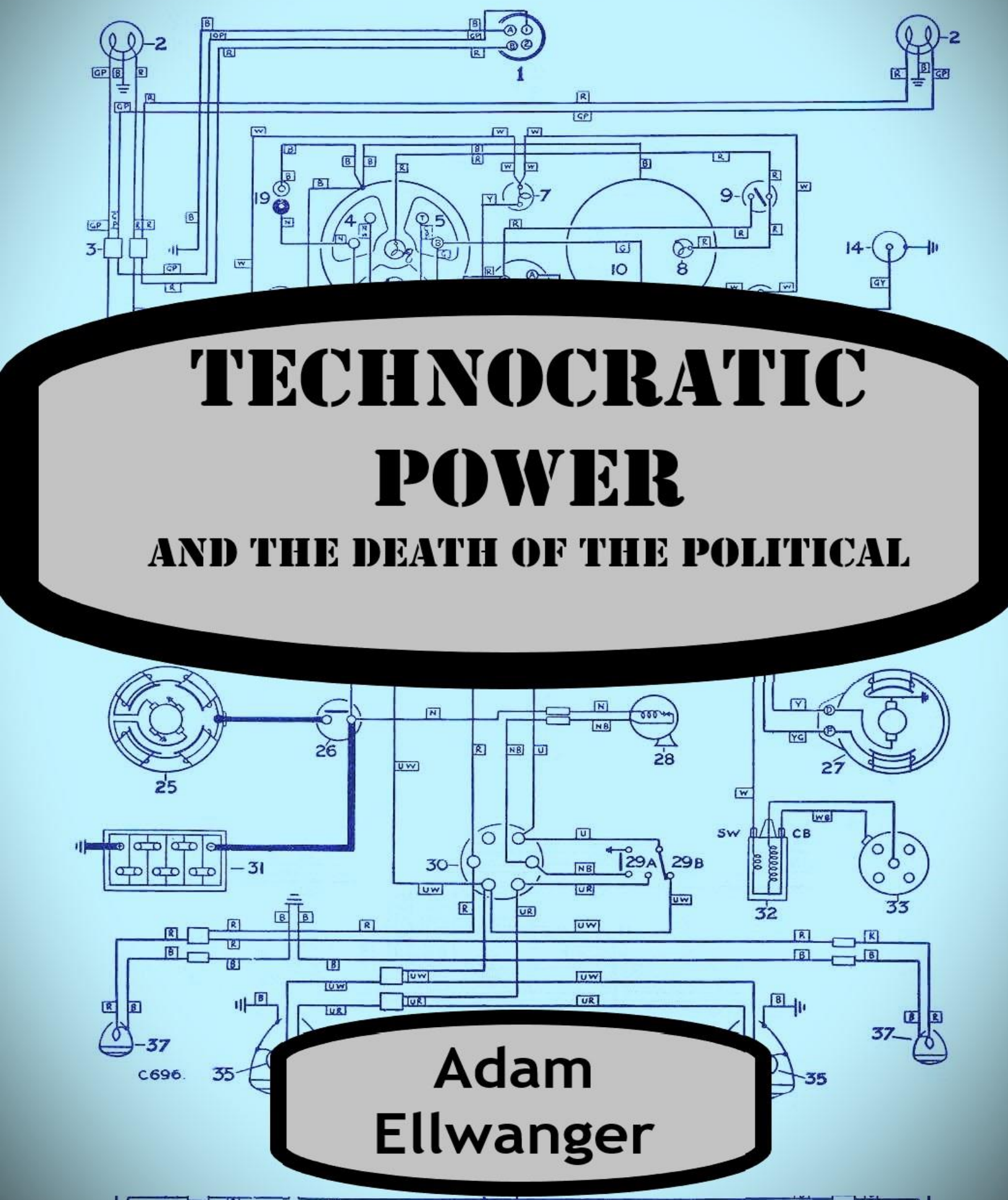

TECHNOCRATIC POWER

AND THE DEATH OF THE POLITICAL

Adam Ellwanger

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Abstract:

A number of recent thinkers on technology have described the ways in which technological change often proceeds apace, in spite of the varied efforts that human beings have made to check its advance. This essay explores how these circumstances have undermined human agency in the political arena. Through a close analysis of the work of major critics of technology such as Langdon Winner, Jacques Ellul, Theodore Kaczynski, Lewis Mumford, and others, I demonstrate how technological change has reached a point where every major contingent of the liberal democratic political order has been neutralized in its ability to direct the course of future advances. After describing how the masses, the elites, and the experts have each been rendered powerless, I explore the implications of this situation for the practice of politics in human society.

Technocratic Power and the Death of the Political

By Adam Ellwanger

In Book 3 of his *Politics*, Aristotle takes up the starting question of all political philosophy: "Who rules?" The options, as he sees it, include "the multitude, the wealthy, the respectable, the one who is best of all, or the tyrant," but he is quick to acknowledge that "all of these appear to involve difficulties."[1] Each of those prospective "rulers" correlates with different kind of regime: democracy, plutocracy, technocracy, aristocracy (i.e., the rule of the best), and monarchy. America, of course, was founded as a "mixed" regime. Over time, though, the intended republican arrangement of the American political order has been incrementally disrupted.

