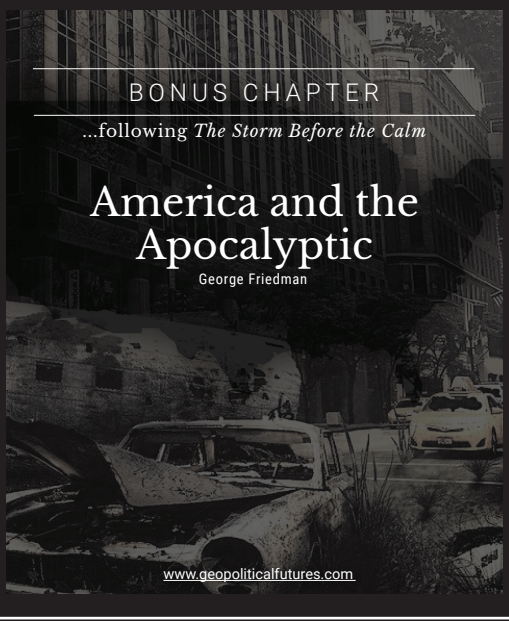
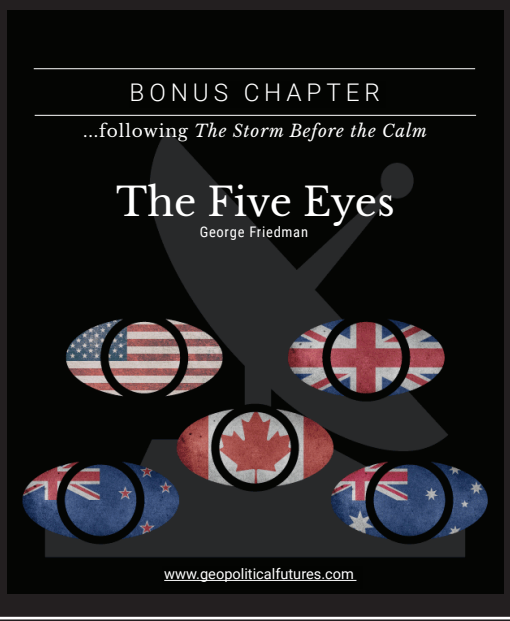
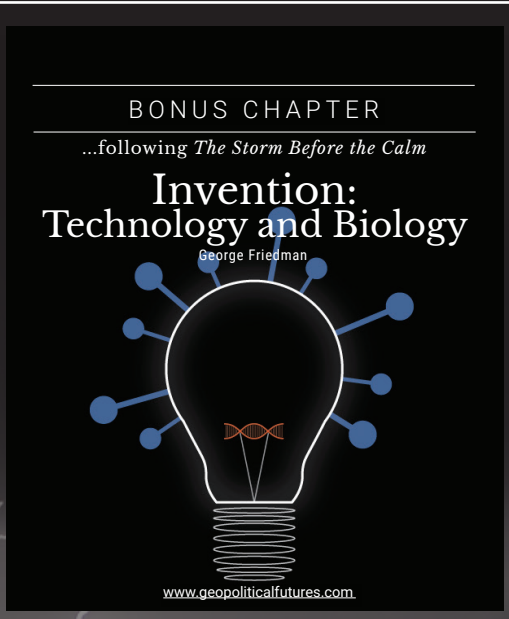
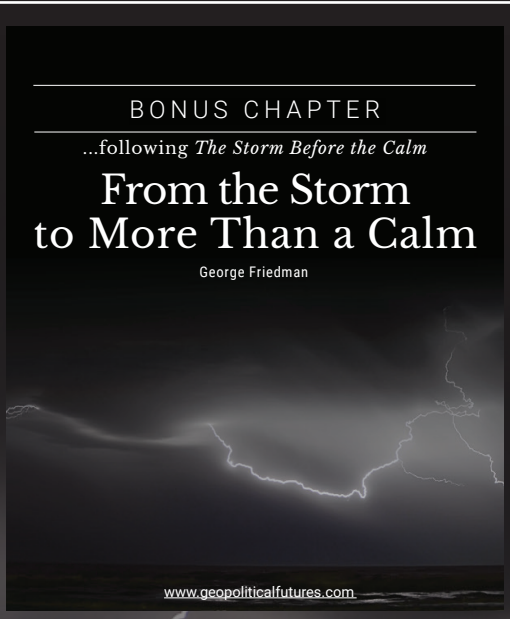




EPILOGUE
to The Storm Before the Calm





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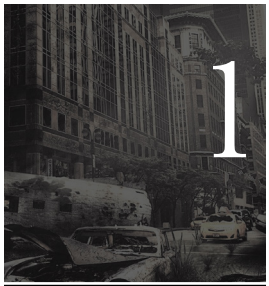

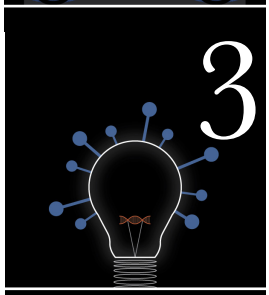

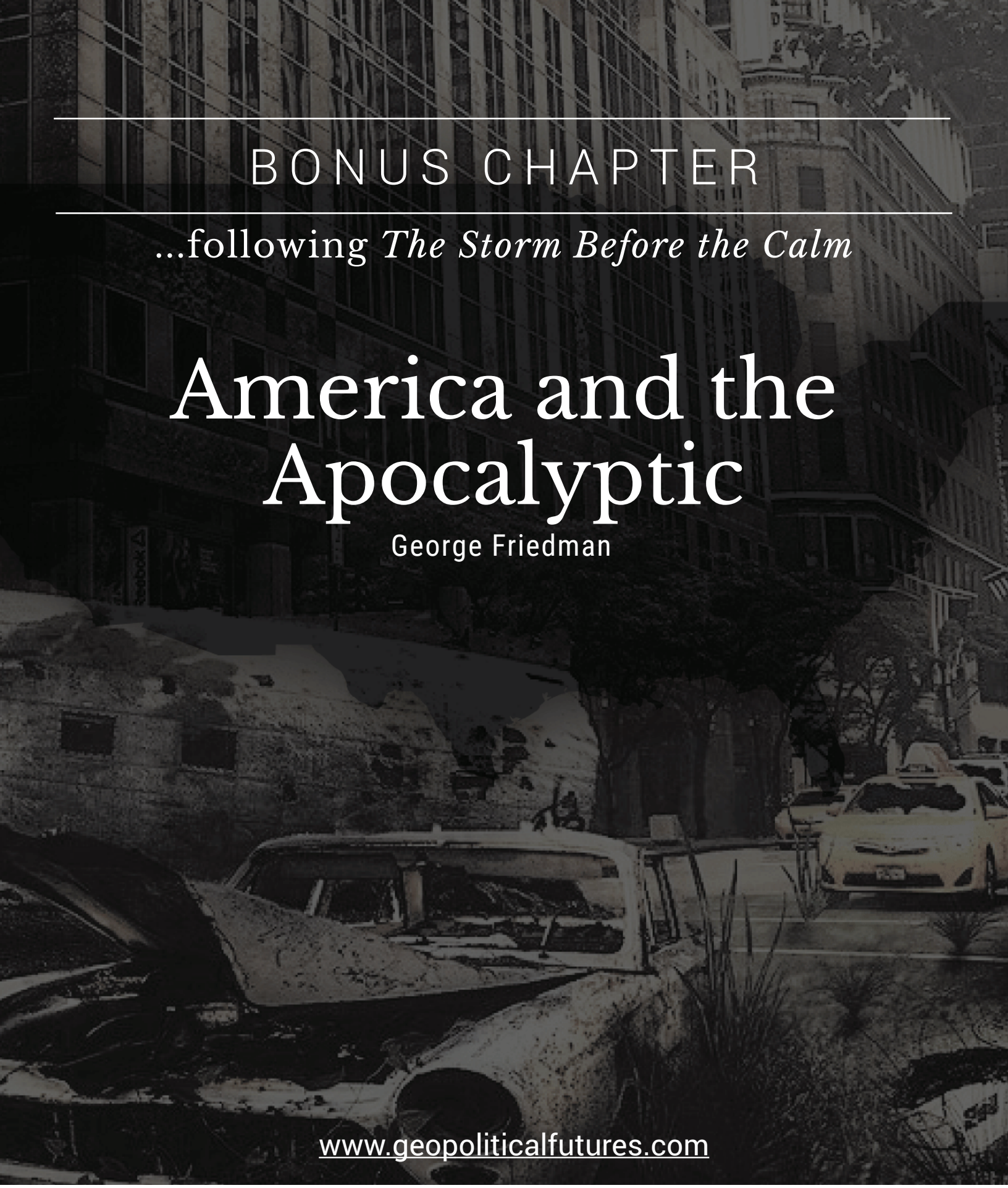

BONUS CHAPTER

...following *The Storm Before the Calm*

America and the Apocalyptic

George Friedman

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The Roanoke Colony was, as I discussed in Part One, the first English settlement in North America. One hundred-fifteen people crossed the North Atlantic in the summer of 1587. They were funded by venture capitalists hoping to make a profit from the settlement, as were the settlers. There was nothing lofty in their aims, nothing revolutionary, nothing that might challenge a wrathful God. They came simply to make money and then to go home. The banality of the settlement was its only distinguishing characteristic.

The unknown lurked and the unknown is the greatest fear of all humans. But by landing on an island, they felt reasonably secure. Greed, the self-assurance of the English and a channel separating the island from the mainland mitigated the fear they must have felt. After they arrived, the ship they came on left, and no English ship returned for three years. A war had broken out with France that made resupply impossible. When a supply ship finally came back, the colony was no longer there. The settlers had disappeared without a trace.

There are many theories of what might have happened, for no one was left to say. The only sign was a carving on a post: Croatoan. It was the name of a tribe nearby, on Hatteras Island. It might have been a warning about the tribe, it might have been a welcome sign, it might have been the idle doodling of someone who was bored. In the end, these were merely theories. The truth was simple: The settlers had landed in Roanoke and some force, human or not, annihilated all but their memory.

God threatened Noah with an apocalypse that would obliterate all of humanity. He also promised one that would destroy Sodom and Gomorrah, to annihilate the Egyptian pharaoh and the army with which he pursued the Israelites. God may have been mysterious, but he made his will known. Sodom and Gomorrah fell, and the pharaoh felt his wrath. There was a transaction and there was a choice. There was no mystery.

