Demolishing Consent

The greatest homage one can pay to the originator of ideas is to use those ideas. Ernest Gellner is one whose ideas are worth paying homage to.

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Information, Trust, and the Annihilation of Consensus

01 Introduction

It is suicide for a society that depends on science and technology to know nothing about science and technology.
   Carl Sagan

The world is awash in chaos. A deadly virus began spreading around the globe in 2019 and became a lightning rod for craziness. People started claiming that it was a hoax, even when it reached their own communities and overwhelmed hospitals. And not just a few people, but a lot of people committed themselves to this fantasy and staked their entire reputation on an idea that could be trivially disproved. Not only were sick people easy to find, but were it to be a hoax, the degree of coordinated lying, and outright fabrication of images, news stories, and government responses would have been on such a massive scale that nothing else in history could have matched it for sheer human achievement. When vaccines became available to provide immunity to the corona virus, huge sections of the population mobilized themselves in opposition to their use. Some of them insisted that the vaccine was a trojan horse for Bill Gates to inject a microchip into everyone to enslave the world, demonstrating such a profound ignorance of what microchips even are that one could almost accept the sincerity of their belief in the larger conspiracy. There were throngs of people burning down cell phone towers due to a belief that 5th generation protocols were being used for mind control, a widespread conviction that U.S. Democratic Party members were using the basement of a pizza parlour to murder children in the thousands to make powerful beverages from their blood. The list of utterly unhinged behaviors and beliefs that have consumed multitudes throughout the world just goes on and on. Ordinary people, at least those who remain unaffiliated with this nonsense, look on in bewilderment and wonder, "WHAT IS GOING ON? WHY HAVE PEOPLE LOST THEIR DAMN MINDS?"

There is nothing new about people committing themselves to wholly irrational beliefs and even taking action against their fellow citizens because of those beliefs; it is a commonplace across societies and throughout history to find individuals who dance to their own tune. What is new, unprecedented even, is the formation of large communities that commit themselves to these beliefs to such an extent that the individuals who make up these communities define themselves, define the very

meaning of their lives, based on a commitment to support, evangelize, and act on these completely irrational, and actively harmful, beliefs.

We are able to understand an individual who succumbs to maladaptive and irrational beliefs because we understand the brain as a biological organ that functions according to the laws of chemistry and physics. We know, for instance, that introducing certain chemicals such as particular hallucinogenic alkaloids can cause the brain to malfunction in a way that distorts the perception of reality and causes the individual to behave in a manner that is not consistent with that reality. In the same way, we can imagine that there are hidden processes within such an incredibly complex organ that can cause chemical imbalances that lead to mental illness, a catch-all term for inappropriate perceptions and behaviors. But such hidden processes are confined to an individual, they are not a result of infectious agents that spread from one person to another. When we talk about "memes" going "viral" we are being somewhat flippant with an analogy with infectious disease, but no one truly expects these exchanges to induce lasting chemical anomalies in the brains of those who receive the memes. And yet somehow, there seems to be a very real phenomenon where these memetic illnesses are becoming collective mental diseases that are warping the perceptions and behaviors of large groups of people.

I would like to suggest that there are several mechanisms driving this process. The first such is a jump condition acting on the way that people compare their own beliefs with those of the community in which they live, so that a kind-of consensus emerges as to an agreed reality. To understand how a jump condition works, it helps to consider an analogy with a white-water river. When a large-ish boulder sits in the river, water is forced up and over the boulder and then flows down the back side before re-joining the flow of the river. However, a substantial wave sits just behind the boulder and stays there, bobbing about and often crashing down upon itself. The reason for this standing wave is that the speed of a water wave depends on the depth of the water, slowing down as the water gets shallower. As the water rushes onto the front face of the boulder, it slows down as it is forced up and over the rock. On the back side, the channel of water thins as it speeds up going down the slope of the rock. At a certain point, the speed and depth of water going downstream are an exact match for the speed of a wave going upstream. This is the jump condition, where there is a sharp change in the properties of the channel of water. But even still, one doesn't see a bunch of waves converging on that spot to then stand still, so what is the source

of the large standing wave behind the boulder? In fact, because waves interfere with each other (when two waves meet going in opposite directions, they momentarily form a wave that is twice the height of the two colliding waves) and the speed of a wave is stationary behind the boulder, all the small ripples on the surface of the river that flow over that boulder will collect and pile up on top of each other to form a substantial wave.

The jump condition appearing as pathological in societies acts to bring large number of individuals, who each have similarly biased beliefs, to come together and form a community based on their shared understanding of reality. This community serves to justify the beliefs of its members through mutual reinforcement. Societies, though, are far more complicated than water, so even though the jump condition appears to act on a single axis of connectivity, the reality is more complex.

Prior to the massive peer-to-peer horizontal connectivity of the internet, especially in the age of social media, people who lost their trust in societal institutions were isolated. Although they suffered a moral injury from some kind of real, or imagined, institutional betrayal, everyone else in their social milieu would reject their desire to hurt the institution for what it had done to them. These injured people, though ripples in the interconnected streams of a society, would be slowly brought back to the consensus view that is represented by institutions. The ripples would eventually be damped down to once again join the laminar flow of social coherence.

Social institutions, especially in a democratic society, are aggregators of information on the degree of dissent within a society, but more importantly, they are also the mechanism that creates the consensus view of social reality and the vision that impels society forward. Thus consent is largely manufactured by these institutions (though with strong feedback from individuals) and distributed through vertical information channels (vertical in this case means that there are only a few such institutions that form a consensus view and they distribute it to many consumers of that view). Or at least it was before the enormous expansion of horizontal information channels between individuals (peer-to-peer transfer of information, unfiltered by any social institutions) became ubiquitous with social media.

The power embedded in those vertical information channels was a result of 19th century nationalism. Although we generally think of nationalism through the historical lens of the world wars of the 20th century, mistaking these programs for misguided propaganda from extremist demagogues as the ideology flowing upward from pre-existing nations, nationalism was actually an inevitable, and necessary, response to industrialization. Industrialized states needed a literate and numerate work force that all spoke a common language. They needed a populace that could live and work together in close proximity: a hyper-social environment that was utterly foreign to the agrarian age. So with states defined as the entities that held a monopoly on the legitimate use of violence within their territory, nations would come to be defined as the entities that held a monopoly on the legitimate use of education within a state, preparing the citizenry to become flexible workers in an industrial economy. The "nations" that resulted were constructed from pre-existing cultures, but they were wholly new; it would have made no sense to feel like a member of a nation in pre-industrial times.

Education is a broad term, encompassing not only the formal schooling that prepares populations for participation in an industrial economy, but also those mechanisms through which debate, compromise, and sometimes consensus is formed over acceptable behaviors of individuals, and the purpose and direction of societal growth. Institutions that implement government policies, such as police forces, law courts and prisons, and the government bureaucracy in general are all devoted to implementing the national will, while institutions such as the press and political parties are devoted to finding and shaping the consensus view that establishes that will. Formal schools themselves gradually evolved from being a tool for developing a competent work force to becoming an ever more significant force in the construction of a national culture and way of thinking. Indeed, the degree to which formal schooling dominates the lives of citizens in highly industrialized nations has now made control of educational curricula one of the most divisive aspects of the chaos that is overwhelming us.

For if we again consider individuals who have suffered a moral injury due to institutional betrayal as ripples in the stream of society, now being amplified through the constructive interference of horizontal media channels; the "standing waves" of our whitewater river analogy, there are more malign forces at play that are moving the rocks in the stream (to push the analogy further) so that these standing waves can be used to

destabilize, and even dismantle, the institutions of the nation. Critics of the national consensus are no longer satisfied with using the tools of persuasion to try to alter the consensus to align with their own views. Seeing strong and resilient majorities supporting positions that are antithetical to their own objectives, they have come to embrace a program of denationalization, the destruction of the institutions that support the consensus, rather than moderate their own views to align with the majority opinion. It's not the desire for non-representative power that is new, but rather the presence of these communities of the disenchanted (our standing waves) that are giving them a new, and highly effective, means to achieve their goals.

There are other forces supporting the denationalization project as well. States that seek economic, political, ideological or military advantage have found the program of denationalization of rival states to be a far more effective means of advancing their own interests than either globalized competition or isolationism. Previously, only the most prosperous states could engage in gunboat diplomacy (or naked colonialism) to interfere with the political processes of other states. Using the leverage of social media, and horizontal informatic channels in general, less advantaged states are now able to support or impose chaotic interventions into the mechanisms of political decision making of wealthy states.

The industrialized nations have enjoyed a long run of social stability following the world wars of the 20th century, but that era may be coming to a close. Industrial economies cannot be turned off; there is simply no way to circumvent the need to live in dense, highly productive and highly cooperative, social swarms. 8 billion people cannot survive on subsistence agriculture. No matter how many individuals come to believe that they can bypass the institutions that build consensus in our society, there is simply no way to do it in an equitable manner. Once we had finally crushed the bug that tried to use nationalism to achieve world domination through unspeakable violence, the institutions of the nation were put to good use manufacturing consent between governments and the governed. A noisy, messy, boisterous, and highly contentious sort of consent, often lacking fairness and justice, but always bending the arc of progress toward those ideals while using the expression of dissent as a check on power. Now technological innovations have unleashed the forces of denationalization, directing that power towards utterly demolishing political consensus. The technology is with us for good or ill,

and like any innovation in knowledge, it is an irreversible commitment. And like the gift of fire from Prometheus, there are unanticipated consequences to innovation, but even the Gods cannot reclaim knowledge once it is loose in the world. A new threat has slipped free from the dogs of ignorance, we shall not cry havoc and try to recapture a past that is gone forever. But we need to understand how this new threat came into the world if we are going to find a way to live with it. There are some deep mysteries that are hidden by historical contingency. These need to be deciphered by analyzing the past before we can even comprehend the problem that confronts us.

02 Trust

One of the oldest human needs is having someone wonder where you are when you don't come home at night.
   Margaret Meade

If we are to understand the ways in which we can be willingly misled, then we first must understand how we came to have the propensity to be led. Humans are social animals and always have been, inheriting from our ape ancestors the instincts and physical attributes that cause us to live together in groups. Our cultural adaptations, however, have far surpassed the biological adaptations that humans inherited, that later evolved as distinctly human traits, in their ability to coordinate the actions of individuals to enhance the welfare of the group. In particular, the scale of collective action has exploded so that globalization is not merely a buzzword denoting economic integration, but a very real description of the partial coordination of every human on the planet.

The touchstone for all this cooperation, both biological and cultural, is trust. Every individual embarking on a cooperative venture must take a leap of faith that the other individuals involved will do their part to further the collective goals and not steal the proceeds of other people's labour for their own, personal gain. The trust networks that we form with other people are the bedrock on which cooperative and interdependent relationships are founded, and this trust is entirely based on the way that we know and understand (through mental models) the people we interact with. Trust ultimately flows from the ability to accurately model the behavior of another human, and perform counterfactual reasoning on that behavior in a variety of situations.

A mental model of another human is a kind of simulation of that person that runs inside our minds. In fact, our entire manner of perceiving the world is filtered through such simulations. We learn about the world through an inductive process where we make guesses about how our interactions with the external environment will change that environment, as we reach out to attain our goals. Then we reconstruct a model of the world in our dreams as we build cause-and-effect relations that can account for those guesses (both those that are successful and those that are mistaken). The collection of causal processes attached to objects in

the world and our interactions with the world serve as our internal models that we use to conduct counterfactual reasoning (what-if scenarios) before embarking on an action. Other humans are also objects within this simulated world, though incredibly complex ones. Developing an internal model of another human is thus extremely difficult and requires long acquaintance and familiarity before it can be at all accurate. Each individual, then, can only develop such models for just a few other people, necessitating the development of a network upon which people share their knowledge of others so that we can extend trust beyond our immediate community of intimate relationships.

Before looking at the uniquely human elements that are used to build trust networks, it will be helpful to understand the foundation of social life that was bequeathed to us by our ape ancestors. The other apes are also highly social animals, living in groups to reduce the risk of predation. Living together, though, is not always easy for animals with large brains. Daily life among curious and experimentally inclined individuals will inevitably lead to minor transgressions that will interfere with the activities of other group members. A stable group needs some mechanism to overcome the friction of overcrowding if it is to persist. For the apes, that mechanism is mutual grooming.

What looks to us like a merely tedious exercise in hygiene, grooming is actually an intense bonding experience between individuals. Just as we take pleasure from an intimate touch, apes experience a release of endorphins (pleasure inducing hormones) when being groomed. They spend up to a fifth of each waking day engaged in reciprocal grooming with members of their group with whom they form social coalitions and alliances. These coalitions come into play whenever disharmony visits itself upon the group, allowing intense feelings between individuals to diffuse outward among small sub-groups, thereby decreasing the intensity and allowing measures to be taken to de-escalate the situation.

Grooming itself requires substantial levels of trust as the individual being groomed becomes relaxed and vulnerable. Being groomed is an act of submission that strengthens the bond of friendship between two individuals. The time invested by the groomer, too, is a signal of the esteem and affection that is felt for the one being groomed. The bond developed during grooming overflows into daily activities so that individuals spend more time in the company of those to whom they are most strongly attached. This allows them to see the emotional and

physical reactions to stressful events and develop an accurate internal model of those individuals. Trust is heavily weighted by predictability, and there is no better method for predicting how an individual will react to a given situation than by having a reliable model of that individual in one's own mind.

Grooming is an expensive method for maintaining group harmony, though. Each individual can only invest enough time to maintain a reciprocated grooming relationship with one or two other individuals and still have enough time left in the day to attend to the necessities of life. This limits the maximum size of a stable group because the network of interconnected coalitions within the group is a function of the size of the coalitions. Looking at the process schematically (fig 2.1), if individual A is very close to individuals B and C, while B is close to A and D, and C is close to A and E, and D is also close to E, then we have closed out the possible 2nd order trust relationships (although A is not close with D, A is close enough to B to trust D on the basis of B's implicit trust of D). In this small, closed trust network, everyone can trust everyone else in the group with no more than a 2nd order relationship. If the group were to get larger, though, then we start running into 3rd and higher order relationships and the network begins to weaken. This is the scaling problem with trust networks.
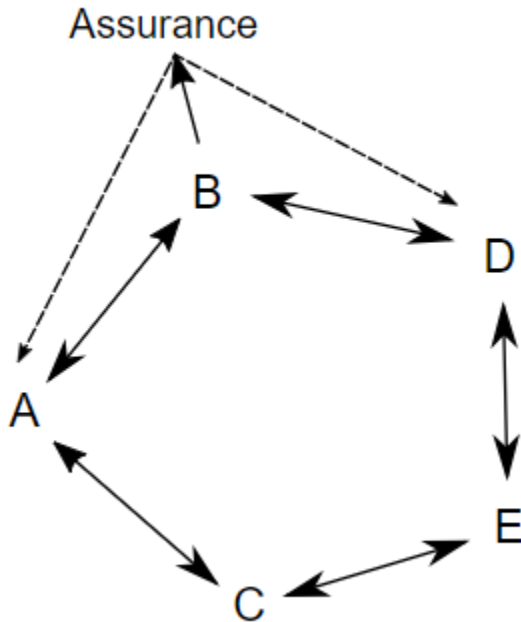
Figure 2.1 - Trust network of 5 people where each person has full trust in two other people but must rely on the good word of one of those trusted people to extend that trust to the two other people in the network. Here A can trust D based on reassurance from B and C can trust B based on reassurance from A, and so on.

The line of apes that became humans developed language to cement close relationships and form inter-group coalitions. Language not only allows a greater range of expression outside of character-defining events (so contributing to one's internal model of another individual), but more importantly, unlike grooming, it allows bonding to occur while performing many of the tasks of daily living.

This gives people the ability to become intimately involved with more individuals than grooming would allow, thereby increasing the maximum group size. Various methods of analysis have put this group size at around 150 members, shockingly small when compared to the enormous numbers of interdependent people in the modern world, but it actually holds up well for the size of networks where people truly trust one another without external structures providing "apparent trust" (a term we will take up later on when discussing institutions).

Whereas maintaining groups of 150 individuals would require about 40% of waking activity devoted to grooming, humans are able to do it using language, spending only about 7-8% of the day talking to each other. But what sort of conversation could facilitate the formation and maintenance of social coalitions? The answer, surprisingly, is gossip, that perennially derided manner of speech that is laced with rumour and innuendo.

On a purely descriptive level, gossip is just the informal provision, from one individual to another, of evaluative information about absent third parties. The key phrase here is "evaluative information". Gossip is fundamentally about passing judgement on members of a social group without those other members being present to affect the social evaluation that occurs. It is essentially a form of social processing whereby a community develops a system of trust management based on individual reputations. As long as everyone in the community maintains close ties with one, or a few, other members, then they will have a coalition of supporters to counter any misleading innuendo that begins spreading through the gossip mill. A person's reputation, then, becomes a proxy for a well-developed mental model when others in the community have to rely on that person in a cooperative venture.

Of course, one's reputation does not come solely from gossip. By actually engaging in cooperative activities with other members of the community, a person can directly demonstrate their reliability and trustworthiness to those with whom they are cooperating. They may even pro-actively give more than their share of effort to the activity as a form of reputation management. The beneficiaries of this largesse will be obligated to share the encouraging news as gossip to prevent their own reputations from being tarnished for ingratitude. In small communities, networks of interpersonal trust therefore get built up through interactions between individuals and through the social computer of gossip, where personal reputations are constantly being modified and distributed by, and to, all other members of the community.

Trust has a much broader scope than just interpersonal relations and confidence in the likelihood of reciprocal good will when engaging in cooperative associations. The way we acquire knowledge is also deeply dependent on the trust that we extend towards our sources of information. We can, of course, learn about the world through our direct experiences with physical reality, so-called primary knowledge acquisition, but most of our knowledge comes from secondary sources;

through books, newspapers, television, the internet, teachers, peers, ...a very large list. In each case, though, we have to trust that the source of information is being truthful in order to incorporate it into our knowledge base. Most of the time, our source of information will not be a close friend or family member and so we rely on their reputation as a proxy for intimate association.

The question arises, however, whether social reputations are able to scale beyond the group size of around 150 individuals where the concept of personal reputation evolved as a mechanism for trusting people who were not intimates. Is it practical to accept information about someone's reputation when it is given by someone who's own reputation has been passed on to you through someone else whom you only know by reputation? How many levels can reputation jump over before its utility as a proxy for trust is no longer valid? The real-life gravity implied by these questions took on immense importance when we transitioned from an agrarian to an industrial society, moving en masse from villages to cities.

The institutions of industrial society were developed to allow trust relations between strangers to be established so that cooperation, the fundamental requirement of an industrial economy, could be facilitated. An industrial economy depends on interdependence on a massive scale; everyone needs everyone else to do their part so that we can all survive. Institutional trust is essentially one of contractual obligation. There are the obvious sorts of contract-based trust such as when one business engages another to provide some kind of service or good and puts down all the conditions and expectations in a formal document. Less obvious are the contractual bases for trust in the context of wage employment, where a worker agrees to trust a manager during working hours; the manager in turn agrees to trust another level of management, and so on up to an executive who determines the policies that guide the work. The hierarchy can be scaled almost without limit, with the ratio of managers to supervised workers being determined by the level of trust that the owners of the business are willing to have in their employees.

This is a type of liquid trust: a relationship that works just like genuine trust between people who are close to each other, but only within the confines of a severely constrained domain. Institutional trust can be turned on and off at will and it can be used to link complete strangers, but subject to the constraints of the contractual basis enshrined by

institutions. Trust in this sense is an obligation through which an employee acts as though others in the organization are all cooperating to achieve the same goal. Since management is coordinating the activity, the worker trusts and follows the directions of management. Outside of the limited scope of achieving the goals of the organization (and only during set hours of the day or week), the employee has no positive obligation toward the organization (they may have a negative obligation, i.e. one that requires them to **not** do something such as reveal information that the organization wishes to keep private).

Institutional trust is able to scale far beyond the group size of 150 that limits interpersonal trust (the form of trust that we looked at previously based on developing a mental model of others using intimate knowledge of their behavior or reputation). it only works, though, if there is some entity outside of the institutions that is able to regulate the mutual obligations and behaviors of those people who belong to organizations where cooperation occurs. It is absolutely critical that this entity, usually the state, exerts an active program of monitoring and enforcing regulatory compliance within organizations, or else the liquid trust of institutions will fail.

During the initial phase of industrialization, the need for regulation was not appreciated and workers and business owners were left to fight a war over the obligations and responsibilities that allowed the system to work. Unfortunately, the extreme inequality that divided the social classes led to untold suffering and misery for the workers, and, though of far less importance, an enormous loss of profit and opportunity for the capitalists (had they only been less greedy and less convinced of their own superiority).

Another institutional form of trust that precedes the industrial economy, but still serves as a second pillar that supports it, is the use of state-backed money to facilitate market-based exchange between strangers. There are several types of trust necessary for a market economy to flourish; all of them serving the goal of removing the need for strangers to restrict the exchange of goods and services solely to those in whom they have a pre-existing relationship of trust.

The way an industrial economy works is by having everyone working at highly specialized jobs in an enormous web of interdependence. Nobody has the time to train for, and engage in, other specialized occupations; so,

for example, when a person buys some medication or has a medical procedure done, they have no capability to perform the prudent but exhaustive tests for either efficacy or safety. They must not only trust the stranger from whom they make purchases to be honest in the economic aspect of the trade, but they must also trust the institutions that exist to test and certify products that are brought to market. As well as safety, each individual specialist is quite incapable of reverting to a self-sufficient subsistence lifestyle. They trust their lives, as well as their comfort, in the promise of the market being able to match supplies with demand so that the essential, and desired, goods can be found for sale.

Using money as a token of exchange also demands that consumers put their trust in the institutions that produce and regulate the currency. A state that has a sovereign (fiat) currency can create as much money as they like, but the value of the currency is highly dependent upon what they do with the money that they create. Money, like everything else, is subject to the laws of supply and demand. A state will dilute the value of its money if it simply prints it without limit and gives it away. However, by spending the money on productive labour, and then creating demand by destroying money (permanently through taxation or temporarily by selling bonds), the state can regulate the value of money. It's not all that easy, though, and the state has contradictory demands put on it by people and organizations who use money for different purposes. For example, when government spending is in competition with private spending for workers or resources, inflation of the currency becomes likely. In addition, we learned from the pandemic that the people responsible for fiscal policy have few levers of control and only an empirical understanding of those tools. Honest economists were not at all sure of their understanding of the implications of the massive government support that was provided during the pandemic.

Perhaps the most evident form of institutional trust related to market transactions is the trust in a written code of laws and the unprejudiced enforcement of the rule of law to prevent people from engaging in violent or deceptive practices. The market economy relies completely on a pre-existing infrastructure that provides the institutions that are necessary to support what appears to be trust between strangers (but is, of course, trust in institutions). One very interesting fact about modern segregated societies that keep the number of members below 150 (the number where actual trust between individuals breaks down), such as the Hutterite colonies in North America (once they get close to that upper

limit, the colony fissions into two distinct and independent colonies), is the fact that they do not need any police or written laws. They have specialized occupations, but enforcement of rules is not one of those occupations. In a society with actual, and not institutional, trust, social pressure (and sometimes a quiet word from an elder of the community) is enough to keep everyone working toward harmonious goals.

In high trust societies, this reliance on an external entity enforcing the laws that allow the market to work becomes almost completely invisible. When people are all focussed on playing by the rules, then the benefits of cooperation become supremely evident and little thought is given to the foundation that supports the enterprise. In fact, people begin to imagine that the laws are not necessary, and they regret the outlay of tax dollars that supports the institutions that create, enforce, and interpret the legal structure that underlies a market economy. They begin to imagine that markets are *self regulating*, that markets work best when they are completely freed from the restraints imposed by societal institutions. They point to the *laws* of supply and demand and the magic of the *invisible hand* that allocates resources in such an efficient and reasonable manner. These people start calling loudly for policies of deregulation, laissez-faire, and the supremacy of the free market!

This fiction of self-regulating markets is unbelievably resilient considering how utterly ridiculous it is on its face. The only truly free market is a black market, one in which there are no external structures at all to impose rules and regulations on trade. The participants bring whatever they want to the table, including the use of deadly force where they feel it will benefit their bottom line. The promise of future trade will hopefully restrain those who wish to simply take what they can get, but without any regulatory framework, that decision is clearly in the hands of those who participate and no one else. History is littered with examples of criminal injustice forced upon the weak by the strong in the name of free trade.

A more recent rationalization of self-regulating markets uses the analogy of social insects such as ants to show how the benefits from cooperation are strong enough to negate the requirement for any kind of supervisory or regulatory authority. Though an ant colony has a "queen", the label is just an anthropomorphized misnomer since the queen is solely concerned with reproduction. The worker ants truly do not have any external source of authority; there is no entity coordinating their actions from above like

an executive or supervisor. However, the ants do follow rules, and these are enforced far more strictly than any human set of laws. The rules that govern ant behavior are actually hard-wired into their brains. They are constitutively incapable of breaking those rules, even slightly. The effect is the same as having an external authority and thus the self-organization of an ant colony is actually an argument for regulated markets, to the extent that it is applicable to markets at all.

Institutions are absolutely essential for allowing trust-based cooperation to proceed in a social context where true interpersonal trust cannot be developed (i.e. in social groups that exceed the limit of 150 individuals). Thus it is important to understand what institutions are and how they are created and maintained.

03 Social vs physical reality

We are what we pretend to be, so we must be careful what we pretend to be.
   Kurt Vonnegut

We live in a world where we are bathed in the structures and institutions of socially-constructed reality. Our dependence on technology, indeed our love of technology, has made all of us willing pawns in the game of belief modification. So much so that children are dying from diseases that are easily prevented with vaccines or antibiotics. The methods of science that have given us a way to discover reliable knowledge about the physical world are now under attack by those whose greed for social power knows no limits. We are facing an existential threat due to anthropogenic climate change and the wealthiest and most influential people on the planet have formed a suicide cult and are sparing no expense on recruiting the world's population to join them in their death orgies. Where we once shared a broad agreement about what constituted physical reality: the basic factual nature of the physical world, we now seem to be splitting up into tribal factions based on disputes over what is real and who gets to decide such matters.

Like all animals, we have an ability to learn about dangers that exist in the natural world and ways to avoid them to prevent injury or even death. There is no room for opinion or carefully crafted arguments in this; either an animal avoids lethal threats or it's existence comes to an abrupt end with no court of appeal. Physical reality is what we call this external world that is completely indifferent to human beliefs. We learn about it through our sensory perceptions as we interact with the world through an inductive process. Basically, we make hypotheses about cause-and-effect and discard those assumptions that give wrong answers. The curious aspect is how we know which sensory inputs to focus on. As just one example, when we wear clothes, there are thousands of points of contact between the fabric and skin that continually shift throughout the day, each one imparting energy that could potentially be sensed. What allows us to relegate this information to the background?

Our interactions with the world are guided by goals that are driven by the internal state of our bodies. If we are hungry, we will seek food, if we are cold, we will seek warmth, and so on. We have a mental model of the

world that we use to plan actions that will satisfy our goals, so the interactions we have with the exteral world are all driven by our attempts to satisfy goals. This is how we impose limits on the enormous amount of information that is available to our senses. By planning an action to manipulate some aspect of the world, using our simulation of that world that exists in our minds (a mental model), we focus our attention on the success or failure of that manipulation. We predict, and therefore expect, a particular pattern of sensory input when we attempt to manipulate the external world, and compare the actual sensory input with the expected in order to pass judgement on the validity of our hypotheses. Thus it is a differential measurement of sensory input that is important for our learning and we are able to ignore the essentially infinite amount of noise that would otherwise overwhelm our ability to focus on a particular aspect of physical reality at any given time.

That is essentially how we come to know how to interact with the external world to ensure our survival, just as all other animals do (though there are substantial differences in how much of our mental models come hard-wired, i.e. instinct, or are constructed by the individual). Humans are much more reliant on constructed mental models where a substantial degree of learning comes vicariously from other humans (parents, siblings, teachers, etc.). Our ability to communicate with complex language greatly facilitates this process. However, the construction of mental models also makes us more susceptible than other animals to developing models that can give rise to incorrect predictions (or none at all) about how our attempts to manipulate nature will work. As long as such models do not lead us to perform acts that directly threaten our safety or wellbeing, they need not be maladaptive; especially if we never find ourselves in a position where we need to rely on these models for a critical decision. But this same plasticity in developing mental models opens up an enormous opportunity for humans to create an augmented reality where shared cultural beliefs can be grafted onto physical reality in a seamless manner.

The difficult part is coordinating many individual minds so that they all agree on the details of beliefs that are created by a mind rather than discovered through interactions with the external world. Almost everything we perceive through sensory input is experienced through the filter of concepts that we have learned from other people. The classification of a perceived object as a "pine tree" is not something that an infant growing up as an isolated individual (assuming necessities of

life are provided, but nothing else) is likely to come up with. All linguistic concepts are learned and form the fabric of a culture, shaping the way that an individual maps sensory stimuli onto mental models of the external world. Pre-linguistic concepts are probably better referred to as "patterns", a difficult concept to define precisely, not least due to the circular nature of using a linguistic concept to define a pre-linguistic concept. However, our brains and sensory organs have virtuoso-like abilities to recognize patterns without needing any linguistic intermediary layer, so the best way to describe a pattern is through demonstration.

Below (fig 2.1), in the left image, is a collection of 51 points plotted by their horizontal and vertical components. When we look at it, we immediately "see" a straight line with some noise about it; we recognize the pattern of a straight line. The pattern is a generator function that re-creates the data using a tiny amount of seed data. If our brains worked like the way we do coordinate geometry, then the seed data would be the slope, intercept, and standard deviation and the generator would be a linear function. The image on the right is generated from just those 3 numbers and a (noisy) linear function and replaces the 102 numbers used to create the left image. A casual observer sees no essential difference between the two despite the immense compression of information used to create the image on the right. The key to pattern recognition, and thus an understanding of what patterns are, is the generator function. We need the causal procedure that creates a pattern to perform the inverse problem of discovering a pattern in some data.
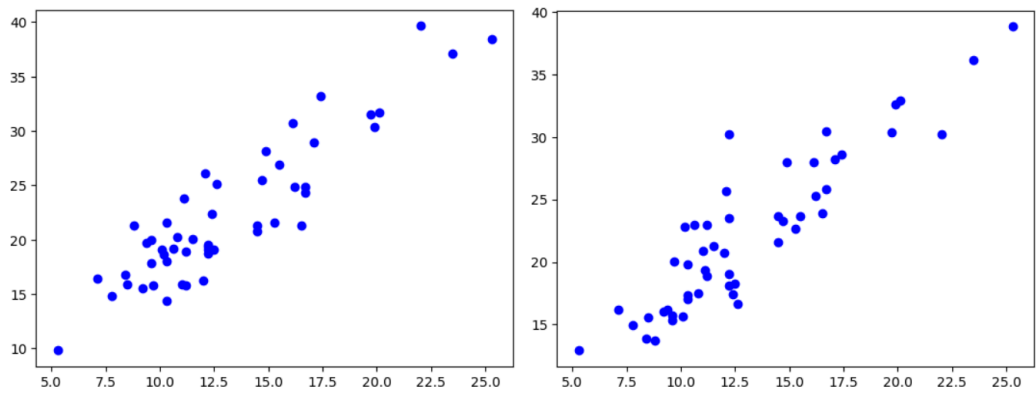

Figure 3.1 - The image on the left contains 51 data points, each given by it's x and y coordinate thus requiring 102 numbers to specify the image. The image on the right is created by generating 51 normally distributed random deviations about a slope and

intercept obtained from the dataset plotted on the left, for the corresponding normally distributed, randomly sampled x-axis coordinates. The image on the right is essentially generated from 3 numbers.

We can infer that pattern recognition occurs without language (and linguistic concepts) because it occurs in animals that have no language. Dogs have no language yet they can certainly learn to associate a sound (such as the English word "ball") with the abstract concept of a ball (generalized to include a variety of sizes, colors, textures, and other attributes that do not disturb the essential concept). We know that social animals have particular vocalizations in response to sighting a predator nearby, each vocalization specific to the type of predator, but not the particular individual predator. It is hard to argue that this isn't just a primitive form of language, and so perhaps it is a linguistic concept. But there are solitary animals who flee from predators. Their brains and sensory organs are so similar to those of social animals that it would be quite fantastic if they were not recognizing a "type" rather than an individual, and definitely without language. For parsimony, if nothing else, it seems that some concepts that represent regularities found in the external world pre-date humans and thus human culture. When culture exists, however, even these pre-linguistic patterns are embedded in culturally based concepts. These form the bases of our mental models, which necessarily have some plasticity about them, unlike hard-wired pattern recognizing modules.