At present, it seems the regime is still mixed, but it now looks more like a combination of plutocratic and technocratic power, with a patina of democratic rhetoric used to justify what amounts to an oligarchy. Plutocratic power, of course, is the power of wealth and the wealthy, which any serious observer will admit plays a key role in American governance. In this case, when I refer to technocratic power, I mean the power of technique and the power of those who possess technical knowledge and expertise. "Technocracy" is a modern order that results from the belief that good government is synonymous with rational and scientific forms of public administration, as practiced by technical experts.

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[1] Aristotle, *Politics*. Trans. Carnes Lord. 2 ed. Chicago, IL: U of Chicago Press, 2013: 77.

But recent events have hinted at an imminent political reality that Aristotle could not have foreseen. Is a regime possible in which *no one* rules? Radical advances in technology – including developments in artificial intelligence and nanoscience – have brought to life the possibility not only of autonomous machines, but also the chance that those machines will take over the processes of technological innovation. Such a scenario would suspend the human role in charting the future of our world. In short, we now face the possibility of a *literal* technocracy: a political order in which we are ruled by technologies. In the following pages, the term *technocracy* is used in this literal sense.

As futurist Ray Kurzweil has observed, the advance of technology does not occur at a consistent rate. The last century brought more technological change (and thus, social change) than occurred in the thousand years that preceded it. Kurzweil suggests that the 21st century will bring roughly 20,000 years of technological progress, judging by the current pace of advance (11). While recent innovations have improved human life in too many ways to count, there is mounting evidence that little effort is being made to *moderate* the rate of change. What's more, there's a growing sense that we (all of us) might now be *incapable* of moderating it.

The continued rapid and unchecked advance of technology will change social life in ways that we will be increasingly unable to predict. As the magnitude of these changes becomes greater and greater, human agency is slowly given over to the technology. This exposes a paradox: while technological innovation has often been a *humanizing*, *civilizing* force over the course of history, we seem to have arrived at (and

indeed, passed) a point where it becomes *dehumanizing*, limiting our ability to shape our world.

These ideas aren't new. In the nineteenth century, Thoreau announced that "we have become the tools of our tools." In the 1990s, Ted Kaczynski wrote a manifesto in which he extended that insight. Surveying the state of society in the wake of his recent death, it seems Kaczynski's warnings were prescient: the technological problem – and its disruption of "normal" life – has become so acute that the threat it poses to society must be set at the center of public deliberation.

Consider the artificial intelligence (AI) applications that have been released in the last year, which seemed to emerge fully formed out of nowhere – a god born of the ether. These technologies were promptly handed over to the public with little or no regard for their potential effects on the way we live. Nevertheless, it was apparent that the effects would be so enormous and unpredictable that thousands of the foremost AI experts signed not one, but two open letters, calling for a total pause on its further development and implementation until the risks can be more fully known and mitigated[2]. But *how* would such a pause be enacted? Who has the authority to enforce it? Is it even possible? If American developers agreed to a pause, could we trust that China would do the same?[3]

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[2] See the Future of Life Institute's "Pause Giant AI Experiments" open letter (https://futureoflife.org/open-letter/pause-giant-ai-experiments/) and the Center for AI Safety's "Statement on AI Risk" (https://www.safe.ai/statement-on-ai-risk#open-letter).

[3] It must be acknowledged that there is some evidence that China may be approaching artificial intelligence applications with greater caution than the United States (c.f., https://www.wired.com/story/china-regulate-ai-world-watching/).

The state, it seems, would be the only entity with sufficient power to enforce restrictions on technological development. But given that so many modern functions of the state cannot be executed without reliance on digital technology, and that technological sophistication is now recognized as a measure of geopolitical clout, it seems unlikely that the state will rein in technological development. The American government's traditionally *laisse faire* approach to free market innovation makes it even less likely that the state could throttle the rate of technological advance. As the nation state becomes increasingly dependent on the application of new technologies, the largest corporations developing those technologies begin to take on powers that have traditionally been reserved for the state. A representative of the Biden administration recently conceded that "American leadership in the world today *requires* American leadership in AI." In short, it seems that there are no brakes on technological innovation.

The central concern of this essay is whether technology has neutralized politics as a tool for charting the course of human life. We *know* that technologies like AI will profoundly change our society, and that the nature of those changes cannot be reliably predicted. And yet, there is evidence of neither the will *nor the ability* to stop those technologies from broader implementation. Thus, it seems that advanced technology of this sort has placed itself beyond the reach of political interventions that might moderate it. Given that a primary task of the political is to direct human energy and resources towards developing and sustaining a particular organization of society, technology seems poised to eliminate the power of politics altogether. In democratic societies this will be an especially bitter pill to swallow,

given that the *demos* are accustomed to believing that each citizen has (and is entitled to) some real political agency.

In short, technology is not merely an anti-democratic force, it is an anti-political one. Adding insult to injury, some of the most vocal American defenders of (what they refer to as) "Our Democracy" are also beholden to the corporations and plutocrats in the tech industry, whose techno-utopian dreams drive them to endlessly accelerate the digitalization of every part of life. Thus, "the technological problem" is really a *sociopolitical* problem that centers on the question of whether non-experts (i.e., typical Americans) can maintain a say in the shape of the world in which they live. The difficulty, here, is that the *subject* of this sociopolitical problem (expanding technological power) is a force that evades and erodes the very political powers that might be able to moderate it.

Speaking in 1950, J. Robert Oppenheimer stated that "[Science] has extended the range of questions in which man has a choice. It has extended man's freedom to make significant decisions. […] We know that as long as men are free to ask what they will, free to say what they think, free to think what they must, science will never regress, and freedom itself will never be wholly lost" (J. Robert Oppenheimer – 1950) In what follows, I address whether human freedom can still persist unmolested, given the apparent impossibility of scientific regression or a pause on innovation.