Roanoke was different. All nations fear annihilation by a jealous God or neighbor, or by a plague that doesn't respect rank. Humans live with the awareness that their life will end in a personal catastrophe, and so they can imagine their life ending in the catastrophe of all. But all of them know their own land and its animals and trees, and all of them know their neighbors. They know what is possible and not. For the settlers at Roanoke, there was no such familiarity. They had come to a place that was

as far from their home as space and culture could permit. What they found there was by its nature strange, and they lived by laws and customs other than theirs. This was true of the people, the animals and the trees. They were all strangers. And deeper in the forest across the channel may have lived gods and devils unknown to those who searched for the colony.

Catastrophe at hands of the unknown was the only reasonable way to think of things. And the fear that there might be something present that you couldn't see or even fathom was unlike the fears of an Englishman. It makes a difference whether you die from something you understand, or you die from something beyond your imagination. That frees your imagination to dread.

There were two types of European presence in North America. There were those who came to explore, hunt or trap – men who had steeled themselves to the fear of the unknown. And then there were the settlers, who came with their children and their wives. They had come here to live, to make a home in a place of uncertain dangers. Roanoke was populated by families who planned to return to England. Some, of course, planned to stay, and for them annihilation meant far more than their own deaths. They bet the lives of all they loved for a chance to make a decent living. Every immigrant made that bet, for no matter what they were told in letters, no matter what they thought they knew, they were going to a place where the city was a forest, and lurking in the forest were dangers unforeseen and unimaginable.

The American fear and fascination with the apocalypse is rooted in the experience of all who migrated here or descended from those who migrated here. All of us are one or the other, and the tales that were passed down were far less important than the sensibility they possessed. The settlers had made a bet of astonishing hubris, bundling entire families as the ante on the poker table of the continent. Each immigrant family faced their own Roanoke.

The story of America is the story of immigration, beginning with the Mayflower and continuing even today. It is normally a story of comfort and triumph. The comfort is achieved by a stranger in a strange land discovering he is at home. The triumph is seen as generational, the store of a poor immigrant whose child became whatever he or she aspired to be. This is a real story, a common one simply because the comfort and triumph are real. What's

untold is the story of how near the immigrant came to disaster, and the price that he paid for the child's success. Notably omitted is the dread and regret the immigrant felt each night going to bed, regretting the decision to leave all that was familiar, and dreading the morning, when it was time to face the Calvary once more.

The Calvary was work. When two Americans meet, the first question frequently is: What do you do? Embedded in the answer is the measurement of success in America: money. Whether you are kind, humorous or depressed is of little interest to the other. What makes you a human elsewhere is secondary to the primary question. Who you are is defined by what you do. For the immigrant, the fear was to lose the comfort carved out for his family. The immigrant knew America to have little pity for failure and even less for weakness. America seemed to promise everything, and then delivered the bill.

When the stock market crashed in 1929, leading to the Great Depression, an apocalypse struck at the very heart of why immigrants come to America. Masses were thrown out of work, endless businesses failed, banks collapsed, stock brokers became penniless, and for the weakest, the only solution was suicide. The Depression left little room for wealth or wisdom. If America was demanding, the Depression was pitiless.

What was most terrible about the Depression was that it seemed to come out of nowhere, with no warning, no chances for someone to wrap himself up to protect himself from the cold. Undoubtedly, there were those who glimpsed the rising water of a tsunami, but they were few, and fewer still had heard their warnings. The Depression came unheralded; I suspect that was the case with Roanoke. There was a darkness in America that the immigrant never imagined. It was not prejudice and hatred – although there was certainly prejudice and hatred – but a mass failure that could not be evaded nor forced back. The unbearable truth was that even work couldn't save you, for there was little work to be had. What you had come to America for, a chance to be comfortable and triumphant, was taken from you not by your own fecklessness and laziness but by a dark force that came from nowhere.

There had been many financial crises, but none had seared themselves on the nation's soul as did 1929. We still measure failure against the Great Depression. Every time the stock market

sputters or businesses fail, a moment of disquiet overcomes us. That our economic life is filled with tails of triumph of billionaires also has a darkness inherent in it. It is the fear that if life is as good as it was in 1928 you are still unsafe. The apocalypse had come once, and if it can come once, it will come again. It's a fear that undergirds every hope for the future we have.

The unexpected apocalypse drives home how little control we have over our lives, a control that is never quite there but that is craved all the same. On Dec. 7, 1941, the Japanese attacked Pearl Harbor without warning. In fact, the government knew there was going to be a war, it just didn't think it would begin with an attack on Pearl Harbor. Tactically, the United States had warnings. Two radar men had detected a large flight of aircraft approaching from the north. They transmitted the information to the watch officer, whose response has become legendary: "Well, don't worry about it."

For decades, the U.S. had been gaming the war with Japan at the Naval War College. The games had generated a strategy: The Japanese would go to war to seize the Dutch East Indies – now Indonesia – to take control of oil and other resources. The route back to Japan would always pass close to the Philippines, so the Japanese would attack there as well. The U.S. would marshal its fleet at a place and time of its choosing, and then would engage and defeat the Japanese fleet. It was an excellent solution if not for Japan's understanding of the strategy, which was hardly a secret. So instead of simply attacking the Philippines, the Japanese attacked Pearl Harbor to destroy the fleet the U.S. intended to use in its counterattack.

Americans were stunned by the attack. They were made aware that the U.S. government had not prepared the fleet for action. Washington was evacuating Hawaii, and the stories told seemed to become more lurid with time. Terror seized the public, particularly on the West Coast. Residents there began to see Japanese warships approaching, Japanese aircraft overhead and Japanese spies everywhere. When the apocalypse allows its victims to draw a breath, it is not relief but panic they feel. And then the Americans waged a ruthless war driven by a hatred for Japanese duplicity.

Pearl Harbor introduced a new, or at least a more intense, dimension of the fear of apocalypse: the conspiracy theory. It went something like this. Franklin Roosevelt wanted to join the war

against Germany. Roosevelt knew that the Japanese would attack Pearl Harbor – and in one version, he actually wanted the Japanese to attack. The theory suffers from two shortcomings. First, Roosevelt did want to intervene against Germany, but the attack at Pearl Harbor didn't help since the public would insist on a clear focus on Japan. Hitler declared war on the U.S., not the other way around. Second, even if he knew of the coming attack, it made no sense to keep the fleet and its crewmembers there. Generously assuming he wanted an attack, it makes no sense that he would want his fleet decimated because doing so would make it more difficult to shift to a European strategy.

The U.S. went to war in a way that seemed apocalyptic. The fact that the war opened with a surprise attack was shocking, validating the deepest fears Americans had. The United States suffered a defeat either through incompetence or complacency. Neither explanation was especially satisfying. One of the deepest beliefs of Americans, particularly after World War I, was that the United States was competent. To accept the idea of incompetence was terrifying. If we were incompetent, then the Japanese might win the war. The other more comforting explanation for Pearl Harbor was that the U.S. was competent and that Roosevelt was competent, if evil. By believing his hand was managing Pearl Harbor to justify a war in Europe, the public could believe that he was also capable of protecting the U.S. (There was no theory that held him to be a traitor.) Paradoxically, absolving the military and blaming the president created a comforting matrix that made the apocalypse less frightening.

It's true that Pearl Harbor was not the apocalypse, but it was surely an apocalyptic event. No other military event had generated such fear since possibly the Civil War. This was the first time the threat of a foreign military seemed real, and that the U.S. for a time did not seem able to protect the nation. Above all it created a sense that the world was filled with threats, and that one might strike us without any warning in the place and time where we were most vulnerable. After Pearl Harbor the United States stood constant watch for the coming of the apocalypse.

But from this came the fear of an honest-to-god apocalypse: nuclear weaponry. World War II ended with the revelation that atomic bombs existed and one bomb could annihilate a city. After the joy of victory wore off for the U.S., Americans and indeed the entire world were filled with dread. As the Soviets

(and others) developed nuclear weapons of their own, the rational and sensible fear of nuclear annihilation was magnified by the dark intents of an unknown enemy. The forests outside Roanoke were replaced by the opacity of the Kremlin walls.

That fear led to the institutionalization of the possibility of surprise attack. The Depression and Pearl Harbor surprised Americans. The Depression and World War II defined a generation. That generation, in power after World War II, was obsessed with the apocalypse lurking out of sight.

The response can be found in Cheyenne Mountain, near Colorado Springs. It has been hollowed out to try to make it invulnerable to nuclear attack. Inside the mountain is the North American Aerospace Defense Command, or NORAD. In the 1950s, it was in constant communication with the Distant Early Warning Line of radar stations strung across northern Canada and into Greenland. They watched for Soviet missiles, and if they had been launched, NORAD would inform the Strategic Air Command as nuclear bombers, some always in the air, others on ready alert, stood by to annihilate the Soviet Union.

The idea was that at any moment, without warning and without rational cause, the apocalypse would be upon us. The public would have a matter of minutes to take cover and launch weapons, not to save the nation but to retaliate in kind. The real intent was deterrence. The knowledge that retaliation was inevitable and catastrophic would discourage a Soviet attack. And the general assumption was that absent a Soviet attack, the United States would never start a nuclear war. Whether that assumption was true, or whether mutually assured destruction worked, seems like a thin edge on which to balance the fate of the U.S., if not the world, but that was the only basis available.

The fear of the apocalypse turned into a fear of the Soviets, and the fear of the Soviets spread from nuclear war to the idea that they had infiltrated and, according to some, overtaken the United States. Sen. Joseph McCarthy famously alleged that the most senior members of the U.S. government were communists. The John Birch Society believed Dwight Eisenhower was a communist agent. It seems as though the fear of the hidden stretched from Roanoke to the intelligence apparatus.

There was never a nuclear holocaust, of course, but its shadow has haunted Americans for 40 years. When I was a

child, the sound of a siren being tested terrified me. The children knew there was a monster stalking them, and they knew that the sound that would signal their annihilation would be a siren. Before about 1975, the fear of nuclear war and the distrust in the ability of our government to protect us were part of the unspoken fantasies of children and adults. They deferred only because these fears were reasonable and the monster of fairy tales really was out there.