All groups of people that have been encountered, no matter how primitive their tools or technology, have been found in a state of having a fully formed and complex culture, so it is no great leap to assume that early humans were similarly endowed with a culture every bit as rich as our own. If we consider language as a technology then we may conceivably take a complex culture as the inevitable product of that technology. Cultures certainly evolve over time but even the earliest cultures contained a conceptual understanding of all the phenomena that are perceived through the senses, thus cultures do not evolve toward greater completeness but rather toward greater diversity of conceptual interpretation.

With humans, however, mapping sensory data onto mental models is only one direction of conceptual filtration. We also interact with the world by manipulating mental models in our imagination and then acting upon the external environment in response to our simulation. Both through manipulation of the physical world and by influencing the content of the

mental models of other humans through language. Constructions that exist only as shared mental models (for example, a title bestowed upon a particular individual) are the fabric of social reality. These constructions might be tightly bound to objects in physical reality (think of the concept of one hundred dollars as a thing of value vs. a piece of paper with an intricate design) but the essential element exists purely in the imaginations of the society that hosts the constructions. Being thus untethered to physical reality, the scope of social reality allows concepts to expand beyond the categorization and classification of physical objects, encompassing the gamut of mental models that includes more than just simulations of the physical world.

Humans, like other mammals, dream while sleeping. In part, dreaming provides a mechanism for creating mental models that describe cause-and-effect relationships between classes of objects, allowing an immense degree of compression when compared to storing the correlations between unique, individual objects, as well as an efficient method of simulating new situations with objects that fit into those same classes. How the mind goes about shutting off motor actuators and running a simulation of events that were witnessed during the day and then inferring causal mechanisms is a mystery of the highest order and will not be addressed here. However, it does seem to get done and all of us have the experience to know that the world recreated in our dreams has vastly fewer constraints with respect to physical laws than does the real world. Even those of us who rarely remember our dreams have at least occasional episodes of waking from a dream and recalling the bizarre and unreal nature of the events that took place within the dream.

Because we have no introspective ability to plumb the algorithms that create our dreams, we are left to feel that an alternate reality exists that we visit when dreaming. A reality that has strong ties to our waking reality; the objects and dynamical laws are almost the same, the events are closely related to events that we have experienced (in person or vicariously), there seems to be some essential continuity between the "self" that exists in the real world and that which exists in the dream world. So it is entirely reasonable to bring elements from our dreams back into our lived reality and give them life as part of social reality. Well, not entirely reasonable from a modern perspective where dreams are recognized as completely imaginary and social reality is restricted to institutional constructs that facilitate cooperation within society. Before the scientific age, though, concepts were not so restricted.

All societies with primitive technology attempt to harness the flexible reality of the dream world for use in the physical world. People seek out an altered state of consciousness through fasting, exhaustion, psychotropic drugs, or other methods by which their waking self can experience hallucinations. There is a universal desire to mix the two realities, often in the context of attempting to exert control over natural phenomena that affect human lives (e.g. the weather or climate). We can see evidence of this desire to bring the unnatural into being in the art produced by these societies. Sculpted chimeras with animal heads on human bodies give a corporeal existence to beings that do not exist in nature, but are found in dreams. The use of mixed concepts in a multi-stranded cognitive framework may also be evidence of this inclination. Using the same concept for objects that we, as moderns, see as completely unrelated may indicate a fusion that originated in a vision by an individual that was later socialized. The precise mixture of concepts in a particular culture would then be highly contingent on the history of those people. Anyone whose formative experience with the world was not shaped by that culture would have no understanding of any given conceptual overlay.

It is very difficult, if not impossible, to fully imagine a world where empirically observable phenomena as well as social constructions with no physical manifestation could be mixed into the same concept. It is almost like imagining a world where language doesn't exist; one asks oneself, "what would that be like?" (using language, even if silent) and then realize the hopelessness of the task. In the modern world, all concepts that touch on empirically verifiable phenomena are single-stranded (concepts map one-to-one onto objects): there is no way for any individual, no matter their social status, to be able to declare something to be the truth if an empirical test shows otherwise. And yet, for almost all of human history this was not true. Concepts were multi-stranded and often used for purposes that seem ridiculous to our modern sensibility. We see this today when tribal cultures use the same word for two unrelated things. We know they can tell the difference between these things just as well as we can, but it seems that it's not just a matter of a homonym, somehow these two things are classified as one. At best we are likely to assume an error in translation because otherwise these non-scientific cultures are likely to appear ridiculous. As just one example, during the sacrifices described by the anthropologist Evans-Pritchard, the Nuer (pastoralists from the upper Nile region of South Sudan) would say

that "a cucumber is an ox", and they meant something far more real than simply metaphor. To us it is contradictory and therefore invalid because we cannot take reality to be multi-stranded when it comes to empirically verified facts. To those who express these multi-stranded concepts, e.g. the Nuer, there is no contradiction; the incoherence is caused by trying to understand utterances from one conceptual framework in the context of a different conceptual framework (i.e. it is not a mis-translation of words, but rather a misunderstanding of ideas).

An analogous situation that is somewhat easier for single-stranders to grasp is the type of speech used by kids when they are among adults vs. when there are no adults present. Kids on their own use an entirely different manner of speaking: their diction is much coarser and is ripe with slang and phrases derived from pop culture media like music, television, or internet memes. Of course there is the habit of inserting "like" between words at dizzying intervals, but this habit is carried over to speech with adults (and is often employed by adults too). Their manner of delivery is much different, and much more varied within peer groups as well. They will adopt new identities through speech inflection and sentence structure at the drop of a hat (e.g. being bossy, cynical, dismissive, etc.). In the presence of adults, however, these habits of speech vanish almost completely as their identity collapses to the child within a particular family. Their diction becomes repetitive and bland as they struggle to find acceptable words to replace the colorful language that they would use in a peer group, often ending in abandonment as they close out the attempt with catch-all words like "stuff" and "whatever". All of this is completely automatic; the individuals are not consciously assessing their audience and making a plan for the patterns of speech they will employ. The social context determines the mode of speech for kids just as it determines the conceptual framework for people who live in small, isolated groups.

The multi-stranded conceptual framework that borrows dream-like flexibility for mental models with sensory-acccessible objects in the external world is the default cognitive framework for humans. The single-stranded framework that we are familiar with developed quite recently, probably as a byproduct of the increasingly specialized division of labour that began with the agrarian age and accelerated dramatically with industrialization. Each specialization, in isolation from other specializations, would develop their own field of interaction with physical reality, a domain where empirical facts had to be respected, but also a

field that would largely be absent from the mythology and foundational stories of the culture, since specializations are built on technology that is new. As the division of labour became all encompassing, the fragmentation of human activity pushed these single-stranded (but isolated) modes of thought further into the realm of human knowledge. The scientific revolution unified these fragments into a coherent whole where empirical evidence became the touchstone for factual knowledge while social reality was forced into institutional constructs that became purely organizational, separate from the physically verifiable world.

The fully developed industrial world is no longer the modern world, though. We now live in the informational world, where specialized occupations have very little contact with empirical reality. Most people today work with other people, connected through networked computers. The single-stranded cognitive habits of the industrial world are still with many of us, but I will argue later on that we are seeing a return to multi-stranded modes of thought in some communities. This reversion to a different conceptual framework is not only creating a political divide, it is causing attempts to bridge the divide to become actively harmful due to the error of assuming it is a matter of translating language (so to speak) rather than reformulating ideas to fit an entirely different cognitive framework.

Even with the retreat from a multi-stranded cognitive framework that encompassed a reality that mixed social constructs and physical objects, we are still embedded in social reality. This invented—social—reality makes cooperation between a group of people far more efficient than it would be for individuals who remain socially isolated. In fact, the vast expansion of the division of labour has led to a parallel expansion of social constructs that are needed to organize humans who are fully interdependent. Each individual must count on the institutional mechanisms that organize and facilitate resource distribution throughout society for their very survival. Surprisingly, though, this life sustaining obligation to engage in large-scale cooperation is largely invisible unless it fails. Our trust in the institutions of social reality relegates them to a background role; an external reality that we simply treat as a condition of existence that we must adapt to.

To become embedded in the fabric of social reality, the infrastructure that invisibly guides our interactions, cooperative acts must first have a long provenance. A new form of cooperation is, necessarily, an act that stands

out in the foreground. The coordination of the behavior of all who are involved must be worked out and optimized before it can become routine. Then it must become unexceptional and commonplace before people can start to simply do what is required without even thinking about it. At that point does the act of cooperation cease to be perceived as a conscious activity and becomes a part of daily life inside a social group.

Novel acts of cooperation require collective intentionality and continuous measurement, by all parties, of the continued participation and state of completion of all the other parties. There is feedback to continue cooperating and there is feedback to make sure every synchronous requirement of the interactions are kept in sequential order. Within groups that have trust (<150), measurement of goodwill is very light or not present at all; any shirking is easily fixed using peer pressure. With larger groups, the burden of measurement by each individual grows geometrically with the number of people cooperating and quickly overwhelms the benefits of cooperating since the time needed for measuring the work of others leaves little or no time for doing any productive work. To counteract this, a further division of labour is required in which some individuals become full-time coordinators, responsible for measuring the progress of the productive workers and sequencing the tasks so that the collective effort maximizes production. These people are managers and this division of labour is one of the most consequential in the history of human social organization. The other required measurement is largely hidden by the separation of people into workers and managers. The trick is done by creating institutional facts that maintain consensus among all the people about their participation in the cooperative venture. The whole notion of consent vanishes behind the screen of institutional facts because belief in the truth of those facts is sufficient to guarantee cooperation.

Institutional facts are created by humans through the use of declarative statements, an aspect of social reality is brought into being simply by the act of verbal declaration. The only catch is that the person making the declaration has to have the status associated with the power to create this aspect of social reality. There must be a uniform belief among all the people who are aware of the institutional fact that the person who declared the fact into existence had the power to do so. That person's status, then, is also an institutional fact. By making institutional facts a matter of belief, and by making a shared belief in the status functions of certain privileged people within the group a prerequisite for group

membership, the fabric of social reality comes to be accepted as a form of objective reality for all members of the group. Thus someone who is legitimately endowed with the responsibility for coordinating some particular cooperative action is trusted by the people involved to be doing just that. The shared reality of institutional facts follows from the belief in the legitimacy of status functions held by privileged individuals and this leads to the belief in the declarative creations of those individuals; a belief in the objective reality of structures that were brought into being by a verbal declaration.

The magic that allows humans to create the structures and institutions of social reality, things like governments, nation states, money, and squash ladders, is language. Through language we can state our beliefs with assertive statements, fulfill our desires with directed commands or requests, state our intentions with promises, express our emotions, or make declarations. It is this last ability that has no analog in pre-linguistic communication. A declaration both states how the world is and brings that state into being at the same time.

Declarations work by assigning status functions to people or objects. Once those people or objects have a certain status, then they are able to perform the functions suited to that status (a ten dollar bill does not function as money because it is a piece of paper with fancy printing; it functions as money because it has been declared to have that status. You can read it right on the bill, "This note is legal tender…"). Status functions have meaning because humans are able to have collective intentionality; that is they are able to cooperate in actions, beliefs, desires, and intentions, and they are able to collectively recognize facts as being objectively true. Collective intentionality allows status functions to have "deontic powers". These are powers that assign rights, duties, obligations, permissions, etc. to individual humans giving them reasons for acting in a desire-independent manner. This is what allows the entire corpus of constitutive rules and institutional facts that make up social reality to be created.

Our world is flooded with the structures and institutions of socially-constructed reality, and though we are mostly blind to it, our agreement over the existence and reality of the social world is actually the ultimate act of cooperation. A shared social reality allows us to divide the many tasks, and the knowledge and skill required to carry out those tasks, among many individuals, with coordination of those tasks itself being a

type of division of labour. Specialization gives us the ability to transcend the limitations of the human mind by breaking enormously complicated projects into chunks that fit the capabilities of individual humans. By having some individuals coordinate the work of those specialists, either directly as managers or indirectly by directing their own work towards the running and maintenance of institutions that serve to coordinate work that requires many different specializations, cooperation is extended throughout society for the mutual benefit of all of its members.

Institutions are objectively real entities yet they are entirely created within the fabric of social reality. The term typically refers to complex social constructions that reproduce themselves, consisting of positions, roles, norms, and values that are useful for a particular function or class of functions and are embedded in a distinct organization that exists to carry out those functions. Members of a society all cooperate by not only agreeing on the existence and organization of institutions, but also agreeing that the individuals who currently hold positions within the institution have the status to carry out the functions that are allowed by their institutional roles. Any member of society who refuses to abide by the decisions of an institutional official, who is acting within the norms and guidelines of that office, is held to be attacking the society as a whole which then brings the weight of coordinated public opinion and social power to the task of reforming that individual. The fact that institutional reality is due to an act of cooperation is largely invisible to us in daily life, in part due to the constancy and longevity of social institutions (they just exist, like elements of physical reality, from the time when we first become conscious of the existence of anything), and also because we usually think of cooperative acts as requiring consideration and then tacit agreement prior to engaging in the act.

Technology is beginning to blur the line between physical and social reality. Photorealistic rendering of completely imaginary scenes is now routine, and even ordinary people can create video containing structures and events that have never existed, that obey their own laws of physics, completely untethered from physical reality. This is a very different kind of social reality; it is given the status of being real not because the social group reaches consensus that it should be real, but rather because the sensory capabilities of the individual have been deceived. For the entirety of human history, we could depend on everyone being in agreement about the nature of physical reality as experienced through human sensory perception. That agreement is now in doubt because people

cannot fully trust their senses. Technology capable of fully overwhelming our trust in the objective reality of sensory input is still in its infancy, but the sure knowledge that it will soon be possible is a tremendous psychological blow. People begin to question the truth of everything they once thought they knew. The one unassailable guide to truth: seeing and touching things in the world, is no longer a given and this doubt infects all sources of knowing. How we come to know things is becoming a crucial battleground in the quest for social power (the ability to get people to do things they would not otherwise be inclined to do).

Ontology is the study of what is really there, especially with respect to physical reality. For example, if a person claims to not believe in the reality of a brick, then one can easily test their honesty by throwing the brick at their head. If they duck, then they clearly believe that the brick is a real, physical object that will cause damage to their skull if it makes contact; their previous claims were mere solipsism. On the other hand, if they don't duck they will surely change their minds about the ontological objectivity of the brick once they regain their senses.

Epistemology is the study of how we come to know things. We come to know about physical reality by probing the external world through our senses as we go about trying to achieve our goals. Because we all experience physical attributes of objects in the same way (e.g. the hardness of a brick), those attributes are independent of the beliefs of the observer; they are objective. We come to know about social reality, however, through cultural immersion and contingent personal experience. Social reality is epistemically subjective because it depends on our personal history, yet if we all agree that a particular socially constructed entity exists (e.g. a ski club), then it is ontologically objective. That does not mean that it is a part of physical reality (a porcupine who encounters the ski club will have no possible way of knowing that it is encountering a ski club, unlike when it encounters a tree with tasty bark), just that the existence of the social construct can be verified by all.

Because people learn about social reality in different ways, they also interpret new information through a process that is colored by their previous experience with learning. For example, fundamental religious instruction involves learning about morality and social interactions through the lens of sacred texts that are interpreted metaphorically. People raised under an educational program based on religious fundamentalism will look at new information, especially political speech

that concerns social organization, as metaphor that must be made compatible with the worldview created by unchallengeable, received wisdom. Those who are trained in critical thinking, however, look at new information through the lens of sceptical inquiry, challenging the veracity of the information and questioning the motives behind the sources providing the information. When someone from this latter community dismisses a source of information on the basis of an obvious conflict of interest, they expect people of the former community to see it the same way. That may not happen, though, as the fundamentalist approach is simply not concerned with the truth value of new information; truth has only one source (revealed knowledge from God) and so they react to the information in a completely different way. Trust between individuals whose epistemological methods differ radically can be extraordinarily difficult to achieve because neither is aware of the gulf that separates them. Habits of learning are formed in childhood and become as automatic as breathing. Without being aware of our own methods of learning, we rarely consider that others may have alternative methods of learning, and thus require different rhetorical conventions to find consensus.

We have developed several methods of finding consensus among large groups where interpersonal trust is simply not possible. The most obvious is through polling, where the majority opinion is taken to be the consensus view. However, everyone has to have trust in the process of taking and counting the votes, and prior to polling, majority opinion can be shaped through rhetorical techniques such as advertising that can give a boost to political opinion that far exceeds the number of people who might otherwise hold that opinion. Just as problematic, is the framing of the question used in the poll. Another consensus-finding method is the use of markets to determine pricing of goods and services, and hence the current value of those goods and services to the population at large. This mechanism is similarly subject to rhetorical persuasion through advertising. It is also similarly dependent on an external infrastructure of institutions to prevent coercive techniques from biasing the consensus that emerges. Markets are especially good at determining the social value of innovations although human psychology being what it is, the market mechanism fosters an irreversible commitment to innovation before the consequences of mass adoption become apparent.

Perhaps the best method we have ever discovered for finding reliable knowledge is through the scientific method. Consensus on scientific

knowledge has, until very recently, been granted unconditionally. The very essence of knowledge that comes about through scientific inquiry is its reliability, hence there is no mystery as to why people would broadly accept this knowledge as being factual. For the past several centuries, science had given us the ultimate consensus: a single, shared notion of what constitutes physical reality. The method is basically a way to systematically force people to be honest by having them publicly declare their expectations before an experiment, and then making the methods and results of the experiment public with severe penalties if everyone who replicates the methods does not obtain the same results. The domain over which the method can be used is restricted to phenomena in physical reality, much as we wish it could also work for social reality. Sadly, too, as the body of scientific knowledge increases, so to does the difficulty, and expense, of the experiments required to discover new knowledge. Ordinary people are thereby limited in their ability to replicate experiments even though the methods are publicly available, thus does trust re-enter the discussion along with all the inherent problems that it brings with it.

We try to teach adolescents to engage in critical thinking when new information becomes available; to ask sceptical questions about the source of the information, such as, "Who benefits if the information is deemed trustworthy?", "Who is paying for the study that produced the information?", "What is the reputation of the organization that is publishing the information?", ...a whole series of questions aimed at finding motives for deception that might indicate a nefarious purpose behind this new information. However, public school class sizes are large, and critical thinking cannot really be taught through memorization of textual material. Small classes with a conversational approach is the most effective method, but trust in the instructor's objectivity also comes into play (cf. infinite regress). Instead of learning how to engage in sceptical inquiry, students in large classes are more likely to adopt the shortcut of accepting the reliability of anyone who is asking sceptical questions. Thus a climate change denialist enhances their reputation because they are "only asking questions" while a climate scientist who is trying to explain why you need to understand thermodynamics, fluid dynamics, orbital mechanics, and much else, besides having experience with solving and verifying hundreds of coupled differential equations, is essentially telling people that they have to trust the scientist: this is the antithesis of critical thinking.

The re-appearance of infinite regress (who will teach the teachers) shows why the control of education is such an attractive target for those who want to define the national identity. It isn't just students who look for shortcuts; those whose political ideas do not enjoy majority support look toward indoctrination of school children as the quickest way to enhance the standing of their ideology. Their hope is that an entire generation can be convinced to think like they do, and that will enable the implementation of their political program. Finding a way to get other people to do things that you want them to do is the essence of social power.

04 The Sources of Social Power

The law, in its majestic equality, forbids the rich as well as the poor to beg in the streets, steal bread, or sleep under a bridge.
   Anatole France

Once people committed themselves to an agrarian lifestyle and began living in large, permanent settlements, they were no longer able to bring malcontents within the bounds of acceptable behavior using peer pressure. A quiet word from a trusted elder was always sufficient in the small groups that existed prior to the agrarian age, but once settlements exceeded the maximum size of trust networks, that mechanism was no longer reliable. As a last resort, the settlement could use a police force to compel any wayward individuals to behave or face a serious beating for recalcitrance, but the creation of a specialization-of-labour for internal control developed much later than the first large, permanent settlements. Forms of social pressure, a diffuse form of peer pressure, had to be developed and institutionalized to prevent bad actors from causing a split within the community that held the potential to grow and even fracture the society.

Nobody sets out to develop institutions. People have goals, and when a group of people share a common goal, they cooperate to try to achieve it. This entails a process of organizing their individual abilities to carry out actions in a coordinated manner. Organization in this sense does not happen spontaneously, thus power relations must be formed to make sure things get done in the proper sequence and with the requisite quality of work. Over time, the various specializations and actions that are needed to achieve the collective goals are codified into the structure of the cooperative effort. The process develops a momentum as it persists over time and various roles are ossified into this persistent structure. An institution is thus a structured array of power relations for carrying out a process that has proven its effectiveness by successfully achieving stated goals for a long period of time. But what is meant by "power relation" and how does it ensure that things get done?

Social power is the ability to get other people to do something that they would not otherwise have done on their own volition. This doesn't mean that you twist their arm up above their shoulder blade until they

capitulate (but that is a type of social power); for the most part, the mechanisms of getting people to work toward your own projects are more subtle and diffuse than simply manhandling them. The sources of social power can be broadly classified into four categories: ideological, economic, political, and physical coercion. Ideological social power refers to transmitting an idea into another person's mind such that they will act on that idea in a manner that assists the person or people who came up with the idea (or ideology, if the idea is part of a coherent package of ideas). The person decides to act in that way of their own volition as a result of adopting the idea(s). Economic social power refers to getting people to act a certain way in response to incentives that involve goods or services that they wish to obtain. They act in this way because it is a means of achieving some other goal that they have. Political social power refers to getting people to act in service of collective action that is decreed by the institutions of governance. The people act as part of a group to achieve the goals that are believed to flow from the will of the people. Physical coercion is the use or threat of violence to cause people to act in a manner that furthers some goal. They act to avoid pain and suffering.

Coercive social power, or the use of violence to get someone to do something they would not do of their own volition, is the most obvious and direct method of wielding social power. If refusal to obey another person's demands will result in pain or suffering, then most people will choose the path that avoids as much pain as possible. In part, this is why people always form coalitions with others, even within relatively small groups. Those with greater strength will very often use that strength if they know that nobody will come to assist their victims. And of course goose and gander both have their sauce, so bullies can form coalitions themselves to enhance their ability to wield power. Typical arms races occur on all scales in the pursuit of power.

The production of an economic surplus, present in some hunter-gatherer cultures that had the good fortune to be surrounded by plenty, but a mainstay of agrarian civilizations, necessitated the creation of a more-or-less permanent division of labour focussed on defending that surplus from thieves and marauders. A class of people who are trained to use violence against external threats can also be used internally, to maintain order or to maintain the order that is desired by those who can control the paramilitary organization. Once in place, it is the smallest of steps for the bullies to also supply the threat that requires their protection. Such is

the logic of coercive social power, and if the class wielding the power consisted of robots with no independent desires or emotions, then there would be no way to escape the tyranny of violence that they would employ. Fortunately, they are humans and there is much to be desired and obtained from other humans that cannot be forced through violence.

Economic social power is concerned with the production, consumption, distribution, and exchange of materials harvested from nature or services rendered. Natural materials may be used as they are found or they may be modified using knowledge and labour, often in complex chains of alteration and combination to reach a final product. There are basic needs that humans require to survive: food, water, shelter, etc., and it is perfectly obvious how withholding any of these until someone performs a given action would be a form of social power. It is perhaps less obvious, in our modern era of individualism, that such power was never used for almost all of human history except as a form of warfare. Humans in small, permanent groups do not function in such a profoundly asocial manner. Even more surprising is that exchange of non-essential goods is never used as a form of social power in small groups. That only comes with the sedentary lifestyle and increased specialization of the agrarian age. In our modern age, the use of economic social power is like the air that we breathe; it surrounds us and affects everything that we do.

The most ubiquitous form of economic power is exercised through employment. In a modern industrial society, everyone not born into wealth has to find employment in order to satisfy their basic needs, and most aspire to satisfying their personal desires as well. Capitalism provides an alternative route to combine one's economic needs with personal interests through entrepreneurial initiatives, however one's interests must be in high demand for this pathway to be truly satisfying. Generally, only the interest in accumulating wealth is consonant with success as an entrepreneur. For those whose interests are not readily exchangeable for cash, the time and expense to pursue those interests must be purchased by working toward someone else's interest as an employee, and hopefully having enough spare time and energy after working hours to satisfy one's own desires.

Employers thus hold immense power to shape the lives of those who work for them; a power that increases dramatically when unemployment levels rise (keeping in mind that a cornerstone of modern central banking is to maintain unemployment at around 5% so that the labour market

cannot drive inflation). Workers are, of course, free to leave a job that unduly restricts their freedom, but theory and practice do not overlap in today's job market. Employers demand more specialized training from educational institutions so that they do not have to bear the expense. This reduces the number of qualified applicants for any particular job. In addition, as the rate of technological innovation increases, a worker's knowledge base soon becomes obsolete, leaving them few options for changing jobs in midlife or later.

Corporations in an industrial economy are organized as hierarchies, where information flows only from the executive down to the workers. Employees are expected to obey all commands that come from higher level positions during working hours; without complaint and with almost no possibility of negotiation over the practicality of those instructions. The chief executive answers only to a board of directors who represent the shareholders of the company (in Europe there is some employee participation in corporate governance which results in higher profits for the companies, but investors universally prefer total control even knowing that there is a financial price to be paid). Corporate governance is thus diametrically opposed to the democratic governance that is demanded in political contexts. For almost half of a worker's waking hours, they are governed by corporate rules that dictate their behavior (the work) as well as the clothes they wear and the amount of non work related business they can discuss or conduct. Even outside of working hours they may be expected to refrain from public participation in civic governance as they are considered representatives of the company and must not impact the company's "brand" in any way. This may even extend to publishing of any work or opinion, even if it is completely unrelated to the work they are paid to do.

Economic social power is greatest in the context of wage labour but it is not restricted to that realm. Any exchange of goods or services that is intended to affect someone's behavior is an example of economic power. Everything from raw bribery to a free meal while someone pitches an idea is part and parcel of economic power. In the realm of advertising, where products are marketed to an audience using persuasive techniques, there is an overlap with the political as the marketing is clearly economic but rhetoric is being used to make the sale rather than an exchange of material goods.

Political social power encompasses the realm of collective decision making. Although it primarily refers to the centralized administration of power exercised over a defined territory, as for a state, the concept scales to all levels of social organization. So a charismatic individual who is able to convince people to join his project through sheer force of will is exercising political power just as the despot who rules a state using extreme violence is also exercising political power. Political social power is the most conversationally active form of social power. It requires a constant struggle to convince a community, and maintain that conviction while others are brought round, that a particular use of resources, or granting of rights and privileges, is most beneficial to society at large. The dominant values, myths, and customs of a region create an inertia for stasis that must be overcome if change is to be achieved.

The way that means and resources are mobilized to achieve political ends is primarily by building a constituency of support within the population that is affected by the effort. Naked charisma and rhetorical skill are the most effective characteristics of political leadership, but that may be due to the highly visible nature of such traits. The formation of coalitions usually involves reciprocity between those who are recruiting to the cause and those who are being courted. Effective engagement requires an emotional connection where the concerns and needs of the parties are taken seriously, and the community expressing those concerns needs to feel that they are being listened to. Building a constituency thrives on the ability to connect with disaffected communities and make them feel that their lives will improve with the changes being proposed. Empathy, or at least the appearance of it, is also an essential trait among those who successfully wield political social power.

When a coalition comes together and formalizes an internal power structure to pursue a particular interest in a structured manner, they become a party. These structures are not limited to the explicit political parties that compete to form a government, any interest group that sets itself up as an institution organized around a specific set of collective interests (which may not represent the interests of all of the individuals in the group) is a party. The effectiveness of parties to organize and mobilize human actors in the pursuit of policies makes them very attractive to those who wish to find a means to fix an inequity that they perceive but are unable to affect as individuals. For this reason, parties often recruit using policies, or more often veiled hints toward policies, that they do not include among their formal platforms for change. During

times when a large component of the population becomes disaffected, parties that can bend their values sufficiently to appeal to some common element that unites the disaffected are able to recruit significant numbers to their constituency, thereby substantially increasing their political capital or potential for social power. This fact will be important for understanding the unusual aggregation of malcontents in our current situation, but it is also the case that the disaffection of these individuals has in no way been caused by the use of political social power.

There is a form of political power that can be very effectively used by small groups against individuals that uses the strong human desire to belong to a group. When the whole group agrees to shun an individual, to completely cut them off from interacting with any members of the group, the targeted individual experiences an acute sense of suffering from the removal. The effectiveness of this process at changing the behavior of the targeted individual is astonishing to those of us who live in the highly individualistic milieu of industrial society, but for much of human history this was a remarkably potent lever of power. The polar opposite of using psychological suffering to change behavior is the use of physical pain as an instrument of social power. Torture has been an instrument of power going well back to pre-historic times, although what makes it political, rather than an example of pure physical coercion, is that it is not generally used to alter behavior, rather it is used as a demonstration of naked power. Television, movies, and recent American adventures in Empire have given the popular impression that torture is an effective means of accessing the secrets than an individual wishes to keep to themselves. The information that is supplied during torture is, however, notoriously unreliable. The real purpose is to demonstrate the locus of political power. When Galileo was shown the rack and publicly recanted, not even the Pope believed that he was rejecting the phases of Venus that he had seen for himself. All parties knew perfectly well that he was recognizing who had the authority to proclaim what was true or false.

A surprisingly recent form of social power, or at least a near universal fear that such a power is possible, is the ability to control the mind of an individual. Not just to get them to provide a confession, as with torture, but to actually change their beliefs due to an intervention by some other individual or group. We find it surprising that the belief in brainwashing is recent, but consider that human slavery was common until quite recently. There is little point in worrying about someone controlling your mind when they have the ability to control every aspect of your life,

including the decision to end it if they so choose. Brainwashing, though, is a type of ideological social power, despite the similarity with shunning and torture.

Ideological social power is essentially a lens that shapes incoming information (the sensory perceptions that are the basis of an individual's modelling of the world in their imagination). Any alteration of the context in which the information is embedded will affect an individual's inferences about cause-and-effect in the world and their expectations about the future will be shaped by this lens. Ideological social power is generally much weaker than military, political, and economic forms of social power except under conditions (like right now) when practical politics is simply unable to find solutions to problems affecting most of society.

This would seem to be the perfect candidate for understanding what has happened to so many people who seem to be suddenly experiencing the world differently than they did just a short time ago. It truly seems like a reality-filter has been installed in their brains, re-shaping their perception of the external world to fit some bizarre agenda. Brainwashing, the installation of a rigid ideological position into the mind of an individual, has been a common trope in fantasy and science fiction literature and film. It is so prevalent that its familiarity has led many to accept it as an established procedure, though the reality is much less supportive.

In the former Soviet Union, despite a sustained, decades-long effort to use state-controlled education, media, and information control to indoctrinate the population in the moral imperative of succeeding with the communist project, the Soviets were never able to make any progress beyond the occasional zealot. The problem was due to the fundamental incompatibility of institutional trust networks (the "national" identity that binds strangers to one another) with a totalitarian system. The essence of totalitarianism is the use of individuals to surveil their associates and inform on them to the government. This utterly destroys any trust that may have developed in an institutionally-backed surrogate for a trusted associate (the trust in institutions creates a partial trust in strangers by virtue of a shared background and worldview, and an expectation of predictable behavior under a range of conditions). Without a trust network, whether real (as with small groups who live together all their lives), or institutional (as with the "nation" of industrialized states),

the cooperation required for achieving the economic benefits of a fully industrial society is lacking. Successful brainwashing, or ideological conversion, only happens when an individual desperately wants to be accepted by a group that espouses the ideology in question. If the comfort from social acceptance outweighs the intellectual satisfaction of a sceptical outlook, then the individual adopts the ideology without hesitation.

Ideologically driven groups put a great deal of effort into insulating their members from exposure to alternative viewpoints. They fail to recognize the social aspect of the need to belong and instead act as if each member of the group is continually evaluating the strength of the ideas espoused by the group in relation to any new ideas that they are exposed to. This worry has led to a very modern form of social power that works by monopolizing the attention of individuals to prevent them from being exposed to information that runs contrary to a narrative that is in accordance with an ideology.

New technologies have given rise to a type of social power that puts the ideological filter outside of an individual's mind by controlling the information that reaches the individual. The degree of surveillance and raw computation required to do this for even a handful of individuals has always been so far out of reach that the project wasn't worth thinking about. Now, however, search engines and social media (and the immensely powerful monopolies that control them) have made it possible to carry out a program of informatic social power on a societal scale. The ironic aspect of this new form of power is that its use can be almost completely hidden from public view. The irony is that ideological power, though it acts inside the brain of an individual and is thus intensely private, must be introduced as an ideology that is broadcast with the widest possible distribution in order to maximize the number of people accepting the good news. Informatic power, acting on information prior to it being received by an individual, and therefore at least theoretically open to interception, is based on individual targeting made possible by the nature of our interactions with search engines and social media and can therefore be almost completely hidden from public view.