The question is nothing less than whether technological advance still extends man's "choice" (as Oppenheimer puts it) or restrains it – whether there remain any real checks on technology's power to transform our world. By analyzing the effects

of this problem on three distinct groups (experts, elites, and everyday citizens), I address the political dimensions of technical power, and speculate about the implications that its continued growth might have for what we call "politics" – i.e., the processes by which informed and empowered individuals collaborate to shape our future and maintain what we've built. I do not focus on the development of particular technologies: rather, I consider the dynamics of technical advance in general – particularly its broader implications for sociopolitical life.

Technology as a Socio-Political Problem

Before discussing the specific political effects of technological development on experts, elites, and everyday citizens, a clearer definition of the technological problem itself is in order. Some key thinkers whose works offers such descriptions include Jacques Ellul, Lewis Mumford, Langdon Winner, Kevin Kelly, Ray Kurzweil, Ted Kaczynski, and Paul Feyerabend.

Of course, technological advance is not new – its history is coextensive with human history: indistinguishable from it, in fact. But the problems that technology posed for society have recently changed. For most past societies, the main questions addressed how new technologies could be developed, where they should be applied, and their moral or ethical status. All of these concerns implied a recognition that the utility of technology was (or should be) *limited*. Human inquiry proceeded from an existing need that demanded recourse to the technical sphere as a means to an end. The problems posed by technology in our era are almost diametrically opposed to those of the past.

We have reached a level of technological sophistication where the technologies develop *themselves*, where the default assumption is that they should be applied as broadly and quickly as possible, and where "progress" (whether in the political, economic, or technical domains) is presumed to be morally good. Technology is generally viewed as an end in itself. Thus, at this moment where our technologies seem to be on the cusp of autonomy, the problem that technology poses to our society is *whether there are any limits* – and if there are, whether we can consistently enforce them.

There is, however, a particular solution to which the advocates of technology are inclined. It is what futurist Ray Kurzweil and others have called "the singularity." The singularity is a future historical moment at which human biology merges with machine technology – an event that Kurzweil eagerly awaits even as he breezily acknowledges will represent "a profound and disruptive transformation in human capability," extending human consciousness and presence in (outer) space and time (136). Kurzweil suggests that this moment will bring an end to history because it will resolve all problems of human want and need. In *The Singularity is* Near, he predicts that moment will occur around the year 2045. For anyone who has a stake in defending the historical conception of the human person, our traditions, and our values, the question we confront is whether we can evade this fate – whether we can stop Kurzweil's singularity from happening. By the timeline he provides, we have about twenty more years to fight for the future and our place in it.

The title of Kevin Kelly's bestselling book is telling: *What Technology Wants*. The idea that technology "wants" *anything* suggests (as Kelly acknowledges) that it

has now become a "living force" that exists independently of us and doesn't really care about *our* desires. The name that Kelly gives to this "living force" is *the technium*, which he says "designate[s] the greater, global, massively interconnected system vibrating around us" (11). It takes another 200 pages for Kelly to meaningfully address that this vivification of technology might annul the human right to mold the human world, but he eventually concedes that "The vortex of the technium has grown its own agenda, its own imperative, its own direction. It is no longer under the full control and mastery of its parent and creator, humanity" (186). Nevertheless, Kelly isn't terribly concerned about this state of affairs. He refers to it as an "inevitable progression" (187), which makes sense given that the book's subtitle assures readers that the technium can "expand our individual potential – if we listen to what it wants."

If Kelly and Kurzweil are tech optimists, Kaczynski is perhaps the best-known tech alarmist. What Kelly calls the "technium," Kaczynski typically refers to as "industrial society" or "the industrial system." In his manifesto "Industrial Society and Its Future," he explains that since the Industrial Revolution, "there has been a consistent tendency […] for technology to strengthen the system at a high cost in individual freedom and local autonomy" (53). Given his notorious status as a hermit in the years before his arrest, it's likely that the freedom of the individual was of primary concern to Kaczynski. But his inclusion of "local autonomy" in the quotation above underscores that he was well-aware of the ways that the continued feverish pace of technological advance would erode the American political order and our traditions of self-government.

Two decades prior to Kelly, Kaczynski already fully characterized the way that industrial society moves political autonomy from the *demos* to the machine: "The system does not and cannot exist to satisfy human needs. Instead, it is human behavior that has to be modified to fit the needs of the system. […] It is the fault of technology because the system is not guided by ideology but by technical necessity" (56). In short, societies become so dependent upon integrated systems of high technology that any other social order becomes unthinkable. Thus, all political capital is spent on maintaining (and expanding) the system. In his book *Autonomous Technology,* Winner defines *technocracy* as a "label properly applied to public deliberations about technology in which our traditional ends-means, tool-use notions no longer account for what takes place." He continues: "The influence of socially necessary technical systems begins to constrain rather than liberate political choice" (258). Winner's concern with "public deliberation" implies that a technological society is likely to be a democratic one where the demands of technology pervert the typical values that guide the political decision-making process.

I suggest that perhaps we have moved further still: that we have reached a level of technical integration that doesn't simply warp public deliberation, but renders it entirely moot. A democratic decision-making process is pure theatre if neither the masses nor the elite have any real ability to enact a decision that runs counter to the needs of technological systems. I now turn to a closer analysis of how technical power neutralizes the traditional roles of experts, elites, and everyday people as the constituents of the political process (democratic or otherwise).