The prospect of an apocalypse receded over time, partly because the government was successful in protecting Americans when their fears diminished. But throughout the Cold War, when the fear of annihilation was everywhere, there was another vision of the end lingering below the surface. The population of the world was growing and there was a fear that hunger and disease would destroy humanity. As the population grew, the resources needed to feed and house people did not. Shortages of food in India and of oil in America fueled the fear that unless population was curbed, the human race would either destroy itself or, failing that, be reduced to a state of primitive hunger. The Club of Rome, the most prestigious think tank of its time, predicted that by 1970, the population explosion would exhaust all natural resources. Their warning was taken seriously throughout the world but was uniquely suited to the American view that man's appetite for sex and food would destroy the planet.

But the birth rate declined, and the world pressed on. Apocalypse by nuclear war disappeared while the prospect of hunger and disease declined. It was a rare period in the U.S., a time when we were not tempting the gods by some willful act of our own.

Then came 9/11. With no warning, al-Qaida struck targets in Washington and New York with civilian aircraft it had hijacked. Three thousand people were killed, and the United States, as it was in 1941, was surprised and terrified by what might come next. The nightmare was a return to the nuclear fire as speculation focused not unreasonably on whether the jihadist group had dirty bombs and, if so, what it would strike next. I remember boarding an airplane the day flights were resumed. The plane was half full and I stared at each passenger, wondering which one of them might be from the Middle East, and what weapons they might be carrying. I imagined how I might bring him down if he moved toward the cockpit.

My behavior was not unreasonable. We had been attacked by a force that we knew opposed us, but we did not imagine it carrying out such an attack. We civilians were stunned, and we suspected our government was as surprised as we were. We didn't know the capabilities or intentions of our enemy. Fear was the only reasonable response. The fear after Pearl Harbor was reignited.

The apocalypse did not lurk in the forest, nor in the cities of immigrants. It originated not in the mind of an emperor nor in the mysteries of the Kremlin. The uncontrolled lust of men and women wouldn't bring it about. We were convinced that it lurked in the minds of a billion Muslims who intended to destroy our civilization. As at the founding of the United States, Americans feared not death but annihilation.

The apocalyptic sense endures and given that the apocalypse did annihilate Roanoke, we had no basis for dismissing any of these fears. Today the apocalypse lurks in the heart of our civilization. The temperature is rising as a result of our sins, and we will be punished for it by the gods destroying the Earth, or so do earnest and credible prophets claim. God might have promised not to destroy the Earth when he spoke to Noah, but he said nothing of us destroying ourselves. What the Earth would look like is unclear. Perhaps the Sahara would bloom while New York disappears. The consequences of our sins, good and bad, are beyond our knowing and nearly beyond hope. Americans may have feared many things that did not destroy them. It does not mean that we will not one day be destroyed.

The apocalyptic tradition in America divides itself between violence done to us and violence we have done to nature. In both forms there is the idea that in some way, we Americans have brought it on ourselves. At Roanoke, some carelessness caused the settlers to evaporate. At Pearl Harbor, a president was Machiavellian, and a lieutenant failed to heed the warnings. In the Cold War, the scientists created the monster. The population explosion was due to reckless reproduction, and 9/11 due to our reckless behavior in the Muslim world. And, of course, global warming is the result of our profligacy with the things that produce heat.

The fear of the apocalypse in America divides into two parts. One blames the apocalyptic force, the other blames America or its leaders. The former is a natural response. The latter is more interesting because it divides into two further parts. One part rests in blaming

our leaders for being heedless of the threat. The other claims that America has conjured up the apocalypse by its own wanton sins.

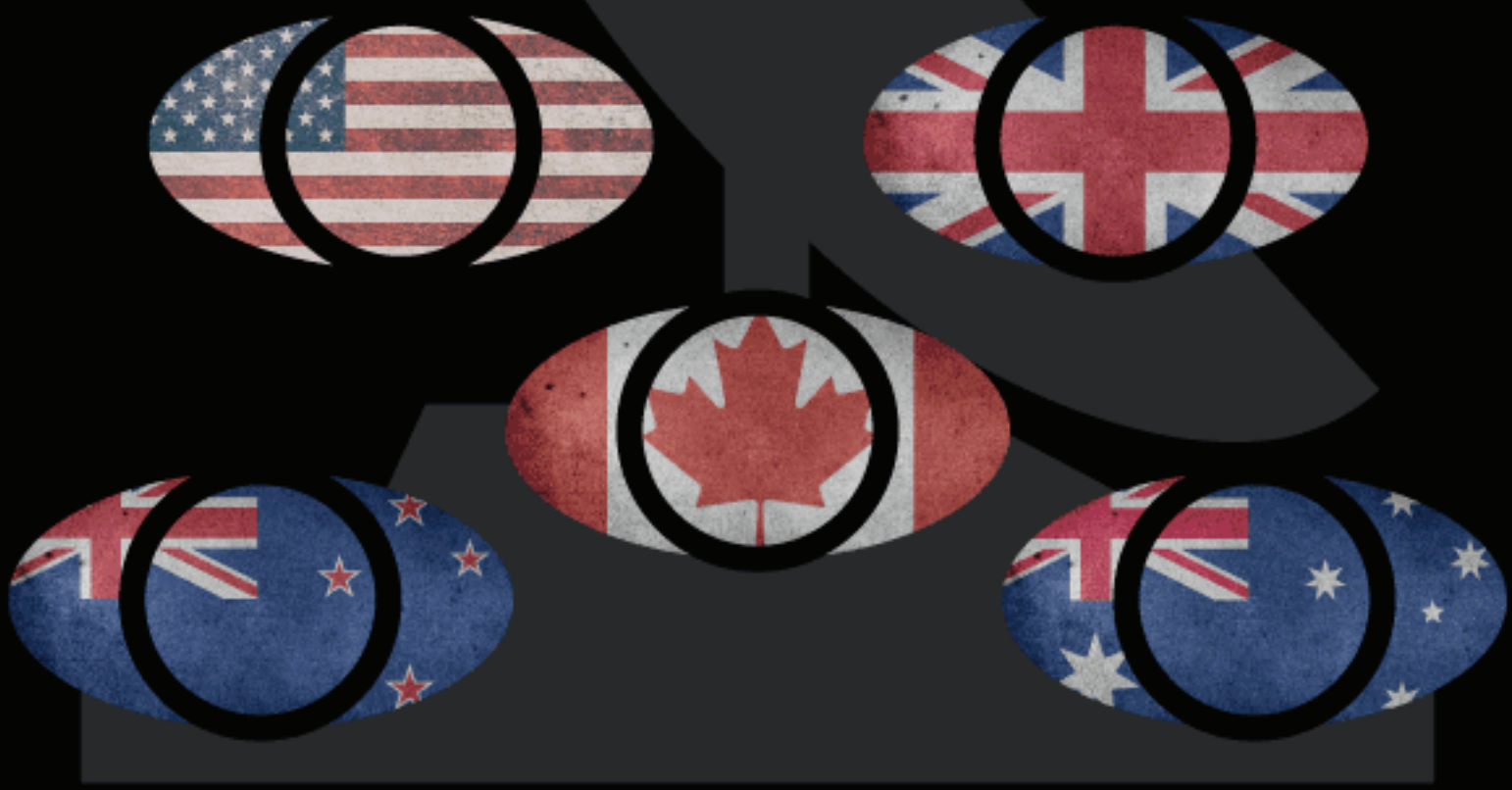
But the apocalypse is located in a deeper place, in the endless emptiness of our continent, even today. When I discussed the movie "High Noon" in an earlier chapter, I spoke of the nameless threat posed by evil men motivated only by evil. The sheer emptiness of much of America opens the door for evil men to flee into the wilderness and return at the time and place of their own choosing. The principles motivating many Americans coming to this strange place inevitably caused them to fear the things they couldn't see, much like a child afraid to look under his bed. But like a child the fear is not foolish. There is evil and Roanoke found it.

BONUS CHAPTER

...following *The Storm Before the Calm*

The Five Eyes

George Friedman



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There is a multinational agreement that is critical when considering the foreign policy of the United States, one that is older than NATO, the European Union, the International Monetary Fund and even World War II. Far too little is known about it, considering its five members – the United States, the United Kingdom, Canada, Australia and New Zealand – account for about 30 percent of the world's gross domestic product.

It's called the Five Eyes, and its sole purpose is intelligence sharing. The alliance is a product of the Atlantic Charter, which bound the U.K. and the U.S. together, but was extended to the other three partly because they were members of the British Commonwealth and partly because they were indispensable allies in WWII. Other European countries, particularly France, have been considered for membership, but it was never to be.

The Five Eyes originally gathered signals intelligence during WWII. It was a sensible proposition; they were already close allies that depended heavily on each other for the prosecution of the war. In short, they all needed to know what the others knew.

Any alliance such as this is complex and dangerous. It's painfully difficult to gather what you need without jamming up the system; intelligence failures are caused as much by excess as by insufficiency. It also builds an extraordinary degree of trust. For these five nations, it came with an ease not normally present in intelligence.

What bound them together was mutual interest. Their respective locations meant they could provide intelligence, the very foundation of national security, throughout Eurasia. Knowing what others are doing can win wars and prevent them. Yet the alliance ran deeper than that. The Five Eyes recognized that they had a common interest that transcended, and continues to transcend, the current moment. Remarkably, none of the policy disagreements they've had in the past 80 years was great enough to violate the alliance.

There is a saying that a nation has no permanent friends or enemies, only permanent interests. There's truth to that, but it misses an interesting point: If a nation has permanent interests, then geography tends to create permanent relationships. If, say, Morocco was a vital interest to the United States, then it would need to be much tighter with Spain and Algeria. Obviously, that isn't the case. The permanent interest of the

United States is securing North America from foreign threats.

These threats can materialize from three directions: from the west via the Pacific, from the north via the Arctic, and from the east via the Atlantic. At the moment, the south poses no threat. The defense of each requires allies to provide geographical or material support. For much of the past century, four countries have played this critical role, and reciprocally they benefitted from the relationship. To the west, it has been Australia and New Zealand. To the east, Great Britain. To the north, Canada. None engaged with the United States simply through sentiment. Each has in the past been indifferent or at times hostile to the United States. But geopolitics bound them together.