The individual targeting of informatic social power allows those wielding it to largely avoid public scrutiny of the message, whether that be the selective provision of information (especially from a search engine that serves as a gateway to an individual's access to news of what is

happening in the world) or targeted advertising or rhetorical persuasion that is intended to shape an individual's perception of worldly events and their meaning. Without public knowledge of any such activity, a coordinated campaign of widespread informatic coercion could be carried out on a significant proportion of the population before any countermeasures could even be contemplated. With classical ideological conditioning, the arguments used to convince people to adopt the ideology had to be robust enough to withstand public debate and criticism, but that is not the case when the information environment for each individual is tightly controlled and hidden in its own silo. A particularly primitive form of informatic social power is simply to monopolize the attention of an individual to prevent them from exposure to counter arguments (or an ideology that is unacceptable to those wielding power, come to that).

The unrelenting attacks on expertise and knowledge, the constant attempts to redefine physical reality as social reality, and the polarization of all facets of social organization are all directed towards bringing targeted individuals into a cult-like environment under constant threat from outsiders. The ideological content of the message hardly matters (hence the appalling lack of consistency); as long as the attention of the targets is monopolized so that contrary views cannot interfere, then the relatively trivial messages of insiders vs. the other can be left to do its work. In public, the message is simply shouted out overtop of any attempt to engage in honest debate while in private (targeted through social media), the message is tailored to reinforce prejudices (especially those that are unpopular) so as to further isolate individuals from social consensus.

Unfortunately, these techniques are simply too new and too shrouded in corporate secrecy to know how effective they are and how widely they are being deployed. Misinformation campaigns by hostile nation states are certainly being carried out around the world, but these programs are also not open to public scrutiny. It is possible that corporate interests, or the interests of private organizations, share common goals with nation states other than the ones where these private entities are based, especially with respect to destabilization of the political order, and thus threats of information warfare should be taken very seriously. Living in a world where public policy is dominated by economists, we are too susceptible to think that all businesses exist solely to make a profit. Very successful business people often become enamoured of the power they

hold over their employees and wish to extend that power. To this end, they may decide to invest resources on influence campaigns where financial losses are expected, but compensated by their ability to direct societal processes.

Social power also flows from methods of social organization, where various combinations of the categories listed above are created by the mechanisms that are used to coordinate the pursuit of collective goals. Bureaucracy, for example, seems like a slow moving train, its direction fixed by the tracks it runs on and its inescapable progress backed by an immense momentum. The bureaucracy exists to enact the policies of the leaders, yet it contains the inertial mass of hundreds of thousands of rule-based levers that give impulse to the individual actions that combine to form social movement. The document-based rules that guide bureaucratic action are stripped of their ability to treat individuals as unique, and that impersonal and universal mechanism also makes it very hard to change direction. That is by design, and it is what gives the bureaucracy such a prodigious ability to organize a complex and dense population of individuals.

It is interesting that writing is an essential part of the power wielded by the bureaucracy as written documents hold their own brand of social power. Religious texts are particularly cogent as agents of social power, containing the sacred instructions that have been directly communicated from the Gods themselves (or at least inspired by divine intervention). Similarly do legal texts and constitutional documents influence the behavior of whole societies so that they seem to have an innate power to compel people to support vigorous efforts to keep the entire population in compliance.

The mystery we are pursuing in this work is how so many people from so many different places and cultures have suddenly converted to an alien way of thinking and behaving. It is only natural to believe that some new and formidable type of social power is being employed to force them into this position against their will because there are so many witnesses to the conversion of friends and family. Those who remain in the camp of rationality are dumbstruck by the discontinuity of these conversions. People of known temperament and beliefs are changed almost overnight into deniers of empirical reality with no warning signs preceding the transformation. The types of social power considered here do not seem to be in play for this bizarre phenomenon, but what are the alternatives? I

will argue that the principle factor is an old and entirely human form of social power, but one that has largely been forgotten through the progressive transition from communal life in small groups to largely disconnected individuals in the hyper-specialized and individualized life of modernity. For almost all of human history we lived in rather small groups and the people of those groups were almost the only people we would interact with for the whole of our lives. This was the environment that forged human social behaviors and because it is so foreign to us now, we are unable to recognize the social pressures that can overwhelm an individual's dedication to rational calculation in a heartbeat, without inducing the slightest realization that something has changed. The nature of these forgotten forces and what has changed in our modern world to unleash them at this point in history will require some background; where we are now is a function of how we got here, and that story is an essential element toward understanding our current predicament.

05 Information flows in society

Another flaw in the human character is that everybody wants to build but nobody wants to do maintenance.
   Kurt Vonnegut Jr.

Society is an overlapping, interconnected network of social and geographical communities, themselves consisting of networks of people that are connected by interests, proximity, commercial activity, or various types of institutions and power structures. In a sense, the network is the society, and the network is continually adapting to the changing conditions of the people who comprise it. Just as you can never step into the same river twice, so does the flow of information and material through the social network make it an ever changing but persistent structure.

In a fully-developed industrial society, information flow is primarily mediated by technology but the reason for all this communication is the coordination of the actions of large groups of humans. Language and the curiously effective phenomenon of peer-pressure are sufficient to keep groups of up to about 150 individuals in a more-or-less harmonious unity of purpose, finding the general will of the group's members and collectively acting towards achieving its goals. As human groups approach this limit, however, the unity of purpose breaks down, and although the group size where this breakdown occurs is only approximate, there is a real limit there that no technology has ever been able to transcend. There are groups today, such as the Hutterite colonies in North America, who fully embrace 21st century technology but remain equally committed to an ancient organizational structure. These groups universally find that as long as membership remains below about 100 adults, then a quiet word from an elder to a potential troublemaker is fully sufficient to restore order. But as the group gets larger, then this is no longer the case, and the group will fission into two smaller groups so that they can maintain their internal harmony without the aid of any separate policing class.

This is the problem of scaling coordinated purpose with group size. It is not an obvious limit nor is there a rigorous theoretical justification for it, so utopian theorists are universally dismissive of the limit. Empirically,

however, it is a law of human behavior that has no long-term violations in the known history of humanity (there are, of course, many examples of egalitarian tribal gatherings or similar large groups forming temporary violations of the limit, but they never persist for more than a few months at most without implementing some kind of power structure). The only way to expand groups beyond this limit is by adopting an organizational change that gives certain individuals power to compel the behavior of others.

The most common organizational innovation that is used to scale coordination is the construction of a social hierarchy. In its most basic form, this is simply giving certain individuals the right, acknowledged by everyone in the group, to use coercive force on all individuals that belong to the group, to get them to behave in some agreed upon manner - a type of police force. This is an example of institutional social reality, where classes of individuals are created with special powers that exist only in the collective mental model of the community. Even at this most basic level, though, we run into the problem of "who will guard the guardians?", leading to an infinite regress if one attempts to use the same organizational technique (hierarchy) to solve the problem. Ultimately, the regress is broken by the ability of humans to coordinate behavior in groups below about 150 people, using trust relations built on language and peer pressure alone. Because individuals can belong to more than 1 community, the networks of communities in a society can overlap, and even runaway corruption will eventually be halted by running into communities that are small enough to evade the misuse of hierarchical power. That point, though, represents a catastrophic failure of the society, so there is a strong social pressure to obey norms of behavior that put a high social cost on leveraging the powers of position in a hierarchy for individual gain.

Social norms constitute rules of behavior that are strongly enforced but not institutionalized like written law. Enforcement comes through peer pressure, reputational harm, and, in extremis, the active shunning of a transgressor. Though norms often represent common values that are important to a community, indeed, they are often used to define the very identity of a community, they exist primarily to prevent the type of corruption associated with the delegation of social power. Just as one can ask who will police the police, the same problem arises with those who are given responsibility to distribute public goods or services, to conduct diplomacy with enemies, to record events for posterity, and much else. In

fact, any self-governing community faces the problem of infinite regress when it comes to the distribution of social power. Norms exist to prevent the kind of corruption that is made possible by self-regulation. By making everyone aware of norms and ever alert to their transgression, the likelihood of societal collapse is greatly reduced. Humans being of a variable temperament, however, there will always be individuals who violate norms for their own benefit. Individuals who are resistant to the inhibitory effects of societal shame are especially pernicious, and whenever a particular class of norm violation becomes widely known, such that shameless individuals throughout society begin planning to exploit that violation, then the costly and unproductive work of adding the norm violation to institutional written law must be undertaken.

Hierarchical organizations separate people into three broad classes to efficiently coordinate human activity: operators (or workers), managers, and executives. The purpose of the organization - the goals, policies, and expected outcomes - are determined by the executive branch. This is typically the smallest class, with only a fraction of the total number of individuals within the organization. The people who actually do the work of the organization are the operators, and they are the largest class. In the middle are the managers, who do the work of coordination, taking executive goals and figuring out how to assign and monitor tasks that the operators will carry out in order to accomplish those goals. Within the limited scope of activity that the organization exists to perform, operators are required to follow the orders of their managers, and managers are required to follow the orders of any superior managers, as well as orders of the executive.

As long as each manager is able to coordinate and assess the work of all the people that he or she is responsible for, then this type of hierarchical organization can scale essentially without limit. Instead of depending on trust networks between individuals, developed and maintained on a daily basis through time-intensive mutual attention, the organization uses social power relations to create a type of liquid trust that is only valid within very limited and prescribed constraints. The trust relation is between each individual and the institutional structure rather than between individuals, and whereas human trust networks are created through bi-directional information flows between individuals, the information flow in a hierarchical organization is largely from the executive down through management and on to the operators. Too much equality in bi-directional information flow within an organization will

have the effect of substituting basic human trust relations for the institutional trust, thereby weakening the power relations that allow the organization to function at scale.

This bureaucratic type of structure is the basis for almost all institutional organizations within a fully-developed industrial society. A difficulty arises however when we consider than only a very few individuals are involved in making decisions about the goals and policies of these organizations. The information that can flow upward from the workers toward the executive is strictly limited to topics that will enhance the efficacy or efficiency of the organization in achieving the goals of the executive, and even then, the information flow is restricted and subject to various disincentives. Witness the ubiquitous need for large companies to bring in external consultants to find out what the workers already know and present that knowledge to the executive in a manner that allows the executive to make changes without acknowledging the source of the information. This is a problem because these hierarchies are not just the way private companies are structured, but all public organizations too, the institutions that govern society, are also bureaucratic in nature. Restricting decision making in the public sphere to a select few, with little opportunity for information flow up from the masses to the executive, is unlikely to satisfy many people. Benevolent dictators are exceedingly rare and cannot reproduce themselves, whereas tyrants who use state power for their own idiosyncratic gratification are all too common in human history.

Discovering the "will of the people" in the unfathomably complex streams of information that flow daily through the overlapping networks of communication in an advanced industrial society is a very difficult proposition. One might even ask whether such a thing is even there to be found? However, in a dense and complex society, practical decisions that affect everyone must be made continually, so giving up on account of complexity is not an available option. Governing organizations must make these decisions, and most people would like them to find solutions that satisfy the greatest number of people in each case.

The ancient Athenians developed a form of direct democracy whereby the will of the people was ascertained by direct polling of all citizens with the majority opinion forming a binding policy upon those who held public office. The entire franchise, limited though it was, would gather to debate issues and then, when everyone who wished to speak had been given the

chance, they would vote on the policy. This is an intensely time consuming method for governing and it was only possible due to the particular circumstances that gave propertied males an immense amount of leisure that could be applied to this form of government. An industrial society cannot in any way duplicate this form of democracy in an equitable manner; too many people are needed to specialize in their occupation and they must devote most of their waking hours to productive work in that occupation. Technology could be used to conduct universal polling but that is only a small part of the process; the debate and argument that precedes the vote is far more significant.

An alternative form of democratic rule was developed in the American colonies when they separated from Great Britain and formed an independent state. This happened during the transition from an economy based on subsistence agriculture to an industrial economy, but the main driver was the vast geography covered by the colonies rather than the demands of industrial specialization. The solution was to use direct polling only once in a while to elect representatives who would then join a legislative body that polled the representatives on each issue. This would allow the will of the people to be found through another type of hierarchy: first by selecting a representative for each region who was capable of finding the will of the people within that region, and then by finding the majority opinion among all of the representatives of all the constituent regions, although at the time, the "people" (propertied males) were still but a small fraction of the "populace" (everyone else) in America.

This system was able to scale along with the population explosion that accompanied industrialization, even with the continual expansion of the franchise as marginalized groups demanded to be included in the "people" whose will was being determined. The basic idea has been to separate levels of government into local, regional, and state-wide legislative bodies so that issues that are particular to one time and place are not being decided by those who have neither interest nor knowledge of those issues. Separate representatives are elected for each level of government from regions that are, theoretically, small enough for a single representative to find a general consensus, or at least majority opinion, to take to the legislature. Thus does information on what people want flow freely up, through representatives, to the executive of each level of government, and information on policy implementation flows freely

down through the bureaucracy of government just as in any private hierarchical organization. In theory at least.

In practice, we have the significant problem of time and attention in an industrial society. Everybody has only 24 hours in a day, and at least 2/3 of those hours are taken by the necessities of work in an industrial society, and sleep. On top of that, everyone has to eat and take care of the necessities of daily life and very few hours are left to divide between the personal interests of each individual and the business of running several levels of government. So we take the industrial solution one step further and push the division of labour into the task of informing citizens of the issues that are important for their communities and the various problems and proposed solutions that are being debated: the press is a generic name for those who specialize in this occupation of informing the citizens.

In a representative democracy, everyone has an opportunity to contribute to the process of political decision making by questioning potential representatives, voting for the candidate who best reflects one's own values and opinions on the pertinent issues, and then monitoring how that representative debates and votes in the legislative body and providing feedback as to whether the representative's record is in accord with the citizen's vision. Indeed, it is not merely an opportunity, but a moral obligation if we are to take self-governance seriously. But we have so little time to spare, and given the size and complexity of government that is necessitated by an industrial society (and it is necessary; fantasies of the small government of the night-watchman state are simply absurd), there is just no possibility that any individual can hope to fulfil this responsibility on their own. But there is also no need to do it alone. We can delegate these tasks just like any other, and allow some people to specialize in the job of monitoring representatives and the organs of the state. These people are journalists and their work has a particular significance for democratic societies, forming the nexus of a trust relationship that has become a critical foundation of democracies.

The use of state power in the name of the people who inhabit that state is only legitimate when the people consent to that use, or at least when a critical threshold of the people consent. The governed must be informed of, and largely in agreement with, the actions taken by their government if societal order is to be maintained without the use of coercive violence. If the people are sovereign, then the power is theirs and requires a consensus of the people before it is used. Governments, however, are

Muldrew, K.   Demolishing Consent – Draft 0.5

made of individuals who may often find obtaining consent from an enormous, fractious, and distracted population inconvenient, especially when they are trying to act decisively. The press, the collection of organizations and institutions that practice investigative journalism, can be instrumental in informing the people of actions taken without the consent of the governed, but equally important in finding that consensus among that fractious and distracted multitude. Just as citizens are informed of government actions, governments are also informed of citizen actions and attitudes; and again we meet our old friend infinite regress: for who will report on the reporters? The established norms of democratic society are for journalists, and the organizations that employ them, to play only one side of that fence; to inform opinion by providing information, never to originate opinion by peddling misinformation. In dictatorships, the latter is expected of the press due to the corruption of absolute power. In a democracy, though, the market forces of capitalism are thought to hold the press to an informing role. In reality, this is just one more of the terrible errors that flows from thinking that capitalist markets are self-regulating.

In the late 80s, Edward Herman and Noam Chomsky published a critique of the nexus between the press and the elite in modern democratic societies called "Manufacturing Consent", a title borrowed from Walter Lippman's earlier critique of democratic government. The core argument was that because the major pillars of society, and especially broadcast and print media, exist as businesses that are driven by the profit motive, the fabled role of the press as a public utility that keeps citizens informed and government honest was not being fulfilled. The large media corporations communicate to the people but they sell to advertisers, thus the market forces at play will tend to drive the kind of reader engagement that results in profitable advertising. Since large corporations spend the most money on advertising, they are able to use their economic power as leverage to influence the tone and subject matter that appears in the press.

It is important to understand that they were not proposing an overt conspiracy between journalists and the wealthy people who control large corporations, nor anything like it. Journalists themselves believe quite strongly that they are engaged in an activity where they provide the public with the information they need to intelligently assert meaningful control over powerful institutions through democratic processes. Investigative journalism is an expensive undertaking, though, and media

producers can only support a limited amount of their own sourcing for stories. They find a great deal of content from other sources which may be other independent news gathering organizations, or they may be fronts for content that is subsidized by corporate money masquerading as legitimate news organizations. If the story is consistent with public information and the writer has a good reputation, it may appear as news. Indeed, it may *be* genuine news, but through omission or framing, it may serve the interests of a corporation more than the interests of the public.

Another mechanism of elite control of media content is through the use of flak, or obstruction, to make it very expensive for media outlets to continue with a particular story or editorial stance. Legal proceedings are time consuming and expensive but they have to be fought diligently lest a judge or jury be wrongly convinced. Similarly, an organized boycott of a media company's major advertisers can create a lot of pain for these companies. Even just organized outrage, such as the "Right Wing Noise Machine" led by Fox News can be unreasonably effective at stifling independent thought.

Governments and large corporations have resources that can be used to influence media through the lever of economic pressure. Profitability of media companies is not directly tied to their mission of holding the powerful to account; it is, however, directly tied to selling advertising space and to any legal costs that result from court challenges that arise due to the publication of particular stories. In a system where the vast majority of citizens learn about what is going on in the world through a small number of media publications and broadcasts, these publishers have an enormous ability to shape the perceptions and opinions of the citizenry. They decide which stories are published, the prominence and emphasis of those stories relative to other contemporaneous news, and the context in which the stories are presented. If all the media companies present a particular story from the same point of view, then it is inevitable that a consensus view among the citizenry will form that largely reflects that point of view. Within certain limits, the media companies are able to "manufacture" the consensus view of which issues are important in society, and what collective measures should be taken to address these issues. That is, the consent of the governed is not so much discovered by searching for the will of the people as it is manufactured by shaping that will.

The only real check on media companies in an environment of vertical information channels (where a few large organizations deliver information to many receiving entities) are the market forces of competition between media companies for revenue and the supply and demand of consumer choice. If there are enough news publishing companies competing with each other for the attention of a limited number of consumers, then publishers will have an incentive to supply the most incisive and revelatory news items, backed up by unassailable investigative reporting, before their competitors are able to get those stories. News consumers, for their part, will exercise their choice by paying a premium for those stories that best inform them of issues that they feel are important for their role as self-governing citizens of a democracy. This was the facile, but universally accepted, theory that Herman and Chomsky challenged, presenting many examples of contemporaneous world events of similar magnitude but drastically different levels of press coverage, with all media companies within a country following the same pattern of amplifying some stories while remaining utterly silent on comparable stories. They were able to relate these editorial decisions to the interests of the powerful.

Herman and Chomsky intended their hypothesis of manipulation through a propaganda model to be pure critique, maintaining that citizens within a democracy must have access to unbiased information if they are to govern themselves in a responsible manner; that manufactured consent is no consent at all and represents a retreat to the era of absolute rule by an aristocracy. Our current situation shows that the critique was incomplete, there is a role for manufactured consent, just not one that is controlled by elites using the subterfuge of a free press to generate a consensus that favours the interests of a small clique of powerful individuals and organizations. The collapse of the ability of the press to shape the narrative around world events was entirely unrelated to any exposure of its inherent bias, but instead it was solely due to market forces; just not the market forces that economists take into account. Innovation is not only the central pillar of an industrial economy, it is also a trump card in the battle for domination of a market. An innovation that captivates the consuming public sweeps away all manner of efficiencies, brand loyalty, distribution networks, marginal costs, and all other metrics of economic analysis. The web, social media, and the ubiquity of smart phones took the attention of the masses from television, radio, and newspapers in an unprecedented migration of human consciousness. The new online empires then used their newfound economic clout to deceive advertisers

about the nature and magnitude of the shift, decimating the legacy media landscape before anyone had a chance to verify these (as-it-turned-out, false) claims. Not only was the dependence on advertising revenue the lever that compromised the mission of legacy media organizations, it was also the achilles heel that was cut to destroy the industry.

From the ashes of the consolidated vertical information channels of the legacy news and media outlets have risen an uncountable number of horizontal information channels that span the globe. The internet and cheap media-production tools have opened up the production of news content to everybody, but hardly anybody is trained in journalism and the institutional framework that previously held journalists responsible for what they said are no longer applicable. In addition, this apparent egalitarianism is countered by the vastly greater space of possible network connections. The power now works to direct people's attention to preferred sites and away from others rather than to create news for the few media outlets. In part this is done by creating a buzz around some stories through bot armies that provide simulated engagement and push the stories out to favourable distribution hubs. With legacy media corporations producing less news content, and traditional media having lost almost all of its ad revenue, very few organizations are producing news (using independent investigative reports, which are expensive). Confusion creates passivity and defuses passionate dissent, so often the new power structures try to create confusion rather than push an approved narrative. The "news" that people receive is fragmented and highly contingent; it is a vastly different information landscape that has monumental implications for self government.

In the limited sense of finding agreement about the basic facts of objective reality, even if not about solutions to current problems, consent must still be "manufactured", but it should not be done by corporations that rely on profits that are generated through selling the attention of the citizenry. Consent should be manufactured by the citizens themselves, through deliberation, argument, and conciliation. Polling is none of these things and though we might see our way to using our all-encompassing technologies of connectedness to conduct limitless polling on issues, that will bring us no closer to agreement on those issues. Deliberation is the part that needs to be manufactured because it requires a set of common beliefs among all participants before it can occur. Beliefs that were formerly synchronized through the nation-making institutions of the industrial state. Universal education from a shared curriculum and the

vertical information channels of newspapers, television, and radio created not just a workforce that was capable of adapting to the constantly changing requirements of an industrial society, they also unified a way of thinking about the world. A single-stranded mode of thought that mapped concepts to objects and phenomena in a one-to-one manner. We all shared the same reality with a shared set of agreed upon facts, established through a process of empirical validation. Although the nation may have been created because an industrial economy demanded it for its workforce, the nation carried with it an invisible bond of social cohesion that is immensely important for such a society if it is to govern itself.

The unfathomable complexity of a fully-developed industrial society demands the maintenance and growth of an enormous infrastructure. This infrastructure is necessarily a collection of public goods; the vast web of social and economic activities of individuals are so intertwined and interdependent, and so utterly specialized, that nobody can survive without the *machine* supplying all those goods and services that a hyper-specialized individual has neither the time nor expertise to manufacture from raw materials. The **machine** is the infrastructure, and it is just as necessary for the ultra wealthy, who somehow believe that their talents free them from this dependence on public goods, as it is for the poor who have almost nothing besides what is available as public goods.

Consensus around current political issues should be seen as the most important public good that a society that aspires to self-government can produce for itself. Thus we need to find a way to manufacture the apparatus that facilitates the process of finding consent. The previous arrangement of using vertical information channels is clearly no longer tenable since the ubiquity and dominance of horizontal information channels are here to stay, not to mention that the elite capture of the corporatist entities that controlled those vertical information channels was, and still is, beyond redemption. Corporate organizations that must produce a monetary profit to survive are susceptible to this type of capture, especially when some individuals have amassed so much wealth that they can personally subsidize the corporation in order to use its machinery to advance their personal desires. It is perfectly clear that the rise of obscene levels of inequality correlates with the capture and personal use of corporations that can be used to manufacture consent.

Democratic states have tried to counterbalance outsized private influence on media production by supporting public broadcasting corporations that are heavily subsidized to provide content that reflects an honest and unbiased view of current events and political thought. Of course this premise runs afoul of the standard regress; who gets to decide what is honest and unbiased? Competing media outlets cry foul over unfair subsidies and bias toward the views of the government currently in power, and since these media companies have the power to manufacture consent, their cries do not go unheeded. If public broadcasting reflects the opinions or ideology of the majority, then the political organizations that represent minority opinion can claim that this bias is inherently political; leading public opinion rather than following it. The high-minded ideals of public broadcasting also align well with a high-culture's taste in refined entertainment, directing public subsidies to the creation of artistic productions that might not attract a large enough audience to be profitable without that subsidy. The end result is that public broadcasting has been under constant attack since its beginning, thereby minimizing its ability to significantly depart from the accepted narratives provided by captured media corporations. It is better than anything else available for informing the public, but that bar is low enough to temper any hope of public broadcasting becoming the driver for a truly benevolent tool for consensus politics in a fully-developed industrial society.

Politics must be corporatist in nature because the huge infrastructure of industrial society requires that a similarly huge number of decisions be made continually. With no external validation of the aims of society, there is only the moment-by-moment decision of which paths available at that moment look like the better bet--a retreat from evil rather than an advance toward good (analogous to the diminution of ignorance without getting closer to truth in the sphere of knowledge). Party politics are corporatist, but the systems of representative democracy that we have leads to too few parties, with many states having effectively only two parties. This gives commercial corporatist entities vast opportunities to affect policy in ways that individuals cannot, because the individuals have no way of productively organizing around niche issues except as part of the gigantic bundle that forms the policy of a party. Individuals have to work and so have very little time left to organize corporate-style entities that might work on niche issues. On the other hand, commercial corporations have to organize to compete in a market economy, so they can use the surplus time and money that they have (which is comparable to the surplus that an equal number of individuals might have, but

organized under a particular aim) to influence parties or government actors. But the aim of a commercial corporation is not anything like the aim of a group of like-minded individuals who come together as a political organization. The commercial corporation is controlled by a tiny executive and it is their aims that get pushed when influencing the political process.

Political parties need a constituency and if they find a large one sitting about, especially one that has no particular political goals with respect to the business of the state, then they will try to grab that constituency to support their own elevation to power. Social media seems to have created just such a floating constituency, bound together not by common interest, political goals, or much anything else other than a desperate need for external validation and truth. Like the early Christians under Roman rule, they are lost in the wilderness and suffering greatly, though their physical well-being may be better than anything their ancestors may have known. Their suffering is due to the moral ambiguity of life in a single-stranded world. How are they to know what constitutes a good life? How to be well-thought of by their peers? They find this through social media in its presentation of a fictitious community that defines a multi-stranded truth. A truth that can show who is in the community, and who is out. A truth that is subservient to human will rather than allowing empirical nature to have a trump card. The fictitious community becomes a genuine community through people finding solace in belonging, thereby taking over the spreading of the good news from the bots that were used to bootstrap the community.

06 Modes of thought

A common argument for induction is that induction has always worked in the past and therefore may be expected to hold in the future. It has been objected that this is itself an inductive argument and cannot be used in support of induction. What is hardly ever mentioned is that induction has often failed in the past and that progress in science is very largely the consequence of direct attention to instances where the inductive method has led to incorrect predictions.
    Harold Jeffreys.

There is a common assumption that we must all see the same reality since the raw information comes to each of us in the same way. This is simply not the case; we need embedded concepts before we can perceive anything at all in the information that reaches us. When speaking about scientific objectivity, Einstein once said that it is the theory that tells you what you can measure, meaning that one has to have a pre-existing hypothesis of what might cause a phenomenon before setting out to investigate it analytically. One needs a paradigm about how things work in order to investigate how things work, as Thomas Kuhn would later make famous. This is because the information available in our environment, and the things we might measure is, and are, essentially infinite. One might object that we cannot proceed by blindly imagining a hypothesis and then using that to determine what to measure since our hypothesis is overwhelmingly likely to be wrong. This is not a valid objection, because it turns out that inductive learning is most informative precisely when you are wrong. It is by following up how and why your hypothesis is wrong to leads to progress.

With inductive learning, we fill in the negative spaces around the principle that we are searching for. We imagine a causal mechanism and then perform an action on the external world in order to cause the effect that we desire. If the effect does not materialize, then we have learned something about an action that does not cause that effect, a negative result. It would seem a hopeless task, to blindly learn about all the ways that something cannot be made to happen before eventually stumbling on a successful intervention. Are we really nothing more than patient monkeys, pounding away at our typewriters, waiting for the collected works of Shakespeare to appear in our output? No, in fact there is very

little randomness in our probing of the possible to map a negative space through repeated failure. We are not creating a map of the entire negative space, just the interface where the positive space is outlined. First, the causal model that guides our actions is created from subunits that have previously been shown to produce reliable results (we are probing the *adjacent-possible*, not the entirety of the possible). It is necessary to use causal models (shown schematically in fig. 6.1) to guide our actions because a map of the negative space (fig. 6.2) cannot serve as a subunit for building complex actions. If all we had were the lucky accidents that showed us how to achieve a particular effect, we could never build on that action. A causal model (a positive structure that fits in the hole in our map of the negative space) allows us to construct a sequence of effects to achieve a larger goal. Second, we limit the degrees of freedom (of the part of the external world that we are observing and interacting with) so that our actions impart energy to the system in a way that can only lead to a limited range of effects at the scale that we are interested in. Here we use "energy" as an abstraction of whatever it is that facilitates cause-and-effect to occur. The "degrees of freedom" refers to the possible ways that the components of the system can move when energy is imparted to the system, so we limit the number of possible effects by preventing most parts of the system from moving when we perform our action. Third, we are looking for a particular effect, a phenomenon that we understand and will recognize, therefore the scale on which it happens is similarly understood so our observations are directed at detection of movement on this scale. However, the most important aspect of inductive learning is that the mechanism that we use to judge our guess (sensory perception of the external world) is isolated from the causal model that we build in the simulated world within our minds, thus we are able to avoid fooling ourselves (at least when the sensory input is severe enough) by the error of using the same concepts for building and evaluating models of reality.
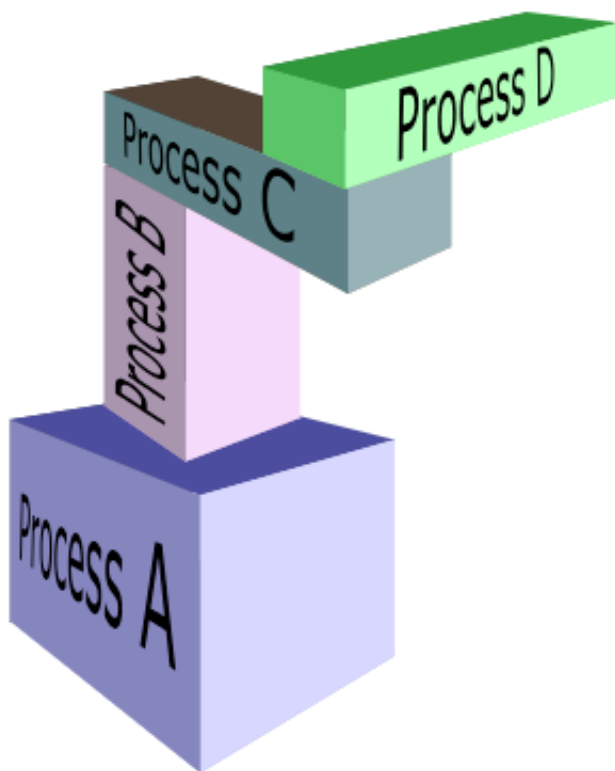
Figure 6.1 - A highly abstracted illustration of four sequential cause-and-effect processes that take some input at the entry to Process A and, through the intermediaries of Processes B, C, and D, end up with an output at the end of Process D. With the causal subunits, we can try a new process that begins at the output of Process C instead of using Process D to achieve a desired result. We do not have to go all the way back to the beginning and start with the input to Process A.
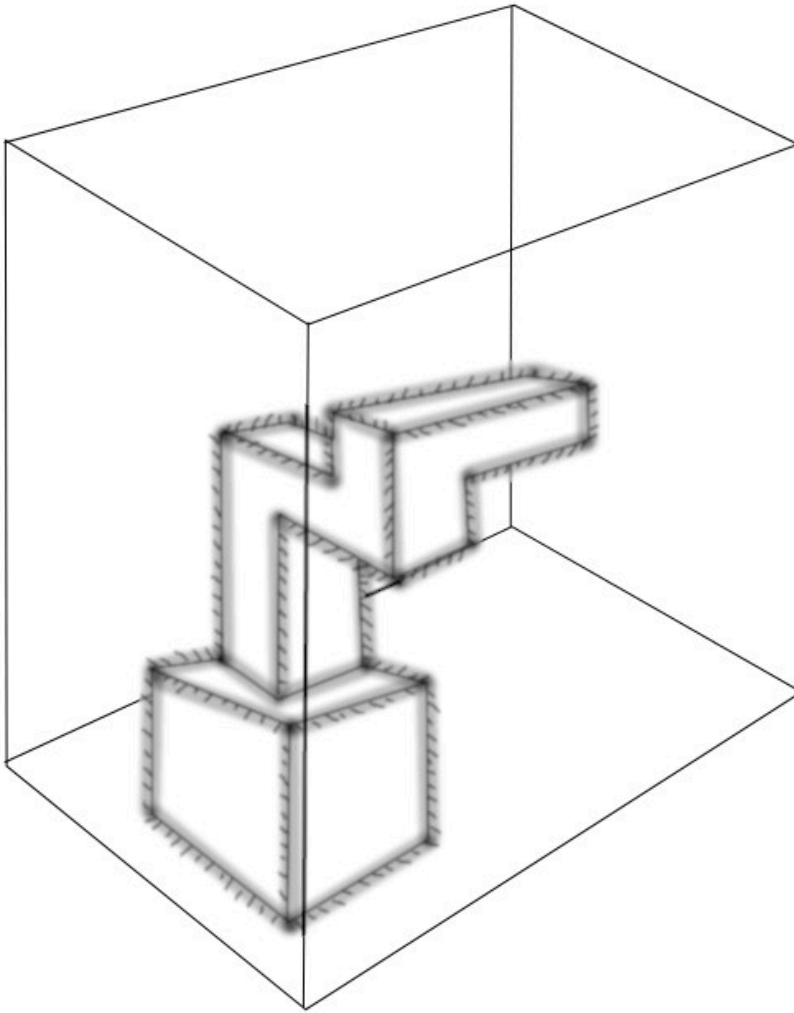
Figure 6.2 - Probing the negative space around the processes from Figure 6.1, we can only find the outline of the combined processes as if it was only one process. There is no way to infer causation from the correlations that illuminate the boundaries of the processes by the method of inductive learning. The generative processes must be guessed at and tested independently to come up with a hypothetical model of the combination (and, like epicycles in planetary astronomy, the hypothesis can be very useful while also being ultimately mistaken).

