code breakers. Without them, the Japanese would have captured Midway Atoll and been poised to launch a new assault on Hawaii.

Due to the code breakers' work, the Japanese sailed into an ambush and their navy lost four carriers and the ability to dominate the Pacific. Each innovation was empowered by other innovations.

Something similar is happening in the interaction among miniaturization, telemetry, and biological knowledge. About twenty years ago, I was visited by an Israeli company that had developed an oral replacement for colonoscopies. The company had a miniaturized camera in a capsule so small you could swallow it. As it drifted through your esophagus, stomach, and intestines, it would send out a signal so the doctor could examine your body with minimum inconvenience. Today, this kind of advanced miniaturized distance signaling system is becoming common. By 2076, colonoscopies will be a thing of the past—and so will most other invasive medical diagnostics.

The fact is that remote diagnostic and operating capabilities have far exceeded the rules and regulations that grew out of the earlier era. There will presently be a revolution in rural health care as distance is eliminated by remote sensing and diagnostic tools become smaller, more flexible, and more portable. You may soon be able to order a diagnostic kit online from Amazon or Walmart and interact with your doctor from home.

When remote sensing is combined with artificial intelligence and robotics, it is clear that the synergistic effect of all of them together will dramatically change the ability of people to be treated and maintained at home rather than in hospitals. The sheer volume of personalized diagnostic and treatment data will rapidly produce huge breakthroughs in our understanding of what kind of care people need—and how to treat diseases as soon as they are detected so they do minimum damage and cause minimum interference with our lives.

As I mentioned earlier, when transparency in information about health care price, quality, and convenience is combined with an exploding array of options for how to maintain maximum good health, guarantee the earliest discovery of disease, and constantly search for best practices, newest technology, and newest best practices, the definition of health care will profoundly transform. The health care experience of 2076 will be as different from today as today's is from that of George Washington, who was treated with leeches in 1799.

These thoughts about the scale of synergistic change we are beginning to live through led me to conclude that there will be an American Golden Age and that it would be worth describing and exploring.