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When I first spoke with Joseph Tainter in early May, he and I and nearly everyone else had reason to be worried. A few days earlier, the official tally of Covid-19 infections in the United States had climbed above one million, unemployment claims had topped 30 million and the United Nations had warned that the planet was facing “multiple famines of biblical proportions.” George Floyd was still alive, and [the protests spurred by his killing](#) had not yet swept the nation, but a different kind of protest, led by white men armed with heavy weaponry, had [taken over the Michigan State Legislature building](#). The president of the United States had appeared to suggest treating the coronavirus with disinfectant injections. Utah, where Tainter lives — he teaches at Utah State — was reopening its gyms, restaurants and hair salons that very day.

The chaos was considerable, but Tainter seemed calm. He walked me through the arguments of the book that made his reputation, [“The Collapse of Complex Societies,”](#) which has for years been the seminal text in the study of societal collapse, an academic subdiscipline that arguably was born with its publication in 1988. “Civilizations are fragile, impermanent things,” Tainter writes. Nearly every one that has ever existed has also ceased to exist, yet “understanding disintegration has remained a distinctly minor concern in the social sciences.” It is only a mild overstatement to suggest that before Tainter, collapse was simply not a thing.

If Joseph Tainter, now 70, is the sober patriarch of the field, it is not a role he seems to relish. His own research has moved on; these days, he focuses on “sustainability.” But even in his most recent work his earlier subject is always there, hovering like a ghost just off the edge of each page. Why, after all, would we worry about sustaining a civilization if we weren’t convinced that it might crumble?

Tainter, who grew up in San Francisco and has spent all of his adult life in the West, has never been one to play Cassandra. He writes with disarming composure about the factors that have led to the disintegration of empires and the abandonment of cities and about the mechanism that, in his view, makes it nearly certain that all states that rise will one day fall. In interviews and panel discussions, Tainter sits with an uncanny stillness, a gray bear in wire-rimmed glasses, rarely smiling, rarely frowning, rarely giving away anything more than an impatient tap of his fingers on one knee. In our telephone conversations he was courteous but laconic, taking time to think before speaking, seldom offering more than he was asked. He wasn’t surprised that I had called to ask him if our compounding crises signaled the start of a major societal rupture, but he also wasn’t in a rush to answer.