Geography may be the foundation of this relationship, but the cultural commonalities cannot be ignored. All five nations are primarily English speaking. Four of the nations were shaped culturally and politically by their relationship with the fifth, the U.K. And each had a core settlement by the English. It's ironic, but it also smooths the relationship.

As the United States matures and accepts the principles of "no permanent friends," it's notable that the interests of the Five Eyes members have created less visible but no less important secondary economic and military relationships. The geographical needs of each bound them together and, I will argue, will become the visible foundation of the U.S. alliance system going forward.

A Complex Hand

That is a radical assertion that requires justification. In geopolitics, the justification begins with history. In the case of this book, it begins with the history of cycles in the United States.

Each institutional cycle begins in war: the Revolutionary War, the Civil War and WWII. The fourth institutional cycle ended in war, although in a more complex way. The collapse of the Soviet Union created a singular crisis. It left the United States as the only global military power and the leading economic power. For the first time in 500 years, no European power was a global power, and the United States was plunged into a position for which it was unprepared strategically and emotionally.

The United States had experienced a meteoric rise. In 1865, it lay torn asunder by the Civil War. A mere 35 years later, it was pacified and united, and produced half of all manufactured prod-

ucts in the world. In 1917, the United States intervened to prevent Germany, which had effectively defeated Russia, from dominating Europe. Washington therefore sent about 1 million troops to Europe, an extraordinary feat for a country that in 1913 had only 130,000 troops.

World War I set a model for the U.S. The U.S. essentially occupied an island that it dominated far away from its potential enemies. Its primary interest was control of the Atlantic and the Pacific, creating a buffer from Eurasian threats. The danger to the U.S. was the creation of a major naval force in either ocean. European domination by Germany could have led to Atlantic domination, which the U.S. could not abide. Its strategy, then, was similar to the British Empire's: defeat an enemy fleet by preventing the enemy from building one. So long as Eurasia was divided by hostile powers, their resources would primarily go into building ground forces. Fleets are fiendishly expensive and complex, and nations at odds with each other would have few resources available to think about Atlantic or Pacific control.

The Treaty of Versailles exemplified this strategy. As the deciding force in the war, Washington prevented France from punishing Germany as harshly as it wanted to. If Germany were completely neutralized, France would be able to dominate Europe, and that was no more in American interests than German domination had been. The U.S. intervention allowed them to dictate the continued fragmentation of Europe. The U.S. had no interest in controlling Europe by staying there, but rather in creating a stable balance of power.

The strategy may have worked had it not underestimated Germany's ability to revive its economy and the degree to which the French lost their appetite for war. The U.S. wanted to remain neutral and let the balance of power create a stalemate. The collapse of France made this impossible. The U.S. had to try to rebalance the power as cheaply and safely as possible. From this came the Lend-Lease Act, which had two purposes: to provide the U.K. the necessary materiel to block a German invasion, and to induce the British to lease to the U.S. all British naval bases in the Western Atlantic.

Washington saved the British by weakening them. For more than a century, the British controlled the Atlantic by controlling its key ports. The U.S. used the war to take control of the Atlantic by exploiting the U.K.'s desperation to get the British out of North American waters.

But there was more to it. The goal of the British was to defeat Hitler and retain their empire, particularly India. The goal of the United States was to defeat Hitler, but Washington was not just disinterested in preserving the British Empire; it was actively hostile to it. Its opposition was based partly on moral grounds, but there was also a strategic dimension to it: The empire was wealthy and the British had limited access to American trade with India to a great extent. Independence for India, for example, opened the door to American trade.

For the British, the Mediterranean Sea and the Suez Canal were the keys. They were the only efficient path to the empire. For the United States, fighting in North Africa was useful as a training ground for troops who had never seen combat, but the U.S. had no interest in British ambitions there. Capitulating to Sicily and, with even greater reluctance, Italy, the U.S. refused any operation in Greece, insisting on a cross-channel invasion of Normandy.

The government in London opposed this invasion for two reasons. First, British forces had been massively diminished; a failed invasion might leave Britain without an army. Second, even if it were successful, the British would be displaced as a major power in Europe, with the balance of power being held by the United States. The minutes of the many meetings that were held actually show bitter division over the fundamental objectives of the war. The defeat of Nazi Germany was the one uniting point. How to do that was key, but what else was to be done was not so clear.

After the war was over, the British relented because they had no choice. As they relinquished their empire, they accepted that the United States would dominate Western Europe and that they would play a supporting role. The reason for that was that the British feared a Soviet-dominated Europe as much as they had feared the Germans. They had always held the balance of power on the Continent, and they understood both American power and its essential role in preventing the Soviet Union from becoming hegemonic.

At the same time, the British played a critical role in American Cold War strategy. Their military contribution was substantial, responsible as they were for defending northern Germany, and their remaining naval power was vital in the North Atlantic. There was a close alignment between British and American interests.

The United States played a complex

hand in World War II, the primary thrust of which was its management of its relationship with Britain. The United States took advantage of British weakness both to impose a strategic solution on Britain and to force a northern European campaign. In doing so, it took sole control of the North Atlantic.

Australia

The Pacific War was politically simpler, partly because the British navy was forced out of the Pacific in the first weeks of the war and partly because Japan's strategy was fairly straightforward. Japan was entirely dependent on imports to fuel its massive industrial plant. The United States was concerned that Japan would challenge the U.S. in the Pacific, and the Japanese were aware of this and feared American interdiction of imports. The Japanese had to secure resource-rich regions such as those in Southeast Asia but knew that unless they also seized the Philippines, the U.S. could block shipping. They also knew that U.S. war planners expected a Japanese attack on the Philippines and would concede it, gathering together its massive Pacific fleet at Pearl Harbor and forcing a decisive battle with the Japanese navy. The Japanese countered by attacking the fleet and then taking the Philippines.

The man in charge of war planning for the Pacific was Dwight Eisenhower. He conceived to keep the lines of supply to Australia intact and to rush forces to Australia to prevent Japanese occupation, and then to use Australia as a base for building up forces and launching an attack northward toward Japan, accompanied by a westward thrust from a revived Pearl Harbor. Under no circumstances could the Japanese be allowed to block the line from Pearl Harbor to Australia.

The war shocked the Australians, who saw themselves as part of the British Empire and thus under the protection of the Royal Navy. The destruction of the British fleet, the loss of Malaysia and Singapore, and the Japanese advance on the Solomon Islands and New Guinea all directly threatened Australian society.

Without the British, the Australians had to find an alternative, which was obviously the United States. This matched well with Washington's desire to use Australia to build up offensive capability. (Much of its army was in North Africa at the time.) The alliance grew out of necessity and developed without the complications involved with the British. But as with the British, it provided essential resources to the U.S., which in

turn provided security – security from which it would benefit during the Korean and Vietnam wars.

Australia's view of the modern world was built on its experience with Japan. The strike at the United States and the British left Australia extremely vulnerable. Using that model as a template, the involvement of Russia and China in Korea and Vietnam appeared to be a replay of World War II. The response had to be to depend on the United States to keep Australia secure.

Canada

The Cold War bound the U.K. and Australia to an alliance that revolved around the United States. The same thing happened with Canada but in a different way.

Like Australia, Canada had seen itself as an extension of the British military in the two world wars. In that context, the Canadians had come to know their American counterparts, particularly in the D-Day operation, but it wasn't until the Cold War that the Americans and Canadians drew close. The foundation was not that they were neighbors; it was the geography of the Cold War and its weapons.

There were many layers to the Cold war, but hovering over all of them were nuclear weapons. It is reasonable to conclude that, given the tensions between the Soviets and the Western alliance, a war would have at some point broken out had it not been for the threat of nuclear war. Conventional war can get out of control, but that is a potentially rational risk to take. If the Cold War got out of control, it would have led to a nuclear exchange. However, if either side felt that for any reason the other's nuclear forces could not harm them, then a sudden conventional rush might make sense – acting before the window closed.

Knowing this, both sides sought to make certain that no such window opened, which required a nuclear force able to strike back. For the United States, this entailed strategic bombers, later supplemented by land-based and submarine-based missiles. The Soviets focused on land- and submarine-based missiles.

For deterrence to work, these munitions needed to be able to survive a first strike by the enemy, necessitating systems capable of detecting an attack so that either side had enough time to launch their own counterattack. It was also essential that each side knew that

they could not take out all the other's munitions. The foundation of deterrence was not just mutually assured destruction; it was also mutually known invulnerability.

The Russians had a strategic advantage in detecting an attack. A strike from the United States to Russia would have to be an attack in and around the North Pole. The Soviet Union was much farther north than the United States, which means that it would be able to detect an American strike very quickly, with enough time to order a counterstrike. The United States, far to the south of the pole, would detect the strike much later, and with much less time to respond. The survival of the nuclear force, and therefore the nuclear balance, depended on early warning.

Before the Cold War, the United States and Canada had collaborated through the British. But now they had to collaborate directly. The Canadians were closer geographically to the Soviets, who had always made them insecure about the Arctic, and they also understood that the destruction of the U.S. nuclear arsenal would be disastrous for them as well.

The United States and Canada created a unique joint force: the North American Aerospace Defense Command, or NORAD. The command created a string of radar stations in the far north called the Distant Early Warning, or DEW, line, expanding detection capabilities far to the north and dramatically increasing warning time. The warning system allowed U.S. bombers to scramble (some were always orbiting the Arctic) and provide time for land-based missiles to launch before Soviet missiles hit their target. Remarkably, NORAD is under joint rotating U.S.-Canada command – meaning the responsibility of an important dimension of national security is sometimes in the hands of a foreign commander.

Lasting Alliances

Thus is the origin of the Five Eyes alliance. With Britain, the United States collaborates on European issues and control of the North Atlantic. With Australia and New Zealand, the United States collaborates on control of the Western Pacific. With Canada, the U.S. collaborates on North American air defenses.

But as of 1991 (arguably earlier), the U.S. was no longer fighting a Cold War, the end of which put Washington in unfamiliar territory. It responded to the 9/11 attacks as it would have if the

Soviets had encroached on, say, part of Germany: by invading countries, in this case Afghanistan and Iraq, with conventional forces. Except that dismembering al-Qaida in Afghanistan didn't require – and thus was made more difficult by – conventional, large-scale forces. Al-Qaida waged unconventional war and inevitably escaped. The United States remained, generating unobtainable goals such as creating a democracy in Afghanistan, hearkening back to its public goals in the world wars and Cold War. What was obvious to anyone in the field had to be denied by the government: Not only was the U.S. losing the war, it couldn't even define what victory would look like.

