THE INTERNET IS NOT WHAT YOU THINK IT IS

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between two philosophers than between two calculators. For it would suffice for them to take their pencils in their hands and to sit down at the abacus, and say to each other: *Let us calculate!*"[1] The "abacus" in question is not a real abacus, but any tool that might aid in processing the formal language, though in principle Leibniz also thinks, as he conveys in this passage, that the language can be deployed using only a pen and paper (just as one might do long division either by hand or by using some sort of calculator).

This hortatory third-person-plural use of the Latin verb "to calculate"—*Calculemus!*—might well serve as the motto of Leibnizian optimism, of the belief that all problems can be resolved simply by clarifying our terms and rationally following the logical consequences of our commitments. This optimism extends not just to disputes between philosophers arguing over abstractions about the nature of substance or the immortality of the soul, but also to diplomats representing empires on the brink of war. For Leibniz, the development of a universal formal language is a key part of the imminent attainment of world peace, a part that would continue to capture imaginations in a more demotic form well into the twentieth century, where artificial languages such as Esperanto, Volapük, and Ido often appealed to peace activists of various strains, some of whom, notably Bertrand Russell (an advocate of Ido), also owed a deep philosophical debt to Leibniz.[2]

The history of artificial languages and the history of computing go hand in hand, and while the reckoning engine that Leibniz developed (which we will discuss on several occasions below) was only intended for arithmetical calculations, he well understood that in principle such a machine could also be used to process any information at all. In part this understanding was deepened by his important contributions to the development

of the binary calculus, which makes it possible to encode any proposition in a sequence of zeroes and ones, and thus to process language using the same tools with which one might also process numbers. In part, Leibniz's awareness of the possibility of concept-crunching machines, and not just of number-crunching machines, came from the fact that he was working in an already centuries-long tradition of thinking about such devices, some of which were merely fantastical, some of which may have actually existed.

Thus, in the early fourteenth century, the Majorcan polymath Ramon Llull designed a machine made of paper, consisting of several concentric discs marked with symbols on the edges denoting various attributes of substances. By rotating these discs one could, Llull hoped, exhaustively survey all of the combinatoric possibilities for the kinds of being in (and beyond) the world. Leibniz took Llull as an important predecessor in the history of formal-language processing, and Llull had his own influential predecessors too, notably Aristotle, as well as other sources in the Jewish and Islamic mystical traditions of Al-Andalus. While we might be tempted to see Leibniz, perhaps along with his contemporary Blaise Pascal, as the "father" of computer science, in truth computers have no father, or mother, and for any starting point you might attempt to choose in history, you can always find other predecessors with whom the thinker standing at that starting point was already in conversation, to whom that person was responding, who served as their starting points.

What happens with Leibniz is not the proper beginning of anything, but rather—a metaphor to which we will be returning frequently—it is the *weaving together* of several ideas into a filament thick enough to serve further on as a bright guiding thread through the rest of modern history up to the present

day: the idea that natural language can be formalized; the idea that formal language can be processed by machines; the idea that human reason can be outsourced to these machines to make decisions for us; the idea that all things are interconnected, and that therefore a change in one thing in the world is able to bring about an instantaneous change in all others, no matter what the physical distance; the expectation that we might work collectively toward creating a publicly shared compendium of all knowledge for the betterment of the lot of all humanity; the belief that knowledge is pursued and increased by individuals working within a much vaster network of other like-minded people; the conviction that collective, machine-aided labor toward the realization of reason as the governing principle of society will bring about a new era of enlightenment and lasting peace.

Although this is not a book about Leibniz specifically, he does make repeated visits, and even where he is not the subject of discussion, there is an implicit conviction that he, more than any other modern thinker, represents the spirit of the internet, the ideals that guided the first period of its development, and perhaps the best hope for its ultimate future. But the early Leibnizian spirit of the internet, as it extends, let us say, from roughly 1678 to roughly 2011, has of late fallen into existential peril. The call to "calculate" has not brought world peace. Far, far from it. Leibniz, with all due respect, was much too optimistic.