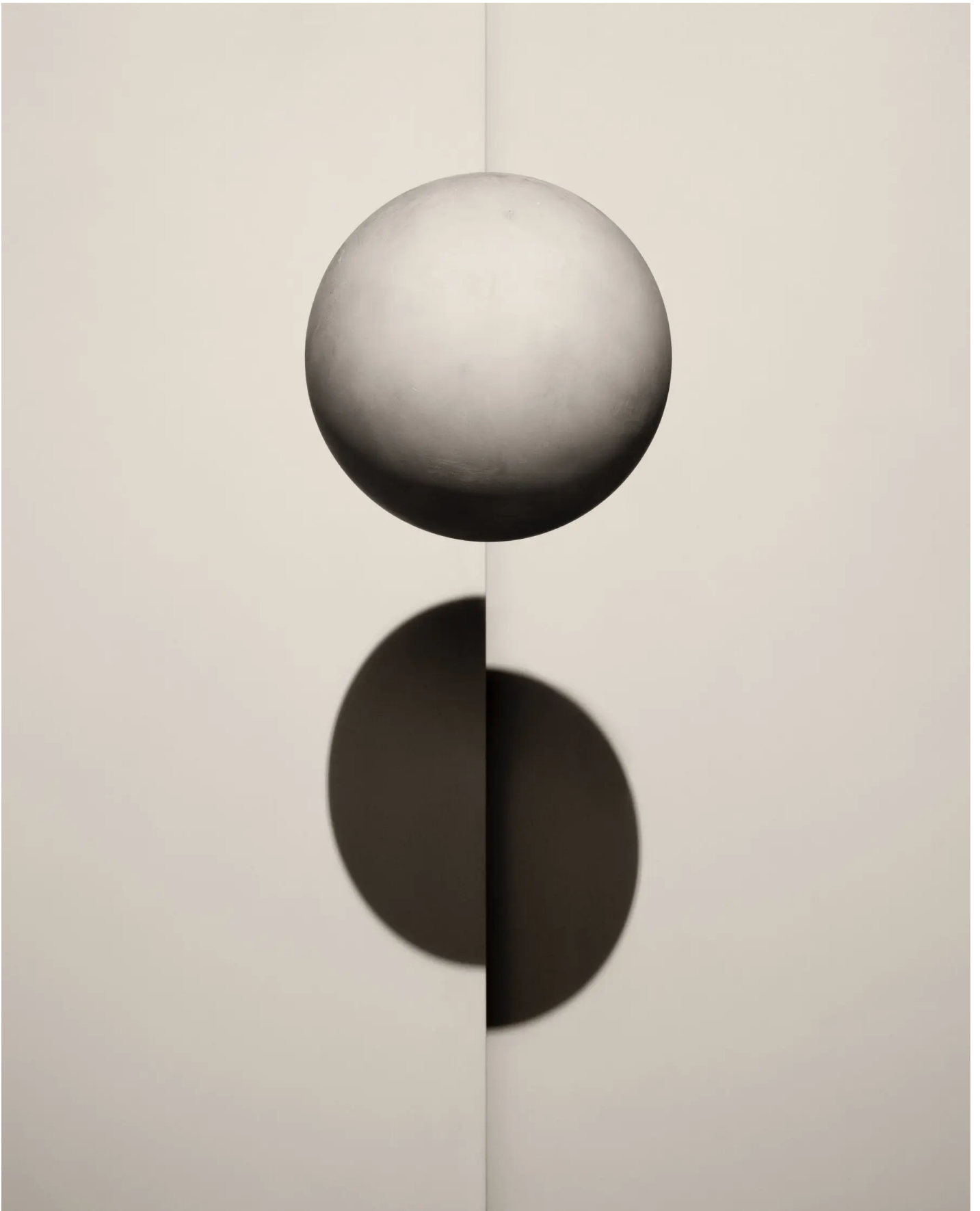
In recent years, the field Tainter helped establish has grown. Just as apocalyptic dystopias, with or without zombies, have become common fare on Netflix and in highbrow literature alike, societal collapse and its associated terms — “fragility” and “resilience,” “risk” and “sustainability” — have become the objects of extensive scholarly inquiry and infrastructure. Princeton has a research program in Global Systemic Risk, Cambridge a Center for the Study of Existential Risk. Many of the academics studying collapse are, like Tainter, archaeologists by training. Others are historians, social scientists, complexity scholars or physical scientists who have turned their attention to the dynamics shaping the broadest scope of human history.

After I spoke to Tainter, I called several of these scholars, and they were more openly alarmed than he was by the current state of affairs. “Things could spin out,” one warned. “I am scared,” admitted another. As the summer wore on even Tainter, for all his caution and reserve, was willing to allow that contemporary society has built-in vulnerabilities that could allow things to go very badly indeed — probably not right now, maybe not for a few decades still, but possibly sooner. In fact, he worried, it could begin before the year was over.

For nearly as long as human beings have gathered in sufficient numbers to form cities and states — about 6,000 years, a flash in the 300,000-odd-year history of the species — we have been coming up with theories to explain the downfall of those polities. The Hebrew Scriptures recorded the destruction of Sodom and Gomorrah, and divine rage has been a go-to explanation ever since. Plato, in “The Republic,” compared cities to animals and plants, subject to growth and senescence like any living thing. The metaphor would hold: In the early 20th century, the German historian Oswald Spengler proposed that all cultures have souls, vital essences that begin falling into decay the moment they adopt the trappings of civilization.