Of course we are not isolated individuals, each destined to relearn the most basic mechanisms that allow us to achieve our goals. Most of our learning is social, both through observation of others who manipulate their environment to achieve specific goals, and through the use of language to transfer the causal models that guide our actions from one

person to another. Causal models that work represent the positive space in our understanding of how the world operates, but they also clearly delineate where the negative space exists since causes and their effects are coupled through a highly specific transfer of energy into a system.

Almost all of our knowledge of the world, the models of cause-and-effect that direct us when seeking to achieve our goals, are imparted to us through social learning. A substantial degree of trust is therefore required before pedagogical learning can occur. Notably, the inverse of this is also true, that trust can be measured by the degree of credence given to statements made by others. Instruction and The Big Lie are two sides of the same coin. Though thinking and language are not the same thing, they are sometimes separated by mere whispers, as we need to translate our thoughts into language if we are to transfer them to another human mind. Language is about communication, about actively trying to influence the mind of another person, so we need to have a model of that other person's mind so that we can predict what sort of actions (what spoken words) will cause the other person to engage with the ideas we wish to communicate. We then use their linguistic responses to measure whether communication has, in fact, taken place.

The way we think is guided by concepts that are learned, though of course the structure of the brain must impose very severe constraints upon the plasticity of these concepts. The culture in which we are raised is responsible for imprinting the concepts that guide our mode of thought, and our continued interactions within that culture serve to hold us within that manner of thinking.

Human language most likely evolved as a supplement, and then as a replacement, for the grooming behavior that apes use to form and maintain social coalitions, so necessary for living in large groups. At the core of our use of language, then, is the mediation of social interactions and obligations that go with living in large groups. Those who have speculated on an origin of language for the coordination of hunting parties are likely blind to the much more pressing problems of coordinating the lives of willful individuals who live in large groups, probably due to the enormous, but invisible, infrastructure that exists to manage the hypersocial reality of modern life. The institutions, titles, roles, and other structures of social reality serve to hide our pre-occupation with social relations and hierarchies but even fully modern people spend about 75% of normal conversation discussing social

interactions (who is doing what with whom). Language, in its origins and its use, is thoroughly social.

One thing language has difficulty with is generating an emotional state in others. With our very closest friends and relations, we can do this, but only because of the pre-existing empathy that has developed over the course of that relationship. When it comes to those whom we do not have very close ties with, we must use indirect methods to create an emotional state in the minds of these other people. By slowly guiding them through a process, using metaphor and analogy to get the other person to relate the situation we wish to describe to their own life, we can, if our rhetorical skill is sufficient, develop empathy and generate the desired emotional state. We can describe an emotion as an abstract concept and communicate the abstraction, but this will never create a genuine emotional state in the listener's mind.

Ritual song and dance, however, not only generate an emotional state in others, but that state is synchronized among all the participants. It is quite remarkable how this occurs without any effort aimed at bringing about this result. However it happens, humans have been using the phenomenon to imprint a conceptual basis for a common understanding of group purpose and collective will within a group seemingly as long as the species has existed. Though trust in interpersonal relations is subject to the vagaries of petty squabbles, trust in the coordinated will of the group must be placed on a more even keel. To do that, idiosyncratic conceptual formalisms are introduced in the context of ritual behavior in order to both build a separate identity for the group as a whole, and demonstrate faith and trust, by individuals, in the common purpose of the group. Thus a form of social signalling is embedded in context-dependent speech, and by adjacency, thought, that appears incoherent to outsiders. This is known as multi-stranded thinking, where utterances that map onto one concept in a particular context, can also map onto an entirely different concept under another context. Both the contexts, and the ideas that are meant to be communicated by the utterance, are socially embedded.

The example we looked at earlier, where the Nuer identify a cucumber as a bull under certain ritual contexts, is an example of this multi-stranded thought process. The alternative mapping of reference onto socially constructed fictions is perfectly well understood by the Nuer themselves, though it seemed so obviously mistaken to modern anthropologists that

some attempted to excuse it by suggesting that an error in translation was to blame for the misunderstanding. A more approachable example might be the belief among devout Catholics that the bread of communion literally becomes the body of Christ during the ritual. Those who understand how DNA testing works will not expect that one could find Jesus's genotype by sampling the bread at the right moment, but neither will the suggestion cause them to doubt their faith; the suggestion of DNA testing is a category error; the social context is what determines the meaning of concepts and you cannot isolate one strand of meaning from its context and transplant it into another context.

Multi-stranded thinking is the default condition of human cognition. We are indelibly social in behavior and in thought. Consider how rapidly dialects form when two groups that were formerly one become isolated from each other. Languages change constantly, with alterations in emphasis and pronunciation morphing into distinct accents, neologisms taking root and spreading rapidly throughout the linguistic group, and the meanings of words shifting to accommodate novel usages that appeal to people. There are about 5000 languages spoken in the world today, though it is often a matter of judgement as to what constitutes a separate language as opposed to a dialect. Nevertheless, the extraordinary diversity shows that languages change rapidly and the only advantage to such a state of affairs is that group identity can be quickly and efficiently measured using a test that is effortless for members of the group and hard to fake for would-be infiltrators.

But if multi-stranded thinking, and the linguistic overlap that accompanies it, is so natural for humans, how is it that we moderns are so perplexed by the claim that a cucumber is a bull? We find the statement to be absurd, with no wiggle room for context dependent meanings. A cucumber is a vegetable and there is no context in which we can accept that it is a bull. At best we can pretend that there is some sort of analogy being made that escapes us because we lack the appropriate background, but if the Nuer insist that the cucumber IS a bull, then we are lost. We have to trace the development that led to our present single-stranded mode of thought, where concepts map one-to-one onto objects in the external world, in order to understand how a reversion to a multi-stranded mode of thinking is partly responsible for the apparent craziness in the world today and our inability to use factual demonstrations to bring our opponents back to a reality-based framework.

The path to single-stranded thinking, where concepts map one-to-one onto objects, began with the invention of writing. The written word persists beyond the social context in which the thoughts that are captured were initially expressed. First used for accounting records in the earliest cities, where debts owed by individuals became detached from the social context (in which they were not really debts at all, but obligations of belonging to a group). Cities greatly exceeded the scaling limits for human groups on a permanent basis, so trust relations were necessarily transferred from the interpersonal networks of people who all know each other to hierarchical institutions. Mutual obligations between people were similarly transferred to obligations of individuals to the institutions of the city. Written records of these obligations and their fulfillment would have given stability and harmony to a situation that could easily escalate to bedlam. The purpose of making semi-permanent records of these accounts using writing, was exactly to remove the obligation from the social context and map a particular debt onto a particular individual.

The written word turned out to be far more useful than merely keeping accounts and literacy was quickly adopted by clerics who used it to codify religious doctrine. A written text, containing the revealed word of God was a powerful tool that the clerisy could use to temper the use of coercive force by the warrior class. However, the written word becomes dissociated from its social context, thus it is not nearly as flexible as the spoken word when dealing with multi-stranded forms of speech that reference different objects in different social situations. The priests therefore had to seek a unity of referential meanings within their religious texts; not in the pursuit of empirically determined one-to-one reference, but rather to ensure doctrinal coherence in the asocial context of a written text. This was the first step toward a single-stranded mode of thinking but its main impact came later. Though written doctrine was unified, the function of the clerisy remained firmly embedded in social context; the priests remained as intercessors between the people and the supernatural. It would take several more steps on the road to single-stranded thought before the people could consider the text itself as the path to divine understanding. The next step was the transformation of economic activity (distribution of the food and things that people produce) from a wholly social activity to one of detached valuation.

Modern day economists always begin their introductory textbooks with an imagined account of the economy before markets. Following Adam

Smith, they regale students with stories of the innate pleasure that all humans take in trucking and bartering and trying to get the better of their fellow. It's complete nonsense, of course. While people have always loved games, especially those in which they get the better of their fellow, survival is no game and the struggle for subsistence is fully cooperative within any given group that forms a network of trust. The idea of competing with your friends and family for scarce resources is simply ridiculous. Until the agrarian age, where a reliable surplus of food could be depended upon, the "economy" was based on mutual obligations, not trucking and bartering. If your neighbor needed shoes and you had an extra pair, you would give them to your neighbor. Not in the expectation of getting something in return, but more akin to eating when you are hungry: a need is felt and then steps are taken to satisfy that need. The surpluses of food and necessities made possible by agriculture and coordinated production created a need to organize how the surplus was to be distributed among the many people involved in its production. From the beginning of civilization until the present there have been numerous strategies tried with varying degrees of longevity and success, however the path that led to our modern version of single-stranded thinking came through the European experience, so that is where we will look for the next step in that process.

In late medieval Europe, circuits of fairs became well established, with an air of permanence about the temporary encampments where goods were bought and sold. The sellers travelled one of the circuits, setting up their booths at each fair in turn, and then replenished their stock from a port city along their route. Although these professional middle-men were the backbone of the fairs, local subsistence farmers and craft workers would also bring their produce and finished goods to sell or trade for things that were not available locally. In addition to these small-scale activities, there were also wholesalers from the cities who could buy in bulk, with bills of exchange developing into a monetary system in which even the bills themselves became trade goods. These primitive markets gradually, over the course of centuries, instilled habits of mind that began to separate economic transactions from a social context. In a pure economic exchange, value represents an agreement between buyer and seller, thus prices fluctuate with supply, demand, fashion, and assorted animal spirits that drive desire. This market-based economy is simply unimaginable to those who are barely staying above a subsistence level of production. Who could possibly think to rely on some strangers bringing desperately needed food to a market where a single interruption in supply could lead

to catastrophe? Yet the change did occur, though not until the whole society produced such an overwhelming surplus that almost everyone was able to rise above the precarious nature of independent subsistence. The separation of economic transactions from the social bonding of coalitions was a key step on the path to a single-stranded mode of thought.

Next was the concept of discovery, that living humans could learn something new about the world (not just new for themselves, but for everyone), which grew out of the renaissance practice of re-discovering the lost knowledge of the Roman and Greek civilizations. Discovery basically enters the lexicon and the realm of the possible when Columbus discovers the new world. Here was something that was undeniably absent from the ancient's knowledge of the world; notably, it was also absent from the sacred texts that formed the basis of religious doctrine. The thing that really puts discovery into overdrive is the publication of adventure narratives as printed books. The printing press, along with new methods for making paper and ink, and the growing availability of distribution channels with fairs and markets, was also something that was undeniably new, and was of paramount importance for popularization of discovery.

The narrative form of communication, using a story about individuals and how they cope with various challenges over time, is one that humans never tire of. Stories give such pleasure, in both the telling and the receiving, that it is an almost effortless way to transmit information. Narrative is not merely a chronology of events, but rather a sequence of cause-and-effect relationships where a person is considering the implications of action and then deciding and implementing an action at each node of the sequential network. This profoundly resonates with the human predilection for social processing, for evaluating the actions of our fellows and passing judgement on their trustworthiness in cooperative ventures. The greater the dilemma faced by the protagonist of a story, where their decisions and actions will affect the lives of many other people, the greater our enjoyment of following the narrative and passing judgement on the character of those whose actions are being related. Thus the narrative adventures of explorers who set off into the unknown in the 15th century were enormously entertaining, and thereby created celebrities (people whose actions are celebrated) out of the discoverers who were successful.

Discovery was instrumental in the birth of science, the technique of finding reliable knowledge about the world that affected everything that humans do. The gist of the scientific method is that someone proposes a model of how some natural phenomenon occurs; that is they provide a guess about the cause that lies behind some observable effect. Then a community of interested people place public wagers (reputational wagers, not cash) on the outcome of a publicly specified experiment that will implement that cause and attempt to observe the effect. The experiment is then carried out, with all the details of how it was done and what was observed made public. Those who placed bets on the correct observation have their reputation enhanced while those on the wrong side of the facts do not. It is essentially a method that forces people to be honest with each other and, contrary to iconic popular ideas of a lone genius toiling away in isolation, it is a profoundly social activity. The way that hypotheses are created (the "guess" above) is, for the most part, due to a community that gets together to argue about how things work. This is why new discoveries are often "in the air" before someone finally figures it out. The individual genius lives on in popular culture because once again, the narrative form is used to convey the drama behind the adventure of probing nature for her secrets.

The activity of science can be generalized as an example of the behavior that is sometimes called competitive-cooperation. Unlike cooperation and competition, considered as separate, and essentially opposite, modes of behavior, competitive-cooperation is the engine of growth that underlies civilization. In a nutshell, it consists of individuals cooperating to construct goods that are part of physical reality while competing for rewards that exist only in social reality (by way of example, a brick is part of physical reality while a ski club is part of social reality). Straight-up competition between individuals for rewards or plunder from physical reality is necessarily a zero-sum endeavour at best, and often results in diminishing returns. Physical resources are always limited in abundance thereby imposing strict limits on the growth of production (what we usually call economic growth). Cooperation, on the other hand, is often a positive-sum game, leading to a surplus of goods compared to what the individuals involved could have produced with no interactions at all. The problem comes from the need for coordination of individual action. Management is necessary, resulting in two separate classes of individuals as soon as the complexity of the endeavour surpasses that of the most trivial of tasks. For work that is unpleasant, coercion of the workers is also necessary, whether by carrot or stick. Competitive-cooperation

melds the two by using rewards that exist only as social constructs (and therefore not subject to limits-to-growth) to drive competition between individuals, while the focus of that competitive drive is a cooperative venture to construct goods that exist in physical reality. Coordination is accomplished by directing individual actions through rewarding those actions that contribute to the greater project, reducing, or even eliminating, the need for management. Coercion, too, is eliminated by giving rewards of greater value for work that is especially unpleasant. In the activity of science, the goods that are being constructed consist of discovered, reliable knowledge about physical reality itself, while the reward for discovery is prestige and the bestowing of honors on the discoverers. By giving credit to individuals, in a very public manner, the narrative structure that so successfully drove geographical discovery was put to work furthering the scientific enterprise, leading to an acceleration of growth in the discovery and distribution of reliable, factual knowledge about the world.

Facts, as we commonly understand them today, refer to demonstrably correct statements about the world; the idea that something has actually occurred or is really the case. This meaning of the word, and the concept that lies behind it, was only developed in the 1600s, entering the English language in the latter half of that century. It seems astonishing to us today, that such an important and self-evident concept could ever have not existed, yet that is the case. The concept is not quite as obvious as it first appears, however. It is actually an abstraction from our inductive learning model, where we use a positive mental model of the world (cause-and-effect relationships), developed by probing the negative space around the model (all the causes that don't have the desired effect), to predict what will happen when we act on some aspect of the world. A fact represents a positive statement (something that is true about the world) but it is an inference based on surrounding negative statements (actions that are empirically false). The fact, therefore, is not "true" in an absolute sense, but rather the best inference that we can make given the constraints that we know about. This sort of fact can always be replaced by finding an action that is empirically false but needs to be true to sustain the validity of the fact in question. For example, it may once have been a fact that there was a bakery at a given address on 2nd street. If the action of going to that address on 2nd street reveals no bakery, then the fact is falsified and we have to update our facts about that address to stay current with the way the world has changed. This sort of fact thus represents a provisional truth about the world, but one that is not subject

to modification by the belief system of the individual because it is empirically verifiable through observations that are the same for all observers. With multi-stranded thinking, it is possible for some observers to insist on the truth of a statement that is empirically false, within a specific and socially significant context, but once the context is removed, then so too is the contradiction. The concept of facts representing something true about the world, was actually introduced to forbid the use of social context to influence the way that words were used as references to things in the world. The concept accompanied the invention of science as a method for developing reliable knowledge about the world, where it becomes critical to use one-to-one referential mapping of concepts to objects. The facts of science were not the presence of bakeries, of course, but statements about the world of physical reality: e.g. a column of mercury in a sealed tube, suspended by a vacuum, will rise higher at the top of a mountain compared to its level at the base of the mountain. This sort of fact is not subject to zoning laws or business decisions.

Just prior to the invention of science, the protestant reformation led to particular changes in the social organization of the peoples of Northern Europe that would combine with the scientific enterprise to drive the industrial revolution; the linchpin that pushed single-stranded thinking to dominate human behavior. The reformation was responsible for removing the clerisy from its intermediary role between humans and the divine. Doctrinal texts were printed in the vernacular languages so that individuals could decide for themselves what the deity required of them for living a good life. There was no longer any need for a priest to interpret the word of God, and so there was no longer any need to put so much trust in the integrity of clerics. People were free to make contracts between themselves, without seeking the approval of a priest; in fact, they were obligated to do so since individuals were now responsible for their own moral path. Literacy, too, became not only of critical importance, but almost an obligation, so that each individual could know what the sacred texts instructed them to do. Much like our current situation, in which we have lost the manufactured consent that was delivered through the vertical information channels of a coordinated media complex, the reformed population had lost the manufactured (but unified) interpretation of ambiguous texts. This caused a splintering of society into many separate, protestant sects, many of which had to conceal some of their beliefs from the larger society. Perhaps the most important adaptation of the protestants was the belief that there was no possibility for humans to bribe the deity; the wealthy could not purchase

their salvation by giving money to priests. Max Weber famously argued that protestants could only determine who was destined to go to heaven by observing how they lived, not by how hard they prayed and supported the church in public. He proposed that they would unconsciously try to live up to the ideal of a good life in order to sustain their belief in their personal salvation. In doing so, they were exceedingly industrious and if they gained any wealth, they would invest it in their business rather than engage in the self-indulgent leisure of the Catholic aristocracy.

All of these developments were brought together in the industrial revolution where our mode of thought became decidedly single-stranded. Industrialization took off in England following a path of mutual escalation, a process whereby advances in one area demand the matching, or the exceeding, of advances in another area, which similarly feed back into requiring an advance in the first area. Initially this developed through the putting-out system of textile manufacture. Entrepreneurs would purchase the raw materials (wool, cotton, etc.) and then contract out piecework among the peasantry who could spin and weave in their cottages during the winter. The workers, playing off the protestant sects' habits of keeping secrets within their group, would share any new techniques that any of them could discover that allowed them to complete their contracts with less effort, or using less material, than they were basing their contracted prices on. The business people, stymied by the inability to use social rank to discipline the workers, looked to innovations such as new mechanisms and manufactories that could make production more efficient. This "arms race" soon spread to all areas of production within England with innovation becoming the dominant theme of economic development.

By the time that steam engines started to power factories, the entrepreneurial drive of those who controlled the means of production (let's call them capitalists, since that is what they had become, in the most brutal connotation of the term) had all but destroyed the feudal economy where the majority of the population live off subsistence agriculture on the land where they resided. The industrial revolution in England really became a revolution after the majority of the population had been driven from the land into the cities. Here they were put to work in factories that were designed and operated to maximize returns on capital no matter what misery and hardship was imposed on the people who worked in them. It was an awful transition but it was unstoppable; each new problem demanded new innovations that had to be adopted immediately

to staunch the bleeding of the problem being addressed. Each new innovation inevitably led to unforeseen problems that soon became critically important. What remained paramount for discovering the new innovations, however, was scientific knowledge. And what prevented any attempt to question the wisdom of industrialization was the geometric increase in productive capacity. The wealth of industrial England was undeniable, and it was coveted by all other states that witnessed the transition.

Other countries, watching the development of industrialization in England, were better able to appreciate some of the inevitable changes to social organization that were necessary to run an industrial economy. Masses of people would have to live in cities where they would no longer live among people they had known all their lives. They would have to work with, and therefore communicate with, people who spoke a different dialect or language, had different traditions and rituals through which social context and meaning had been delivered, and the trust networks that had allowed cooperation to occur in large groups had been shattered. Industrialization required an industrial workforce, therefore the process of nationalism was born of necessity to create this workforce. Universal, state-run education was implemented to standardize language and instil literacy and basic numeracy among the entire population of the state. The reliable, fact-based knowledge of science had to replace the socially-dependent knowledge of the peasantry. The whole transition demanded that a single-stranded mode of thinking and speaking take precedence so that communication between strangers, and trust in state institutions, would become the basis of the *nation*; an identity to unite all the people of a state so that industrial economic production could take center stage in the lives of people.

07 Nations and Nationalism

One can hardly fail to be deeply impressed with the close similarity between the men of all races in tastes, dispositions and habits. This is shown by the pleasure which they all take in dancing, rude music, acting, painting, tattooing, and otherwise decorating themselves.
   Charles Darwin

A process of de-nationalization makes little sense under the common misconception of nationalism as an ideology. In fact, nationalism was an inevitable result of industrialization, a process where states responded to the new set of demands that were created by the transition from an agrarian to an industrial economy. It was only in the aftermath of World War II that nationalism came to be identified as the most distilled form of ideology as people were searching for ways to prevent the extreme violence and dehumanization that the aggressors in that war carried out in the name of the national interest. And this national fervour was indeed ideologically driven, though it exploited the "nations" that had been created to deal with industrialization at an earlier point in time.

In the agrarian age that preceded the industrial revolution, there was neither a need for, nor any conspicuous sign of, a national culture within states. The vast majority of people were subsistence farmers--peasants-- who lived according to tradition, custom, and adaptations to the vagaries of nature. They had no need for literacy; they learned all that was needed to perpetuate their village and way of life by living that life. An anthropologist from our own time would identify their traditions and customs as a particular and fully developed folk culture, but the peasants themselves had no sense of their way of life as a "culture". Without books or the ability to travel as tourists, there would not have been any way to become aware of different cultures in other lands and so there would be no discriminant that could lead them to see their own culture from an external point of view.

Despite the lack of cosmopolitan awareness of the rich variety of human cultures, we must not make the mistake of thinking of these people as robotic, unthinking workers; they were not "potatoes in a sack of potatoes", as Marx put it. Their attention is fully taken up by seeing to the provisioning and comforts of themselves and their family and

participating in the social interactions of their village. To us, this may seem like a blighted and desolate landscape, thoroughly lacking in anything that could stimulate even the meanest imagination, however as every scholar knows, there is an infinite amount of detail to be discovered in even the most specialized field of study. Pre-industrial peasants found perpetual novelty and interesting problems to solve within the course of their daily lives, no less than we find such variety as to mollify our curiosity in our own lives. As individuals, they were each pursuing their own interests and projects subject to the constraints of their knowledge and opportunities. This is an important point to keep in mind as so many post-industrial theorists have simply dismissed peasants as little more than automatons and thereby inferred that the vast majority of humans are perfectly satisfied to work on someone else's projects since they are unlikely to have any of their own.

Industrialization began gradually in early-modern England with a curious feedback loop that developed in the textile industry due to a particular set of circumstances that came together in that time and place. There was a landed aristocracy that began taking a particular interest in improvements in the use of their land that would increase its productive capacity (unlike the idle rich on the continent who were content to leave land management to hired managers). There were protestant dissenters who found themselves having to bypass conventional means of supporting themselves to hide their religious pursuits from the authorities (who were bound to enforce Anglican orthodoxy because the head of the church was the King, thus reform was seen as explicitly treasonous). Perhaps most importantly, there was the rise of science that coincided with the age of discovery, where individuals were credited with the discoveries they made and celebrated for those achievements.

This latter development, though not restricted to England, was particularly important as it is a form of competitive-cooperation: a blend of competition and cooperation between individuals. Scientific discoveries are necessarily about physical goods and the challenge of teasing out facts about the physical world is so difficult that cooperation between many individuals is by far the best way to make progress. For that cooperation to work, the results of discovery, the physical goods themselves, must be shared without favour or prejudice. The unique innovation of science was to distribute social goods, the celebration of individuals who made important discoveries, as a reward so that the physical goods would not be horded by the discoverers. So individuals

competed for social goods while cooperating to create physical goods through scientific discovery.

This was truly a new way of doing things; there had been many innovations made in the medieval period, some at the highest level of human achievement, yet there are no individuals credited with their discovery. For example, the discovery of eyeglasses, which continues to improve the lives of countless individuals, was made by someone whose name is lost to history (despite someone recording that they knew the person who made the invention, but apparently thought nothing of putting his name in print, so unremarkable was eponymy in that period).

In agrarian societies, there were specialized occupations in addition to peasant farmers; millers, blacksmiths, textile weavers and spinners, and others. These occupations were tightly controlled by guilds so that the number of skilled workers matched the amount of work that was available, thereby keeping the economy in steady-state. Most of this skilled labour was situated in towns and cities to benefit from the efficiencies that result from sharing tools and knowledge, thus farmers who lived far from the nearest town would usually have some ability to perform a subset of the work carried out by the specialized tradesmen. Religious dissenters were among this group of farmers and fieldworkers, including some who had apprenticed in trades but were forced to leave if they wanted to pursue their religious beliefs.

The result of the particular circumstances that came together in the English countryside was that landowners looking to increase the productive capabilities of their land, and semi-skilled spinners and weavers who worked outside of the guild system (mostly in the winter when there was little to do in the fields) came to adopt the putting-out system of textile manufacture. Those with the raw materials would contract out piece work for finished products among the workers in cottage industries, dropping off the materials and then picking up the refined product at a later time (which they would then sell to realize a profit on their venture). The crucial aspect of this arrangement is the interdependence of workers and owners while both parties had privileged information about the process that was not available to the other party. Both sides had a motive to try to get an advantage over the other, and the side with wealth was (somewhat) prevented from using the legal system to force their advantage (because the putting-out system was skirting the legally sanctioned guild system).

Textile production thus became a system of mutual escalation in which the modes of thought and behavior that created the industrial revolution were developed and entrenched in the population of England. The cottage workers spent time thinking about how to produce goods with less effort and with less waste of raw materials, and having no competition between them, shared their innovations with each other (but not with the owners). The owners, for their part, spent time thinking about how to catch out the workers when they overcharged the owners for labour or materials, again sharing information among themselves but not with the workers. A classic arms race developed based on perpetual innovation and the resulting habits of mind and action (especially cooperation by sharing knowledge among fellow innovators). Textile manufacture thus became the crucible of the industrial revolution. Progress was initially very slow, by today's standards, but habits of thought take a long time to change and diffuse through an entire population. By the time steam power finally appeared, the revolution in thought was already far advanced, and unstoppable. An economy based on perpetual innovation is the real basis for an industrial civilization; the replacement of mechanical power for human and animal power was just one more innovation in an exponentially increasing list of new technologies.

The transition from a steady-state economy (innovation did occur, but the social organization that existed was always able to prevent these innovations from initiating a process of mutual escalation) to an economy based on perpetual innovation introduced unintended consequences for the health and well-being of individuals, and their society, on a massive scale. The hellish conditions suffered by the urban poor were obvious to all, though few people at the time understood how to alleviate it without making things even worse. The societal problems were equally opaque to people who were living through the changes, with no precedent from an earlier time to guide them through it. One of the most important lessons was learned accidentally by states on the continent who were trying to copy the industrial economy that had already made Great Britain the wealthiest and most powerful state on earth. In order to catch up, Germany instituted a state-run educational system for children to prepare them to be workers in industrial factories. This turned out to be incredibly effective because in an economy based on perpetual innovation, parents are no longer able to fully prepare their children to become capable economic actors; there is simply too much change that occurs over the working life of an individual for that individual to be able

to keep up with the change while attending to the livelihood of themselves and their family. Even more so, the enormously increased number of specialized occupations that are created by innovation and production using industrial factories, means that only a small percentage of the population will have the specialized knowledge needed for any given occupation.

There is a new kind of work that appears with an industrial economy. Rather than a highly specialized training regimen that begins in childhood as an indentured apprenticeship, everyone receives a uniform, fully generalized education. All jobs in this economy need basic competency in reading and writing, in the use of numbers and arithmetic, and workers need to learn the habits of punctual and attentive presence no matter how disinterested they may be. There are basic social skills needed to gather and disseminate information from, and to, strangers and a generic technical competence prepares workers for further occupational training once they enter the workforce. The standardized approach to giving everyone the same basic education allows employers to be able to assume a typical level of competencies across the entire population, thus making workers highly interchangeable. Since constant innovation means the regular appearance of new occupations and the retirement of others, workers in an industrial economy have to be flexible and mobile.

An industrial society therefore requires a universal state-run educational system to provide a generic education to all members of the society that provides the basis for later on-the-job training that is specific to a particular occupation. There are simply too many specializations, and many of them are transient as innovation could eliminate an entire class of jobs almost overnight, to rely on the system where occupational training is largely done from parent to child. An industrial workforce must be highly flexible to adapt to constant change. The best way to accomplish that goal is to ensure literacy among the entire population. This was what the Germans discovered when trying to catch up to the English in the 19th century. Universal education is not just a means of rapidly copying the industrial development of another country, it is also an essential, perhaps the **most** essential, building block of an industrial society. The English were slow to learn this lesson and thus began to lag behind other states that had committed to universal education during the so-called second industrial revolution.

The result of this pressing need for a literate, numerate, generically trained workforce was nationalism: the push to instil a sense of identity and unity within the boundaries of a state. The agrarian state, however, was not anywhere composed of a uniform culture, nor even a single language. The insurmountable forces of drought, plague, and wars caused a myriad migrations and re-locations of cultures while state boundaries took little notice of which particular types of peasants made up its populace. The agrarian state was concerned with collecting taxes, maintaining order, and very little else within its own boundaries. Thus the drive of nationalism preceded the existence of a nation, and had to find a means to bring a diverse group of languages, peoples, and cultures under the unified umbrella of a single national culture. In addition, the national culture had to be a literate culture and there were very few to chose from in an agrarian state.

Only the clerisy and the aristocracy were literate in agrarian society, save for the limited bureaucracy necessary to maintain records. The literate, high cultures of the clerics and the aristos was not shared with any of the peasantry or specialized trades; the vast majority of the population had their own "folk" cultures, though as was remarked previously, there was no identification of these customs and traditions as a culture. One of the goals of nationalism, therefore was to fuse a particular folk culture (or an amalgam of several folk cultures) with the literate high culture of the ruling elite. Since there were far more languages and cultures in the world than there were states, such a process meant that a good many languages and cultures had to be made superfluous and either actively expunged or left to decay through neglect. At the time of industrialization, this may not have seemed like much of a price to pay for gaining the huge benefits of industrialization; especially since the discarded folk cultures were not recognized as anything like what would come to be called the "nation". We will take this up later on, though, as it turned out to be a solution of significant moment for our current problems.

If we think of the state as that entity that has a monopoly over the legitimate use of violence within its territory, then the nation is the entity that has a monopoly over the legitimate use of education within its territory. The nation and state necessarily become congruent because the state is the only entity that can provide for the education and welfare of an entire populace (requiring about 50% of GDP be taken in taxation to fund the bureaucratic infrastructure necessary to run such a program). There is really no other way to impose a uniform culture and language on

a population than to inculcate it from a very young age and then make the continued survival of individuals contingent upon their finding employment in an industrial economy. But this being the only way should not give us pause to wonder that it was an effective intervention; indeed, the success of nationalism through uniform education was beyond any expectation. Although many founding documents and constitutional amendments give voice to the sentiment that access to universal education is based on the virtue and goodwill of the architects of these documents, this was a right that never had to be fought for during the transition to an industrial economy. Education was not a gift from the elite to the populace, but a necessity of the economic reality on the ground.