"Pessimism" about the promise of new technologies to ameliorate our condition is of course not new. To this day, no matter how careful a person is to articulate solid reasons, they still risk being called a "Luddite" in response to concerns about mechanization, recalling Ned Ludd's (likely fictional) radical resistance against the rising robotic workforce that began to emerge already at the beginning of the industrial revolution (though of

course not yet called by that name). In the early 1960s, Norbert Wiener was sharply aware that the possible apocalyptic results of modern technology might result simply from our loss of control over machines to which we have outsourced decision-making processes, and thus to teach a machine to play chess may already give it more responsibility than it can handle over war, peace, and human destiny. "There is nothing more dangerous to contemplate than World War III," Wiener writes in a supplementary chapter of the second edition of his *Cybernetics*, to which we will be returning throughout this book.[3] And, he adds: "It is worth considering whether part of the danger may not be intrinsic in the unguarded use of learning machines."[4]

A general wariness of modern technology pervades much mid-twentieth-century existential and phenomenological philosophy, frequently, as in Martin Heidegger, with discomforting undertones, and sometimes outright explicit claims, of the conflict between technological enhancement of our social lives, on the one hand, and "authentic" living on the other. This pessimism continues to echo in late twentieth-century psychological, psychoanalytic, and social-scientific engagement with the problem of modern "alienation" and the ways in which technological enhancements remove us from the human bonds and natural attachments that make life meaningful. In the 1970s, sociologists such as Manfred Stanley warned against the rise of "technicism" in interpreting human actions and motivations, and in so doing were criticized by others for their "pessimism." Yet like Stanley, and unlike Heidegger or some caricature of the "Luddite," I am interested here in "eschewing apocalyptic frenzies of doom or salvation in favor of calmer analysis."[5] While strongly opposed to the "technicist mystification of personal consciousness under conditions of modern industrial civilization"[6] and concerned to salvage "human dignity" under these

conditions,[7] I am likewise concerned to show that the greatest problem is not one of unstoppable technological determinism, or of a determinism that can only be countered by "flipping the off switch," but rather in clarifying the nature of the force with which we are contending, and understanding the limits of thinking that proceeds by analogy between human beings and machines. Stanley's approach is largely through the analysis of language, while mine is through history, but in both cases the aim is to engage in lucid criticism while avoiding the pitfalls of pessimism or authenticity-mongering.

I have been using the term "internet" in an overtly non-technical way. The internet, after all, is the entire network of networks that are connected by the Internet protocol suite. The "World Wide Web" that we commonly access through our familiar browsers is only one small part of this network. And the sites that will be of principal interest for us in the pages to follow are only one small part of what may be accessed on the World Wide Web. I am not centrally concerned, here, with the social implications of our new ability to access, say, digitized medieval manuscripts held by the Bibliothèque Nationale in Paris (though such new possibilities do become the center of attention in chapter 5), but with the more familiar sites of daily use by billions of people: Facebook, Google, and so on. Thus, "internet" serves as a sort of reverse synecdoche, the larger containing term standing for the smaller contained term. The reason for adopting this terminology is that it seems to agree with actual usage among current English speakers; on Twitter, for example, you will often see users declaring exasperatedly that their antagonists need to "get off the internet" and "touch

diminution of the political freedom of citizens of democracy, understood as the power to contribute to decisions concerning our social life and collective well-being. What Michael Walzer said of socialism might be said of democracy too: that "what touches all should be decided by all."[8] And on this reckoning, the internet is aggressively undemocratic. Fourth, the internet is now a universal surveillance device, and for this reason as well it is incompatible with the preservation of our political freedom.

I shall have more to say about some of these indictments than others; in particular I am most interested in the first of them, the addictive power of the internet, which is one dimension of what we may call "the crisis of attention." But they all overlap in complex ways: increasingly, for example, social-media behavior in the form of likes for certain songs or artists, which might only have come to one's attention as a result of algorithmic processes over which one has no say, can also in turn place a person on the radar of law enforcement agencies or state security apparatuses as a potential terrorist, gang member, or other species of socially disadvantaged undesirable.

All of the major charges are related to one another, moreover, in contrast to the minor charges we are passing over concerning the destruction of this or that industry or art form, in that they involve, again, a threat to human freedom. Freedom is a difficult concept, in part because there are many different species of it. A Uighur in a Chinese detention camp, or a migrant in Texas with an ICE ankle monitor, is unfree, and so, in a different but somewhat related sense, is a hiker whose leg is caught under a fallen tree. A heroin addict is unfree in yet another distinct but related sense, and so are a wage laborer, a lay-about so entranced by soap operas as to never realize innate human potentials, and anyone else at all who, because of either inner weakness of the

will or objective outer forces, fails in some way to become what they could have been, fails to achieve full human thriving. We are all unfree in some of these respects. The charge here is that the internet contributes to the limitation of freedom in all of these respects. As such, the internet is anti-human. If we could put it on trial, its crime would be a crime against humanity.