The question of collapse also haunted archaeology, but it was rarely studied directly. In the field’s early years, archaeologists tended to focus on the biggest and most wondrous structures they could find, the remains of monumental architecture abandoned for centuries in deserts and jungles. Who made these marvels? Why were they left to rot? Their mere existence suggested sudden and catastrophic social breakdowns. Yet at the height of the Cold War, when the real possibility of nuclear war took modern societies closer than they had ever been to the brink of destruction, the academy lost interest in the subject. Scholars tended to limit themselves to understanding single cases — the Akkadians, say, or the Lowland Classic Maya.

Little about Tainter’s early career suggested he would do otherwise. In 1975, after submitting his dissertation on the transition, in about the year 400 A.D., between two cultures that had inhabited the lower Illinois River, he was hired to teach at the University of New Mexico. His contract was not renewed. “There was a senior professor,” Tainter says, “with whom I didn’t get along.”



Kenji Aoki for The New York Times

He took a job with the U.S. Forest Service, which was hiring archaeologists to assess the potential impacts of any project undertaken on public land. Tainter would spend the next several years preparing and reviewing reports in advance of logging or mining operations in New Mexico's Cibola National Forest, about two hours out of Albuquerque.

In 1979, he and a co-author wrote a report for the Forest Service that shows early signs of the concerns that would come to dominate his professional life. It was an overview of the "cultural resources" present in the area around a dormant volcano called Mount Taylor, a site sacred to the Navajo and several other tribes. (The mineral division of Gulf Oil Corporation was mining the mountain for its

uranium deposits.) The bibliography alone stretched to 37 pages, and Tainter included an extensive section on the Chaco Canyon complex, which was more than 100 miles from Mount Taylor. The civilization at Chaco Canyon thrived for at least five centuries until, beginning around 1100 A.D., its sites were gradually abandoned. In a text destined for a government filing cabinet, Tainter bemoans “the lack of a theoretical framework to explain the phenomenon.” Scholars, he complains, “have spent years of research on the question of why complex societies have developed,” but had devised “no corresponding theories to explain the collapse of these systems.”

It would take him most of the next decade to develop that theory, which became the heart of “The Collapse of Complex Societies.” Tainter’s argument rests on two proposals. The first is that human societies develop complexity, i.e. specialized roles and the institutional structures that coordinate them, in order to solve problems. For an overwhelming majority of the time since the evolution of *Homo sapiens*, Tainter contends, we organized ourselves in small and relatively egalitarian kinship-based communities. All history since then has been “characterized by a seemingly inexorable trend toward higher levels of complexity, specialization and sociopolitical control.”

Larger communities would have to be organized on the basis of more formal structures than kinship alone. A “chiefly apparatus” — authority and a nascent bureaucratic hierarchy — emerged to allocate resources. States developed, and with them a ruling class that took up the tasks of governing: “the power to draft for war or work, levy and collect taxes and decree and enforce laws.” Eventually, societies we would recognize as similar to our own would emerge, “large, heterogeneous, internally differentiated, class structured, controlled societies in which the resources that sustain life are not equally available to all.” Something more than the threat of violence would be necessary to hold them together, a delicate balance of symbolic and material benefits that Tainter calls “legitimacy,” the maintenance of which would itself require ever more complex structures, which would become ever less flexible, and more vulnerable, the more they piled up.

His second proposal is based on an idea borrowed from the classical economists of the 18th century. Social complexity, he argues, is inevitably subject to diminishing marginal returns. It costs more and more, in other words, while producing smaller and smaller profits. “It’s a classic ‘Alice in Wonderland’ situation,” Tainter says. You’re “running faster and faster to stay in the same place.” Take Rome, which, in Tainter’s telling, was able to win significant wealth by sacking its neighbors but was thereafter required to maintain an ever larger and more expensive military just to keep the imperial machine from stalling — until it couldn’t anymore.