Clearly, the United States was still in a Cold War mindset, and accordingly, the alliance structure that had succeeded in the Cold War remained the center of American strategy. There was no longer a singular enemy, but the U.S. was responding to global actions with extensive force, and expecting to be supported by all the alliances it had created – NATO, pacts with Japan and Egypt, and so on.

The problem was that, to use NATO as an example, members became members not to align themselves with the United States but to recruit the United States to protect them from the Soviet Union. But the Soviet Union was no more. Because the U.S. was a global empire, willing to engage anywhere in the world, it expected the anti-Soviet alliance to remain a binding force. It could not; the binding force, instead, turned into the hope that the United States would remain their ally without actually demanding much of them. But the United States was instinctively wedded to the Cold War mentality, too, accustomed to conducting foreign policy that was constantly reacting to events it regarded as challenges, constantly using force and, above all, constantly expecting its Cold War allies to participate. Some did, some did symbolically, and others refused.

The United States is a global power. Being a global power requires four things. First and most important, it requires an understanding of what is unimportant. Second, it requires a clear evaluation of the costs and benefits of pursuing what is important. Third, it requires an understanding that all international relations rest on the bedrock of mutual interest. And fourth, it requires an awareness of which relationships are significant in the long term.

Since 1991, the United States has fallen short of these requirements. But

with the ostensible winding down of the forays into Afghanistan and Iraq, some truths appear to have emerged. For one, the United States does not have an overriding interest in the Middle East and should not allow one-off events like 9/11 to draw the U.S. into the region. There are regional powers – Turkey, Israel and the United Arab Emirates – that have no choice but to deal with regional issues and so can be relied on to pursue those interests.

For another, the United States should refocus on China and Russia. The U.S. has a permanent interest in any power that might achieve hegemony over Eurasia and could therefore challenge U.S. domination of the Atlantic and the Pacific – the essential component of Washington's national security. Russia and China are major powers, but right now neither is likely to pose a direct threat to American interests. Russia has lost its western and southern buffer zones: the Baltics, Belarus and the South Caucasus. China is afraid of an American blockade that would utterly cripple the nation.

From the American point of view, there is no intent to blockade China, but there is an interest in denying China the opportunity to move in force into the Pacific. The United States has no desire to move farther east or north, nor can it allow Russia to move west or south since doing so would threaten Europe. It might also persuade some European countries like Germany to enter into alliance with Russia.

The American strategy in the Atlantic, therefore, is to make certain that the balance of power in Europe maintains itself. This is done by placing troops in Poland and Romania. The U.S. regards most European countries as unreliable in a crisis and therefore has to be prepared to move to support its forces in Eastern Europe either through the Denmark Strait into the Baltic to Gdansk, or through the Strait of Gibraltar to Trieste. The alternative is entering Europe against the will of some countries. Each aspect has its own risks, but the crucial element is control of the Pacific, bottling up Russian aircraft or vessels behind the Greenland-Iceland-U.K. gap, and having an intermediate staging area for any operations in Europe. All of these are fairly farfetched scenarios. Even so, military planners tend to plan for the farfetched.

In the Pacific, the American goal is to prevent any of the island nations – Japan, Taiwan, the Philippines and Indonesia – from becoming a Chinese ally that could give Beijing access to the

Pacific. It also means denying China the opportunity to dominate the narrow gaps between the smaller islands. The United States wants to maintain the status quo. In this endeavor, it needs support in the South Pacific. It maintains bases in Japan and South Korea, sufficient perhaps to hold a Chinese force for a time. But it is the south, on the islands of the Indonesian archipelago, or the Solomon Islands, that the U.S. needs support for basing, logistics and the military. Hence its continued need for Australia and New Zealand.

Trade complicates this alliance. Australia exports industrial minerals, and China is its biggest customer. A U.S.-Australia alignment that goes too far might cause China to stop buying these minerals. But China assumes that in outright warfare, Australia would work with the United States, and China knows that finding an alternative source of minerals in the quantity it needs would not be simple. At the same time, the Australians understand that the American relationship reduces the possibility of China moving militarily. The concern is real; the probability of it coming into play at an inappropriate time is low.

Trade, however, actually enhances the Atlantic front of the Five Eyes alliance. About 20 percent of Canada's GDP comes from exports to the United States, and Canada is the biggest buyer of American goods. Both are transcontinental powers with trading interests in Asia and Europe, so the American interest in the Atlantic and the Pacific is also the Canadian interest. Canada depends on U.S. control of the two oceans, and can trust in that since it is the primary American interest too.

Indeed, all members of the Five Eyes alliance have a permanent interest in the control of the Atlantic and the Pacific and security of North America. Their geographical distribution makes them allies in a wide range of circumstances. Lasting alliances exist before they are formalized. Interests drew them together, and with the rise of American power in a radically changing global system, American strategy must become global and have a foundation to stand on.

I normally treat geopolitics as separate from cultural matters, but in this case, there is an obvious point. These nations have a transcendent historical link in that they are all vestiges of the British Empire. The bonds of language and culture are difficult to separate. These countries do not always like each other, but they understand each other in ways that other countries can't. This is why the Five Eyes is one of the only

alliance structures that still makes sense in the current world order. The U.S. as the only global power obviously has a wide range of interests and requires allies who are partially, but strongly, committed to those interests.

Each country of course has doubts about formal alliances. In general, all are wary of the American tendency to use military force in situations where they are unlikely to be successful, like Afghanistan. All are concerned that too much collaboration with the United States might endanger economic relations, such as Australia's with China or Britain's with some European states. But these military relations have existed for about a century in spite of economic challenges, and with this group making up nearly 30 percent of the world's economy, the risk is somewhat mitigated. The alliance has existed because the structural realities in the Atlantic or the Pacific are faced by each of these countries, and in both by the United States.

Yet each country retains the right of free action as it sees fit. Each is sufficiently wealthy enough that it requires no charity from another. And most of all, none exists on the Eurasian landmass. They are insular and maritime countries. They are not bound up in Eurasian history. The collective memory of these nations – Britain excluded – does not include centuries of anger with each other. Geography has made each country stand alone in the world, and history has bound them together. Now, strategy opens the door for an alliance measured in the very long term.

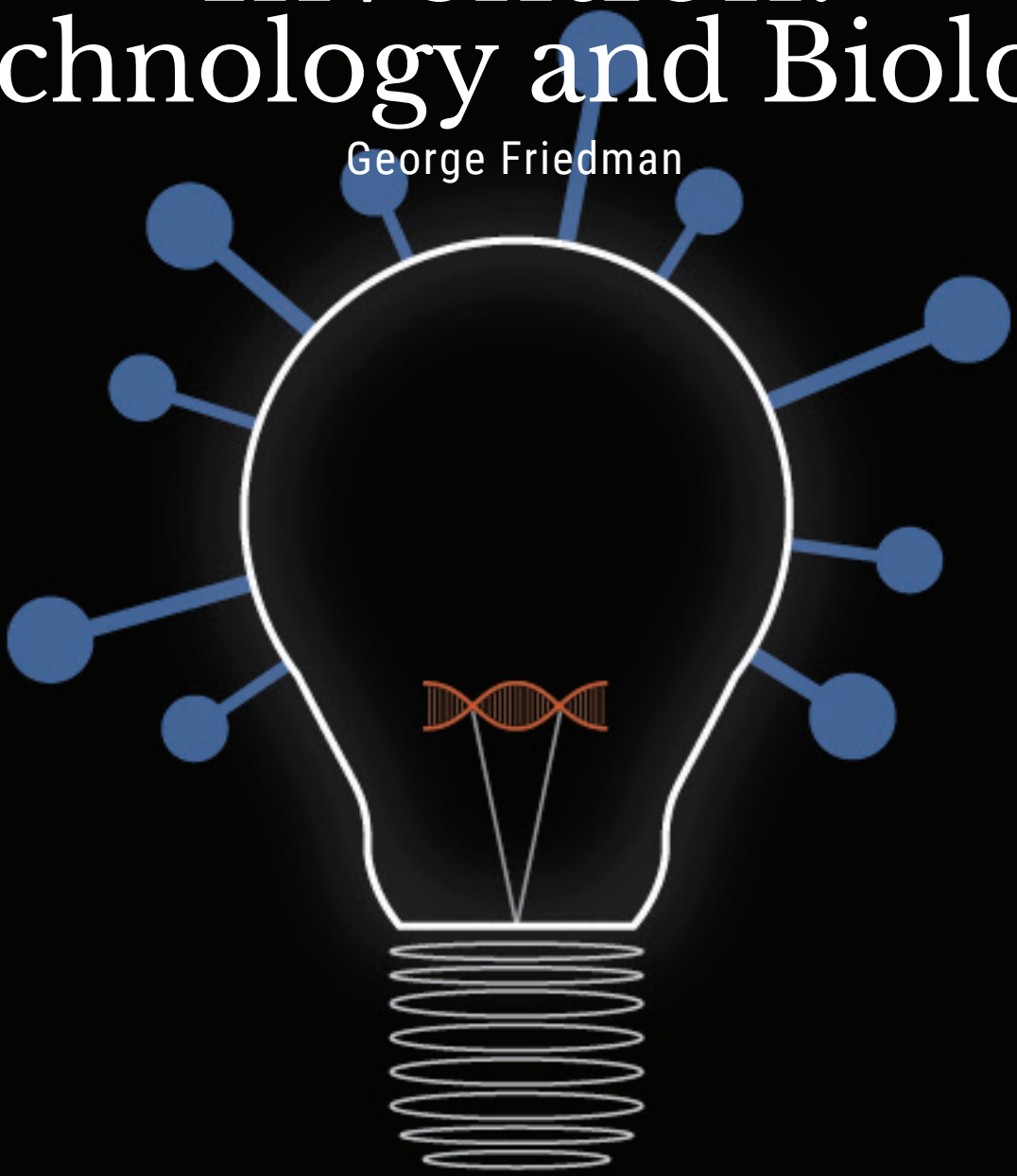
This is an alliance that already exists because it was necessary, and the central power, now the United States rather than Britain, needs each to maintain its national security and interests. Each of the four needs the United States for the same thing, and each has bled in wars against common enemies. The Five Eyes is a symbol of trust, but mutual combat and trade are necessities.