Things were not always expected to turn out this way. Figuring out what went wrong will be the principal concern of this book. But in order to do this, we will need to think deeply not just about the past few years of what the internet has wrought in politics, culture, and economics. This ground has been well covered by many lucid scholars and critics. We will rather need to focus on what the internet is, ontologically speaking, on the nature of this new thing we already so easily take for granted; and we will need to focus on what the internet is genealogically speaking, too, on its place in the vast sweep of human and even natural history. Only in so doing can we begin to see what the internet might yet become.

A few words are in order concerning "methodology." This book will strike some readers as peculiar, in that it purports to be a "philosophy of the internet," yet spends most of its time dwelling on thinkers, texts, and problems from centuries ago. This is intentional; this *is* the methodology. I am, by training, a historian of philosophy and science, with a particular long-standing interest in the intersection of philosophy and the life sciences in Europe in the seventeenth and eighteenth centuries, and with an abiding interest as well in philosophical aesthetics and the many points of contact between philosophy, science, and art throughout history. I also have a strong sympathy for

some dimensions of the work of Michel Foucault, who well understood that some problems are best studied genealogically, that is, that we come to understand the essence of a thing by understanding how it develops over the course of history. This is thus in some respects a contribution to the genre of scholarship that Ian Hacking has called "historical ontology,"[9] that, namely, regards history as of central importance in any effort to understand what there is in general, or what the nature of a given thing that is, is. Thus, for example, if you want to offer up a "philosophy of cinema" (such an antiquated undertaking!), if you want to give an account of what cinema in its essence is, you must spend a good deal of time considering such things as nineteenth-century shadow plays and the narrative techniques of novelists such as Balzac or Flaubert.

Unlike Foucault, however, I am less inclined here to assent to the idea that different historical epochs are characterized by their own, radically distinct "epistēmēs." Indeed, my argument about the history of technology points much sooner in the opposite, perennialist direction: notwithstanding the enormous changes in the size, speed, and organization of the devices we use from one decade or century to the next, what these devices are, and how they shape our world, has been substantially the same throughout the course of human history (and, as we will see, even longer than that). So the book amounts to a kind of reverse Foucauldianism, or, if you will, a perennialist genealogy: bringing history to bear on a thing important enough to warrant philosophical attention, and determining through this historical-philosophical inquiry that the thing is more or less stable across the ages, and not a discursive product forever trapped within the confines of a single epoch's epistēmē, even if the current epoch does present us with some truly novel challenges.

In this short book we will range widely in topic and time, permitting ourselves to linger far from some of the questions that internet users and tech analysts today consider most pressing: the outsized power of the tech monopolies; the racism built into AI applications in security, social media, and credit-rating algorithms; the variations on the trolley problem to which self-driving vehicles give rise; the epidemic of disinformation and the corollary crisis of epistemic authority in our culture; internet mobs and the culture wars; and so on, ad nauseam. For the most part, this aloofness is intentional. This book does describe itself as a "philosophy" of the internet and, while there will be much disagreement about what that might mean, most of us can at least agree that a philosophy of something, whatever else it may be, has the right to zoom out from that thing and to consider it in relation to its precedents, or in relation to other things alongside which it exists in a totality.

But let us not suppose that zooming out can hold no practical lessons for the present day. Such an assumption is in part how we got into this whole mess in the first place. By treating the internet as a short-term problem-solver, we created for ourselves some new, very big problems; by allowing the internet to compel us to attend to a constant stream of different, trivial things, we have become unable to focus on the monolithically important thing that it is.

1

A Sudden Acceleration

In 2010 you could say something like "if it's free, you are the product" and feel smart for a full year. These days you need to say something like that every few hours.

—DON HUGHES[1]

"Internet, c'est vraiment du Leibniz sans Dieu" ["The internet: it really is Leibniz minus God"].

—MICHEL SERRES[2]

Our Critical Moment

The earth has moved under our feet in just the past few decades. The largest industry in the world now is quite literally the attention-seeking industry. Just as in the nineteenth and twentieth centuries the global economy was dominated by natural-resource extraction, today the world's largest companies have grown as large as they have entirely on the promise of providing to their clients the attention, however fleeting, of their billions of users.

to pay close attention to how the human mind cognizes its surroundings and navigates its way through the world. Both cognitive science and phenomenology thus appear germane in new ways to basic questions of politics and economics.