Or consider Chaco Canyon, which had so puzzled Tainter. At its height a thousand years ago, Chaco was the hub of a network of communities stretching throughout the arid San Juan Basin. Thriving in such unforgiving terrain, Tainter argues, depended on an intricate web of “reciprocal economic relations” that took advantage of the landscape’s diversity. In hot, dry years, lower elevations suffered, but communities at higher altitudes still received enough rain to grow and harvest crops. In colder, wetter years, the reverse held: The lowlands produced more than they needed while the growing season shrank in the highlands.

Complexity rose to meet the challenge. Tainter speculates that the administrative center in Chaco Canyon was able to coordinate exchanges of resources between so-called “outlier” communities at varying elevations, none of which could have survived in isolation. As always, solving one problem created new ones. With Chaco Canyon’s success, populations grew. Outlier communities multiplied until, Tainter argues, the diversity that allowed the system to function was diluted as “proportionately less could be distributed to each community experiencing a deficit.” Outliers began to drop out of the network. Over the next two centuries, the stone-walled towns that dotted the San Juan Basin would be gradually abandoned.

This is how it goes. As the benefits of ever-increasing complexity — the loot shipped home by the Roman armies or the gentler agricultural symbiosis of the San Juan Basin — begin to dwindle, Tainter writes, societies “become vulnerable to collapse.” Stresses that otherwise would be manageable — natural disasters, popular uprisings, epidemics — become insuperable. Around 1130, a severe, half-century-long drought hit the desert Southwest, coinciding with Chaco Canyon’s decline. Other scholars blame the drought for the abandonment, but for Tainter it was the final blow in a descent that had already become inevitable. Chacoan civilization had survived extended dry spells before. Why was this one decisive?

The fall of Minoan civilization has been attributed to a volcanic eruption and the subsequent invasion of Mycenaean Greeks. The decline of the Harappan civilization, which survived in the Indus Valley for nearly a millennium before its cities were abandoned in about 1700 B.C., coincided with climate change and perhaps earthquake and invasion too — and, recent research suggests, outbreaks of infectious disease. The ninth-century desertion of the cities of Southern Lowland Classic Maya civilization has been ascribed to war, peasant uprisings, deforestation and drought. But haven’t countless societies weathered military defeats, invasions, even occupations and lengthy civil wars, or rebuilt themselves after earthquakes, floods and famines?

Only complexity, Tainter argues, provides an explanation that applies in every instance of collapse. We go about our lives, addressing problems as they arise. Complexity builds and builds, usually incrementally, without anyone noticing how brittle it has all become. Then some little push arrives, and the society begins to fracture. The result is a “rapid, significant loss of an established level of sociopolitical complexity.” In human terms, that means central governments disintegrating and empires fracturing into “small, petty states,” often in conflict with one another. Trade routes seize up, and cities are abandoned. Literacy falls off, technological knowledge is lost and populations decline sharply. “The world,” Tainter writes, “perceptibly shrinks, and over the horizon lies the unknown.”

A disaster — even a severe one like a deadly pandemic, mass social unrest or a rapidly changing climate — can, in Tainter’s view, never be enough by itself to cause collapse. Societies evolve complexity, he argues, precisely to meet such challenges. Tainter doesn’t mention it specifically, but the last major pandemic makes the case well: The Spanish Flu killed 675,000 Americans between 1918 and

1919, but the economic hit was short-lived, and the outbreak did not slow the nation's push for hemispheric dominance. Whether any existing society is close to collapsing depends on where it falls on the curve of diminishing returns. There's no doubt that we're further along that curve: The United States hardly feels like a confident empire on the rise these days. But how far along are we?

Scholars of collapse tend to fall into two loose camps. The first, dominated by Tainter, looks for grand narratives and one-size-fits-all explanations. The second is more interested in the particulars of the societies they study. Anxiety about the pandemic, however, bridges the schisms that mark the field. Patricia McAnany, who teaches at the University of North Carolina at Chapel Hill, has questioned the usefulness of the very concept of collapse — she was an editor of a 2010 volume titled “Questioning Collapse” — but admits to being “very, very worried” about the lack, in the United States, of the “nimbleness” that crises require of governments.