Although public education was unreasonably effective at creating a single nation from a culturally diverse population, it was by no means a complete success. For those groups who maintained a visible discriminant that set them apart from the majority, skin color being the most notable example, the nationalist ideal of assimilation remained incomplete at best, and disastrously harmful in many cases. Because these outsider groups remain excluded from many of the benefits of an industrial economy even today, we are wont to ascribe the attempts to assimilate them into the dominant culture (through coercively imposed education), as wholly racist programs intended to extinguish their culture for purely vicious reasons. It is important to understand the context if we are to prevent such tragedies from re-occurring. The fact is that people without visible, inherited phenotypic characteristics were subject to the same process of cultural erasure. Seventy years ago, nobody expected that the Welsh or Irish languages would outlive the generation that was about to pass at that time; it was simply accepted that the folk cultures and languages of white European peoples would be lost forever, just as the cultures and languages of brown peoples were being lost. Industrialization was a force that could not be stopped, and an inevitable result of the irreversible commitment to an industrial economy was the creation of an industrial workforce composed of the great majority of the population. So why does the assimilation of brown people now appear to be criminal while white cultures that suffered similar degrees of erasure do not strike us as being as egregious?

The obvious answer to that question is that the people from white, European cultures that were not used to create a national culture became fully assimilated in the national cultures while those who retained visible

markers of their outsider status (e.g. skin colour), did not. If an industrial economy works best by utilizing the entire population as a literate, generically trained workforce, then such an economy would clearly benefit by rejecting any discrimination based on factors that have no effect on an individual's ability to perform in a specialized occupation (such as skin colour). So why is racial discrimination so unrelentingly present in industrial societies? The unfortunate fact is that an industrial economy does not get to dictate the behavior of individuals. The way that occupations are distributed among the population is decidedly unfair and the conditions of existence that many must adapt to are very harsh, while others are born into a life of wealth and leisure. Those who are near the bottom, but have the physical traits of the majority, will lament their lowly position. Their resentment can be easily played upon by those at the top, who will point out that, even though they are near the bottom, they are at least better off than those who make up a visible minority, left unspoken is the implication that they better help keep those minorities beneath them or they could find themselves with even less than they have now. Thus does casual racism at the top, and blatant racism at the bottom, conspire to perpetuate the outside status of visible minorities.

The political calculations of the second lowest economic class are not the only factors at play in perpetuating racism in the modern world. Humans are predisposed to retreat to the relative safety of small groups when threatened and that means banding with those they know and trust. If their situation is such that the individuals who are available for group membership are not well known, then people will try to match based on characteristics that are most closely aligned with people they know and trust (but who are absent from their present circumstance). Though it would be nice to probe attitudes and beliefs to determine the inner character of these potential group members, the impending threat that drives separation into groups also drives a process of rapid discrimination using only the most visible traits. When political polarization increases, as it has recently, this inclination toward ethnic sorting is enhanced and the public expression of racist ideas becomes acceptable to some (or at least it is not immediately denounced as reprehensible, as it might have been in more tolerant times). Polarization is thereby reinforced by the wedge of acceptable discourse.

Some nations have attempted to create a nationalist sentiment based on ethnic diversity as a virtue. Official multiculturalism looks to flip the script on traditional nationalism by flatly rejecting the idea of a unifying

culture forged by the struggles of a people to overcome hardship. Countries such as Canada lead the way in this program of re-imagining a national story that can bind people together. This is made all the more difficult for having a (largely invented) nationalistic identity and culture that has served to anchor a common goal of national prosperity through industrial economic development. For Canada, the national story has never been able to entirely subsume a majority from all regions of this vast and sparsely populated land. There have always been elements of the dominant culture in several regions that, despite a white, European provenance, remained utterly irreconcilable as a unitary manufactured culture. The response to this seemingly impossible situation then, was to celebrate the very diversity that created the Gordian Knot as that which binds society together as one people. The hope was that this would not only reconcile the dominant cultures, but also bring in the indigenous populations and the vast numbers of non-European immigrants and their Canadian descendants.

Although multiculturalism has been official policy in Canada for several decades now, it has not managed to displace the original national identities of the various populations that formed the Canadian state. The transformation of a national identity does not have nearly the imperative force behind it than did the initial demands of industrialization. But it is a large country and the type of federalism that underlies the design of government leads to endless grievances of the regions against the center for cynical accumulations of power. This makes any attempt at unification suspect as an equally cynical power play by the regional players. However, it must be said that the current generation of young adults and adolescents have strongly embraced the multicultural identity. More so as the public discourse moves ever farther toward normalizing the racist rhetoric that led to fascism in Europe in the 1930s. Whether this leads to a unified identity based on multicultural diversity as the olds die off remains to be seen. It is a strong unifier for school age individuals but that may be primarily as a discriminant against the older generation rather than as an identity that can persevere when there is no longer an antagonistic identity to set against it.

08 The State

Alright, but apart from the sanitation, the medicine, education, wine, public order, irrigation, the roads, a fresh-water system, and public health, what have the Romans ever done for us?
   Reg (People's Front of Judea)

The nation is the point of leverage that is being used worldwide to destabilize societies, but in modern nation-states, the nation is congruent with the state, and the state is the center of political organization, thus it is worth spending a bit of time looking at how modern states came to be almost synonymous with nations. The focus here will be on the evolution of European states since this is where the industrial revolution occurred and industrialization is key to the formation of modern nation-states. Every state or proto-state since the invention of writing, existed, in part, to protect a surplus of food from raiding marauders. The surplus itself can arguably be considered as the reason for a state to be created, and the existence of a surplus is due to the invention of management: a division of labour in which some people specialize in the coordination of the labour of others. This only appears to have occurred for societies that relied extensively on agriculture, but it does not seem to be an inevitable result of agricultural production. The archaeological record shows many societies using agriculture, mainly on a seasonal basis, without ever leaving the remains of storehouses that would indicate a surplus of production. This is seen in a stable pattern that lasts for centuries and even millenia. The invention of management, and its use to generate an economic surplus that could be used to support a further division of labour in which some people are engaged in protecting the surplus (and the associated administrative bureaucracy that such behavior precipitates), was possibly an historical contingency rather than an inevitability. Once it happened, though, civilization was born and thus did humanity enter the agrarian age.

The obvious question, at this point, is to ask why management would lead to a permanent surplus while unmanaged farmers remain at subsistence levels of production. The simplest answer is that management allows a further division of labour among workers so that their coordinated production is more efficient (along the lines of Smith's pin factory). Initially this division of labour consists of workers applying themselves to

a single task, directed by the manager; it does not refer to the specialization and permanent division of labour that we know today. A more nuanced answer is that centralized management of workers implies a centralized redistribution of the fruits of their labour, thus the central authority is able to exert coercive force (which might be no more draconian than verbal cajoling) to keep the workers on the job longer than they would have previously done as subsistence farmers.

People typically rebel against coercion, even if mild, so there must have been some advantages to the production of a sustained surplus. Possibly the ability to remain in a settlement year round, rather than having to engage in seasonal migrations to find a food source in the off season was such an advantage. Perhaps the ability to use the surplus to support a further division of labour in which some people worked on the construction of public goods was enough to convince people to commit to managed agriculture. Or maybe it was just the ability to weather an inevitable drought or insect plague with substantially less loss of life that turned the tide. Since we have no written records of the transition we will have to wait for archaelogical evidence to accumulate before we can truly understand how it occurred. The fact remains, though, that once managed agriculture, and its permanent surplus and permanent class divisions, came into being, it swept all before it. The switch from hunter/gatherer/part-time agriculture to a managed agrarian mode of production was like a phase transition in a metastable medium; an initial nucleation event was enough to set off a chain reaction where all who were exposed to this way of living came to adopt it.

Although the adoption of managed agriculture, and the creation of new occupations for ruling and protecting the settlement, and for the management and administration of work, was all pervasive, this transition to a proto-state was far from harmonious. The specialization of labour and the constant chivvying by managers to produce more (and therefore spend all of their time at activities related to a worker's particular specialization) left most people with neither the time nor the ability to become defenders of the emerging state. The state would have to find a way to maintain order within its boundaries if the specialized workforce was to have the safety and security to carry out their crafts. Thus the use of violence for maintaining order and in defense of the state became, as well, a specialization in the ever growing division of labour. In fact, this capability has come to define the state as it is widely held as the entity that holds a monopoly on the legitimate use of violence (or

injustice) within a territory. Legitimacy, however, is in the eye of the beholder. The state can always declare its own actions as being legitimate, and with the ability to coerce through violence, its citizens are unlikely to disagree unless they are trying to dismantle the state.

It took a long time for the state to amass this monopoly on violence; the delegation of legitimate, or state sanctioned, violence was the norm until industrialization allowed the creation of a bureaucracy that could measure and control all aspects of behavior that affected the state. The long process of organizing violence within its territory doesn't just encapsulate the history of the development of the state, there were mutually reinforcing effects created by the process of organizing violence that determined the very nature of the industrial state.

With the fall of the Western Roman Empire, the loss of centralized control was almost complete. Diocletian had attempted to largely decentralize control to lessen the skimming of taxation made possible by the absence of any bureaucracy to monitor the citizenry. Constantine even went so far as to bind peasants to the land to force them to pay taxes, but these efforts were totally ineffective without the huge infrastructure that would be necessary to govern such a vast territory on the terms anticipated by Diocletian. Thus when the Western Empire collapsed, it was utterly fragmented with each villa essentially becoming a separate political entity. The Catholic Church held on to their ideological power base but they had resolutely refused to engage in civic governance within the empire and thus had no infrastructure to unite the principalities. Political and military power was seized by those who could take it, leaving thousands of miniature kingdoms competing for territory.

Early in the state-making process many people were allowed to use violence, not just direct representatives of state power. The legitimation by the state was a retrospective view of whether the violence served the interests of the state. As states grew larger, the reach of a centralized ruler became diminished in proportion to the area being claimed and the distance from the center. It was the organization of violence to support the expansion of the territory being claimed, while keeping those who were allowed to use violence loyal to the ruler, within this polyglot array of competing power centres that created the European state which eventually developed prior to industrialization. The process of maintaining order within a ruler's territory was often at odds with keeping or extending the borders of the territory, such that arranging and

distributing military power created several feedback loops that caused the collection of European states to evolve the way they did.

As the period of anarchy and plunder gave way to local power centers, each minor warlord would employ a group of retainers to enforce their will on the peasants within their zone of control. These fiefdoms would be run as protection rackets, with the ruler's thugs creating the threats requiring protection if none were immanent enough to exact tribute. This stage was characterized by the pacification and co-opting of minor rulers by those warlords who were powerful enough to crush the lesser rulers if they chose to do so. The usual pattern, though, was to demand fealty and then keep the minor rulers as local suzerains rather than grow a centralized force to maintain control. Land travel was very expensive and an army could rarely be expected to march for more then three days before needing to replenish their supplies. Thus the central ruler needed to build a surveillance apparatus to make sure his subordinates were not only carrying out the policies of the ruler, but also to ensure that they were not amassing power through the accumulation of retainers and weapons such that they could pose a threat to the central ruler. The subordinates, in turn, were ideally placed on the borderlands to switch allegiances should they find a more lucrative position for themselves. So within each territory there was formal cooperation with an undercurrent of competition and between territories there could either be formal cooperation with a negotiated truce, or acknowledged competition between hostile powers. This was a highly unstable situation in which nobody was trying to build an orderly state; the singular focus was on expanding power.

New forms of military organization and technology allowed those who could afford them to gain an upper hand over their neighbors and expand their territory. For example, the invention of the stirrup created the potential for mounted shock troops who could decimate pedestrian soldiers and pre-stirrup cavalry. Charles Martel took full advantage of this innovation by expropriating lands from the church and giving them to lords so that they could afford the great expense of keeping knights and warhorses pledged to the crown. The feudal economy was thus developed to finance the expansionist military capabilities of European rulers.

Eventually, as navigational knowledge and technology improved, trading port cities began to develop an expanding class of wealthy merchants. With innovations in banking, such as the justly celebrated double entry

bookkeeping, these merchants emerged as bankers who could finance not just trading voyages, but also the territorial dreams of European princes. Rulers wishing to expand their territory could borrow funds from rich bankers to build their military and go on campaign. They would have to pay interest on the debt but if their military ventures were successful, then the expanding tax base could pay their way. Borrowing, military expansion, going to war, and taxation all advanced in tight cadence throughout Europe; any principality that could not keep up with the continental arms race was doomed to be captured by a hostile neighbor.

In order to hold territory in this milieu of being surrounded by princes permanently looking to expand their own territory, a strong and capable permanent military was required. Any significant military organization needs a bureaucracy to supply and organize the actual fighting force. In addition, a permanent military needs stable funding; the last thing a ruler needs in this environment of constant warfare is to have highly trained and well equipped soldiers inside their territory who are ripe for poaching due to not being fed and paid regularly. So a separate bureaucracy needs to be developed to assess, collect, and administer the taxation of the population to maintain support for the military. This builds a capability for the state to engage in wide ranging surveillance of the populace.

Any military innovation in armaments would not only require each state to keep pace with their neighbors' capabilities, but would also demand that new defensive strategies and fortifications be similarly improved to meet the new threats. Going on campaign would stretch the military budgets beyond anything that routine taxation could cover, given the low productivity of the medieval economy. In such cases, the prince would have to borrow from wealthy bankers to finance the campaign, paying interest on the debt. This was perhaps the key factor in the warmaking-statemaking ratchet that led to our modern industrial state. By going into debt to wealthy citizens, who were commercial gentlemen rather than landed aristocrats with retainers, the prince put himself in a position of having to negotiate terms with these individuals. This was especially acute when campaigns faltered and costs were not recovered through conquest.

The practice of negotiation for loans at interest, rather than confiscation through the use of violence, led to the normalization of parliaments where princes had to accept input from their subjects on policies for the

administration of the state. When Thomas Cromwell cleverly arranged for the English Parliament to pass a law allowing new taxes for reasons other than war, the irreversible expansion of the franchise for being represented in parliament was put in motion. These developments were the nucleation events leading to what we now know as civil society: the involvement of the entire population in determining the direction followed by the whole raft of social structures and organizations that put constraints on the polity of a state.

The increase in trade in early modern Europe led to the creation of individual wealth that was not bequeathed by the ruler. Some of this wealth was invested in advancing maritime technology to increase the profitability of trade, but these innovations also increased military capabilities. The state of constant warfare created a ready market for increased military technologies, thereby leading to an increased specialization of workers (innovation requires new skills), an increased distribution of wealth (more people working for payment rather than on subsistence farming), an increased tax base, an increased bureaucracy to collect the taxes, and an incentive for continued innovation due to the gradual expansion of capitalism. Wealthy bankers were increasingly called upon to lend funds to the ruler and did so with the understanding that this capital was being re-directed from profitable uses and thus had to be properly supplemented with interest payments. All these interacting pathways were feeding a gradual increase in the reach of the state down to the individual citizen through an expanding bureaucracy, as well as a gradual increase in the influence of the citizen up to the polity of the state through a representative parliament that enforced the will of the lenders onto the state as borrower. Thus the political evolution of medieval through early-modern Europe set the stage perfectly for the development of a civil society that could create the modern industrial nation-state.

The nation-state **is** the collection of institutions and services that constitute the infrastructure necessary to support an industrial economy. The congruence of political boundaries with a unified culture and language is necessary for the creation of an industrial workforce to staff the factories and service industries of the modern nation-state. This congruence of national identity and united polity cannot be avoided but its historical development through the organization of violence, to create the partnership between the state and civil society, leading to industrialization, and then the necessary homogenization of culture in

order to feed the growth of an industrial economy, is rarely appreciated as an evolutionary process. Instead, we have legacy philosophies that attempted to justify inequality through rational calculation.

The nation-state is often considered through the lens of the "social contract", a justification of the legitimacy of government that emerged during the Enlightenment. The basic premise is that at some time in the past, the people surrendered some of their individual freedoms and unrestricted liberties to the collective in exchange for security and protection from arbitrary and capricious power. Social contract theory was created by wealthy Europeans who were unable to see how their own immense privilege had warped their understanding of humanity. These thinkers came from the idle rich and personally enjoyed vast individual freedoms, but only because so many others gave their work-product to support these few members of the elite in their lavish and irresponsible lifestyle (the work-product was not given knowingly, hidden as it was by the vast web of interdependence and division of labour that characterized the age). The foundational notion of humans as free individuals in a state of nature is actually quite absurd. No matter how far back we look at the state of homo sapiens (or neanderthal, or habilis, for that matter) we always find humans existing in large groups (large compared to other apes) with mutual obligations existing within that group. We are social animals and always have been and it is simply the blindness of wealth that could lead anyone to take seriously the notion of humans living as isolated individuals.

Humans are never found in a state of nature but they are always found in a state of culture. That is to say that they don't merely exist in groups with mutual obligations, but also have a rich and complex set of concepts and categories that define the relationship between the group, and individuals within the group, and the external world. Except for the most basic sensory input, the perception of the world is filtered through a cultural lens. There is no blank slate upon which a group of hyper-rational people can negotiate a binding contract where they trade freedom for security; the idea is preposterous.

If, instead, we take the "social contract" as metaphor, then we can see a gradual process through which interpersonal trust (the kind that can only work in groups that are smaller than about 150 individuals) gets transferred onto institutions that are developed within a culture. This trust in societal institutions is the commitment to interdependence that

comes with a division of labour that is so completely specialized that no individuals remain who have all the skills needed to survive alone in the wilderness. In this situation, one must trust their life to the ability of social institutions to provide and distribute the necessities of life. Taken all at once, it would be a shocking leap into uncertainty, akin to signing a contract where one gives up their personal freedom for a guarantee of security. However, it is not taken all at once, nor anything like all at once. So even as metaphor, the social contract idea tends to discard a long historical process in order to make a dishonest point about the present state being one in which everyone joined willingly with informed consent.

Inescapable interdependence is a highly exposed way of life for those who live close to the margin. The distribution of social power is decidedly unequal, as the disadvantaged know only too well; always having to maintain a surplus of good will among their fellows lest they come to the attention of those who can crush them for sport. The struggle between those with power, who wish to attribute their power to merit, earned through honest competition in a marketplace of ideas and personal diligence, and those without power who see very clearly that the game is rigged, is a constant in an industrial society. The long process of building up a civil society in European nation-states has been an exercise in the distribution of social power among the masses. We are nowhere near an egalitarian allotment of power, but the arc of history has definitely bent toward that goal.

The instrument that mediated the de-concentration of power was the bureaucracy. The princes needed to assess wealth and tax it, and the aristocracy was demanding ever more control over state power to increase their ability to coerce economic gains from states with less military power. Both required a permanent and dedicated bureaucracy to implement these needs. But a bureaucracy must be paid just like a standing army, and the problem with using precious metals as money is that there is never enough of it. By a happy accident, the European powers began to rely on paper money just at the time when mercantilist policies were creating a need for a greatly expanded bureaucracy. The accidental part was that they continued with their taxation policies based on the state needing the money obtained through taxation to cover expenditures. This is obviously not the case with paper money as the state can simply print as much as it wants. However, the value of paper money is subject to supply and demand, just as any other commodity, so taxation is a method of destroying money (thereby decreasing supply)

while maintaining demand by insisting that taxes are paid in the national currency (under threat of violence by the state). Even today, most people, even professional economists, cling to the notion that taxes pay for services rather than the more illuminating principle that taxation regulates the value of a currency. Indeed, economics is one of the stranger aspects of the modern nation-state, being based on the hard logic of arithmetic while simultaneously being a creature of the shifting desires and power structures of humans, as well as the poorly defined boundaries between state control and private initiative. We all must be economic agents to some degree, thus it can hardly be ignored when analyzing profound social upheaval.

09 The Economy

Beware of programmers who carry screwdrivers.
   Leonard Brandwein

Capitalism and the Market Economy

The "economy" is a nebulous concept, for all that we talk about it in everyday conversation with statements like, "that candidate is strong on the economy", or "I'm concerned about the environment, but what impact will it have on the economy?". If you ask anyone what they think the "economy" is, you will probably get little more than some vague intimations that their quality of life has improved (the economy is doing well) or it has gotten worse (the economy has tanked), and the economy is driving those changes. For governments and people who run large businesses, however, the economy is a very useful abstraction, containing summary statistics for a large number of events that can be used to measure the effects of policy implementations and indicate the need for corrective action. For individuals, then, it is much like the weather; we don't really understand it, we can't do anything to change it, but we find endless fascination in discussing it anyway.

For most of human history, there was no need to invent a concept for the economy because small groups met all of their needs through their own efforts. It was only when the division of labour, and the resulting interdependence, became extensive enough to completely obscure the path through which the material goods required by any individual were produced that the statistical approach became advantageous. The concept was then applied retrospectively to more primitive societies for comparative purposes, though it would not have been of any use to those societies had they known about it in their own present.

But what is this thing called the "economy" and what does it mean to say it's doing well or poorly? Typically, such statements refer to economic growth, or the expansion of the economy, which is to say that the total amount of goods produced, and services purchased with money has changed (services such as domestic chores, raising children, caring for relatives, and such like are excluded from the "economy"; they remain part of the mutual obligations that pre-date the invention of the economy

and are simply ignored to simplify measurements of economic transactions). Put very simply, if the value of goods produced in a year increases, after adjusting for changes in population and the value of money, then the surplus has increased and everyone is a bit wealthier than they were before: good news all around as long as some subsection of the population isn't able to horde that surplus for themselves. As well, there might be some people who would prefer to have a bit more time to work on their own projects (things that don't translate into economic transactions) rather than a surplus of goods, however, the assumption of economic analysis is that surplus goods can always be sold to buy more time for any particular individual, so growth really is good for everyone.

This idea that every meaningful human activity can be reduced to a cash transaction (excepting, of course, those domestic activities that are ignored by economists) lies at the heart of capitalism, the ideology that underlies the organization of all industrial societies (the socialist experiments of the 20th century are now seen as little more than redistributive add-ons to a capitalist economy). Capitalism as an ideology is usually somewhat confused because it tries to claim ownership of ideas and activities that are quite independent, markets being the most prominent example. Indeed, the mythology behind the "free market" as the touchstone of capitalism bears as much resemblance to reality as primitive creation myths.

Markets have always existed in some form or another, as long as the population density of a region was high enough to support interactions between unrelated groups of humans. They have never been "free", though; especially not in the early-modern and industrial societies of the West. Markets are basically the infrastructure that facilitates trade between people, and such infrastructure is not an elementary component of the universe. Someone has to create it and everyone using it has to agree to operate within constraints so that trade can occur. Thus a market is regulated by whoever has the power, and desire, to do so. This regulation can be done for the benefit of all participants, for a single participant, or anywhere in between. Any market that appears to be unregulated will very quickly attract those who wish to impose regulations for their own benefit. The idea behind the existence of free, or self-regulating, markets that continues to pollute the discourse grew out of the inability of early capitalists to recognize the vast infrastructure that had accumulated through historical developments. Present day zealots for the capitalist ideology continue to press forward with the same error,

sometimes through a genuine lack of ability to recognize the machinery of social reality as a separate construct from physical reality, but more often as a rhetorical device to advance their own greed.

The essence of capitalism is the use of capital (privately held wealth) to provide people what they need or want, and by so doing, multiply the value of that capital (if we succumb to allowing our inner voices to escape, the essence of capitalism is actually the use of insider information to multiply capital, however we will continue to observe the proprieties). Those who have capital, and use it to provide goods and services that are in demand, are able to see an increased return on their capital and so they are acting in their own self interest. Since they are also filling a demand, the interest of society is being served as well, or so goes the theory. The fly in the ointment is that capitalism only operates in a mutually beneficent manner on a societal scale when there is an abundance of wealth in the society; when the surplus vastly exceeds the basic needs of each individual in the society. Thus the self-interest of capitalists is what drives the process, it is not a mechanism for allocating scarce resources to fill societal needs. If we clear the decks of that false virtue then it is easier to see the misleading claims about efficiency and meritocracy that are so often put forward.

Humans are curious creatures and when their basic needs are met, they seek out novelty and new experiences to fulfill that curious nature. In capitalism, the value of any good or service is essentially whatever price they can get for it at a given time and place. There is no intrinsic value, such as the labour that went into creating it, or the labour that went into maintaining the peace so that things that require time to make, could be made. It is just a matter of supply and demand, with curiousity and novelty providing much of the demand in a society of abundance. Capitalism seeks to discover, or create, demand for something and then provide a source for consumers to obtain that thing such that the capitalist turns a profit on the deal. The capitalist wants to multiply his or her capital, usually through an exchange mechanism, thus any thoughts of providing a societal benefit are placed well behind strategies for turning a profit, and the optimal way to turn a profit is definitely not through a market where trust and goodwill make for mutually beneficial exchanges.

Early capitalism was based on long distance trade, where the unique and unusual foods and crafts of a far-away place could command the curious attention of consumers at home. In this case, the capitalist took on the

risk and organizational challenge of obtaining the goods and shipping them home, and if that was done successfully, then selling them for a profit, if the local demand was still high by the time these goods went on the market. Of course, buying and crewing a ship and sailing it halfway around the world and back was not an inexpensive undertaking, so the infrastructure of capitalism began to develop along with trade. Joint stock companies, bills of exchange, insurance companies, stock markets, these and more all grew to facilitate trade between the far East and Western Europe. However, these are just the overt components of an infrastructure that was built to facilitate a market-based economy. Beside these instruments to amalgamate capital and put it to work spreading the desirable features of each region of the globe to regions that had never known such things, the less visible infrastructure that was necessary to make market exchange the dominant method of meeting the basic needs of people was also developing.

We tend to extrapolate backwards from our present reality and assume that conditions were the same in earlier times. The extrapolation that puts homo economicus, an individual who sees every transaction between two people through the lens of material gains, and nothing else, is profoundly mistaken. The logic of a generalized market economy is based on a detached, means-end rationality where every transaction is subject to a calculation of advantage. This is profoundly different from a society where everyone is embedded in a group-based trust network. Social considerations always dominate in such a society. A mistake that economists typically make when looking at trust-based societies is to assume that when one person helps another person, it is not something that they want to do; that is to say that the person doing the helping is not acting in their own self interest. In fact, in such a society, helping others is (usually) perceived to be in one's own self interest, just as we wouldn't consider tying our shoelaces as a favour done to our feet. The notion of "self" is simply different in societies based on mutual trust.

This is why economists always fall back on the fable of primitive peoples having a barter economy where everyone is trying to get the better end of a deal by trucking and bartering with their fellows. They are projecting backwards from a market economy where all exchange is mediated through money, which acts as a token for social power. The essence of social power is getting someone to do something that they would not otherwise do. Money provides a convenient method of accounting for the time and effort spent in some activity that an individual would not

Muldrew, K.   Demolishing Consent – Draft 0.5

normally be motivated to do so that it may be exchanged for someone else's time and effort. Activities that are carried out through self-motivation, however (i.e. individuals doing things that they want to do), have no need for exchange or power relations. The trust-based societies that preceded market economies cannot easily be retroactively analyzed in economic terms because so much of what we now do forms a densely interconnected web of impersonal exchange while many of these same activities were previously done as the basic responsibilities of a decent human. It would be like trying to add housework and care for children and the elderly to GDP.

In order for society to transition to a market economy, people had to first transition to a single-stranded mode of thinking where trust in known individuals was transferred to trust in the institutions that were developed during the gradual expansion of market-based trade from a poor society in which only the elite had access to the surplus, to a society of abundance where almost everyone could be confident that their basic needs would be met. This expansion was due to a process of mutual escalation where technological innovations increased the productive capacity of a society, allowing a greater specialization and division of labour, thereby increasing the use of markets to provide goods that the specialists didn't have time to make for themselves, giving the specialists time to innovate further, and then feeding back into an increased degree of production due to technological innovation. At every stage, as technology and specialization of labour increased, so too did the infrastructure to support the greater interdependence of individuals.

In a previous chapter where we traced the transition from a multi-stranded mode of thinking to the single-stranded mode of modernity, we touched on the medieval fairs that occurred regularly throughout Europe as an essential stage in the transition to market capitalism. There is always a tendency to try to pinpoint the trigger of a social revolution, to find a nucleation event that set off the entire cascade of events that led us to the present. It is important to resist that urge and to recognize that social transitions are more akin to second order phase transitions. We do not plunge deeper into a metastable state and then suddenly re-orient around a new organizing principle that sweeps all before it. The essential component of the medieval fairs was the development of infrastructure that eventually rendered them obsolete. They were only successful because that infrastructure was lacking, and once it was largely filled in, over the course of several centuries, the fairs essentially vanished. The

transformation to an economy based on market capitalism does not anywhere appear as a revolutionary change in human behavior. It is the gradual accumulation of infrastructure that only appears revolutionary when viewed from an historical perspective.

Radical changes in social organization, like the switch from a feudal economy to market capitalism, are difficult to comprehend as gradual processes because, like the evolution of complex biological structures (eyes being the canonical example), it is difficult to imagine a series of intermediate structures that are useful enough to persist while continuing to provide a pathway to the eventual final structure. In both biological and social evolution, it is helpful to consider evolution in an ecological context rather than as individuals and their associated "fitness". If we fully abstract the interdependent relationships within an ecological landscape, we have three basic categories: cooperation, competition, and parasitism (fig. 9.1). Entities within the ecological system can compete with each other for limited resources, they can cooperate with each other to create a surplus that is greater than the sum of their outputs as individuals, or one entity can parasitize another (essentially considering the other entity as a resource). None of these strategies exist as independent actions that occur against some constant background. When entities compete with each other, that leads to a scarcity of resources and a search for more efficient use of resources. Cooperation is often an excellent solution to scarcity as it can lead to innovation and create a surplus of new resources. An abundance creates a niche for parasitism with the surplus being claimed by predators. In order to evade parasites, diversity takes precedence as parasitism is highly specific in its targeting due to the cost of generality. Diverse entities now find themselves competing for resources and the cyclic nature of coevolution is revealed. The process is driven toward greater complexity and specialization as the energy sources that are available in a particular ecological landscape become more completely utilized, but there is no drive toward a particular result; historical contingency is paramount if the entities have even a minimal complexity.
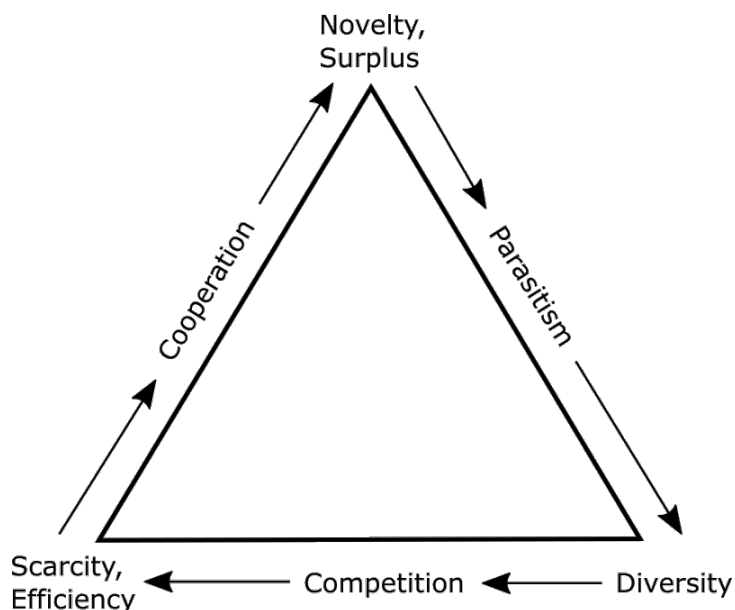
Figure 9.1. - The mutual escalation triangle: Cooperation leads to novelty which generates a surplus thereby creating a niche for parasitism. Parasitism drives diversity creating a larger field that drives competition. Competition reduces the margins available to the competitors thereby driving a search for novelty.

The development of economic systems in human history is best considered in this context of coevolution within an ecological landscape. At every point in an historical progression, the innovations that arise change that landscape. The multiplicity of choices available at every stage are enormous, but with each step the future development is constrained by the path taken. The historical view tends to consider that path as inevitable, even bending towards some ideal of perfection, but this is folly. An increase in complexity and specialization appears in hindsight as a directed march toward some hidden truth but if the tape was rewound and allowed to play out again, the degree of complexification would likely be just the same but the social organization would be utterly foreign.

That is not quite true; there are some second order categories that develop in human social evolution that, as an abstraction at least, appear to be genuine leaps of progress as they affect the very process of coevolution, not just the particulars of the paths taken in an actual history. Earlier we considered the process of competitive-cooperation in the development of science. This refers to the use of cooperation in the search for an understanding of physical reality, enhanced by competition for rewards that exist in social reality. We can also see examples of the inverse category, call it cooperative-competition say, where people

compete for resources in physical reality by cooperating with constraints that exist only in social reality. The "markets" of economics are an excellent example of this category: the infrastructure that facilitates the exchange of goods and services among people are structures created in social reality. Although the goods and services are physically real, the infrastructure that supports it is almost wholly conceptual. A particular warehouse is real enough, but the phenomenon of having places in every jurisdiction where trade occurs that serve the purpose of holding large quantities of stock that wholesalers can then use to supply shops is a concept.