Everyday People Rendered Defenseless

In spite of his ingenuity and Ivy-League pedigree, Kaczynski is probably the theorist who is most polemical in his defense of the typical American citizen in the face of technocratic power. In a letter to *Scientific American* from 1995 (close but prior to the publication of his manifesto), he is keenly aware of the threat that technology poses to the political agency of the *demos*. There, he notes that elite groups (i.e., those that I will classify as "experts" in this essay) "get the fulfillment, the exhilaration, [and] the sense of power involved in bringing about technological progress, while the average man gets only the consequences" of technical advances. He further notes that the groups that "create technological progress share in control of the process and assume the [societal] risks voluntarily, whereas the role of the average individual is necessarily passive and involuntary" (18).

Essentially, Kaczynski observes that no one asked you or I what concerns we had about how internet technology (for example) might change our world – the expert class refined the medium, and then their clerics unilaterally (in cooperation with elites in government and business) decided the benefits outweighed the costs. They introduced the internet and the world changed – for every human being on the planet. It is tempting to think that if the broader public became aware of how they were entirely cut out of the decision-making process on the matters that will most impact the way they live, perhaps some collective action could be undertaken to reclaim their political agency. Perhaps. But Kaczynski points out that "since technological control will be introduced through a long sequence of small advances,

there will be no rational and effective public resistance" (71).[4] Thus, the incremental nature of technological development stifles public awareness about how any particular innovation might transform their world – until it is too late.

Objections remain that everyday people can still elect not to make use of new technologies. Some might go so far as to suggest that Kaczynski's lifestyle in the period leading up to his arrest testify to this fact. But it is not so simple. The integration of various innovations across society demands that regular citizens participate in technological systems. The process by which this participation is secured amounts to coercion (albeit an indirect form of it, which ensures that average people are less able to comprehend it as such). As Jacques Ellul notes in *The Technological Society*:

> Technique shapes an aristocratic society, which in turn implies aristocratic government. Democracy in such a society can only be a mere appearance. […] The real problem lies in the psychological situation of the individual assailed by a number of skillful propagandas acting upon his nervous system, and now, with the discovery of new methods, working over his intelligence, and exacerbating his reactions. The individual can no longer live except in a climate of tension and overexcitement. He can no longer be a smiling and skeptical spectator. […] Techniques have taught the organizers how to *force* him into the game. […] In a truly democratic regime, everything rests on judicious choice and free will. But it is

[4] The various works of Ted Kaczynski that are cited in this essay are collected in *Technological Slavery: Volume 1*, and thus, all page numbers correlate with those found in that volume.

> precisely in democracies that propaganda machines proliferate. (275-276)

Thus, as technology refines the processes by which modern societies are maintained, it becomes ever more integrated into our world, whether in spheres of labor, domestic life, trade, leisure, or entertainment. As these technologies are developed, the *demos* are never consulted. Rather, their broad-scale implementation becomes obligatory for the efficiency of the system. Thus, people are compelled to interact with technologies simply to continue living a normal life: the choice becomes acquiescence or Kaczynski's shack in the woods, which precious few options in between. Given the technocratic caste's zeal for a "cashless society" – an apparent inevitability given the inexorable nature of technological "progress" and the state's natural desire to maximize tax revenue when it is currently leaving money on the table from unrecorded cash transactions – it is an open question as to whether Kaczynski's shack even remains an option in 2023.

If the bind faced by the *demos* wasn't torturous enough, there is still another knot: the rapid development and increasing complexity of the inner workings of machines ensures that the vast majority of the public simply doesn't understand *how they work*. In an interview published in *The Tyranny of Science*, Paul Feyerabend explains that "Some time ago many people could repair their cars and their radios. Today they not only lack the knowledge, they also lack the necessary equipment. […] Technology now encourages ignorance" (134).

There are a number of implications of this insight. First, success in the process of democratic deliberation requires that one have some knowledge of what

one speaks – and have an ability to demonstrate this competence to others. This means that any popular discourse that would aim to challenge technocratic power as such would likely lack any sophisticated understanding of *how* technology (or technocratic power) works, ensuring that the arguments of lay persons would come off as uncompelling and ill-informed in the public square.

The second implication is that the average citizen's ignorance of how machine technology works disables any *technical* resistance (as opposed to *political* resistance) to its further integration. A sophisticated understanding of these technologies would enable skilled citizens to sabotage them or limit their implementation. Mumford underscores this problem when he says that "the machine process itself, with its matter-of-fact procedure, its automatism, its impersonality, its reliance upon the specialized services and intricate technological studies of the engineer, […moves] further and further beyond the worker's unaided power of intellectual apprehension or political control" (189). Thus, popular ignorance takes one more form of opposition off the table, seemingly leaving them with nothing but political solutions – solutions that this essay argues may be completely impotent.

The third and final issue is that this ignorance isn't limited only to the masses: most of the elites have no more understanding of the workings of advanced technology than they do. By "elites" here, I mean elected officials, corporate executives, public administrators, lawyers, physicians, professors, and others who merely utilize technical applications rather than design or manage their broader implementation. These people, who in the recent past *would* have had some political

power to check the agenda of the technological experts, no longer have it. It is to the non-technical elite that I now turn my attention.