McAnany points to the difference between the societies of the northern and southern Maya lowlands during the first millennium A.D. The southern region — what is now Guatemala, Belize and parts of southern Mexico — was more rigidly hierarchical, with “pronounced inequality” and a system of hereditary kingship not as evident in the Yucatán Peninsula to the north. Around the time a devastating drought hit in the ninth century, the southern lowland cities were abandoned. Communities to the north were not.

The apparent collapse of the Southern Lowland Maya, McAnany cautions, is better understood as a dispersal. For the upper classes — who appear to have been the first to flee — it was probably experienced as a world ending, but most people simply “voted with their feet,” migrating to more amenable locations in the north and along the coast. That is no longer so easy, McAnany says. “We're too vested and tied to places.” Without the possibility of dispersal, or of real structural change to more equitably distribute resources, “at some point the whole thing blows. It has to.”

Peter Turchin, who teaches at the University of Connecticut, follows Tainter in positing a single, transhistorical mechanism leading to collapse, though he is far more willing than Tainter to voice specific — and occasionally alarmist — predictions. In Turchin's case the key is the loss of “social resilience,” a society's ability to cooperate and act collectively for common goals. By that measure, Turchin judges that the United States was collapsing well before Covid-19 hit. For the last 40 years, he argues, the population has been growing poorer and more unhealthy as elites accumulate more and more wealth and institutional legitimacy founders. “The United States is basically eating itself from the inside out,” he says.

Inequality and “popular immiseration” have left the country extremely vulnerable to external shocks like the pandemic, and to internal triggers like the killings of George Floyd and Breonna Taylor. He does not hesitate to predict that we can expect to experience far more of the kind of unrest we've seen this summer, “not just this year but in the years ahead, because the underlying conditions are only getting worse.”

When I last heard from Turchin late in the summer, he — and more than two million others — had lost electricity in the wake of Tropical Storm Isaias. His internet connection had been out for days. “There are a lot of ironic angles,” he says, to studying historical crises while watching fresh ones swirl and rage around him. Having been born in the Soviet Union and studied animal-population ecology before turning to human history — one early work was “Are Lemmings Prey or Predators?” — Turchin is keenly aware of the essential instability of even the sturdiest-seeming systems. “Very severe events, while not terribly likely, are quite possible,” he says. When he emigrated from the U.S.S.R. in 1977, he adds, no one imagined the country would splinter into its constituent parts. “But it did.”

Turchin is not the only one who is worried. Eric H. Cline, who teaches at the George Washington University, argued in “1177 B.C.: The Year Civilization Collapsed” that Late Bronze Age societies across Europe and western Asia crumbled under a concatenation of stresses, including natural disasters — earthquakes and drought — famine, political strife, mass migration and the closure of trade routes. On their own, none of those factors would have been capable of causing such widespread disintegration, but together they formed a “perfect storm” capable of toppling multiple societies all at once. Today, Cline says, “we have almost all the same symptoms that were there in the Bronze Age, but we've got one more”: pandemic. Collapse “really is a matter of when,” he told me, “and I'm concerned that this may be the time.”

In “The Collapse of Complex Societies,” Tainter makes a point that echoes the concern that Patricia McAnany raised. “The world today is full,” Tainter writes. Complex societies occupy every inhabitable region of the planet. There is no escaping. This also means, he writes, that collapse, “if and when it comes again, will this time be global.” Our fates are interlinked. “No longer can any individual nation collapse. World civilization will disintegrate as a whole.”