Thus the transition to market capitalism is largely one of the development of infrastructure throughout the world. Transportation networks, communications infrastructure, legal frameworks to support the complicated relationships that are a necessary component of interdependence, governance and policing (with the loss of small-group trust networks that use social pressure to ensure behavioral norms), and much else, continued to expand over a period of centuries. This enormous infrastructure forms the background to our lives today; an invisible ecosystem of support that must be maintained for a generalized market economy to work. Once you become aware of it, the idea of a self-regulating market is not only untenable, it is frankly absurd. Yet much of professional economics is concerned with the development of mathematical models that describe such ideal markets and the conditions under which they clear. More ominously, those who become fluent in the use of these models are given undue influence on public policy, with the hope that this mathematical sophistication provides insight toward improving economic growth.

Economists are mistaken in their reliance on rigorous mathematics to model the economy because they fail to appreciate the absence of global symmetries that are fundamental to the utility of mathematics in the physical sciences. In the physical world, there are global symmetries such as time, space, and rotational invariance (meaning that the laws of physics remain the same at different times, and at different places, and with respect to rotations in space). These symmetries, combined with other assumptions, like that of a closed system (or a system where the force field, or potential energy, is constant) leads directly to the conservation laws that allow physical theories to be constructed from basic assumptions.

Economics, however, is based on human interactions, not fields and particles in the natural world. There are no global symmetries for human interactions and therefore no path to declaring the a priori truth of relations that could be used to construct theories. In physics, for example, time invariance means that the same system with the same initial conditions will evolve dynamically in an identical manner at different times. The associated conservation law, the conservation of energy, allows one to maintain an exact account of the transfer of energy between different aspects of the system over time, and indeed, the Lagrangian for a system (a concept used in physics that relates the energy balance with the allowed range of motion within a well-defined system) contains the complete time evolution of that system. This would be exceedingly helpful in economics since energy is the currency that drives cause-and-effect chains of phenomena in the world. But it is not to be. Humans are computational agents with memory and the ability to measure and change their environment. The full contents of a human memory and the algorithms contained therein are unknowable, yet they are critical to understanding the actions of a given human in any particular circumstance.

The difference can be illustrated using the simple example of a cannon ball in ballistic flight. If the ball is launched into an atmosphere with no air, then once in motion, the only force acting on it is the constant force of gravity. Although we perceive this as a dynamical system, evolving with time as the cannon ball flies through the air, physicists are able to derive a Lagrangian for the system that treats it as static in space-time. The full path of the cannon ball through space and time is encompassed in a mathematical model. If, however, the ball in flight happened to have some internal structure that is capable of sensing its environment and performing computations, then at some point in its flight it might suddenly open a hatch and turn on a thruster, completely changing its path through space and time. In this situation the symmetry that allowed the construction of an accurate mathematical model has been broken and the model no longer applies. We have to know the internal structure of the cannon ball, its computational abilities, programs, and memory contents, and we also have to know what it will sense during its flight, and how the use of any on-board actuators will affect the external environment if used. It's an impossible situation to know all this and then try to reduce some initial conditions to a static picture in space-time. We might imagine an idealized cannon ball that displays perfect rationality in all its decisions, as a large number limit of many idiosyncratic cannon

balls, but who would believe such nonsense? Symmetry is what allows it in physics and the absence of those symmetries are why mathematical models in economics are only as good as the experimental support for the assumptions of the model, bearing in mind the extraordinary difficulties associated with sociological experimentation.

Physical theories are primarily judged by their ability to make predictions and then to have those predictions be consistent with evidence obtained through empirical experimentation. The crucial part here is that empirical evidence is isolated from, and independent of, the theory used to make the predictions. Symmetries in nature, however, give physical theories an internal justification that is also independent of the theory itself. This goes far beyond the checks and balances of mathematical consistency. The part of the theory that represents a symmetry (or a conservation law derived from that symmetry) is already known to be consistent with nature. Mathematically expressed physical theories appear to be accepted on aesthetic grounds ("it's too beautiful not to be true"), but this is sophistry. Physicists build their models using the a priori knowledge embedded in the symmetries of nature (and perhaps they downplay that helping hand to lay claim to a greater achievement than they are due) but economists have no access to that particular gift. Their models may be just as beautiful mathematically, but all of that internal structure flows from the theory; they have no independent method of verification within the structure. It is precisely when judgement of a theory is based upon criteria that come from the theory itself, that humans become besotted with their own creations and fail to see the circularity.

The analogy (but-more-than-just-an-analogy) with physics is enticing because conservation laws allow the use of accounting identities to track where energy goes and how the system evolves with time. Since economic transactions are all about accounting, this seems like it **should** be more than just an analogy. But the rub comes from the fact that value, the worth of any particular good or service, is not an invariant quantity. The value of something is different for different people and even for the same person in different circumstances. Unfortunately, it is not just a matter of value fluctuating with supply and demand either. Matters of personal taste, of contingent need, of desire, and of much besides, are simply not amenable to codification as never-changing rules. Even the exchange that is tailor made for markets can not be constrained by conservation laws (and the enormous collection of human interactions

that involve reciprocal work that are not exchanged in a market are simply ignored by economists).

The behavior of a human, or better, a group of humans, can have a statistical regularity that can be measured and reliably used to predict future behavior given the same conditions, but it can have no axiomatic basis such as a conservation law. Therefore, it is a mistake to derive equilibria in economic matters as if one was dealing with chemical equilibrium in a physical system. The use of mathematical reasoning is essential to understand the consequences of any particular set of assumptions, and this makes it important to economic reasoning. However, the lack of symmetries, and the necessarily open system that is forced by an unknowable computational element within all economic transactions, restricts the use of mathematics to working out the consequences of assumptions. This is a much, much weaker form of utility than the physicists are able to extract from mathematical reasoning, and we must be cognizant of that fact lest we put more confidence in economic theories than is warranted. Economics is a branch of sociology, not physics, and subject to all the difficulties that are implied by that classification.

Economists are almost always using their mathematical formalisms to justify particular policy choices and advocate for the implementation of those policies. This justification is never valid because of the absence of a priori knowledge in economics. Even as a justification for a large-scale experiment (which, obviously, nobody would go along with if it was pitched as an experiment with an unknown outcome), the mathematical models of economics are invalid because they are built upon so many underlying assumptions that would only be true if there were symmetries to support them. The use of economic models to justify policy is almost always just a rhetorical device that is being used to push an ideological agenda, and economists who have the political clout to impact policy are notorious for their rigid adherence to ideology. It is a defining trait of the discipline, though perhaps it is the drive for power that leads them to adopt economics rather than the study of economics driving one to adopt a rigid ideology.

That ideology is almost always focused on reducing government regulation of private corporations under the pretext of increasing economic efficiency. It is a classic bait-and-switch grift where the egalitarian nature of market transactions are held to be guarantors of

equality while hiding the fact that the regulatory infrastructure is actually the part of the system that prevents excessive accumulations of economic and social power. We need to remain cognizant at all times that economic decisions and outcomes can be significantly altered by the use of social power. A "market" never guarantees a level playing field. To the extent that one exists, it is solely due to an infrastructure of social organization that has been built up over centuries. Most of the world is now fully dependent on a market economy so we really need to understand how it works as an integral part of society and not as an abstract and independent activity.

Another consequence of the process of coevolution on an ecological landscape that is under-appreciated is mutual escalation in technology development, a kind of arms-race where individuals become ever more specialized and technological innovations increase the burden of knowledge required to service technologies (thus demanding more specialized occupations). We are irreversibly committed to perpetual innovation. When new technologies are adopted, the entire ecosystem of inputs, outputs, and skilled labour must change as well. It quickly becomes extraordinarily difficult to reverse course and go back to the old way of doing things because the intangible aspects of knowing how to do them have been lost. About half of learning how to perform skilled labour happens just by working alongside people who are already skilled. Once an individual becomes an expert, they cannot easily formalize all of what they learned, but they have undeniably learned a great deal on top of the knowledge that can be written down. It is like this in all human endeavours; one must learn by doing the thing (and even more so by watching an expert do it). So it's not just that innovation creates new problems that need more innovation to solve, we commit ourselves to a particular path within the region of the adjacent possible, and this path may isolate us from other paths that may have been available to us before committing to some societal innovation. Understanding innovation as an abstract concept is therefore crucial to understanding why this point in history is causing unique social problems.

Innovation

Innovation is such a commonplace yet we rarely consider what is meant by the term other than something new, or a new way of doing things. However, it behoves us to try to define the term more precisely since we certainly imply a technical definition when we use it to describe economic

matters and the evolution of human knowledge and achievement. Broadly speaking, we can separate innovation in this domain into three classes: conceptual, technological, and organizational innovation. Conceptual innovation refers to a new way of understanding phenomena that we perceive through our senses, technological innovation describes new things made from natural resources that are used by humans to achieve particular goals, and organizational innovation relates to new ways of coordinating human behavior, usually in a cooperative venture, to achieve particular goals.

Conceptual innovation is about new ways of understanding, so we must have some working definition of understanding before we can describe what might be accepted as a conceptual innovation. Our understanding of the natural world is based on causal mechanisms that we infer from observed regularities in nature. That is to say that when we repeatedly observe a phenomenon (call it "a") that always occurs after some other phenomenon ("b"), such that the sequence of events is always a before b, then we make a guess about a physical mechanism that is initiated by event a and leads to event b (here we ignore details about a and b both resulting from some earlier event; our inferences about cause and effect are imperfect and constantly subject to reappraisal should we observe a failure in the causal chain; since "a" is a variable, we can just assign it to the earlier event). Much of our intuitive understanding of the natural world is due to our disturbing the world in some way and then observing what happens after that disturbance. These interactions with the world are carried out as we attempt to satisfy our needs and goals (e.g. we pull on an apple and it breaks free from the tree that it is hanging from).

A causal mechanism is then a type of concept, a generalization of sensory phenomena that display regularities and are thus classified as being manifestations of some underlying unity (e.g. things like trees, processes such as touching, etc.). Concepts are what we use to simulate the external world within our minds, in order to conduct counterfactual re-creations of what will happen under certain circumstances that might occur in reality. The basic concepts that we form about the way the world works when we interact with it (e.g., if we push on a small rock it will move) are thoroughly incorporated into our mental model of the natural world while we are still quite young and serve to guide our actions as animals subject to all the dangers that are present in nature, and subject to certain needs that we have to satisfy in order to survive. More elaborate concepts form the basis of how we use and modify natural substances to

supplement our abilities to alter the natural world in the process of achieving our goals (technology) and how we work together to surpass the ability of any one individual to affect the natural world (organization). Conceptual innovation, the development of new ideas about cause-and-effect in the natural world, is thus a necessary precursor to the development of any new technology or method of organizing human activity. We cannot make predictions without first having a causal model to use within our imaginations.

Technological innovation concerns new ways of using natural resources as tools for interacting with the natural world. A technology requires both an understanding of the intervention with nature that will bring about the effect we are interested in, and the substance, shape, and arrangement of materials that form the tool that will be used to conduct the intervention. Except for very primitive tools, such as a stick to knock down a piece of fruit, most technologies rely on a sequence of steps involving other technologies. For example, a sharp stick requires a cutting edge, and some kind of knapping tool might be required to chip an edge into a stone, so even this rudimentary tool requires two prior tools before it can be constructed. Human prehistory is generally understood in terms of technological progress because technological artifacts are what persists so that they can be uncovered by archaeologists.

Organizational innovation is the least celebrated mode of human progress yet it is certainly the most consequential. The entire edifice of social reality that shapes our lives so completely is a mechanism of coordinating human activity. Religion, politics, law, culture, division of labour...there are literally thousands of things that humans do that come under the umbrella of collective action: the way we coordinate our behavior to create public goods for ourselves. The behavior of individuals within a group is a primary concern of the way we organize ourselves because the state of nature for humans is to be part of a group, and a rather large group at that. We often fail to notice how much individual freedom is curtailed by the norms and expectations of behavior within groups due to our love of narrative for cultural transmission. The narrative form attempts to make collective cognition comprehensible to human minds, so it tends to concentrate the many distributed threads of an idea's development into a Eureka-like insight that occurs in a single mind. We use this to package the history of ideas and knowledge into stories that we tell to keep our culture vibrant and alive. The technique is pedagogically efficient but it tends to hide the intensely social nature of

human thought. The evolution of ideas is no less a collective accomplishment than is the alteration of the landscape with cities.

The "adjacent possible" is a phrase originated by Stuart Kaufman to describe biological evolution, though it applies to all evolutionary systems such as the process of innovation being considered here. The phrase means that everything new is created by modifying something that already exists. In the case of biological organisms, new varieties are created by changing or rearranging the genetic material of an existing organism. Living organisms are incredibly complex entities, thus the degree of genetic change that can be done without sacrificing the ability of the organism to keep itself alive and reproduce is minute. If we think of a phase space where each point represents a potential viable organism, then the path backward from any present organism to any of its ancestors will be a near-continuous path through this space (this is obviously over-simplified since most organisms are mutually dependent on all the other organisms of an ecosystem for their continued survival, however, that will just cause the space itself to change with time: all new organisms that appear will still be adjacent to their parents in the space that exists at any given time). The region in phase space of viable organisms that can be reached from an existing organism by a single change to its genetic code is the region of the "adjacent possible".

Human innovation is similarly constrained to be created by modifying concepts, technologies, or modes of organization that already exist. The modifications in any given step must necessarily be small because the innovation must be adopted by enough people to keep it alive through cultural transmission (the absolute number of people needed for this varies, but it is a substantial number). This means that there needs to be a critical number of people who are able to understand the innovation and feel that there will be a benefit to adopting it. A lone genius who progresses through hundreds of successively more complex iterations of a technology and then introduces it to the population will be ignored; the premise and the claimed utility will simply not be on anyone else's radar and thus won't capture their attention. Even more so, all technology relies on the existence of a wide variety of other technologies and people who understand them well enough to maintain them. A new technology will have to work with existing technology and it will have to be maintained using existing tools and knowledge. A transistor radio receiver will be no use without a transmitter, and even less use to people with no knowledge of semi-conductors or methods to fabricate transistors.

Like all evolving systems, prior innovations become the feedstock for later innovations, with general purpose structures becoming the building blocks for more complicated structures (these general purpose structures take the forms of theories for concepts, tools and components for technology, and institutions for organization). The innovation landscape grows inexorably toward greater complexity, becoming analogous to an ecosystem where new structures are dependent upon the existence of many existing structures. This is especially true with technology where, as one tiny example, a new way of making an electric clutch for all-wheel drive vehicles depends on the vehicles and all the components that go into them, the road network, the traffic control measures, the fuel supply, and much else down to the need for people to travel. Although each innovation is an improvement on what existed before, the entire landscape is not evolving toward some greater singularity of perfection. Each innovation is constrained by what is adjacent to existing structures, and the path taken is highly contingent upon the social pressures that exist at any given moment. The problems that people feel are most pressing are the ones that get attention and are most likely to see innovative solutions.

At any given time in human history, the basic needs for human survival will certainly rise to the level of critical importance. Even a society with an enormous surplus is not going to convince individuals that they need not worry about their survival. This is why one of the greatest fears about innovation has never materialized despite predictions of doom that persist through the ages. The Malthusian trap posits that improved methods for growing and distributing food will lead to an increase in population (it does). The greater number of people will soon outgrow the available food supply and cause starvation and untold misery. This never happens because the pace of innovation, and hence new ways to grow more food, always matches the increase in population. This is simply due to the increased number of people who are able to think about solving the problems associated with increasing the food supply (as well as the increased number of hours that people can spend thinking rather than producing food, due to the greater surplus). A more contemporary version of the Malthusian trap comes from the limits-to-growth worries that were popularized by the Club of Rome some decades ago. Resources on the planet are finite, so continuing on a business-as-usual path where we are consuming resources is bound to run up against the wall of scarcity sooner or later. However, a commitment to perpetual innovation

means that we do not continue with business-as-usual. The fundamental error of this type of thinking is to put the growth of knowledge on the same footing as the use of finite resources. Whatever the limits to knowledge accumulation might be, they are not on the same basis as natural resources nor are we in any position to even guess at where those limits might lie.

Another problem that continually dogs any society that commits itself to innovation is Merton's trap of unintended consequences. This refers to any problem that arises due to the adoption of any given innovation--the solution to one problem leads to the creation of another (or several other) problem(s). Unforeseen consequences can arise out of ignorance (failing to fully understand the processes used), errors in predicting the consequences of some new technology, or most often, a failure to appreciate how the by-products of the new process scale with mass adoption (i.e. pollution). Once again, however, the identification and widespread awareness of the problem is what allows it to be solved before it causes suffering on a mass scale (though pollution inevitably causes significant suffering on a local scale before its importance rises to the level of recruiting enough people to a search for solutions to ensure the problem is solved). In fact, pollution is a far more serious problem that either the Malthusian trap or limits to growth because the creation of pollutants scales with the implementation of innovative programs. Since innovation increases with increasing population, the time between the creation of a new source of pollution and the discovery of its ill effects (and hence the necessity to do something to mitigate it) grows ever smaller, inversely proportional to the growth of innovation (and population). At some point the time between the introduction of a pollutant and the cataclysm that results from a failure to mitigate its effects may become too short for humans to figure out an effective strategy to deal with the pollutant, no matter how many humans are put to work on the problem.

The nature of technological and organizational innovation is that the rate of change increases with time due to the hierarchical structure of innovations (we make new things by recombining subunits in new ways, the new combinations then become subunits for further innovation leading to a multiplicity of available subunits). The number of possible innovations grows exponentially with time, and the number of actual innovations also grows exponentially. Most innovations are incremental and we are able to adapt, even though the cumulative change over an

individual's lifetime is substantial. However, the increasing pace of innovation means that at some point, the degree of change *within* a human lifespan becomes overwhelming. Our current gambit is to allow young people to learn the necessary knowledge and skills that will be relevant throughout their working life (with adjustments for incremental change). But what happens when the change during someone's working life is so dramatic that it makes that early training utterly irrelevant? We do not have institutions to allow people to drop out of normal life and fully retrain for a brave new world (kids, car payments, mortgage payments, career ladders,…). The process of innovation is driving individual anxiety toward a level where the existential threat becomes personal, and overwhelming. People get worried when they see personal disaster hovering just in front of them.
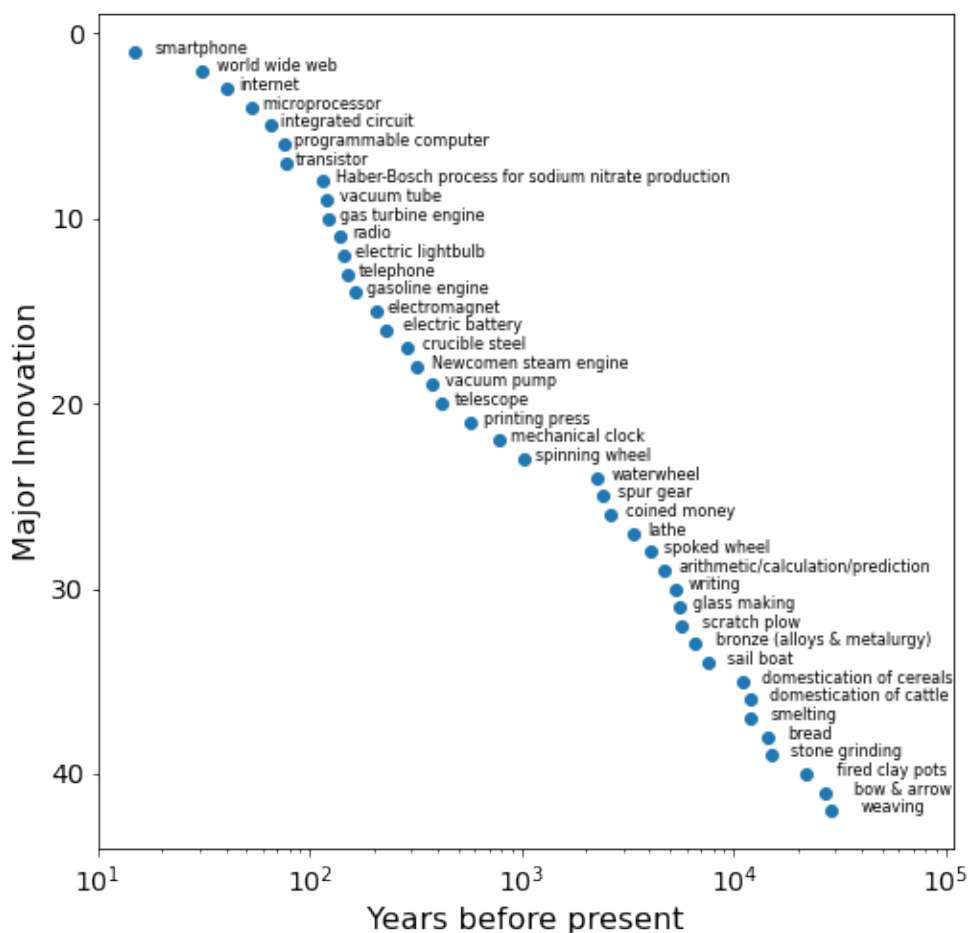
Figure 9.2 - Time between significant technological innovations form a remarkably close approximation to a straight line when plotted semi-logarithmically. If the regression line is extended to the present, we have a time between major innovations of only 20 years; well within the working lifetime of an individual.
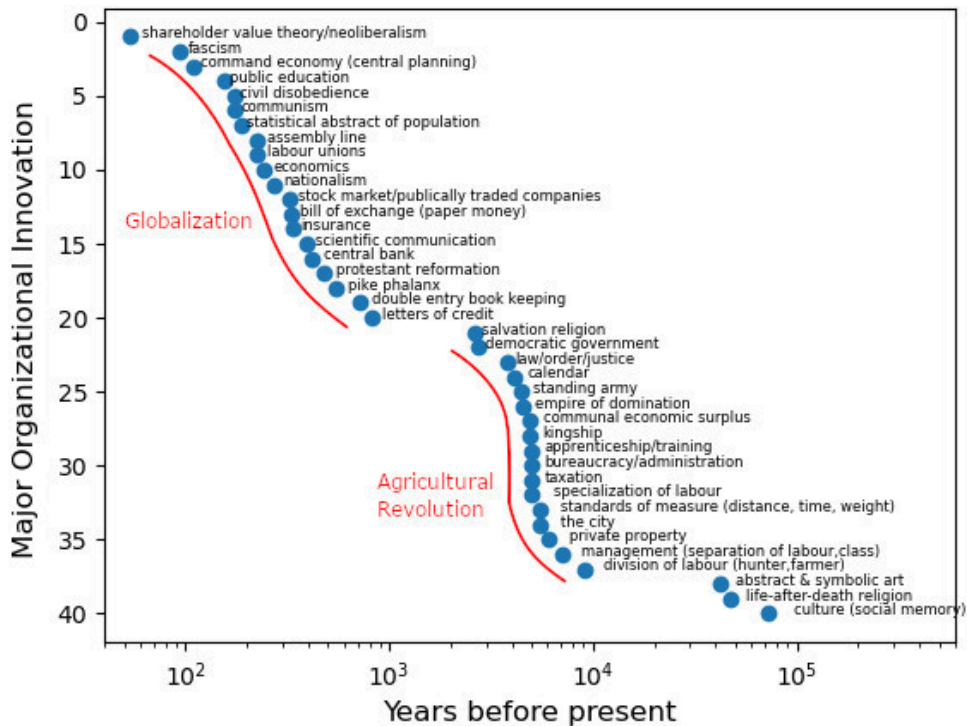
Figure 9.3 - Time between significant innovations in methods of organizing human affairs. On a semi-log plot, asymptotic processes (typical of an approach to equilibrium) show up as "S" curves. Here we see the effects of substantially increasing the size of human interaction networks caused by the agricultural revolution (and the invention of cities) and globalization (as long distance trade encompassed the whole earth).
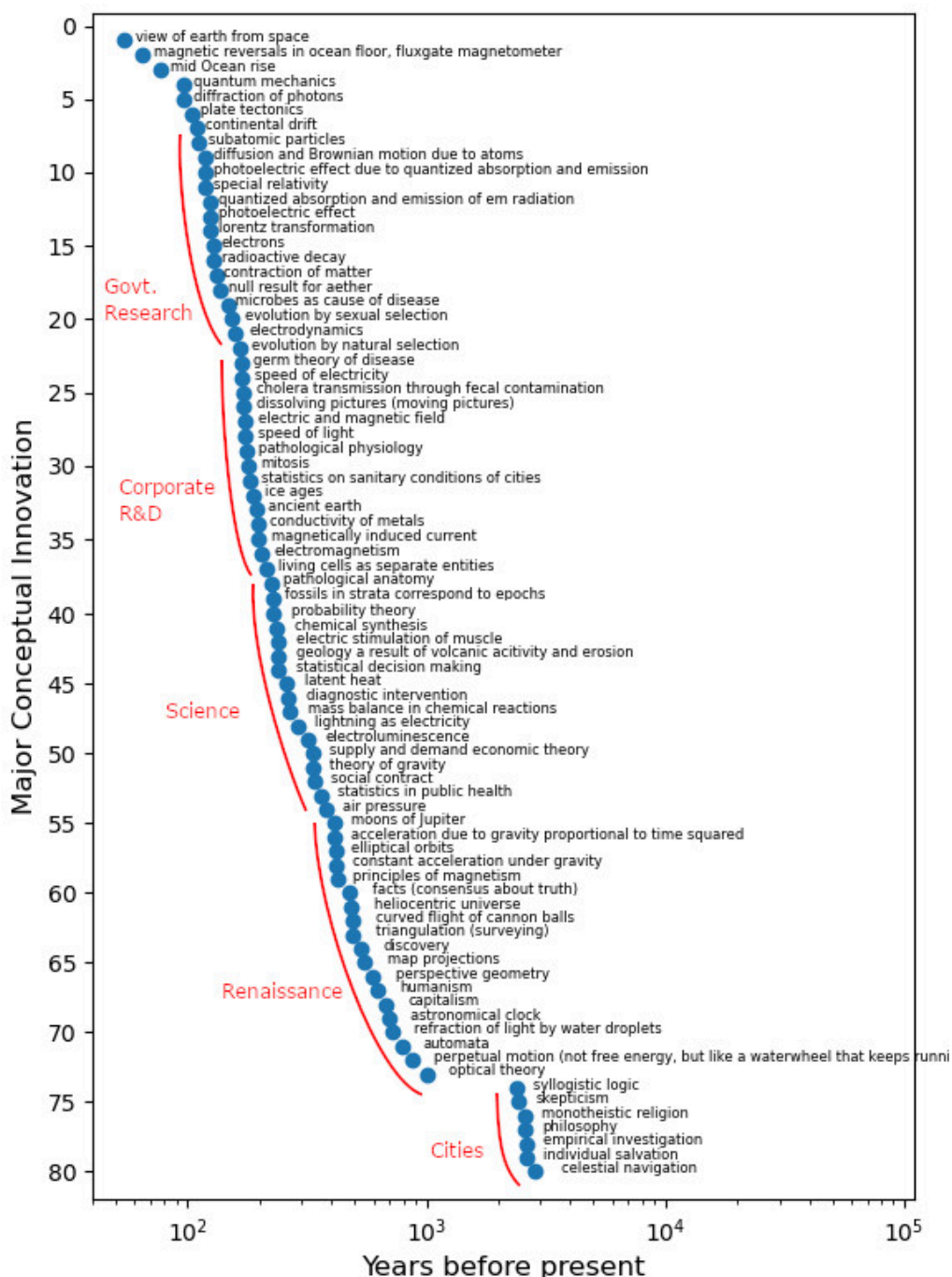
Figure 9.4 - Time between significant conceptual innovations (when our understanding of human capabilities or of the natural world are irreversibly broadened). Several epochs of conceptual transformation can be seen that roughly correspond to the history of cognitive development.

In figures 9.2 through 9.4 we see that critical point has now arrived. We have major technological innovations occurring on a timescale of about every 20 years. These are *major* innovations, the kind that render current knowledge of how to get things done completely obsolete. Every one of us alive today will experience an event where almost all of our knowledge is rendered useless almost overnight. We have structured our society so that this event will make us, as humans, almost useless. We have only that one chance in our youth to suspend our social obligations and lose ourselves in the awe and wonder of learning to understand the most revolutionary conceptual and technological developments that humans are capable of. Thereafter, we must adapt as best we can while still devoting the vast majority of our waking hours to meeting our responsibilities to family and society. There is no opportunity to indulge our curious nature and revel in amazement at the breathtaking scope of cognitive audacity created by overturning our understanding of nature when those changes represent an immediate and palpable threat to our very survival. This is unsettling for individuals and we should not be too surprised to find people losing faith in the norms and institutions of modern life when confronted with such seismic shifts in the very bedrock of social organization.

The forces of change are overpowering yet barely visible. To any one individual they are as arbitrary and capricious as the Gods who interfered with the lives of the ancient Greeks. We are going to need an unprecedented degree of collective action to solve this problem (the problem of being committed to an increasing rate of change at the point when the timescale of change has overtaken the timescale of human roles within the institutions of social reality), but the natural instinct of individuals whose tradition is based on the narratives of "great men" is to circle around the individual liberties that are sacred to their understanding of life.

10 Civil Society

Not what we have, but what we enjoy, constitutes our abundance.
  Epicurus

The **nation** is so intimately linked to the **state** in today's world that we often use either term as a shorthand for nation-state, ignoring the historical processes that united two very distinct facets of social organization. But when we consider the economy in relation to both the nation and the state, we find an even deeper layer of contingent social evolution that has been subsumed into our baseline assumptions of how societies function. As with the gentleman who discovers he has been speaking prose all his life, our understanding of civil society is simply taken to be the ordinary way that people live. It is something that those who live in Western democracies are born into, just as were the preceding generations of their families, and the historical uniqueness, to say nothing of the present importance, of civil society remains hidden from view as if it were part of the underlying physiology of social organization; as invisible to us as our kidneys, as we go about the tasks of daily life.

Almost all human societies throughout history have been committed to stability. Not just the maintenance of social order, but a complete stasis where everything remains the same, to the extent that external forces allow. There is no "direction" that the society is headed toward and no sense of building toward a better future. If monumental projects are undertaken, they are strictly created by the will of the supreme ruler, and almost always in service of the aggrandizement of that ruler. Modern industrial society is profoundly different; we strive always toward a better future for the next generation and we accept constant change as the cost of this improvement. The direction of change, however, is not dictated by a supreme ruler, nor even of pluralistic government. The interplay of civil society and the organs of state is the arbiter of the path that society finds for itself.

The discovery of the new world was almost contemporaneous with the invention of printed books made using moveable type. Through the dissemination of travel narratives, written by many of the explorers who returned to Europe after voyaging to the far side of the world, people began to get a taste for adventure and the grand mysteries to be found through exploration. Afterwards, the invention of the novel took people on an

adventure within their imagination, living alongside a protagonist who was facing the direst tests of conscience and competence in a manner that allowed people to feel the intense emotional swings of the narrative without the physical suffering that would accompany these sensations in real life. The age of discovery was a progressive diffusion of this desire to experience the sense of wonder that comes with discovery, and to vicariously share the thrills and terrors of those on the sharp end of the adventure. The childlike sense of awe and amazement that comes from finding the unexpected, and the inner joy that it stimulates, was gradually being extended into adulthood. As people began to covet experiences of novelty, the emerging markets of capitalism were poised to start feeding this hunger with the first stirrings of what would come to be known (rather prosaically, considering their origin) as consumer goods.

An industrial society is dedicated to constant technological innovation as the basis of its economy. Innovation, though, comes from individuals with the liberty to pursue their own lines of thought, unrestricted by the monopoly on injustice that a state reserves for itself. In order to establish an innovation and have it spread throughout a society, the individual who first conceives it must recruit his or her fellows into supporting and working towards the implementation of this new idea. If the idea has merit and circumstances are such that people can appreciate that merit, then a constituency forms behind the idea and grows as the innovation is adopted and becomes an irreversible accretion to the social order. Economic innovations, those having to do with transformation and distribution of resources, are usually produced by companies and find their growth through success in the marketplace.

Organizational innovation is often developed through political infrastructure, both non-governmental societies and political parties, and is spread by communication channels. Conceptual innovations are primarily developed through government sponsored academic specialists and often must be translated into technological innovations before the underlying concepts become adopted. There is a constant tension between individuals who have their own ideas about the direction of progress, and collectives that gather behind some particular idea or program, with a noisy, argumentative discourse that flows in countless currents and eddies of social conversation. Civil society is this plurality of individuals and institutions that both oppose and balance the state, while at the same time being controlled and protected by the state. It is a singularly odd way of organizing a society and it is primarily responsible for the liberty and equality that we enjoy today; at the same time much stronger than capitalism as an economic force, and democracy as a political force, yet somehow also less visible and therefore more vulnerable to sabotage.