This then is the *second new problem* of the internet era: the way in which the emerging extractive economy threatens our ability to use our mental faculty of attention in a way that is conducive to human thriving.

Both the first and second problems are aggravated significantly with the rise of the mobile internet, and what Citton astutely labels "affective condensation." Most of our passions and frustrations, personal bonds and enmities, responsibilities and addictions, are now concentrated into our digital screens, along with our mundane work and daily errands, our bill-paying and our income tax spreadsheets. It is not just that we have a device that is capable of doing several things, but that this device has largely swallowed up many of the things we used to do and transformed these things into various instances of that device's universal imposition of itself: utility has crossed over into compulsoriness. Our networked computers and mobile devices are not, or are no longer, analogous to Swiss army knives that include a few blades, scissors, a file, a small magnifying glass. That may have been the goal of some technologists as they sought ways to absorb the CD player, the book, the telephone, the camera, the daily calendar, the clock, etc., into a single universal device. But all this absorption has brought us to a transformation not just in the nature of our tool use, but in the contours of social reality. As the editors of *n +1 Magazine* presciently stated it as early as 2007: "The work machine is also a porn machine; the porn machine is also a work machine." This remains true even if you abjure pornography, and even if you are unemployed.

Whatever your habits and your duties, your public responsibilities and secret desires, they are all concentrated as never before into a single device, a filter, and a portal for the conduct of nearly every kind of human life today.[4]

This then is the *third feature* of our current reality that constitutes a genuine break with the past: the condensation of so much of our lives into a single device, the passage of nearly all that we do through a single technological portal. This consolidation, of course, helps and intensifies the first two novelties of our era that we identified, namely, the extraction of attention from human subjects as a sort of natural resource, and the critical challenge this new extractive economy poses to our mental faculty of attention.

It gets worse still. In Vladimir Nabokov's 1957 novel *Pnin*, the titular character is a lost and hapless White Russian emigré teaching Slavic literature at a university with a striking resemblance to Cornell University. He boards in the home of an American family, the matron of which, Joan, enjoys sitting at the kitchen table with him as she reads the fat Sunday newspaper. When she asks why he will not take a section and read along with her, he replies, sadly: "You know I do not understand what is advertisement and what is not advertisement."[5]

If such uncertainty was possible in the 1950s for a relatively underacculturated immigrant, today Professor Pnin's statement seems positively prophetic of a general condition to which even the most savvy navigators of our cultural landscape are prone. If we all find it difficult to distinguish between advertisement and not-advertisement, this is in part because, today, all is advertisement. Or, to put this somewhat more cautiously, there is no part of our most important technology products and services that is kept cordoned off as a safe space from the commercial interests of the companies that own them. The relatively

small Twitter, and the much larger Facebook and Google, make their profits almost exclusively from advertising. While Amazon and Apple have different business models, obtaining much of their profit from the sale of goods, a significant part of their success is based on their ability to insinuate their logos, and more subtly their general aesthetic and one might even say their spirit, into the lifeblood of society.

Of course, the traditional American newspaper also made its profits from advertising, and by the 1950s major corporations such as Coca-Cola had imposed themselves not just as products, but as ideas and even as weapons in the Cold War battle for global cultural hegemony. But the scale was much smaller, and it remained fairly easy to opt out, as Pnin politely does with the newspaper. Moroever, while the *Ithaca Journal* attempted to draw and hold the attention of the reader in a way that would maximize exposure of its commercial sponsors to readers, it was in the end only ink on paper, a technology incapable of *reading those readers* in turn: incapable, that is, of compiling and exploiting even approximate engagement metrics. The new advertisement landscape by contrast is one that functions bidirectionally, monitoring potential customers' behavior, attentional habits, and inclinations, and developing numerous technological prods and traps that together make it nearly impossible to decide to exit this commercial nexus.