When I ask him about this, the usually sober-sounding Tainter sounds very sober indeed. If it happens, he says, it would be “the worst catastrophe in history.” The quest for efficiency, he wrote recently, has brought on unprecedented levels of complexity: “an elaborate global system of production, shipping, manufacturing and retailing” in which goods are manufactured in one part of the world to meet immediate demands in another, and delivered only when they're needed. The system's speed is dizzying, but so are its vulnerabilities.

The coronavirus pandemic, Tainter says, “raises the overall cost, clearly, of being the society that we are.” When factories in China closed, just-in-time delivery faltered. As Tainter puts it, products “were not manufactured just in time, they were not shipped just in time and they were not available where needed just in time.” Countries — and even states — were shoving to get at limited supplies of masks and medical equipment. Meat production is now so highly centralized — so complex — that the closure of a few plants in states like Iowa, Pennsylvania and South Dakota emptied out pork aisles in supermarkets thousands of miles away. A more comprehensive failure of fragile supply chains could mean that fuel, food and other essentials would no longer flow to cities. “There would be billions of deaths within a very short period,” Tainter says.

Even a short-term failure of the financial system, Tainter worries, might be enough to trip supply chains to a halt. The International Monetary Fund's most recent "World Economic Outlook" warns of "wide negative output gaps and elevated unemployment rates" in the short term, "scarring" in the medium term, "deep wounds" and a level of uncertainty that remains "unusually large." If we sink "into a severe recession or a depression," Tainter says, "then it will probably cascade. It will simply reinforce itself."

Recently, Tainter tells me, he has seen "a definite uptick" in calls from journalists: The study of societal collapse suddenly no longer seems like a purely academic pursuit. Earlier this year, Logan, Utah, where Tainter lives, briefly became the nation's No. 1 Covid hot spot. An outbreak in June at a nearby beef plant owned by the multinational meat giant JBS USA Food, which [kept operating even after more than a quarter of its workers tested positive](#), had spread throughout the county. In two and a half weeks, cases there leapt from 72 to more than 700. They have since more than quadrupled again. At the same time protests sparked by George Floyd's death were breaking out in thousands of U.S. cities and towns — even in Logan. The only precedent Tainter could think of, in which pandemic coincided with mass social unrest, was the Black Death of the 14th century. That crisis reduced the population of Europe by as much as 60 percent.

Scholarly caution may prevent Tainter from playing the oracle, but when he was writing "The Collapse of Complex Societies," he recalls, "it was very clear that what I was realizing about historical trends wasn't just about the past." The book's Reagan-era roots are more than subtext. He writes of visions of "bloated bureaucracies" becoming the basis of "entire political careers." Arms races, he observes, presented a "classic example" of spiraling complexity that provides "no tangible benefit for much of the population" and "usually no competitive advantage" either. It is hard not to read the book through the lens of the last 40 years of American history, as a prediction of how the country might deteriorate if resources continued to be slashed from nearly every sector but the military, prisons and police.

The more a population is squeezed, Tainter warns, the larger the share that "must be allocated to legitimization or coercion." And so it was: As U.S. military spending skyrocketed — to, by some estimates, a total of more than \$1 trillion today from \$138 billion in 1980 — the government would try both tactics, ingratiating itself with the wealthy by cutting taxes while dismantling public-assistance programs and incarcerating the poor in ever-greater numbers. What happened on a national level happened locally as well, with police budgets eclipsing funding for social services in city after city. "As resources committed to benefits decline," Tainter wrote in 1988, "resources committed to control must increase."

When I asked him if he saw the recent protests in these terms, Tainter pointed again to the Romans, caught in the trap of devoting a larger and larger share of their empire's resources to defense even as it ceaselessly expanded, chasing ever-more-distant enemies, until one day, they showed up at the city gates.

The overall picture drawn by Tainter's work is a tragic one. It is our very creativity, our extraordinary ability as a species to organize ourselves to solve problems collectively, that leads us into a trap from which there is no escaping. Complexity is "insidious," in Tainter's words. "It grows by small steps, each of which seems reasonable at the time." And then the world starts to fall apart, and you wonder how you got there.