Elite Disenfranchisement: The Crisis of the State

There are a number of different groups that make up the larger social stratum that we call "elites." The fact of the matter, though, is that the individuals who comprise these groups have relatively limited *political* power – except through organizations premised on the need to advance the interests of their particular guild. The American Medical Association, for example, certainly has some ability to influence government initiatives, but the vast majority of doctors and administrators who belong to that organization have exactly the same amount of real political power as the typical citizen. On the individual level, the main marker of elite status is one form of prestige or another (wealth, achievement, leisure, etc.). This holds true for doctors, lawyers, academics, public administrators, and the executives of the business class. Their prestige and their *collective* political power is a compensation for the supporting roles that their members play in supporting the state and the social structure it oversees.

In short, then, the *primary* elite political power resides with agents of the state itself: elected officials, unelected high-level administrators and bureaucrats, judges, etc. In theory, the state is sovereign. Traditionally speaking, then, it has been the job of the state to throttle any subsidiary source of elite power that might eclipse the government as the ultimate political authority. For this reason, the following discussion focuses on the capacity of the state and its representatives to check the power of technology. The central issue here is that the state seems increasingly

unable to assert its sovereignty by neutralizing the challenges posed by rapid technological development. The degree to which these realities are responsible for the widespread dysfunction of state institutions in the 21st century can't really be quantified, but it is probably significant. We are witnessing an annexation of the state by techno-corporate entities: the further this process moves toward completion, the more the state misfires in its efforts to fulfill its traditional obligations. This problem is exacerbated by the state's reliance on advanced tech to exercise those duties – the very technologies that now pose a threat to state power.

Writing in 1977, Winner characterized a debate then unfolding among critics of technology as to whether continued technological advance (and the integration of separate technological systems) would ultimately tend to further centralize political power or decentralize it. According to Winner, the conventional wisdom among the commentators who foretold increasing centralization was that the state would come out the victor in this process. Since the state (at that time) served as the highest power in society, only the state would be able to achieve the full integration of technical systems – and having done so, the state would secure the right to control the integrated system. Winner suggested that this line of thinking might be shortsighted. Nearly 50 years later, the state increasingly seems to be subservient to technical powers. Often, the use of state power is directed toward the service of technology. Consider, for example, state involvement in preparing the infrastructure for the broader implementation of 5G technologies,[5] writing of new tax laws in ways

[5] See, for example, https://www.ntia.gov/files/ntia/publications/2021-1-12_115445_national_strategy_to_secure_5g_implementation_plan_and_annexes_a_f_final.pdf

that favor the interests of tech companies,[6] or the judicial interpretation of existing law in order to protect those interests.[7]

Indeed, Ellul always knew that the state would be the junior partner in an alliance with technological development: "State constitutions do not alter the use of techniques, but techniques do act rather rapidly on state structures. They subvert democracy and tend to create a new aristocracy…there is a limited elite that understands the secrets of their own techniques […] These men are close to the seat of governmental power" (qtd in Winner 256). Note that those men do not sit *in* the seat of governmental power, but merely "close" to it. In short, these men are the expert class – the ones who tell the elites who *do* sit in the seat of governmental power what to do. Prior to the US presidential election of 2020, no one would have thought that the state would sit idly by while Mark Zuckerberg (CEO of Facebook) changed the way we run our elections – but that's what happened in states all over the country. When this election interference was brought to light, not only were Zuckerberg and his proxies *not* punished – there was no meaningful effort to protect against similar interference in the future.[8]

The 30 years that followed the introduction of internet technology to the public did much to answer the question of whether technical advances would further centralize power (or have the opposite effect). In the early years of publicly-available internet, the proliferation and development of web applications (along with the

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[6] Consider https://www.nbcnews.com/tech/tech-news/debate-heats-countries-tax-big-tech-companies-rcna240

[7] See, for example, https://thefederalist.com/2022/09/19/federal-court-deals-major-blow-to-big-tech-and-sets-up-scotus-to-restore-free-speech/

[8] See, for example, https://thefederalist.com/2022/12/13/ctcl-kicks-off-2024-election-cycle-with-a-new-80-million-zuckbucks-pledge/

competition between the entities seeking to leverage them for commercial gain) made it *seem* as though increasing sophistication would bring a decentralization of power.[9] But with the introduction of social media, ever more powerful search engines, and technologies like Paypal that worked to connect various online activities and integrate users' experiences of the medium, the aughts brought about increasing consolidation of power. By the second decade of the new millennium it was already clear that the state was at a loss for how to control what came to be known as "Big Tech," and in many situations it became apparent that the latter exercised sole discretion on when to acquiesce to the demands of the former.[10] As this exchange of power progressed, the efforts of the state to control Big Tech made less use of *diktats* and more use of requests.[11]

To the extent that the state retains some political power, how it uses that power is largely determined by the needs of technical systems upon which society (and thus, the state itself) depend for its stability. Much state power is expended in mopping up the problems to which technology gives rise. Consider Y2K. There was some concern in 1999 that due to the coding of most computer systems, when the calendar year changed to 2000, computers would assume the year was 1900 (since they used only two-digit identification of the year; e.g. "00"). The potential effects of this problem reached to the very core of social life in the United States – we were warned that all banking records might be lost, that the power grid could fail on a

[9] See, for example, nms.lcs.mit.edu/6829-papers/darpa-internet.pdf (David Clark's "The Design Philosophy of the DARPA Internet Protocols," 1988).
[10] See, for example, https://medium.com/@mikewacker/googles-manual-interventions-in-search-results-a3b0cfd3e26c
[11] See, for example, https://www.businessinsider.com/twitter-granted-requests-from-trump-white-house-biden-remove-posts-2022-12?op=1

mass scale, and that various other catastrophes might be imminent. That so many basic utilities were dependent on computer technology ensured that the state had no choice but to invest enormous resources in averting this problem.[12]

In the same vein, social media has facilitated the spread of what the state calls "misinformation" which purportedly threatens the political agenda of the liberal order. This apparently requires massive government efforts to police, control, and silence the speech of everyday Americans by coordinating with Big Tech.[13] There are countless other examples showing that technological development effectively determines how and where state power is deployed. These obligatory efforts to facilitate the smooth function of technical systems divert time, money, and manpower from the achievement of political goals that are unrelated to demands of technology (and closer to the immediate needs of the *demos*).