One of the advantages of requiring continuous technological innovation is that continuous cognitive growth is required to achieve that innovation. This makes it difficult for rigid ideologies to take root in civil society; the people are justly sceptical of sacred knowledge, always asking for a rationale that is supported by facts and demonstrations. Ideologies can still find a constituency, but they cannot monopolize the beliefs of the entire society. For this very reason, Islamic states have never been able to develop much more than a fledgling civil society before the ideological center of the society, committed to doctrinal faith, takes back control. When the Western coalition left Afghanistan, two decades of democratic participation counted for nothing as the Taliban walked in without even an argument. Without a strong civil society, democratic elections are mere play acting as the people go through the motions but never feel the collective power that can actually guide a society. The modern Islamic state responded to industrialization (that came from outside) through fundamentalism rather than nationalism. The unifying principle was the struggle to purify the faith from folk distortions and the rituals and superstitions of rural practice. This allowed them to replace the traditional positions within a village or clan with a shared identity as a Muslim holding a communal commitment to the implementation of a universal law. Thus were the technologies of industrialized societies adopted, with modular workers able to cooperate with strangers, bringing the power of communication, transportation, and military technology to the Islamic state. The inability to create a strong civil society, however, prevents them from following the path to greater individual rights and liberties that have developed elsewhere.

The Soviet Union, as well, embraced an imitation industrial society (imitation in the sense that they adopted the new technologies but largely did not innovate themselves) without ever achieving a civil society. Indeed, there was no possibility of a civil society developing in an environment where there was social control over the entire spectrum of economic activity, right down to the pedlars of snacks. The Soviet leadership even declared civil society to be a farce; the elite capitalists who had political influence were merely members of the ruling class, politicos in disguise. However, the utopian economy that Marx imagined, but never actually explained, was vapourware and the Soviet economy was a command economy based on the German model used in World War I. It truly was directed by an elite class of politicos and was thus never able to deal with the complexity of people's shifting desires when faced with abundance (never the abundance of the wealthy nations of the West, but certainly a land of plenty in a world historical context). The lure of ideological purity could not overcome the relentless failure to achieve the promised

bounty of socialism, and despite having complete control of the educational system, where ideology was pushed very hard indeed, by the time the system collapsed, there wasn't a single believer left to mourn its passing, though there were legions who yearned for a civil society to grow from the ashes. Sadly, no amount of wishing could build a civil society out of the shock-therapy capitalism that created an oligarchy that used its immense economic power to utterly destroy what social structures remained following the collapse.

Civil society had no antecedents prior to its appearance in the North Western regions of Early Modern Europe. Whenever the division of labour had created specialists in economic production before this, those specialists were dominated by the specialists in violence. The best they could hope for was to live within a protection racket that delivered on the protection. What was different this time? What was it that allowed civil society to emerge and grow into a power that could take hold of determining the direction of state, supported rather than thwarted, by a strong military? Several factors converged in that place and time to catalyze the transformation. First was the commitment to perpetual and exponential economic growth; the entrepreneurial strategy of seeking advantage by introducing innovative technology for production or innovative products themselves. This created an economic surplus that swamped what would be available from a protection racket operating on a static society. In short, the specialists in violence were better paid in a system that pursued economic growth. Second was the fragmentation of Europe into many competing states so that if the military in one state tried taking it back to a static society, the economic superiority, and hence military superiority, of its neighbors would soon render the backward state ripe for conquest. The third was the ideological stalemate that followed the enormously destructive wars of religion. The protestant states turned from the zeal of reform to a wholehearted belief in tolerance, allowing diversity of opinion to flourish. The reformation also set up individuals as their own priest and internal judge, giving them the responsibility of determining virtue in their own personal lives, and thereby also giving them a great independence of individual action; allowing people to freely contract with other individuals to commit to joint ventures. The fourth factor was the laws surrounding private property that allowed multi-generational, wealthy family dynasties to form as no individual could procure enough wealth within a single lifetime to command the power to treat with the monarch. Finally, the division of labour reached a point where everyone in society had to be trained to communicate and cooperate with strangers so that the type of work required in a proto-industrial society could be supplied with workers; the seeds of practical nationalism were planted in this period.

If civil society is largely taken for granted--in fact, practically invisible--one might wonder how it remains stable; especially in light of the fact that it is an historical anomaly. A key to the self-sustaining property of civil society is the tolerance that was built into its founding. Tolerance, though, doesn't quite go far enough. Civil society actively encourages a plurality of ideas relating to social issues and the direction that society is moving in. The marketplace of ideas in civil society is a loud and boisterous exchange, but for all the intensity that can develop, there are constraints placed on just how radical an idea can get before its discussion becomes taboo. There is a strong social consensus on the window of acceptable ideas, largely shaped, at least historically, by the vertical information channels of manufactured consent. The region of acceptability is also dependent on national identity and is strongly contingent upon recent events. Opinions and arguments that appear regularly in newspapers and the intellectual lane of television and radio are discussed widely in the broader society. Ideas that are suppressed by these large media channels are never able to find a large enough audience, one that is aware of circumstances that serve as a necessary social context, to participate in the discussion, and so these ideas simply dissipate. The original premise of manufactured consent was that powerful interests work to suppress the discussion of these topics, but we must recognize that there are also highly destabilizing ideas that play on the prejudices or ethnic identities (a surprisingly resilient human emotional trigger) to generate panic and even violence. Here the interests of societal stability are being served by suppressing the radical discourse; interests that are powerful, but not monopolized by a tiny elite. Civil society finds stability in giving individuals an opportunity to contribute to the consensus of private interests that direct society, without allowing the anti-social faction free reign to destroy the tolerance that permits the exchange of ideas necessary for a consensus to emerge.

Civil society is not just limited to relations between citizens and the state, a large part of civil society revolves around organized leisure activities: clubs and societies that exist to bring people with mutual interests together to engage in activities for which they share a passion. These organizations almost universally inherit the democratic organizing principles that are now deeply ingrained in Western society. New members are socialized into the norms and structures of self-government that seamlessly allow these groups to resolve conflicts and prevent confrontations that would only interfere with the purpose of the group. The most active members seek out a leadership role by standing for election to the statutory positions that administer group governance, and also by mentoring new members in the process of governance. The very fact that the larger society is so permeated with self-

governing organizations that are completely separate from normal politics is a key strength of civil society. The ways and means of self-governance become second nature to all citizens in an environment where partisan political battles are totally irrelevant, and the pursuit of pleasure and fulfilment dominate. This has been the practice for centuries now, with in-person meetings being the only practical route to engage in real-time discourse centered around a given activity.

The internet has turned this time-honoured practice inside out. Worldwide networking has given us the opportunity to find people with mutual interests and engage with them far more easily and with more convenience than ever before in history. However, the spaces that are used to facilitate these virtual meetings follow a different logic, built from a very new and different history, compared to the clubs and organizations of civil society. In virtual space, very few formally organized groups have existed through a succession of leaders; most of these groups are still led by a founder figure who claims ownership of the group. Administration in virtual space is less onerous and so there has not been a need to borrow the principles of democratic self-governance, and the associated leadership positions, from civil groups that meet in person. Thus are young people indoctrinated into the normalization of benevolent dictatorship as the default mode of social organization.

Groups that meet in the real world require bricks-and-mortar spaces in which to gather. These spaces are generally rented or leased since the cost of owning a building would be far beyond the means of a group that is recreational in nature. The infrastructure to support in-person meetings, such as transportation networks, street signs and street lights, policing to prevent random robberies, and a thousand other details that are simply taken for granted in cities, have been established over centuries and cemented into behavioral norms and institutional structures. Thus can groups get by without any need to develop the administrative systems required to facilitate their meetings, other than renting out some space. On-line spaces do not yet have that basis of infrastructure, though, so on-line groups cannot easily exist without also providing this administrative foundation to support their group-related activities. Thus do the owners and developers of these spaces claim rights of governance over all who use the space.

The practiced cynicism of the modern youth who is confident of their superior understanding of the world based on a familiarity with new technology, leads them to dismiss the formal structures and bylaws of group governance as anachronisms from the deep past. Since they have no familiarity with such formality in their everyday lives, they assume that these rigid structures are

merely antiquated fashions, like the three-piece suits and neck ties worn by businessmen. They reason that if there were practical advantages to these rules, they would surely be a part of the on-line world as well. The very fact of their absence from on-line organizations and groups speaks to their feebleness. What these young people miss, of course, is that these structures are a part of self-governance while all of their on-line experience consists of being governed by an individual or corporate entity that reserves all power for itself.

This is the ultimate realization of Hannah Arendt's notion of liberal freedom being a "freedom from politics"; a freedom to only pursue one's personal interests without having to put any work or thought into the maintenance of the world that one shares with others. It is a particularly attractive type of freedom to individuals who have little innate interest in social organization, especially those who devote themselves to science and technology, where social reality is pushed back into insignificance. It is an illusory freedom, though. One that was an artifact of the era of peace, prosperity, and economic dominance that flowed from the social levelling in the post World War II era. For a time, democratic governance reduced elite capture of many of the powerful Western states and this individual liberty was able to flourish with very little work required of its beneficiaries to keep it going. A whole generation grew up in this era and learned to relish "freedom from politics" as they were lulled into believing that political benevolence was an inevitable consequence of infrastructure that was already in place. They trusted that these systems of governance were a kind of homeostatic mechanism that used feedback to keep everything on an even (and thoroughly equitable) keel. This generation was utterly sandbagged by the orgy of deregulation that was brought in by Reagan, Thatcher, and their elite patrons.

The organs of civil society were dramatically weakened by the very success of social progress that came on the back of world war. The institutional knowledge of self governance was greatly diminished by a lengthy period in which governance was so beneficial to so many that participation in politics was reduced to simply showing up to cast a vote every few years (visible minorities were still fighting tooth-and-nail just to be included as human, but the miracle of semi-equitable economic growth blinded many to the immense privilege that was conferred upon the majority). It was a catastrophic loss, coming as it did just prior to the creation of the internet and the opening up of on-line spaces. These spaces, like any other where people exist in a social milieu, require governance to facilitate decisions and policies that affect everyone who inhabits the space.

When the internet was new, there was a tremendous excitement in the air; an expectation of an expansion of the principle of civil society into all social power relations mediated by the ability to form social networks purposefully, based on individual compatibility and complementarity. The idea of the collective reaping the benefits of administration, regulation, and coordination from an institutionalized power structure, while at the same time having that power structure be directed by, and held accountable to, the people being governed is exceptionally attractive to the vast majority of humankind. It is not merely the consent of the governed found in classical social contract theory, but the consent of the *self*-governed--consent through consensus. The possibility of extending this principle to power structures below those of state government, especially the power structures that make up the employer-employee relationship, have been sorely desired for generations. The promise of the internet was that people would be able to easily traverse the globe to find like-minded spirits and form communities based on interest rather than the contingencies of birthplace and economic constraints. People dreamt of finding freedom from economically imposed employment by putting these communities to work for the improvement of the larger society, and somehow being released from the iron grip of those whose primary interest was the further accumulation of capital. Someone pursuing a desired goal as part of a team will readily submit to the coordinating efforts of a manager so long as they retain an ability to evaluate and affect that manager's performance. This was science fiction, to be sure, and nobody was delusional enough to anticipate a revolution of the proletariat or anything like that, but the feeling that the reciprocity of civil society would expand and come to dominate all power structures was taken as righteous and unstoppable. That was the basis of the irrational exuberance and optimism that now appear so naïve in retrospect.

The governance structures of on-line spaces are only a part of the corrosion of civil society. Social media is also affecting the institutional trust networks that were developed with practical nationalism and industrialization. Traditional societies do not allow individual action that involves a member of a social group making some kind of agreement with a different group or an individual from a different group. Any such interactions with people outside of the group must be sanctioned by the whole group or by a member who has the status to allow it. Principally, the decision to carry out the action would be cemented through an elaborate ritual, using the heightened emotional state of ceremony to bind the members of the group to the chosen direction. In people with multi-stranded modes of thought, the socially constructed connection between group membership and a course of action are crucial for individual commitment. The idea of a multi-stranded individual giving his personal word

of honor as a binding guarantee is unthinkable. Within civil society, though, an individual's word is his bond. Modern, single-stranded thinkers are able to freely join, or leave, social groups that may be utterly foreign, without any greater rites or observance than a spoken promise. This is one of the key factors that allows civil society to perform a leadership function, directing the offices of state to develop and enforce rules that take the whole society to fulfil a given objective. Because individuals can consider issues in isolation of social ties and overlapping meanings, they are able to discern potential actions that will benefit themselves, their families, and others known and unknown. Incremental steps toward improving their lives can be discerned and then advocated for. In this way the structures and institutions of civil society gather members (or lose them when alternatives appear more attractive). All political social power derives from a constituency and civil society is a machine for building constituencies to support innovative ways of organizing and directing a society as a whole.

Civil society provides the means through which ordinary people are able to shape and guide the directions in which a society extends exploratory branches out into an uncertain future, some of which will become the trunks of commerce, intellect, and leisure that form the bulk of human activity. Unfortunately, participation in civil society, while leaning toward universal suffrage in theory, is highly dependent on the resources any one individual can muster, and is thus very unequally distributed in practice. Market capitalism is very much a game of flexibility, of redeployment of resources when new information comes to light. Successful capitalists are the ones with the resources to manipulate the direction that society moves toward, however they must also maintain their foundation capital if they want to maintain their economic power. As long as a society implements measures to prevent any individual from amassing truly obscene amounts of wealth, then the ebb and flow of market capitalism keeps the rich busy with staying rich rather than indulging in social engineering as a hobby (a task for which they are uniquely unqualified). Democratic governance brings everyone to the table to participate in determining the direction that society moves by regulating the market -- and the players in the market -- so that they also have to work at building consensus if they wish to explore directions that impact society. The continuance of civil society depends on making quite sure that democratically controlled political power is greater than any other source of power within a society, be it economic, ideological, military or political.

The soft underbelly of civil society is that it is built upon social norms that are barely noticed by the people who make up civil society. Social structure has its reasons of which the mind knows nothing at all. Just as with breathing

for an individual, where one can exert control, within certain limits, of the rate and depth of one's breathing, as soon as the mind changes focus, breathing becomes autonomous. Much of social behavior is of a piece; norms of behavior are executed autonomously, without conscious thought, unless an individual forces their attention onto those aspects of their behavior. It is difficult to protect that which one cannot see. The highly visible manifestations of civil society, such as democratic elections, can always be simulated without the will of the people being the fulcrum on which the elections are decided. The hidden manifestations are far more revealing metrics for assessing the health of a civil society. Is the government regulating private entities to limit their ability to manipulate or monopolize markets? Is economic growth and innovation taking place? Is the government implementing policies that are supported by a majority or are minoritarian views being pushed through by powerful special interests? An appreciation of how a society measures up using these indicators requires a great deal of research; it is far beyond the means of individuals who have work and family obligations that take almost all of their time. A free press can inform people of much of this, but it must not only be free from political interference, it must also be insulated from concentrated economic power of private interests. As we will see, social media is in the process of destroying the free press and its ability to inform citizens of the health of their civil society. It is largely serving as the vector through which civil society itself is being destroyed. Like a disease that targets the immune system, social media attempts to cover its tracks as it relentlessly assimilates the levers of social power. This rough beast, its hour come round at last, slouches invisibly toward a new era in social control.

11 Social Media

It's an unreal universe, a soluble tissue of nothingness. While the Internet beckons brightly, seductively flashing an icon of knowledge-as-power, this nonplace lures us to surrender our time on earth.
  Clifford Stoll

Social media are technologically dependent modes of communication that allow individuals to create and share media-based information such as text, images, video, etc. with other individuals through peer-to-peer networks. Technology has added radically updated capabilities to the communication networks that have always been used by humans to facilitate the coordination of information and activity that is required by animals that live in groups. In order to understand the impact of these new capabilities, it is worthwhile to first revisit the basics of social networking as it existed for most of human history, when people lived in small groups that rarely changed membership except through birth, death, and pairing for reproduction. To fully abstract the process of social networking, we will consider it as a form of computation, analogous to the processing that a neural network performs in artificial intelligence (AI) programs. But whereas a neural network performs logical operations based on a weighted integration of simultaneous "neuronal" inputs, a social network performs a type of social logic based on the asynchronous, but cumulative, reception of linguistically expressed information. A further difference is that most contemporary neural network AI frameworks do not use networks with cyclic graphs (paths through the network that are closed by returning to an already visited node) in contrast to social networks (and real neural networks).

The social logic that human groups engage in consists of evaluations of the behavior of members of the group, inferential hypotheses about the individual motivations driving the behaviour, and interventions that might be required in response to that behaviour. At first glance, it seems odd to use the term "logic" to describe the kind of busybodiness that is maligned in both popular and folk culture, yet the term is wholly appropriate and the utility of social logic is immeasurably undervalued. For most of human history, people have lived in groups of about 50 to 150 members; small enough to ensure that everyone in the group knows everyone else well enough to develop a mental model of each person that

can be used to predict how that person will react or behave in any given situation. These models are obviously much more highly developed for the few individuals that each person is closest to, but everyone will have a bespoke model for every other person in the group. When new information arrives concerning the behavior of a group member (behavior includes both speech and action), then that information is evaluated in the context of the mental model that represents that particular individual. The evaluation is thus very much performed using principles of human behaviour; a type of social reasoning that aims to assess the needs or wants of an individual as well as whether the reasoner approves or disapproves of the exhibited behaviour.

The overt purpose of social processing is to find consensus on issues relating to the wellbeing of the group. Social reality is created by individuals who have a particular status function (an acceptance by the entire group that this person can do a thing) using declarative speech to bring a piece of social infrastructure into being. Thus it is essential that the group is always aligned in their understanding of the status of each individual. If an individual's behavior is judged to be destabilizing for the group, then an intervention may be required, so it again becomes essential for the group to reach consensus on the nature of that intervention and the coordination required to make it happen. Typically this will involve peer pressure exerted on the person (or people) who need to be convinced to change their behavior; small groups invariably find a unified message delivered by someone with the right status to be sufficient for any situation (there is never a need for any kind of specialized labour that functions as a police force).

There is no natural restoring force that brings a group of curious and free-thinking individuals into perpetual harmony. Think of it like a yardstick that is balanced on top of a finger, with constant corrections required to keep it from falling over, in contrast to a yardstick that is suspended like a pendulum, pinched by two fingers (any push on the yardstick is soon damped down without any outside force). A group of humans is always far from being in balance, with petty rivalries, varying ambitions, suppressed grievances, and a whole list of smouldering issues that could erupt at any time into divisive conflict; complete equilibrium would occur only with a total loss of consciousness among every member. In order to continue as a group, there must be a mechanism that continually operates to maintain a type of steady state or homeostasis of the core functions of the group. That mechanism is the social processing

of a continual exchange of gossip among the members of the group. By rapidly disseminating new information about group members through the network of person-to-person gossip, the system of social processing is always engaged in monitoring and assessing the stability of the group as a whole. The gossip network is driven by individuals earning status for delivering new information that turns out to be important, as well as by making judgements that are consistent with the consensus that emerges. On a personal level, humans just take pleasure in gossiping about each other, but from a systems view, gossip is an essential stabilizer of group living.

The gossip network is focussed on communication (dissemination of information) but its effect is to cause action. And action, when it occurs, becomes new information that is ripe for dissemination. This creates a positive feedback loop that drives a process of preferential attachment (an action, once taken, becomes a focal point of the community and spurs further action in the same direction until such time as the community is satiated with the topic (preferential attachment is analogous to the economic observation that "the rich get richer")). When viewed from a systems perspective, the process is highly recursive and serves to explore areas of the adjacent possible that appear to provide access to new opportunities for the group to improve its comfort and well-being. The new area is explored rapidly by diverting resources that might be used to explore other areas of the adjacent possible, creating a (highly contingent) fractal growth pattern over time as the community coevolves with its environment (fig. 11.1 shows schematically how some processes grow much faster than others).
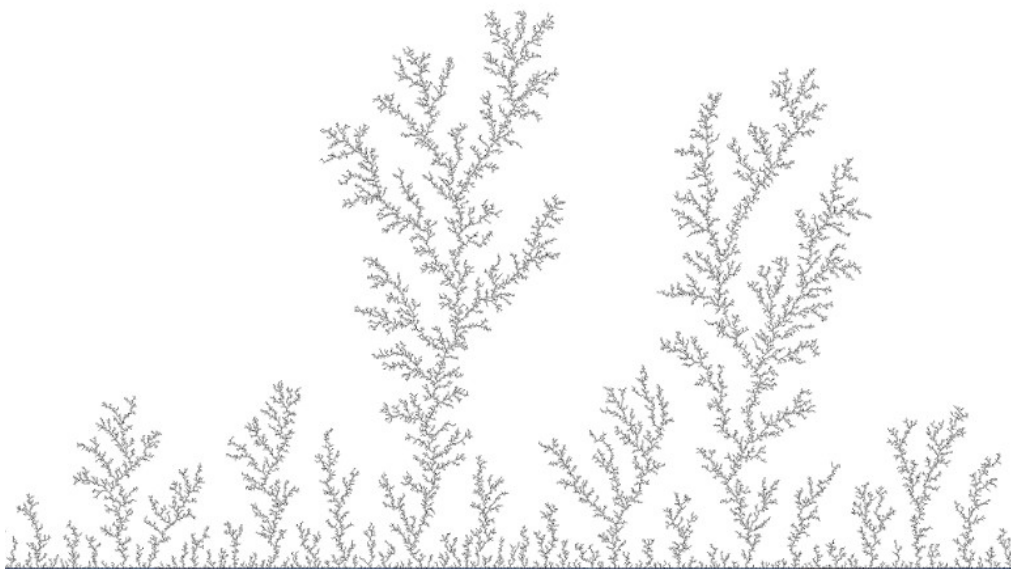
Figure 11.1 - Fractal growth along contingent pathways as illustrated by diffusion-limited aggregation. The growth pattern shows preferential attachment instead of the averaging of negative feedback.

The preferential attachment mechanism also lies behind the phenomenon of undirected collective action (or more prosaically: unintended consequences). The social processing that reaches the threshold necessary to initiate the action of an individual does not lead the group to collectively deliberate over where that action could lead. Indeed, distributed computation on a network is ill-suited to taking a causal view of how all the momentary decisions will integrate and bring about some long-term result. Instead, action leads to the spreading of information, which leads to further action, and the noise is fed back into the social amplifier (the gossip network) until it saturates. The long-term consequences are only identified retrospectively when mitigation, rather than prevention, is the only response available should the unintended consequences prove to be harmful. Of course, many unintended consequences are (mostly) beneficial, like Adam Smith's invisible hand that guides producers to make stuff that consumers want without any central planning. There is always a mixture of beneficial and harmful (and neutral) unintended consequences that are produced by innovation that is collectively pursued. The very essence of an evolving system is to attempt to maintain the core functions of the system in steady-state, but far from equilibrium, by using the surplus energy of the beneficial consequences to mitigate the harmful consequences while searching the

space of the adjacent possible for new opportunities to harvest a new source of energy.

The gossip network that exists in a group that spends its entire life together (e.g. a tribe, band, village, etc.) works to maintain group cohesion because it is predicated on everyone having an internal model of everyone else. When one person is engaging in gossip with another group member, the message is tailored to the particular way in which that person reacts to new information. The computational task of the network is to create a constituency for political action (although within such a small group, politics is so local that it is incongruous to even call it politics). All political social power is derived from a constituency, and the magnitude of power is directly proportional to the size of the coalition. Gossip is meant to recruit others to recognize a particular social problem within the group and to commit to a particular strategy to solve that problem. The architecture of the network contains the "algorithm" to direct the emotional energy of individuals into dissipating social disturbances that threaten the cohesiveness of the group. This is a very different kind of computation, and algorithm, than we use in conventional logic and computer programming, closer to physical systems that perform computations to maintain structural persistence. By way of analogy, we will consider a man-made physical system to illustrate the principle and then generalize that to a class of self-organizing physical systems that will illuminate the kind of social processing done by a gossip network.

A simple windmill consists of a pair of blades mounted on a rotary bearing with its axis of rotation parallel to the ground, and connected to a tail that keeps the blades pointed into the wind by having the whole apparatus mounted on another rotary bearing whose axis of rotation is perpendicular to the ground (figure 11.2).

Figure 11.2 - Windmill that uses a tail and rotation about the vertical axis to point into the wind and rotation of the blades to capture wind energy and transfer it into the single degree of freedom of rotation about a horizontal axis.

Rotation of the blades occurs as long as there is a flow of wind (thus we are considering an open system, so constraints such as the 2nd law of thermodynamics are not applicable). The wind is composed of air molecules that are moving in every direction, but with a net velocity that is in a particular direction and with some average speed. Each air molecule moves in some direction, with some speed, until it collides with another molecule, with the collection of molecules forming a Maxwell distribution (very roughly like a bell shaped distribution that is distorted by having only positive values). We know how to do work when we can identify regions of high energy and low energy and then connect them so that energy is allowed to flow from high to low, but in air, the molecules of all different energies are thoroughly mixed and we cannot find regions of different energy levels. However, by inserting a blade into the wind stream and holding it at a particular angle with respect to the net wind direction, we are able to tease apart the fast and slow moving molecules into a macroscopic separation (micro and macro are relative terms where micro is the scale of the individual molecules and macro is the scale on which we can make things and measure them). The separation occurs by directing the molecules into a compressed stream over the windmill blade and then taking advantage of the fact that the slower moving molecules will fall into the space behind the blade before the fast moving molecules (n.b. this is a gross simplification to be used as an intuition

pump, not to understand aerodynamics), thereby creating a separation that is on the scale of the width of the blade (again, these molecular speeds will be the averages of a distribution—a statistical separation of speeds, not an absolute separation). We know that this separation will induce a net flow from the region of high energy molecules to the region of low energy molecules, and since we have fixed the blade to have a single degree of freedom about the rotary bearing, this energy flow will impart a torque so that the blades rotate. (fig. 11.3)
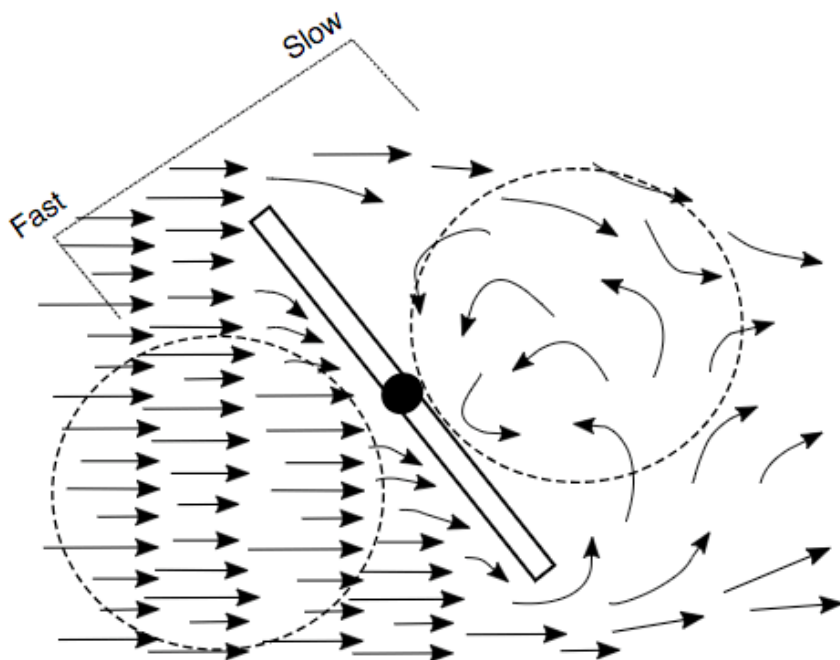

Figure 11.3 - Wind enters from the left and encounters an angled blade. The air molecules have to move around the blade and then random collisions re-direct air molecules into the lee side of the blade. The slower molecules that are knocked into the lee space spend more time there, on average, than fast molecules that traverse that space quickly, thus at any given snapshot in time, we have a macroscopic separation of air molecule energy between the "fast" and "slow" regions on the figure (dashed circles). This separation of energy allows work to be done.

One of the simplest self-organizing physical systems that maintains its shape over time, despite being in a non-equilibrium configuration, is a sand dune. The mechanism by which it persists is very similar to the macroscopic energy separation that drives a windmill (here macro refers to a persistent shape that we can see rather than something that we can make). The conditions required to form sand dunes are reasonably steady

winds that have enough energy to move sand, and a surface of sand that consists of a distribution of grain sizes where almost all of the sand consists of grains that span only a few multiples of some minimum size. A dune starts by a random perturbation that creates a lump on the surface that is several times larger than a large grain of sand (an arbitrary figure, say near the 95th percentile of grain sizes; the lump just has to be bigger than almost all the sand grains). As the wind blows sand over this lump, the various sized grains are squeezed into a compressed stream but the larger, slower moving grains will drop out first into the lee of the lump with the fast moving grains continuing on further. This gives a macroscopic separation of sand grains based on size with the larger grains backstopping the lump and making it even more resistant to being moved by the wind. The process continues with the lump getting transformed into a wing like shape with a low angle leading edge and a steep trailing edge. Even though the leading edge gets eroded away by the wind, the deposits at the trailing edge maintain the persistent shape of the dune as it moves in the direction of the wind. The size, shape, and spacing of dunes is all dependent on wind, sand shape, local topography, and other factors but the basic principle is that the shape of the sand dune itself, when inserted into an energy flow, creates a local energy gradient that is used to do work that continually maintains the shape necessary to generate an energy gradient. (fig. 11.4). The sand dune is said to be self-organizing since it creates the conditions for its own persistence (subject to the above mentioned constraint such as a supply of wind energy).
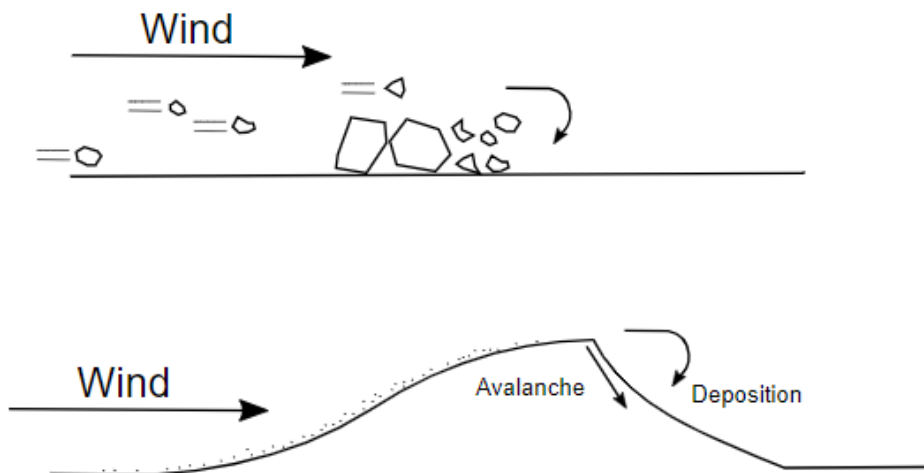
Figure 11.4 - sand dune formation

In a social network, an analogous process of self organization drives a process of continual maintenance to support a homeostatic level of group cohesion (though it must be understood that this analogy is pretty loose; we are trying to understand the process in a very rough manner, not as a quantitative model of computation on social networks). The "energy" flow that is being exploited is the anxiety that all individuals feel toward their own personal safety and survival should they find themselves on their own without a group to depend on for support. This varies between individuals and is highly dependent upon the day-to-day interactions between members of the group. The architecture of the network is like the shape that is inserted into an energy flow (like the blade being held at a particular angle with respect to the wind). Unlike the physical model, it is not just the shape of the network that matters, but also the way in which communication occurs. Gossip spreads through face-to-face communication between two people, with all the non-verbal aspects of communication augmenting the verbal message. Even more importantly, the exchange is interactive, with the receiver not only able to confirm an understanding of the message, but also able to argue with the speaker and potentially change the content of the message. It should be noted that the major technological improvement in communication during the 20th

century, the telephone, did not fundamentally change the nature of this "algorithm" (removing the visual aspects of non-verbal communication reduced bandwidth but the interactive nature of the telephone meant that information was processed in much the same way).

The topic of communication is the behaviour of other individuals who are known by both parties and an evaluation of whether that behaviour is appropriate. Every individual in a social group has a reputation that serves as a shared model of how that person will behave in any given situation. Gossipers depend on the existence of a shared reputation for all members of the group to allow them to perform social processing of any new behavioral information. Communication through the network serves to separate differing opinions on how the group should be operating, identify those individuals who are putting stress on group cohesion, and develop a communal will toward relieving that stress. This relief is generally brought about by the expenditure of emotional work (this is one-to-one, like gossip, but different in that one person makes a deep personal connection in order to understand and heal the psychological damage that another person is suffering from). Without this continual maintenance work, the everyday strains that develop between wilful individuals in a collective organization will soon exceed the limit that can be repaired and the group will splinter and dissipate. Although we are calling social processing "work", by analogy with thermodynamic systems, it is closer to breathing for humans: completely automatic and usually effortless.