There is, however, another way to look at this. Perhaps collapse is not, actually, a thing. Perhaps, as an idea, it was a product of its time, a Cold War hangover that has outlived its usefulness, or an academic ripple effect of climate-change anxiety, or a feedback loop produced by some combination of the two. Over the last 10 years, more and more scholars have, like McAnany, been questioning the entire notion of collapse. The critical voices have been more likely to come from women — the appeal of collapse's sudden, violent drama was always, as Dartmouth College's Deborah L. Nichols put it, "more of a guy thing" — and from Indigenous scholars and those who pay attention to the narratives Indigenous people tell about their own societies. When those are left out, collapse, observes Sarah Parcak, who teaches at the University of Alabama at Birmingham, can easily mean erasure, a convenient way of hiding the violence of conquest. This is not to suggest that once-populous cities have never been abandoned or that the kind of rapid social simplification that Tainter diagnosed has not regularly occurred; only that if you pay attention to people's lived experience, and not just to the abstractions imposed by a highly fragmented archaeological record, a different kind of picture emerges.

Part of the issue may be that Tainter's understanding of societies as problem-solving entities can obscure as much as it reveals. Plantation slavery arose in order to solve a problem faced by the white landowning class: The production of agricultural commodities like sugar and cotton requires a great deal of backbreaking labor. That problem, however, has nothing to do with the problems of the people they enslaved. Which of them counts as "society"?

Since the beginning of the pandemic, the total net worth of America's billionaires, all 686 of them, has jumped by close to a trillion dollars. In September, nearly 23 million Americans reported going without enough to eat, [according to the Center on Budget and Policy Priorities](#). Whatever problems those 686 billionaires may have, they are not the same as those of the 23 million who are hungry. Insisting that they should not be allowed to blur together puts not only "society" but also collapse into a different sort of focus. If societies are not in fact unitary, problem-solving entities but heaving contradictions and sites of constant struggle, then their existence is not an all-or-nothing game. Collapse appears not as an ending, but a reality that some have already suffered — in the hold of a slave ship, say, or on a long, forced march from their ancestral lands to reservations faraway — and survived.

"What do you do if you're still here after the story of failure has already been written?" asks the Native American scholar Michael V. Wilcox, who teaches at Stanford University. The cities of Palenque and Tikal may lie in ruins in the jungle, a steady source of tourist dollars, but Maya communities still populate the region, and their languages, far from dead, can be heard these days in the immigrant neighborhoods of Los Angeles and other American cities too. The Ancestral Pueblo abandoned the great houses of Chaco Canyon

sometime in the 12th century, but their descendants were able to expel the Spanish in the 1600s, for a little over a decade anyway. The Navajo, nearby, survived the genocidal wars of the 19th century, the uranium boom of the 20th and the epidemic of cancer it left in its wake, and are now facing Covid-19, which hit the Navajo Nation harder than it did New York.

The current pandemic has already given many of us a taste of what happens when a society fails to meet the challenges that face it, when the factions that rule over it tend solely to their own problems. The climate crisis, as it continues to unfold, will give us additional opportunities to panic and to grieve. Some institutions are certainly collapsing right now, Wilcox says, but “collapses happen all the time.” This is not to diminish the suffering they cause or the rage they should occasion, only to suggest that the real danger comes from imagining that we can keep living the way we always have, and that the past is any more stable than the present.

If you close your eyes and open them again, the periodic disintegrations that punctuate our history — all those crumbling ruins — begin to fade, and something else comes into focus: wiliness, stubbornness and, perhaps the strongest and most essential human trait, adaptability. Perhaps our ability to band together, to respond creatively to new and difficult circumstances is not some tragic secret snare, as Tainter has it, a story that always ends in sclerotic complexity and collapse. Perhaps it is what we do best. When one way doesn't work, we try another. When one system fails, we build another. We struggle to do things differently, and we push on. As always, we have no other choice.

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