Non-expert elites are ignorant of the advanced principles of science, engineering, and computer technology that would enable them to make reliable assessments of how new technologies will ultimately impact society. For this reason, they are always "behind the ball" when it comes to policy: they cannot *anticipate* the effects of technological development and implementation and are therefore locked into a fundamentally *reactive* mode of palliative political action that attempts to mitigate the effects of damage already done. If government officials try to get the information they need to make informed decisions on technical matters, the only people privy to that information are technical experts themselves: people who have

[12] See https://people.com/human-interest/y2k-millennium-bug-20-year-anniversary/
[13] See https://twitterfiles.substack.com/p/1-thread-the-twitter-files

commercial, intellectual, and ideological commitments that lead them to overstate the benefits of new technologies and understate potential threats and trade-offs.

Ellul sums it up when he says that "the state is forced by the operation of its own proper techniques to form its doctrine of government on the basis of technical necessities. These necessities compel action in the same way that techniques permit it" (282). In short, while it appears as though the state is sovereign, it actually operates in service of a technological system that it uses as a means of governance and administration. As Kaczynski explained in 2002, this misdirects the public as to where real political power lies: "Let's begin by making clear what the System is not. The System is not George W. Bush and his advisors and appointees, it is not the cops who maltreat protestors, it is not the CEOs of the multinational corporations, and it is not the Frankensteins in their laboratories who criminally tinker with the genes of living things. All these people are servants of the System, but in themselves they do not constitute the System" ("The System's Neatest Trick," 113).

Well, then…about those Frankensteins…

The Experts: The Limits of Technical Knowledge

The people in high places with technical expertise are essentially just one more caste of elites. But it might be said that they are a kind of uber-elite because they hold the keys to the technologies upon which the *demos*, the state, and the society at large depend. It is true that other kinds of (non-technical) elites are also "experts," but their expertise resides in domains of knowledge which amount to secondary concerns from the perspective of state actors (e.g., law, medicine, economics, etc.). Again, some might be tempted to suppose that technical experts are

simply the state's preferred group of elites – the caste that gets most direct input in high-level deliberation and the most careful concern when it comes to the effects of policy decisions. But as I have shown, this uber-elite – these technical experts – have more power than the state when it comes to shaping the daily lives of the average American citizen.

We must resist the inference, though, that the experts are the "true" holders of political power in our society as it exists today. The point of this essay is that advanced technological society will soon have negated macro-scale politics. If the expert class still wielded real and significant power to direct the development of society, then this thesis would be disproven. But while technical experts do have *more* political power than the common person and the state, the amount of power they have is still insufficient to sustain reliable, productive progress toward predetermined social goals produced through deliberation. There are three major reasons that the power of the uber-elite caste of experts is trumped by the technological systems they purport to operate.

The first reason (as alluded to above) is that "technology" as an organizing force in social life is self-perpetuating, developing in ways that cannot be foreseen by the experts. Kelly enthusiastically observes that technology has become "a vital spirit that throws us forward or pushes against us. [It is] [n]ot a thing but a verb" (41). The passive role that is assigned to humanity in the preceding quotation is deliberate. The technology itself is both actor *and* action. The human person and our world is what is acted upon.

On this, all the thinkers cited in this essay agree. Ellul explains that "when technique enters into every area of life, […] [i]t is no longer face to face with man but is integrated with him, and it progressively absorbs him. In this respect, technique is radically different from the machine. This transformation, so obvious in modern society, is the result of the fact that technique has become autonomous" (6). Writing a few decades prior, Mumford suggested that this process of autonomy was aided and abetted by human beings, who were (and remain) irrationally dedicated to a positive, moralistic conception of "progress." He writes that by our era, "one could not have too much progress; it could not come too rapidly; it could not spread too widely; and it could not destroy the 'unprogressive' elements of society too swiftly and ruthlessly: for progress was a good in itself independent of direction or end" (184). To question this supposition, he says, would be "the ultimate heresy" (185). Winner emphasizes that "Decisions made in the context of technological politics, therefore, do carry an aura of indelible pragmatic necessity. Any refusal to support needed growth of crucial systems can bring disaster" (259). This leads him, finally, to the conclusion that "The direction of governance by technological imperatives […] runs *from* megatechnical systems *to* the state" rather than *vice versa* (261).