BONUS CHAPTER

...following *The Storm Before the Calm*

Invention: Technology and Biology

George Friedman



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In the late 19th century, the United States was aware, sometimes painfully aware, of the profound differences between itself and Europe. Europe's known history went back for millennia, boasting the brilliance and power of Athens and Rome. The United States could remember important things, but it couldn't submit a past that others envied.

But by the end of the 19th century, the United States found something that was both profoundly American and envied, admired and feared: a culture of invention. Europe owned the past. America owned the future. As I wrote in "The Storm Before the Calm," America was an invention from the beginning, one that introduced and discovered novelties of all sorts. But by the end of the 1800s, American inventiveness had matured into a culture, more complex and sophisticated than it first appeared, that defined its national identity.

American Invention

If Aristotle embodied ancient philosophy, Thomas Edison embodied American inventiveness. The number of things he invented is startling: the phonograph, the movie camera, the electric light bulb, centralized electric generation and so on. Placed in a broader context, he created methods for preserving sound and action, two things that had been possible to experience only in the present. Edison enabled us to see and hear long after the action and the sound passed away. This created a brand-new relationship between humans and time.

A number of points are crucial for understanding this process. Edison never attended a university. The most important thing he invented was his own life. His inventions all derived from a single core natural force, and that force — electricity — was used to create an extraordinarily wide range of products. He created an entity, in Menlo Park, whose primary product was invention. His invention was not merely the phonograph or the electric bulb. Rather, it was the process of invention itself.

At the heart of this process was marketing. Edison did not produce things for the sake of producing them. He produced things that were needed and could be sold. Albert Einstein discovered and described fundamental principles of the universe. His criteria of success was not the creation or the sale of a product but the insight itself. He was essentially a European academic. Edison was a businessman who, as he put it once, sold inventions.

To sell them, they had to satisfy a need. It might be a need that the public did not know it had but would crave once Edison revealed the product, as was the case with the phonograph. He approached invention by focusing on electricity. By focusing and mastering electricity, and building his products around it, he extracted maximum efficiency out of his process and therefore reduced the cost. Thus, he became one of the richest men in the world at the time.

The American model of technical innovation involved the exploitation of existing science with insight into marketing. The latter required social awareness, an understanding of the need and hunger for lighting, as well as an understanding of how to deliver the product efficiently. On an economic level, lighting increased the output of the Industrial Revolution by enabling factories to operate at night.

We saw the exploitation of existing science in the development of the personal computer. Neither Bill Gates nor Steve Jobs invented the PC. But Gates devised an operating system that facilitated a range of capabilities at the heart of the PC. Jobs did the same, focusing on the consumer market. Each found ways to identify and satisfy needs mostly unthought of at the time.

In all these cases, the key was to develop a broad scientific understanding that could be applied to many things.

Medicine and the Edison Model

"The Storm Before the Calm" was published on Feb. 25, 2020, just as the significance of the coronavirus was becoming clear and as steps were being made to contain it by shutting down critical economic and social systems. In the book, I forecast (very tentatively) that the leading technology of the next cycle would be derived from a revolution in biological sciences. The reason for this was demography. The elderly are living longer while the young are having fewer children. Society therefore faces one shift and one crisis. The shift is that the power of the elderly population will be magnified, and the power of young adults will decline, creating an unprecedented political reality. The crisis follows: Old age brings with it costly, degenerative diseases that do not kill quickly but during which the patient requires substantial and expensive care. The elderly will pursue their interests as all others will, and fiendishly expensive support for the elderly will become a political imperative.

The demographic reality creates a new

political reality, and the reconciliation between the two will require radical new technologies, intended to delay and cure degenerative disease. If the elderly remain productive, a crisis of economics and politics can be avoided. Since technological development is driven by social need, it follows that social need will require technologies to manage the new reality.

The COVID-19 crisis reveals an underlying weakness in medicine. Each disease is unique, and therefore each disease must be treated uniquely. The protocols of medical research emphasize this uniqueness. Resources are deployed disease by disease, resulting in an extended period of uncertainty as to when, or if, the problem will be solved. It is of course true that all diseases vary from others; even those in a certain class, such as viruses, vary sufficiently such that the solutions, usually a vaccine, are not readily amenable or transferrable to related diseases.

COVID-19 has demonstrated the vast economic and social cost of the current reality of medicine. The economic cost to the world has been staggering, and the social cost — children being isolated from other children for extended periods of time, for example — is unclear. The cost in lives and the cost in time is untenable in an age when economic and social lives are entangled in vast societies linked to foreign nations.

The most frightening lesson of COVID-19 is that it is relatively benign. Its death rate is far below that of the Black Death (which was at least 50 percent) or smallpox (30 percent). The primary defense against these was not medical but geographical. Travel at the time of the Black Death was difficult. Although the disease arrived in Europe through travel, it was contained in Europe. In other words, the whole of humanity was not simultaneously subject to it. COVID-19 spread globally before its nature was fully understood. Imagine a virus with a mortality rate of the Black Death or smallpox, and imagine it with a longer infection period. The consequences to humanity would be apocalyptic.

This means that the delay in understanding COVID-19 and developing vaccines for it was tolerable. It did not threaten humanity. Apply this time frame to a virus as deadly as the Black Death, and we can see that the consequences must now drive technology before the generational crisis can be dealt with. And since that crisis may not show itself intensely for several decades or more, we must prepare accordingly.

There may be no solution to this, but the model is there. Before the Industrial Revolution, all objects had to be fabricated by hand, and each object was unique in some sense, varying from place to place depending on materials that were available. Industrialization changed this dramatically by creating a principle of production that applied to all objects, allowing them to be generated with far greater efficiency. The problem here is in generating solutions to disease far more efficiently than is currently the case, thereby reducing the risk of catastrophe. Addressing each disease by itself is the artisanal approach, taking knowledge from the crafting of other things, but primarily approaching the problem anew each time an object was created.

With that in mind, society now has a variety of methods to cure and prevent a variety of diseases. Since World War II, the federal government has had the leading role in the management of matters such as these. Winning WWII and mobilizing American power was clearly within the constitutional and traditional role of the United States. The federal government retained the implicit power it assumed during the war, and over time turned the implicit into explicit. It created departments that determined playground safety, water quality, airline safety and so on.

This was not illegitimate overreach. WWII and the following years of reintegrating soldiers into American society set a clear precedent. The problems that are both fundamentally important and require a single national solution should rest in the hands of the federal government. This was a generally popular position during the succeeding decades. Many complained, but Congress approved the measures, and presidents were reelected.

The idea that experts would oversee the solving of national problems makes sense. But the pitfalls of doing so have been laid bare with the COVID-19 crisis. The virus became the domain of federal institutions like the National Institutes of Health and the Centers for Disease Control and Prevention, the true experts in the field of epidemiology. But they looked at the problem strictly through the lens of their expertise. With no cure available, they crafted the best available and medically sound solution, which called for social separation and other restrictive measures difficult to implement in crowded businesses and schools. The solution was medically sound but economically harmful.

This core institutional crisis discussed

in "The Storm Before the Calm" is relevant here. The institutional crisis was rooted in the rise of expertise as a governing principle. Expertise is obviously necessary but has a fundamental weakness: It requires focus, and focus excludes an understanding of how one person's expertise conflicts with another's. Brilliant experts submitted temporary solutions such as social distancing, and though it might have been the best solution available, it carried with it costs outside the medical realm. Not being experts in economics, they disciplined themselves not to intrude on that realm. But the solutions they were proposing inevitably did intrude, and because experts in utterly different fields respected the boundaries between each other, society found itself pulling in different directions, rather than seeing and being responsible for the whole.

The COVID-19 crisis reminds us of the need for a new core technology. When I talk about a core technology, I don't simply mean an important technology. There are many vital technologies that change the way we live. In medicine, technological advances such as antibiotics and anesthesia are indispensable in that they ushered in transformative improvements in life, but none spread far beyond their original intent. The human body is obviously complex, and there is no paradigm for treating the body as a whole. The liver and heart may both be essential, but each is radically different in function and has a different language to explain the various diseases it is prone to. Knowing how to treat one does not mean you will know how to treat the other.

On the other hand, technologies like electricity, the internal combustion engine and the microchip created structures that, if understood, would drive many enormously different things. It was necessary to learn the parts of all the things created, but the part you had to learn, the one that could solve many other problems, was the core technology. Medicine has never developed a core technology that comprehends the body on such a deep level that it treats the body as one entity doing many different things.

Medicine treats the parts well, but it lacks a practical core principle. As a result, medicine must treat each organ and each infection as unique. The response to the coronavirus, then, did build on a certain body of knowledge, but it had to build an altogether distinct body of knowledge suited only to the coronavirus. Obviously, the knowledge of the virus doesn't transfer to Alzheimer's. Since there is no common treat-

ment, COVID-19 shares in common the long-term social problem facing America: the aging population, the declining birthrate and the degenerative diseases like Alzheimer's and Parkinson's disease. Each cure must be custom designed, and designed by rules that impose massive time penalties.

There is no general theory of the body yet, but one appears to be emerging. To develop a general theory, you must go to the lowest levels — in this case, the gene. At some point, every disease, including COVID-19, is rooted in genetic material. Understanding the relationship of genetic material to the various cells of our bodies would provide an understanding of the differences between them. In turn, it would open the door to a general theory of how cells and our body behave, and a general theory of how to manage genetic material to optimize cells.

This has been an obvious desire of medicine ever since Watson and Crick discovered DNA. It has not been an urgent need, compared to the cost and complexity of the task. With COVID-19, the danger of a pandemic moved from the speculative to the real. CRISPR, a tool developed to edit genes, operates at this core level and is both discovering the nature of the genetic core and ways to manipulate it. It would seem that the dual need of rapid responses to new diseases, coupled with the management of long-term degenerative disease, may well be developing a common basis to create a general theory of human biology.