All of this is part of the extractive economy of attention we have already identified. But perhaps the greatest change over the past decades has been that individual readers or consumers are themselves now pushed and pressured to operate online according to the same commercial logic as the companies whose products they are using. In a basically pleasant conversation I had on a recent podcast, my host used a phrase that would become indelibly seared in my memory. Prefacing an observation

about different styles of social-media use, the affable young man began: "Whether you are a brand, or an individual presenting as a brand." The listing of these two possibilities has the superficial character of a distinction, but its real effect is one of elision. Another podcast on which I was invited to appear, at around the same time, sent me an automated message beforehand advising me, during my appearance, to "Make your Brand look and sound its best." Both of these appearances were for promotion of my previous book, *Irrationality: A History of the Dark Side of Reason*, in which, significantly, I had at least something to say about the irrationality of human beings conceptualizing themselves as brands. But there is simply no other choice. You must use the internet in order to do anything at all, including writing and promoting books, and the more you use the internet, the more your individuality warps into a brand, and your subjectivity transforms into an algorithmically plottable vector of activity. Under these circumstances, one wants to say: "I do not even understand *of myself* what is advertisement and what is not advertisement."

This then is the *fourth genuine novelty of the present era*: in the rise of an economy focused on extracting information from human beings, these human beings are increasingly perceived and understood as sets of data points; and eventually it is inevitable that this perception cycles back and becomes the self-perception of human subjects, so that those individuals will thrive most, or believe themselves to thrive most, in this new system who are able convincingly to present themselves not as subjects at all, but as attention-grabbing sets of data points.

The earth, again, has shifted under our feet. We are the targets of a global corporate resource-extraction effort on a scale the world has never before seen. This effort harms us in numerous ways, not least by compromising our ability to use our

faculty of attention in ways conducive to thriving. This compromise is felt most sharply in the condensation into a single device, no more than a few inches wide and a few inches long, of nearly everything that matters to us, often including even our interpersonal relations (or, as on Tinder or Grindr, hopeful attempts at them). For many, the only available adaptation to this new landscape is to transform our human identity into a sort of imitation of the decidedly non-human forces that sustain the internet, to trade a personality for an algorithmically plottable profile, in effect, to imitate a bot.

Paying Attention

Bots can do many things. They can monitor, track, harrass, impress with their ability to generate natural-seeming sentences, and even make jokes. But in the end they are like the cardboard-cow cutouts of a Potemkin village, as they are not themselves capable of conjuring that precious resource the new economy is intent on extracting: to wit, attention.

Attention is special among mental faculties for a number of reasons. Perhaps first among these is that it is not only a mental faculty, but also, irreducibly, a moral state. The moral aspect of attention is conveyed in familiar situations, such as the plea that one might extend to a loved one: "Pay attention to me!" It is also evident in the word's most common verbal form, "to attend," which can mean either to show up where one is expected, or to serve someone in a devoted fashion, not to mention the French cognate *attendre*, "to wait," a term that is not overtly moral, but that in common usage often implies a sense of duty.

Perhaps because of its partially moral quality, attention has been of at most secondary interest in the history of modern European philosophy, where many schools of thought since

draw on what she takes as secondary and tertiary evidence: namely, and respectively, the tools developed in experimental contexts to identify the so-called active and passive behavior of subjects, as well as the evidence from studies of the brain for neural states corresponding to a subject's reported effort. Thus, phenomenology, experimental psychology, and neuroscience, she argues, furnish three mutually corroborating types of evidence for a subject lying behind acts of attention.

Attention, on Dicey Jennings's most succinct definition, is an act of mental prioritization by a subject, essential for perception, but not for consciousness or action. The subject is the one who "pulls the bow,"[9] to use a metaphor that draws on the etymology of "attention" in the verb *tendo*, whose primary meaning derives from archery. In this account Dicey Jennings positions herself against what she takes to be the predominant theory of attention as "selection from limitation,"[10] which she identifies in philosophers from St. Augustine, who contrasts our human inability to processs everything at once with the omniscience of God, to Min-Shik Kim and Kyle Cave, for whom "at any given moment the visual system receives more information than it can fully process. Thus, some portion of the visual input must be selected and processed more carefully than the rest."[11] While arguing that attention reveals its own causal sources in a subject or self, Dicey Jennings aims to avoid what she calls the "homunculus fallacy"—for her the self evidenced by attention is not a Cartesian metaphysical subject, but is rather brain-based and emergent. In other words, hers is an account that remains faithful to naturalism, even if it revives an entity, the self, most familiar from nonnaturalist theories.

One attractive alternative theory, pursued by Jonardon Ganeri in his 2017 book, *Attention, Not Self*,[12] revives a distinguished line of inquiry from classical Theravada Buddhist