The second reason that the power of the experts is ultimately subordinate to that of technology relates to their ego and curiosity – which fuels their unbridled optimism that scientific technique *will* ultimately solve all kinds of human suffering and limitation. In a letter on the motivations of scientists, Kaczynski recalls Oppenheimer's speculation that the scientists who worked for America toward the development of nuclear weapons did so not for the oft-cited reasons that the Nazis might get one first, or that there would be potential benefits that nuclear technology

might impart to society. Rather, Oppenheimer suggested that their work developed by "organic necessity." That is, the technicians of the Manhattan Project simply needed to know how far this technology could be pushed. In Kaczynski's words, "Scientists work not for the benefit of humanity, but in order to satisfy their own needs" (270). Interestingly, Ellul also uses nuclear weaponry as an illustrating example:

> The scientist might act more prudently; he might be afraid to launch his carefully calibrated laboratory findings into the world. But how can he resist the pressure of the facts? How can he resist the pressure of money? How is he to resist success, publicity, and public acclaim? Or the general state of mind which makes technical application the last word? How is he to resist the desire to pursue his research? Such is the dilemma of the researcher today. Either he allows his findings to be technologically applied or he is forced to break off his research. Such is the drama of the atomic physicists who saw that only the laboratories at Los Alamos could provide them with the instruments necessary to the continuation of their work. […] The scientist is no longer able to hold out: […] science [itself] has become an instrument of technique (10)

Given this situation, Kaczynski explains that scientific work becomes a kind of "surrogate activity" that fulfills basic human needs like achievement and advancement in power. Ironically, then, as engineers and scientists exercise their will to political power, they necessarily accelerate the automatization of technological systems: the more they eclipse the powers of the state, the more they forge the

bonds that make them the servants of those self-perpetuating systems. Thus, as technology advances, the power of experts to control the direction and rate of social change decreases.

The third reason that the political power of the experts is restrained by technology is less complicated. Although "Big Tech" has superseded the state as the primary administrator of social change, most of the public still sees technical experts merely as uber-elites – one elite caste among others (and thus, below the state), but also the government's "preferred" elite group, which receives more deference than the others. In order for the public to remain ignorant of the political sovereignty of technology, Big Tech's subordinate status in relation to the state is a fiction that must be maintained.

The implicit justification for the state's preferential treatment of these experts is that they are tasked with the maintenance and expansion of the technical systems upon which the state and modern society depend. To maintain this status as "preferred uber-elites," technical experts need to fulfill these obligations. This means that even if the individual scientist could resist the money, the prestige, the knowledge, and the publicity to which Ellul refers, the scientific *community's* privileged status (embodied by minimal state interference in technological development and maximal state funding of research and innovation) *requires* him to *earn* that privilege by refining and expanding technological applications. The result (again) is that the experts' pursuit of political advantage and preference demands that they strengthen the technologies that ultimately neutralize whatever *real* political power (that is, the ability to control the rate and direction of social change) they might have had.

If the experts *could* retain some political sovereignty – enough to throttle the self-perpetuation of technological and social change – this doesn't necessarily preclude the possibility of democratic governance. One can imagine a republic where public representatives were drawn from the uber-elite caste of technical experts. If those experts actually inhabited formal positions within the government (rather than shadow positions "close to" the seat of state power), it is theoretically possible that they would listen and respond to the will of the *demos*. But given that those experts are no less at the mercy of the technical systems they serve than the *demos* or the state, they are still just as impotent as the other groups (albeit in different ways). The sovereignty of technology is not simply a problem in "democratic" regimes: there is no reason to believe that monarchy, or oligarchy, or plutocracy, or any other political arrangement could resist the sovereignty of advanced technology. For that reason, it appears that technology – the "technium," "technical expertise," "scientific advancement," whatever you want to call it – results in the total negation of the political as a field of activity where communities of human beings control the rate and kind of social change that they endure.

Nevertheless, given the particular affinity of western societies for democratic forms of government (and the fact that those democratic societies also tend to be at the vanguard of technological advancement), I conclude by analyzing the apparently unique relation between technical sophistication and democratic regimes, considering the prospects of democracy for resisting the limits that technology imposes upon political activity.

Technology, Capitalism, and the Future of Democracy

Franklin Delano Roosevelt was a great expander of state power, and at times he explicitly justified this expansion as a necessary response to technological development. In his State of the Union address from 1944, Roosevelt said that "As our nation has grown in size and stature, however – as our industrial economy expanded – these political rights [i.e., those delineated in the founding documents of the United States] proved inadequate to assure us equality in the pursuit of happiness." These ideas sowed the seeds of the modern administrative state which co-opted the powers of the legislative and judicial branches of American government – a change in the structure of our political order that weakened the real political power of citizens and their elected representatives. In essence, Roosevelt announced a movement *away* from democracy in the *interest* of liberal principles: the growing power of technology to disrupt human life demanded a more robust bureaucratic state to check that power.

It is ironic, then, that only a few decades later, Dwight Eisenhower – a man of war – warned Americans of the "military industrial complex." In his essay entitled "Clarity in Trump's Wake," Angelo Codevilla notes that Eisenhower wasn't just making a point about America's war machine: he was also pointing out that "Amalgams of public and private power tend to prioritize their corporate interests over the country's." Eisenhower saw these alignments as a byproduct of science, technology, and the rise of the administrative state that Roosevelt championed: "The prospect of domination of the nation's scholars by federal employment, project allocations, and the power of money is ever-present and is gravely to be regarded,"

he explained, because "public policy could itself become captive of a scientific-technological elite."