The fundamental problem of the next era is not this pandemic, or even others like it. These will not shatter America. The crisis that will shatter it is the crisis of degenerative diseases in a large, old populace. This is where the general theory of human biology comes in. Unlike COVID-19, the gerontocracy crisis gives us time — decades, even — to find solutions. It is far more complex because the number of diseases related to degeneration of the elderly exist in the dozens, while many degenerations are simply accepted as part of aging and not a disease. But the social imperative is to keep the elderly productive, rather than using up scarce resources that they consume just being kept alive. In this case, a general theory is indispensable.

My basic view expressed in "The Storm Before the Calm" is that social need drives technological development. The Industrial Revolution improved cities that were unlivable without nighttime lighting. Without lighting, it was dangerous

for masses of essential workers living and working in the unnavigable density of cities. The development of cities also made it essential that homes be located outside the city center. Railway lines made transporting the necessary goods to these homes much more efficient. The development of the internal combustion engine led to the automobile, which, with other additions (highways and gas stations), changed the pattern of land use to facilitate an expanding population. The growth of corporations was hampered by a lack of information on their performance. Computers were developed to facilitate a solution, and the microchip was developed to increase computing efficiency.

Each of these had unexpected consequences. Electricity created radio. Internal combustion engines created a hunger for hydrocarbons. The microchip created the foundation of the internet. The outcomes were good or bad, depending on your view, but in many ways the intended outcome was less important than the unintended consequences.

A new approach to the technology of medicine is required for the coming demographic crisis. It must be a solution that vastly increases the efficiency and speed of finding a solution. Of this necessity I am certain. I suspect that genetics and CRISPR represents the foundation of the solution, something about which I am less certain. But some equivalent solution or core technology has emerged consistently since the Industrial Revolution, and there is no reason for that pattern to end. If I can conceive of the necessity, then someone can craft a solution.

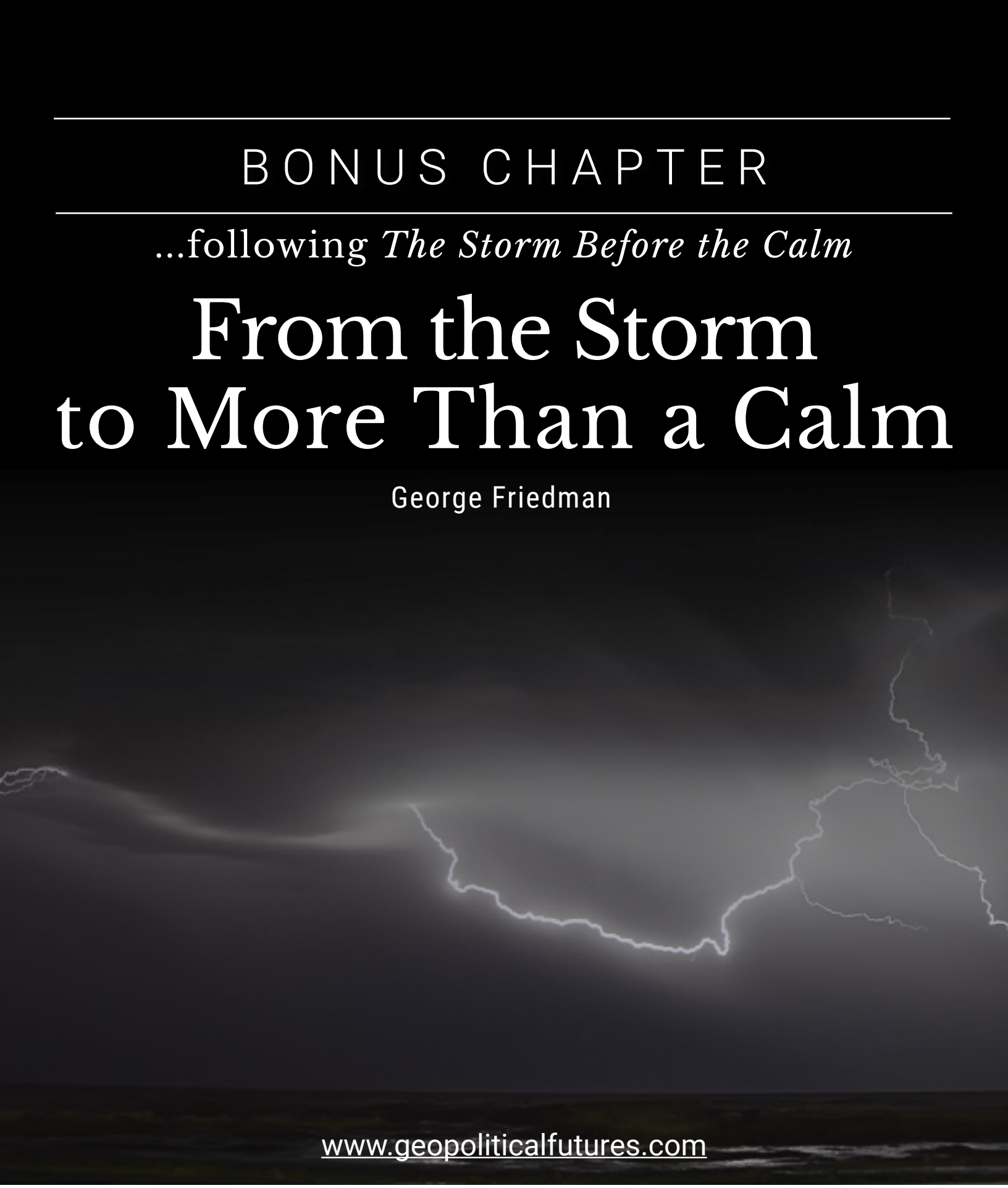
The probability of such a revolution is high. It requires a revolution in medicine that no longer sees the body in terms of discrete organs but rather develops a core understanding that can comprehend a range of issues, because it recognizes that all derive from a single core problem that can drive technological approaches based on the core. Just as Edison and Jobs understood their core science and connected it to a wide range of products with a common core and a variety of solutions, so too biological sciences must mature. If that takes place, then the rapid solution to a range of problems is possible. If not, then each problem stands as a discrete mystery without a common guide, and a mere virus can paralyze the world until a bespoke solution is found.

BONUS CHAPTER

...following *The Storm Before the Calm*

From the Storm to More Than a Calm

George Friedman



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The storm has arrived, on time and with inevitable fury. All sides focused on one man – either Trump or Biden – as a hero or a scandal. Through them, we evaluated each other. Those who did not see these men as despicable, or who saw them as praiseworthy, were banished from our company. We spoke only to those who hated or loved as we did. At a time when the fabric of the country was being torn apart, it was comforting to regard one man either as solely responsible or as our salvation. The idea that what is happening must happen – because the nation is failing and must reinvent itself again – is too far-fetched to comprehend, and too painful to grasp.

Behind the assassinations, the collapsing markets, the crushing debts of war or the price of land, there must be a villain, loved by those who see these events as the course of things and despised by those who see an evil will perpetrating them. It is a time of anger and virtue. The country is torn apart by the virtuous who see themselves as the stewards of the principles of the country, and others as defilers. Meanwhile, many care only for their private lives, ignoring such passions. The civic-minded others are for the moment tearing the country apart in fits and starts of righteousness and indignation. The idea that this too shall pass, and that it will pass into the hands of neither faction, is unthinkable. The nation is divided in two, and the idea that there is another choice, another reality that will impose itself on the nation regardless of what the two now-obsolete factions think, is beyond belief. The war between Roosevelt and Hoover will always be won by one or the other. An Eisenhower or Reagan cannot at this time be imagined.

Two crises coincide. One is the crisis of a federal government that no longer functions well but defends its prerogatives. The other is a crisis of a social and economic system that has served us well but has run its course, leaving chaos in its wake. All those we love and loath are simply the shadows of exhaustion. Paradoxically, when these socio-economic and institutional systems lose their energy, they are seen as and believe themselves to be the center of all things, and the only promise for our redemption. Individuals often come to symbolize each of these crises, as presidents symbolize the political. It is useful to begin by looking at a symbol.

If my model is correct, we are facing between eight and 12 years of this disjuncture between economic and social reality and the political system. Trump, like Nixon, was politically destructive,

but both destroyed themselves by not being aligned with the era. After Nixon came a period of political stability overlaying growing economic and social dysfunction. Most likely in 2028, or possibly 2032, a new American era will arise, changing the way both American society and American institutions work.

For now, the election of Joe Biden means we are on the path. He will likely bring a semblance of normalcy back to politics but will not be able to come to grips with the deeper problems. It is too early. The 2024 election in my model will be won by a Republican, although that is neither certain nor important. It is the 2028 election that will matter, in the same way 1980 or 1932 mattered.

Our current cycle ends with something extraordinary: COVID-19, a disease that has terrified the world in part because it has been so long since we have had a pandemic. The governments of all countries were expected to assume at least part of the responsibility for its lethality and, in a real way, for curing it. Since the United States is the center of gravity of the global system, and also of technology, it fell to Washington to deal with the problem.

Dr. Anthony Fauci, a physician and researcher who was said to know about such things, was the head of a federal bureau charged with keeping us safe. Diseases frequently confound even the most expert among us and so confound the federal government. No one was sure how to cure the disease or prevent its spread. This should not have been surprising, given the limits of human knowledge, but the expectations on the miracles the federal government could achieve – from winning World War II, to launching satellites into space, to making Twitter possible by inventing the internet – was a terrible force to behold. If there was no cure, then the government had been failed by its minions.

The federal government is the hive of experts, and Fauci is among them. He did not know how to cure COVID-19, but he had an idea how to contain it. The virus spread through human contact, so eliminating human contact would solve the problem. Humans refusing to come close to other humans and shielding their breath at a distance was the only solution available at the time, and the federal government, worshipful of expertise, adopted this as the best available solution.

Fauci's solution may have been the best available, but it didn't account for the hidden costs. Humans are social animals. At all phases of their lives, they re-

quire intimacy. It was unclear how long it would take for a cure to be found, and therefore unclear what the cost of social separation would be. What would be the cost for children growing up without close contact with other children, the ritualized games of our culture banned along with the beautiful and banal?

The cost was not calculated because this was a virus, and the physician who controlled the government's response did what was required of him. The best temporary solution to the disease was social distancing and wearing masks. As an expert in viruses he focused on his field, unqualified to discuss the social consequences and unable to tell us how long it would take. He did his job precisely as he was expected to, and he did it well. The economic, social and personal costs were real and measurable, but not addressable.