In the years since the Eisenhower administration, this prediction came true. Indeed, a scientific-technological elite was built into the state, largely as a means to control and direct the independent development of new technologies (administrative and otherwise). Over the last half-century, those developments have happened so quickly that they have effectively neutralized the state's ability to impose any serious controls. Political agency, first stolen from everyday Americans by the administrative state, was then stolen from the state by the technical experts who alone understand the secrets of new technologies. Finally, we see that the technical system itself has now broken free of any remaining controls that could be imposed by those experts. As the result, the field of political action has been rendered void – human beings now take a backseat in determining the future course of social life.

It is probably the case that there is no type of regime or political order that could be used to restrain technological power at this point. Still, the unique relationship between technology and democracy demands further attention, if only because modern democratic societies have proven most conducive to rapid technological advance. Thus, we must reckon with the possibility that while democratic life feeds technological development, the latter is parasitic upon the former. The efficiency of technical innovation depends on democracy, but it drains democracy of its vitality as the technical system matures to a point where it is able to thrive independently of the democratic order – a point at which what Kelly calls the "technium" achieves political sovereignty.

The late-twentieth century saw a dramatic shift towards democracy around the world. Kurzweil notes that "The biggest wave of democratization, including the fall of the Iron Curtain, occurred in the 1990s with the growth of the Internet and related technologies" (396). Francis Fukuyama notes that between the 1970s and the early 2000s, the number of electoral democracies increased "from about 35 to more than 110" (*Identity* 4). This trend justified Fukuyama's mid-1990s claim that the conclusion of the Cold War had brought a new consensus that liberal democracy was the best regime (see *The End of History and the Last Man*). A corollary of this belief was that the new nations embracing democratic forms of government were doing so out of a new appreciation of equality, tolerance, justice, and freedom. Kaczynski throws cold water on these assumptions. Instead, he argues that "The economic, technological, and military superiority of [English-speaking] democracies enabled them to spread democracy forcibly at the expense of authoritarian systems" (293). Ultimately, he says, "many nations voluntarily adopted democratic institutions because they believed […they] were the source of the economic and technological success" (293).

Kaczynski leaves open the question of whether democracy itself is the reason for the high levels of technological development that we see in western democracies. However, he claims that democracy was merely an afterthought among the Enlightenment thinkers commonly associated with its emergence in the modern era. Their primary concern, he says, was "economic and technological progress, which they assumed would lead to intellectual and cultural progress" (311). According to Kaczynski, only when monarchic rule proved to be a drag on the rate of progress did the philosophical architects of the modern world turn to democracy. But whether the

association between democracy and technological development is causal or incidental, it is clear that there *is* a powerful correlation here. Interestly, Kaczynski saw liberal democracy as the most favorable condition for creating a reactionary movement against technology because it "allows the freest circulation of ideas" (318).

But if Kaczynski sees a glimmer of hope for countering the power of technology in the context of a democratic society, Kurzweil suggests such a thing is impossible. Late in his book *The Singularity is Near*, he addresses the question of whether we would be able to pause technological advances in certain areas that pose risks to humanity while allowing development in other areas move forward uninhibited. Ellul, of course, insisted that "the technical phenomenon cannot be broken down in such a way as to retain the good and reject the bad," (111), and Kaczynski famously agreed (54). Kurzweil doesn't want to attempt any such parsing, and regardless, he sees democracy as fundamentally incapable of doing so. He argues that "relinquishing broad fields [of development] would be impossible […] without essentially relinquishing all technical development" (395). He opines that while some form of totalitarianism might strong enough to impose a total pause, this would be "inconsistent with our democratic values" (395) and would give up entirely on "the very idea of progress" (407). Not only that, but even if such a ban would be practicable and desirable, "it would actually make the dangers worse by driving the technology underground, where only the least responsible practitioners (for example, rogue states) would have the most expertise" (395).

The problem here is that Kurzweil seems unable to grasp that even the *most* "responsible practitioners" in today's democratic societies are no longer able to control the development of technology, to say nothing of the effects that these innovations have upon society. In short, the technical system in aggregate now functions as a kind of totalitarian power. The difference is that past totalitarian regimes have had *people* at the helm, whereas in technological totalitarianism the machine is sovereign. The technium is emotionless and unconscious. It cannot know us, it cannot love us, and it cannot satisfy the spiritual needs of human beings. For those reasons alone we should recoil at any political, social, or economic system that might emanate from it. Even if the "responsible practitioners" could reassert their control over what is now an autonomous, self-perpetuating phenomenon, this still would be profoundly anti-democratic. The technical experts do not have any right to make decisions which will impact the future of our entire species. They don't ask for permission and they act with impunity. If – when – they make the catastrophic mistake, their penalty will be nothing more and nothing less than their individual share of the collective suffering that they will have inflicted on everyone.

A regime wherein "responsible practitioners" are sovereign is (at best) an oligarchy, and it's not entirely clear that such an arrangement would be superior to a "totalitarian" system that could impose a moratorium on further development. Of course, any and all of these possibilities – democracy, oligarchy, totalitarianism – are irrelevant if an unfettered process of technological development continues apace. Since the very possibility of political interventions of any kind diminishes as the technium advances, it seems the hour is quite late. The road we are currently on ends with technocracy: not the kind we have imagined in the past, where human beings

administer the technologies that run society, but one where the technologies themselves run themselves, us, and our world. When it is fully implemented, human resistance (as they say) "will be futile." The only remaining option is for the masses, the state, *and* the "responsible practitioners" of the technical elite to take full advantage of whatever forms of political agency remain in their respective spheres – pooling their powers in a collaborative attempt to claw back our rightful role as the deciders of our human future. There's not a moment to waste.

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