The feds could have brought in an economist, a child development expert or an ethicist. That Fauci's solution was not subjected to the expertise of other fields was unfortunate but not surprising. The stovepipe did not welcome company. But the ethical question could not be answered by ethicists. No amount of advanced degrees permit someone to dictate the ethical. The United States considered all citizens to be ethicists, and the political figures selected by them were forced to face the nightmare of ethical choice.

How many deaths is a normal childhood worth? Perhaps death trumps all else, perhaps not. But that question cannot be delegated to an expert in virology, who himself must address the costs evaluated by members of a team of experts. A team of experts is no more able to address the moral question than any citizen, who is an expert in being human and in decency. Ethics isn't like most subjects. It derives not from learning an esoteric subject, but from mastering the common sense of being human and embracing the obligations that flow from that. Common sense and the ethical derive from the same virtue: being able to see the whole.

The pandemic was the moment where the foundations of the federal government first laid down during World War II showed their weakness. The value placed in expertise elevated a class of people to effectively rule through meritocracy. These people were frequently unknown to citizens, could not be judged by citizens and could not be reached by them. They differed from politicians in that they were answerable only to politicians, who were in turn – while often critical – terrified of defying them. Fau-

ci is neither villain nor hero. The power wielded by experts, isolated from the public and each other, yields mayhem.

Absent was someone with a deep ethical base who could measure the consequences, intended and unintended, and who had the power and the moral authority, as well as the modesty, to evaluate the solutions offered by the medical establishment.

David Halberstam posed the problem of expertise in his book "The Best and the Brightest." He saw the Vietnam War as the creation of the best educated and most intelligent products of Harvard University. Their expertise lacked the reality that a sergeant on the ground could see, which was that the war could not possibly be won using their strategy and tactics. There was no one present who possessed both the common sense and the ethics needed to block what they did. The best engineered concept has to pass the test of common sense and decency. Both are complex skills that are frequently at odds with technical brilliance.

The pandemic captured the doubt that is inherent to the United States – the trust of political leaders and their team of experts. The rebellion against wearing masks and social distancing was not the rebellion of the ignorant; it was a rebellion of those who saw the costs of the medical solution as greater than the benefits. It was accompanied for many by a distrust of vaccines. It was a fear that the experts had not properly calculated the risks. And there was no one with superb common sense and decency to mediate the issue. The more intensely the opponents of Fauci were vilified, the more powerful they became, making an institutional crisis both real and intense.

All the while, the pandemic wreaked havoc on our society and economy. There were many dimensions to it, of course, but the single most important was how differently various social and economic classes experienced the crisis. Zoom has been a welcome way to conduct business at home, but for many workers Zoom was irrelevant. Construction workers, farmers, truck drivers, service industry folk and countless others could not isolate themselves or continue their lives uninterrupted and streamlined. They had to risk the virus or lose their livelihoods. Many lost their jobs due to rules laid down by the medical community. Others had to continue their jobs amid tension, fear and frequently anger at those who lectured them on proper behavior regardless of what it did to their lives. This was not a crisp division,

and many fell on each side, but it was a significant social division nonetheless.

Former President Donald Trump represented the growing mistrust of the federal government and expertise. Yet, the institutional crisis preceded the economic and social crisis. COVID-19 was unexpected, but the type of institutional and social crisis at hand was not. The pandemic merely accelerated the cyclical failure of the federal government and aggravated tensions between the technocrats and workers. It also intensified the instability in society in general.

COVID-19 also revealed the weakness of our technological culture. The primary focus of our current cycle was non-biological. There has been biological research and implementation, of course, just as there had been since the late 19th century. However, the centerpiece of technology was based around the microchip and dealt primarily with non-biological matters. I discussed in "The Storm Before the Calm" the cyclical culmination of microchip-based technology and its replacement by a biologically focused technology that would drive the economy and society of the next cycle. My argument was that as life expectancy increases and the reproduction rates of millennials decline, the burden on society will come from the elderly and the unproductive. Given my premise that technology is a response to pressing social problems, it followed that a radical new approach to aging was inevitable.

Because COVID-19 affected virtually every aspect of society, a new imperative emerged. There was a sense of an antiseptic society in which disease may not be banished but at least wouldn't rage out of control, taking lives and warping ordinary human relationships with it. We expected modern medicine to keep us safe, but we increasingly became aware that the medical community was unable to – and unaware of the consequences. No one knew if the disease would mutate into something worse, something that couldn't be stopped by masks or by social distancing.

The reality of a radically misshapen demography has now been powerfully joined by the reality that communicable diseases holding all of humanity hostage are not part of the distant past but a real threat that, if it doesn't kill, distorts all life.

It follows that the primary social imperative is a comprehensive theory of medicine that simultaneously creates defenses against viruses and manages the degenerative diseases of old age. This is, of course, easier to demand than

to deliver. Even so, the medical process of treating diseases is unique and highly inefficient. When something unexpected emerges, the timeframe needed to understand it can be disastrous, and the length of time to deal with known diseases that are spreading out of control is also disastrous.

To give a wholly and undoubtedly insufficient set of examples: The microchip was able to manage data and served as a core solution to all computing. It was a place to begin. The internal combustion engine served the same purpose in both land and air transportation. Electricity allowed the American Industrial Revolution to proceed.

Each epoch has had a core technology that facilitated the various capabilities of the age. The significance of the core technology was not recognized for its power at first, and the applications were unexpected. But the genius of each technology was its flexibility. There are many useful technologies in modern medicine, but none with the breadth of applicability of electricity, the internal combustion engine and the microchip. I have no idea what the next core technology will be, but in looking at the history of technology, I note that solutions appear when urgently needed. In the next cycle, we will need a very different approach to medicine.

Although Jack Kilby (a key inventor of the microchip) attended university, Thomas Edison and Nikolaus Otto did not, and all grew up in rural areas. This was to their advantage as they had not absorbed the limitations imposed by academic thinking. In particular, they did not absorb the protocols of seniority whereby they would be judged by their seniors wedded to old ideas. All of them looked at their work from both an intellectual and a commercial perspective, whether within a corporation or as lone entrepreneurs. And when in a corporation, they behaved with the dynamic of an entrepreneur. They were not all Americans, but they were all iconoclasts with deep insight into technology and business. There were armies of such people around them, but they are worth considering when we consider the next cycle.

For each, there was a social problem to be solved. For each, there was a solution to be fought for. For each, there was great honor and wealth to be gained, though perhaps less for the German Otto. Thousands of others followed in their footsteps as they forced solutions to a social problem.

Now the problem is biological, and if history is a guide, some iconoclast will

force the way to a solution that will be obvious to all once it has succeeded. When and how I have no idea, and history may fail us. But the urgent need for a new approach to medicine – one that is agile, supple and profitable – will continue.

For this to happen, the federal government must be restructured. The post-World War II model of a deep interlocking of private life with a federal government helmed by experts, poorly overseen and managed by those who can't see the unintended consequences of expertise, has been outstripped by reality. It is not the size of government that matters but its claim to authority over the breadth of society and the inevitable clumsiness of its exercise of that authority.

Trump articulated this problem, however incoherently and ineffectively. Like Nixon, Hoover and Grant, Trump sensed the problem, but the time and his personality made a solution impossible. Solutions are stated by Reagans or Roosevelts, presidents who understand that a solution is necessary but must not be disruptive. It must flow gently from the problem, and even then vile things will be said of them. But Trump was not a Roosevelt or Reagan. Like Nixon and Hoover, he ended in disaster, while at the same time opening the door to the inherent problem of the federal government.

The first institutional cycle did not define the relationship between federal and state governments. The second established the primacy of the federal government but did not set its limits. The third created almost complete domination of the states. All were in their time what was needed.

It follows that the next cycle will be one that accepts the federal government's primacy but will necessarily require the creation and institutionalization of a new level of expert – the generalist – to make certain that the area experts are both effective and non-contradictory. The deeper problem is citizens' access to the government. Here, I expect that the core relationship of government to states will remain, albeit with two notable changes. First, the states will have at least an informal role in federal decision-making. Second, the states, much closer and more sensitive to their citizens' interests, will become a channel for allowing citizens to petition their government. This will, in turn, result in curbing unilateral federal authority over states, and shift the World War II model to one that is collaborative or adversarial, both of which achieve the same end.

We are now at the point where the initial crisis has been announced but has been personalized. The first part of the transitional phase is normally political, as the Trump years were. Then the political subsides as there is deep social and economic dysfunction under the surface. In the 1970s, this was embodied by the Ford and Carter presidencies. They were politically much calmer than the Nixon years, but the calm was an illusion. Economic and social problems festered, while relative political calm was maintained, until the late 1980s when the Carter presidency broke and was replaced by a radical political, economic and social force: Ronald Reagan. Where Carter focused on tax cuts for the middle class, Reagan focused on tax cuts for the wealthy because there was a massive shortage of investment capital. Out of that decision came the microchip economy. Roosevelt (who covered several phases of the process) shifted the tax cut to increase consumption. Hayes created a gold standard to encourage safe investment in the Industrial Revolution.

The economic problem of the next cycle will be a surplus of money, driving down the cost of money and wrecking retirement plans. The great social problem is that the boomer generation that built retirement on savings is being crushed. The surplus of money in the system and the lack of a new core technology limits opportunity for investment, channeling money into equity markets that behave irrationally.

As the political calm sets in, the economic and social crisis intensifies. One or two "normal" presidents will hold the presidency until 2028 (I doubt it can hold until 2032), at which point a new and radically minded president will address the crushing issue of a surplus of money. The task will be contracting the money supply. That can be done only if a new core technology is ready to begin its slow then stunning trajectory. If I am right – that the technology will be medical – I suspect the unified theory of medicine, as I choose to call it, is already being prepared and likely ridiculed by the older paradigm. In the 1980s, the nation was saved from a cash shortage by a minor shift in taxes and the microchip. There will have to be a contraction of money through taxes, redistributed through social security. The new president will be hated by the old orthodoxy as Reagan, Roosevelt, Hayes and Jackson were. And then will come the calm.

The old will get older, the millennials too – the first millennials are now 40 and their declining reproduction rates will create an interesting old age. But then

all epochs produce their solutions and their own problems. It is the nature of the United States.

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