This is how social networks functioned throughout most of human history (where people lived in groups that were small enough so that everyone knew each other) and why the social processing performed by gossip is so tightly integrated into the human psyche. The rise of cities and the specialization of labour and expertise have largely removed humans from the tribal societies in which people were able to trust those who shared an interdependent existence. When we expanded the network of dependencies way beyond the capacity of an individual to even meet, let alone know, the people upon whom they depended for their very survival, we had to put our trust in institutions rather than members of our immediate community (a greatly expanded community of those with whom we interact on a regular basis, but a much smaller community of those for whom we have mental models to predict their behaviour). Gossip among those for whom we do not have the ability to tailor the message to the psychological temperament of the receiving

individual has the potential to incite explosive conflict; however, almost every region on earth remained locally homogeneous until very recently (everyone you interacted with looked like you and shared a very similar environment and knowledge base). As industrialization and population growth led to greatly increased mixing of populations throughout the globe, technology and vertical information channels served to divert the social processing of gossip networks into innocuous and unproductive channels. Cultural performances became the shared emotional fountainhead for social processing, allowing us to gossip about the problems of fictional individuals and their imagined communities rather than one's own social milieu. The loss of group living was the driving force behind the enormous flowering of the performing arts that accompanied the transition to a globalized, industrial society, but our aesthetic judgement doesn't place televised soap operas, perhaps the most successful palliative ever discovered for a neutered social network, as the greatest achievement of human culture.

Then along came social media and holy fucking shit!

With the introduction of the iPhone in 2007, people were given general purpose computers that they could easily and conveniently carry on their person. At the same time, the drastically lower cost of cellular telephony infrastructure led to the penetration of cell service throughout the world, with poor countries able to leapfrog the expensive build-out of conventional, wire-based telephony. Thus the stage was prepared for applications that could potentially join the entire world into a network of social interaction. Recognizing the vast possibilities for monetizing such networks through subliminal means, the vendors creating these applications were only too happy to give the software away for free, and thus social networking applications were adopted in a super-exponential fashion, filling the globe with what appeared to be a benign and fun way to connect with old friends and make new ones. The euphoria of that brilliant dawn blinded all to the darkness concealed by the shimmering light of human connection.

Everything has its antecedents. Social media was preceded by pen pals, ham radio enthusiasts, computer bulletin board users, and others. However, those networks required a passion for a particular technology to overcome the barriers to entry. Thus only the adepts could find each other, and upon meeting, they overcame their mutual ignorance of each other by conversing about the technology. The networks were severely

constrained by their very essence. Social media was not just an extension of these earlier globe-encompassing networks between strangers; it was something new in the world, unlike anything that any person in history had ever witnessed. In the case of networks, scale is very nearly the entire game, and these networks quickly grew to encompass billions. Ordinary people, too: technological infants. Though they may feel powerful as they scroll past images at record speed, their competence is no greater than that required to stay within the lines of a child's coloring book. The technology is completely invisible, and discussion of the technology is entirely absent from the messages that are exchanged.

Social network adoption always begins with connections to members of a genuine trust network; close family and friends usually. Users organically grow their network by adding more distant family and friends who now live far away. The social media algorithms, however, are never satisfied with this gradual, organic growth, and they work to convince the users that they shouldn't be satisfied either. Friends of friends are constantly suggested as additions to the network, and why not? Re-connecting with people who were once close brings only joy, even in real life with the opportunity to talk about recent events in the lives of mutual friends and acquaintances. So why not extend the trip by making new friends?

The problem comes from the way communication happens over social networks. They are designed as one-to-many networks, so that your whole network of "friends" can see all the images, videos, and messages that you send. The manner of conversation is gossip between members of an established trust network, but the actual mechanics of the thing are closer to those of a broadcast network. Add to this the lack of up-to-date mental models for all the other people on the network, not to mention the multiplicity of people on the receiving end and the checks and balances of genuine gossip are no longer operative. These aren't the only problems but they are the foundation upon which all the other pathologies of social networking are built, constructing a giant edifice of social dissonance.

The business model for social media companies is known as *Surveillance Capitalism*, sinister enough as it stands but it is not capitalism in the sense that most people understand the term. While it is true that a healthy portion of their revenue comes from selling advertising, a good deal more comes from selling influence.

Their pitch to conventional advertisers, those who produce consumer goods or provide services, is based on engagement and interest. The companies' algorithms (the computer code that determines what any given individual sees when they use the social media application) are geared toward generating engagement of the users. These platforms are not merely digital letterboxes where the viewable content consists of just those items posted by members of a user's network. The algorithm tempts each user to stay engaged by "suggesting" they view content from elsewhere on the platform that they might find interesting. This is not just a way to expand the network, through users following or adding new people as "friends", but if the algorithm is successful at finding content that appeals to the user, it keeps them using the application longer than they would otherwise. The longer they are using the app, and the more engaged they are while using it, the more likely they are to internalize the message being put forward by paid advertisements, which are also placed into the feed of images, text, and video that the app gives to the user.

This is where the surveillance part comes in. The companies that provide social media applications reserve the right to record and save every interaction a user has with the software (every mouse click, every bit of text that is entered even if it is erased before sending, every finger drag over a touch screen...the whole shooting match). They provide the software for free, so there is no negotiating position for the users; if they want to be able to see pictures from their niece's wedding, they have to accept the terms and conditions (and given that it would take years of careful legal analysis to even get a rudimentary idea of what is entailed by those terms and conditions, they are accepted without even a cursory look). The companies are thus able to determine what interests each user; if they are clever (and they are very clever), they will occasionally insert provocative material to test where a user lines up on various spectra of beliefs, values, moral calculations, and other issues that allow a psychological profile to be constructed for each, individual user. The scale of these surveillance programs is simply beyond our capacity to understand, and if it was being interpreted by humans, the vast bureaucracy that would be needed to make even the most innocuous generalizations for any given individual would guarantee anonymity through the promise of incompetence. However, the compilation, organization, and analysis of this data is done by machines that operate tirelessly and with an incomprehensible speed. Individual profiles are constructed for every single user and they give these companies an unprecedented ability to predict individual desires and behaviors. If you

send a message to your friend that you can't make it for coffee on Saturday because your car is in the shop again, some new car ads are coming your way.

Social media companies try to remain silent about the surveillance they conduct on their users. At best, they may say that they are just gauging the needs of their users and trying to put them in touch with those who can supply what they need; like asking a friend for advice on where to buy something. Their pitch to advertisers has to be a bit more straightforward, since they want to charge a premium for placing ads where they will meet with stunning success. In order to sidestep the issue of surveilling their users, they will usually provide advertisers with statistics on engagement with ads, showing how their precise targeting (leaving unsaid the psychological profile that drives that targeting) can lead to far greater engagement than traditional print or television advertising. Since these social media companies are highly monopolistic (they are attractive to people when they are likely to already have, as current users, everyone that a potential user might want to interact with, an extreme example of preferential attachment, thus the early winners easily come to dominate the field) the statistics they provide cannot readily be checked or compared to those of competitors. The newspaper industry was largely destroyed because social media companies lied about the strength of user engagement with advertisements and caused the collapse of ad revenue which was the lifeblood of newspapers. This was a catastrophic event in the history of civil society, yet it is largely unknown among the general population with most people assuming that healthy market competition is simply working its magic to give people what they want.

The darker side of surveillance capitalism has to do not with selling products, but with influence; with the deliberate manipulation of attitudes and opinions, and with the direction and content of the discourse. Social media companies are able to determine what gets discussed among the populace by what they place in their users' feeds and just as importantly, what they withhold. It is manufactured consent but with an important difference. The "news" that each user is fed is entirely separate from that which all other users see. With the vertical information channels of traditional media companies, the choice of which stories to investigate and publish is entirely public and open to criticism and opposition. Social media is able to target each individual user, based on exhaustive surveillance of that user and the development of a

psychological profile that informs that targeting, and deliver content that remains entirely private. Thus individuals who might favour a practice that is reprehensible to the general population, for example, discrimination based on racial prejudice, can be led to believe that the opinions they hold, but have been unable to express publicly for fear of a backlash, are now gaining public support because they see a "news" landscape with stories of people celebrating such views. This ability to short-circuit the mechanisms of civil society for finding consensus in a population is extremely valuable to those who wish to impose their will upon that population without taking the time and trouble to build coalitions that support their ideas.

This is the real power of social media. Economic power by selling the ability to influence people to those who are willing to pay, and political power by being able to influence people to prevent any government regulation that might diminish their ability to surveil their users and then use that information to impact the direction that society finds for itself. The recent rise of extreme inequality, with the super rich hoarding more and more for themselves, has given rise to ever more spending on the purchase of political influence. The rich are consumed by unimaginable greed, and will spend lavishly for the purpose of protecting and extending their personal wealth. This is an extension of the process that was started in the Reagan/Thatcher era with wanton deregulation of private industry under the ludicrous assertion that market forces would lead to optimal social justice. The short-term escape from stagflation, and then the unconditional surrender of the Soviet Union at the close of the Cold War, created the popular illusion that market forces were as wonderful as their champions had claimed. This absurdly simplistic view was pushed hard by the rich in order to support their efforts to become even richer. In this they have been thoroughly successful, and have captured more and more of the state's responsibility to govern on behalf of civil society. While civil society was instituted to prevent political tyranny by the state, we now move toward a situation where private tyranny imposes its will by infiltrating and usurping the power of civil society.

The mechanics of individual engagement with social media are worth a closer look, because a superficial treatment inevitably leads to a dismissal on the reasonable grounds that people can easily judge ideas for themselves; they are not helpless automatons who believe anything they hear or see. When people first begin using social media, they are conversing with people they already know in real life, trusted friends and

relatives. This type of conversation is automatically routed through the gossip filter of our brains, not least because gossip is the most likely form of conversation to occur for new users of social media. As with in-person gossip, people naturally seek out the frisson that accompanies a juicy dish of gossip. The famous Facebook memo, where engagement peaks as topics veer into socially unacceptable areas only supports this interpretation of social media use as a form of gossip.

Although the purpose of gossip is to continually re-evaluate the reputation of others, one of the primary ways it is carried out is through the spreading of news: a re-telling of what some individuals have been getting up to recently and the events that shaped their behavior. Humans are actually hard-wired to concentrate on the facts presented as gossip and commit them to memory since a situational awareness is so crucial to behavioral evaluation. Critically, though, gossip must be conveyed in reciprocal face-to-face conversation, with all the unnoticed emotional clues that are also communicated in addition to raw speech, for that evaluation to be fair.

Social media co-opts the trust we instinctively give to those who provide gossip while bypassing the checks and balances that evolution has built in to prevent fraudulent or malevolent actors from misusing gossip for their own ends. That misuse is compounded by the ability of social media to target particular messages to individuals in secret, so that there are no backstops where the passing of bad information can be flagged and countered through public rebuttal. So as a new user becomes seasoned, they acquire "friends" or follow accounts who are not known to them in real life. Socially productive gossip is predicated on knowing the person with whom one is gossiping. When this condition is not met, then a door is opened for the misuse of trust to manipulate people without their awareness. Just as ingesting a chemical such as LSD can alter out sensory perception, so too can social context create a situation where our minds are fooled into treating sensory input in an inappropriate manner.

There is a secondary effect that is driven by social media taking on the role of mediator for gossip, and that is the reduction that it causes in genuine fact-to-face gossip. The social processing that gets done to maintain the stability of human trust networks is diminished by people spending too much time engaged with social media. They not only have less time to spend in conversation with friends and neighbors, but they also have fewer incentives because of the almost instantaneous

dissemination of news and memes over social media. Gossip sessions are often initiated by one person who has early access to some bit of new information (news about the larger society, not the trust group of the gossipers). The talk then migrates to the lives and activities of their mutual friends and acquaintances, fulfilling the socially stabilizing function of gossip.

It's not just social media companies that use the malleability brought on through users treating social media communications as gossip. In fact, the mischief caused through this channel by other organizations, including governments of powerful states, far exceeds any such use by social media companies. Those companies, however, cannot easily bring themselves to limit this mischief because users find these socially objectionable discussions utterly intoxicating, and engagement is the sine qua non for surveillance capitalism.

The misinformation industry today is enormous, though by its very nature it tries to remain largely hidden from public view. Like the espionage industry during the cold war, it is predominantly run under the direction of national governments, but at arms length so that some deniability is built in. Social media is their primary vector for spreading misinformation, though being result-driven, they do not restrict themselves as to method. With social media, the aim is to influence people both positively, to cause them to make decisions and carry out actions that they would not otherwise be likely to do, and to influence people negatively, causing them to distrust and disavow information, policies, ideas, and organizations that they might otherwise embrace. This can be done through targeted advertising with a political message, directed to those known (from surveillance) to be persuadable. A more word-of-mouth technique is to exploit the large networks of typical users by having Trojan Horse "friends" embedded in millions of networks. These highly networked users can then send messages with linked "news" stories to people with a particular psychological profile (organizations outside of social media companies are able to target individuals as well. Social media companies are only too happy to sell data about their users to data brokers, who then distribute it for a fee. As well, some organizations have used games and activities embedded into social media applications as mechanisms for building psychological profiles of individuals. This is a growing field but much of it remains secret.).

The use of social media to manipulate people is an evolution from the unsophisticated methods used by FOX news and the Right Wing Noise Machine in American politics. These efforts focussed on maintaining outrage, and hence engagement, of their target audience through fabricated stories that were presented through "respectable" sources. FOX news, of course, used highly polished television production values to push out nonsensical stories insinuating dishonest or unethical behavior on the part of Democratic Party members. These stories were backed up by the use of elected officials (Republicans) who reiterated the same accusations. The basic idea was to prevent any opportunity for their target audience to reflect on the accuracy or likelihood of the allegations by introducing a new outrage before fact-checkers and proper journalists could refute the last set of false assertions. Since these methods used public dissemination of information, they were subject to correction, thus the accusations could never gain any traction (nor were they expected to). As long as there was no opportunity for an ideological shift of the target audience, then the job was considered well done. This strategy was very effective at maintaining a dedicated base of supporters but it was unable to increase their numbers.

Social media, in conjunction with user surveillance data, allowed the messaging to become invisible to the general public. Only those who were determined to be receptive to the information, without feeling the need to verify it in any way, could be targeted. The people carrying out these influence operations soon discovered the value of having embedded "friends" in the networks of the target audience. There is an abundance of dark money available for influence operations that favour policies that benefit the wealthy, so there has been no difficulty in hiring legions of online trolls to perform directed messaging. The trolls are often in Eastern European countries and work cheap by Western standards. They are employed to become included in the networks of the target audience and then relentlessly repeat, amplify, and embellish selected messaging while being dismissive of contrary messaging (quickly drowning out any attempt at constructive debate). Troll farms have been, and still are, wildly successful in fostering viral memes on social media. With the very simple message structures allowed by Twitter, and (until recently) an open API for searching and responding to messages, online trolls became outnumbered by online bots-computer programs that pretend to be a person. Remarkably, through the cognitive illusion of participating in genuine gossip, a huge level of trust is given to these online personas that are only fronts for fraudulent trolls and computer programs.

The greatest single power of targeted disinformation using social media was entirely unanticipated by both those carrying out the campaigns and those trying to fight back against the plague of false beliefs. This secret weapon was the regression of social media users back to a multi-stranded mode of cognition as a result of their loss of trust in social institutions. The campaigns that led to this discovery were, for the most part, run by undemocratic states (primarily Russia and China) in order to destabilize the Western democracies. The troll farms set out to erode trust in government institutions by making claims and asserting false narratives backed up by fabrications stated as facts. The claims would originate with an online persona who was treated as a trusted source, and then the message would begin appearing from other trusted sources (again, online trolls or bots). Repeated occurrences of the same message from what were assumed to be independent sources significantly strengthened belief in these claims. The hollowing-out of traditional media and its function as a source of factual information that had just preceded these campaigns could hardly have come at a more opportune time. The timing got even better with the covid 19 pandemic that drastically cut down the face-to-face time of real, human contact for billions of people. Social media users by the millions found themselves increasingly isolated from the messaging of government institutions as their trust networks, which happened to be online communities—highly infiltrated with bad actors—converged on the necessity of revoking all trust of official institutions. Trust became intimately associated with social context just as it had been for the small human groups who existed for most of our history.

This was a worldwide phenomenon. Large numbers of people, widely distributed geographically and living in many different countries, began coalescing around vocal demonstrations against matters of fact, the truth of which were supported by government institutions. Often, indeed, very often, these facts were empirically demonstrable and easily witnessed. While morgues were overflowing with Covid 19 casualties and refrigerated trucks had to be brought in to deal with the overflow, there were people (live humans, not online personas) who were gathering with like-minded souls to denounce these reports as a hoax; a conspiracy by governments (or sometimes an economic conference where celebrities like to be seen) to exercise total control of the population. Just like the uncomfortable anthropologists who, when confronted with tribes such as the Nuer insisting that a cucumber was a bull, many people assumed some sort of misunderstanding. However, no demonstration of verifiable

fact, no amount of evidence whatsoever, could bring these people to abandon their position. The simple fact was that the physical reality that the rest of us experienced was being denied by these groups. This was, and still is, a profound mystery.
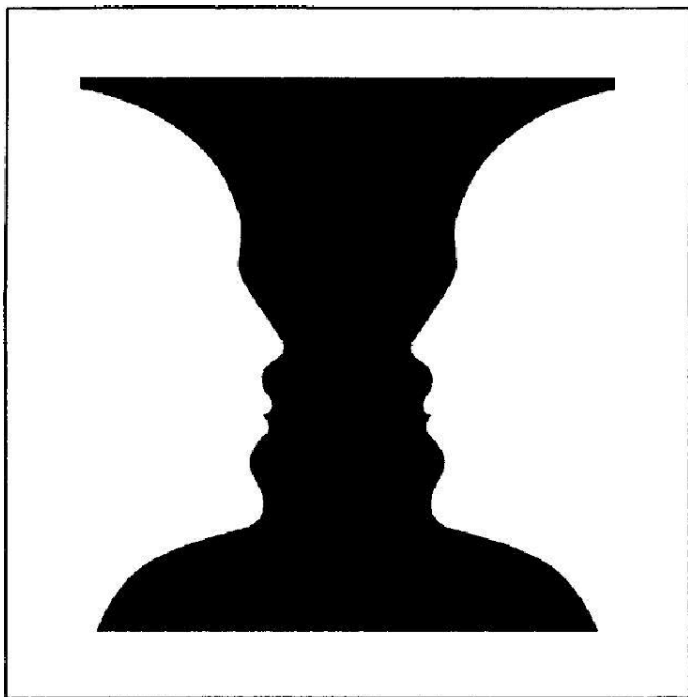

Figure 11.5 - Images in which the positive space and the negative space both form recognizable images in our mind, but we can only see one at a time. See the many examples by M.C. Escher here: https://mcescher.com/gallery/symmetry/

There are visual illusions, such as the well known lamp that can also appear as two faces looking at each other, or some of M.C. Escher's tilings, that use positive markings to represent one image and the negative space defined by those markings to represent a different image. It is not possible to see both at the same time, no matter how familiar you become with each image. Your brain has to defocus and then switch to the other image to flip back and forth between them. This is like the difference between single stranded thinking, where words and concepts map one-to-one with objects in the world, and multi stranded thinking, where the concept that applies to an object can be the same as for single stranded thinkers, or it can be something entirely different, depending on social context. The different meaning that comes to the fore when a particular social situation arises, is meant to demonstrate and consolidate

membership within a group. Critically, it is not a matter of pretending that, e.g. a cucumber is a bull; in that context, the object and the concept are one and the same. A single stranded thinker cannot begin to understand this because to them it makes no sense. It cannot make sense because physical reality is separate from social reality and this can be demonstrated empirically.

People who engage in this pattern of non-rational thought, where they reject evidence that they can experience directly, despite having never shown such tendencies previously, give every appearance of having joined a cult. In fact, this is more than just a passing similarity. Cults in modern, industrialized societies form when an individual suffers a moral injury and loses faith in the closest members of their trust network. They are cast adrift in the sea of modern life and become vulnerable to any sign of affection. If they are found by a cult, they are treated as if they were as precious as a newborn and a new trust network is formed with the other members of the cult. Once inside the cult, members are resistant to being taken out of it precisely because they don't respond rationally to evidence. In fact they are engaging in multi stranded thought; odd concepts, often related to the idiosyncrasies of the charismatic cult leader get mapped onto everyday objects or behaviors, giving the cult members a reputation for bizarre actions. Although this appears as a type of brainwashing or mild insanity to the single stranded thinkers who make up the vast majority of modern society, it is actually the normal mode of human behavior in an evolutionary sense; this is how all humans thought and behaved for almost all of human history. It is our modern way of life, forced on us by specialization and industrialization. That is the anomaly.

Social media cults arise when individuals lose trust in institutions rather than in trusted individuals, but in the modern world, institutional trust is what has replaced the trust networks of traditional societies. Those who find themselves losing trust in institutions due to the information they receive via their social media "friends", have a very short road to travel to find a replacement for institutional trust. The very same network of "friends" that has given them the "good news" is right there to fill that human need for belonging to a group that can be trusted. In this sense, the people who have been transformed by social media to embrace demonstrably false beliefs and defend them with all their soul are a genuine cult. What sets them apart from typical cults is the scale of their conformity. There are literally millions around the globe who have embraced almost identical versions of idiosyncratic belief; the strange set

of convictions that usually set one cult apart from another. This is due to united forces behind the loss of trust in the institutions and norms of civil society and democratic governance; the coordinated attacks on Western institutions by hostile state actors. There is no charismatic leader seducing these naifs to join the "family", just vast troll farms and bot armies being directed by cool, calculating organizations of influence.

12 De-Nationalization

If the young are persuaded by intellectual arguments that there is little or no hope, then they are robbed of the emotional energy to carry out the very hard and often frustrating work of building a better society.
   Harold Morowitz

   In the mid 19th century, it was universally accepted that nations, as defined by linguistic identity and shared folk culture (that is to say, the customs of the peasantry), could not survive the "laws of progress" unless they were large and powerful enough to form a state. These same laws of progress also demanded that land was held by force alone, so it was not enough to declare an independent state, the people would have to defend it from all other states that wanted to assimilate its territory and productive capacity. Given the European experience of near constant warfare since the fall of the Western Empire, this meant that all European states would of necessity be defending their right to exist against vigorous military campaigns aimed at their destruction. The logic of industrialization would then force the defeated population to assimilate into the nation of the dominant state; the nation and the state had to be in correspondence.

It was not only the victors who held to the view of assimilation, those who identified with the smaller "nations" that had little to no chance of forming states that could persist in the expansive territorial climate of 19th century Europe were resigned to the inevitable loss of their culture. Here is Rev. William Griffiths on the fate of the Welsh language in the mid 1800s:

"*Let it [the Welsh language] die fairly, peacefully, and reputably. Attached to it as we are, few would wish to postpone its euthanasy.*"

Here Friedrich Engels in 1864:

"*and though Gaelic schools were organized for the purpose of maintaining the Gaelic language, yet Gaelic-Celtic customs and speech are rapidly vanishing before the approach of English civilization.*"

This was not a racist phenomenon; the skin color of Welsh, Scots, or Irish being as white as any milky English complexion. In fact, the dominant culture gave almost no thought to the exclusion of those who were phenotypically similar but from a different linguistic or cultural tradition, welcoming them as appendages to the mythical folk culture that was used to define the nation during industrialization. Up until quite recently, it was perfectly acceptable in any society to make ethnic origin (of the lesser national identities) the basis for change of focus that served as the punch line of jokes. Because assimilation was a given, there was no intent to dehumanize those who had assimilated (as there clearly was, and is, with jokes that put down visible and unassimilated groups). That changed dramatically at the beginning of the 21st century; it can be physically painful to watch television from just a few decades prior where such jokes were a mainstay of popular humor. The "laws of progress" that were once as inevitable as the rising sun are now seen as morally untenable and tremendously unjust.

This rapid and significant change in perspective cuts at the very sinews that were once used to bind the people of a state together into a nation. The cornerstone of nationalism was to convince the people that they wanted to belong to a nation just as that nation would belong to them, indivisibly bound together in a shared sense of history and purpose. The needs of nationalism were somewhat orthogonal to the creation of a shared history, sometimes invented out of whole cloth where the actual history refused to cooperate. It was essential that anyone within the state could be easily trained to work at an industrial job, alongside people that neither they, nor any of their extended trust network, had any history of interaction. Thus universal primary education instilled a common national language and a common understanding of how the world worked and how it came to be that way. As industrialization progressively spread throughout the world, so too did state-sponsored education, growing from primary to secondary and even post-secondary levels as the baseline for much of the population.

With whole populations accepting the basic premise of an industrialized state, and with universal education as a birthright of citizenship, the needs of practical nationalism have long ago lost their reason for existing. Where it once required all the power of the state to convince people to educate their children in a standardized curriculum, it now would be political suicide to suggest that any member of society was not eligible for full participation in the educational enterprise. There is no longer a need

for the immersive persuasion supplied by belonging to a nation to keep the state supplied with workers who are capable of satisfying the needs of an endlessly changing industrial landscape. Parents are fully committed to providing the best opportunities that are available to their children, with no thought of children being replacements for their parents, restricted to whatever trade or skill belonged to the parent (indeed, there is hardly a trade or occupation that can be counted on to even exist by the time a child reaches adulthood).

So where do nations and nationalism fit in the modern world? There is, in fact, an absolutely essential role that the nation fills, though it is so ubiquitous that it is rarely even recognized. The "nation" serves as the human collective that we belong to, having taken over the role of a trust-network composed of individuals with whom we would have once shared our lives and livelihoods. In the industrial world, such collectives are rarely even possible, but belonging to such a network is a fundamental need for humans. The modern equivalent is to imbue the nation with an institutional trust that comes from the shared experience and knowledge-base formed through standardized education and the commonality of everyday life. The nation becomes the moral center that people require, so that they can know if they are leading a good life, to make sure that they are contributing to the welfare of the group.

When Hannah Arendt summed up the bureaucratic genius that allowed the Nazis to commit atrocities on an industrial scale with the phrase, "the banality of evil", she was not pointing to any particular failing of the German people. She was, in fact, pointing to the remarkable ease with which totalitarian regimes were able to secure the obedience of ordinary people to carry out their monstrous schemes. Such obedience is not restricted to totalitarian governments, though. Democratically elected rulers are just as capable of recruiting citizens of an industrial society into blind obedience, though it is far less common for such leaders to pursue delusional quests for world domination. The reason that people resign themselves to following instructions that violate their individual moral imperatives is the trust that they have placed in the institution of the nation as a surrogate for the home-group that shaped human behavior as the species evolved. There is a kind of surrender that occurs when an individual becomes part of a group; the moral calculus is no longer restricted to how one treats other individuals, but how one is received by the group and how one, as a representative of the group, treats others. The responsibility for one's actions is largely removed from being an

individual burden and placed onto the group, lessening an individual's tendency to question the morality of their own behavior and simply accept the collective will of the group as inherently correct.

Humans make formidable collectives but they are tremendously fragile as individuals. Our large brains require a lot of sleep and the mysterious process by which those brains infer causality from experience requires the deeply unconscious sleep of dreaming. Every single day, we need to isolate ourselves from the external world for about a third of the day. In the modern world we do this through the institutional forms that make our homes safe spaces but during the period where evolution shaped us, we had to depend upon a trusted cohort. Thus we need some way to measure how that cohort values having us as members; we need to know that they want us to be part of the group so that we can trust them to look to our safety when we are unable to do so ourselves. So we continually wonder whether we are any good at all, meaning that we need to feel wanted by other humans. The measure of "goodness" comes from the collective morality of our trust network. Collective knowledge is necessarily political, but in this case it is a polity that is largely hidden from view. We exchange stories and gossip and argue over how specific individuals have acted toward others and from that, each of us infers a consensus morality, but one that is constantly being re-affirmed or redirected to adapt to existing conditions.

Nationalism began as a response to industrialization: there was an immanent need for a workforce to operate the machines that drove production as well as the large bureaucracy needed to organize this workforce. Thus literacy, numeracy, adaptability, mobility, being able to cooperate with strangers, and many more attributes had to be imprinted on the entire population of an industrial state. Almost nobody considered the social consequences of removing people from the collective moral center provided by the home-group that they were born into (what I have been calling their trust network) because that was not something that people even recognized. It was just there, part of the background that had always existed and always would. We tend to blame the horrors of the dark, satanic mills of the early industrial revolution (in Britain) on capitalist greed (and rightly so) forcing people to work absurdly long shifts in dangerous conditions for wages that ensured they would remain in desperate poverty, however, the social isolation was much more destructive as it removed people from the trust networks that they absolutely need in order to cooperate in the basic norms and reciprocal

obligations that we associate with decency and simple humanity. It wasn't until a new "nation" emerged after industrial states invested a significant part of their productive capacity into universal primary education and a social support bureaucracy, that people could adapt to this new way of living. The nation captured enough of the shared understanding of life to allow people to relate to each other as members of an interdependent group that everyone wanted to belong to, and to be wanted by the group as a member. The institutions of the nation provided the bedrock of belief that allowed individuals to extend trust to people with whom they had no direct personal connection. It was the shared beliefs and understanding of how the world works that gave them that connection. It worked, and the people of industrial states were able to adapt to modernity with ever more state resources going into building and maintaining the social support network that characterizes the fully industrial state today.

A corollary of this hypothesis is that cities prior to industrialization were qualitatively different from industrial cities. They would have had to have been largely comprised of multi-generational, extended families that persisted and formed the bedrock trust networks for urban residents. In this view, the forced migration of individuals and nuclear families from the English countryside into the cities as a result of enclosures and capitalist agricultural practices was also part of the genesis of the industrial revolution. Quite apart from the need for a large workforce to staff the manufactories of early industrial development, the cities full of strangers who were torn from the trust networks of their home groups and corralled together would have given impetus to an organic proto-nationalism. Even with the evident need for a mechanism to provide coherence to the early industrial workers so that they could communicate and cooperate with each other, it is far too much to ask the early industrialists (and the political leaders of the day) to understand this need and design a program to implement it. The project has to be initiated as an unintended consequence and only later enhanced and adapted to the full blown construction of a nation.

The initial cause is the packing together of the untethered individuals of the rural exodus, combined with the need for them to serve as workers, with the beginning of collective factory work. They could not be excluded as refugees because they were essential as workers for the burgeoning industries that were taking off. Initially, before Irish, Scottish, and Welsh rural populations were similarly displaced, these workers would have all

spoken mutually comprehensible English, though with regional accents and dialects. They would have similarly shared a common experience based on religious ordering of festivals and coordinated rituals. So it would not take long for them to learn about, and begin to trust, their fellow workers with whom they suffered together during devilishly long shifts in the mills. A shared identity would inevitably grow out of these communities of mutual suffering, though they would be like separate villages all packed together in the shanty-towns growing on the outskirts of the industrial cities. When the genteel bourgeois society had finally been shamed into eliminating child labour in the factories, educational programs were designed to prepare children for industrial work. This was a long, slow process that took over a century to fully develop, with an unspeakable degree of suffering and misery underlying it all. States that industrialized later were able to save much of the misery because the majority of the populace still worked on the land when industrialization began, so they could use public education to build a workforce in cadence with the development of manufacturing. In England, though, the path to nationhood—the sense of a shared past that unifies a population—was forged through the accidental social bonds of trust that gradually emerged from sweatshop labour, and were later institutionalized through universal education.

The process of de-nationalization that is currently underway is once again pulling that invisible social bond that humans need out from under us, and so we are entering a period of dramatic social upheaval without understanding why people who were formerly so close are now drifting apart at the behest of merciless and incomprehensible forces. Nobody has any idea of why the old ways of bridging the gaps of disagreement are no longer sufficient to bring people back to reasonable dialog and political compromise. It was the very success of the nation that sealed its appointment with destruction; in part because nobody really understood why it worked in the first place, and also because the horrendous moral divergence that followed nationalism to the atrocities of the 20th century indelibly stained it with the blood of those who perished. The ease with which people can be led to cooperate in acts of pure evil through the manipulation of their collective moral center should have given us a better understanding of the nature of collective morality but it seems to have been more convenient to simply pass off those excesses as a failure of the "other"; those not like us are lacking in our essential goodness.

De-nationalization is being driven by both internal and external forces.

From within, there are groups who reject the premise, the historical development, and the current processes for maintaining a cultural unity within existing states. They do not wish to be a part of the nation as it exists (necessarily contiguous with the state in which it is embedded). Since there is no model of an industrial state that is composed of multiple differentiated nations, this means that the nation must be dismantled. From without, there are states that see the nation as the Achilles' heel of the nation-state. They intend to use the process of de-nationalization as a lever to foster instability and weakness of powerful nation-states so that they can amass that power for themselves, essentially pursuing a 21st century variant of "continuation of [expansionary] policy by other means".

Marginalized groups, those that have phenotypic differences from the dominant culture such as skin color, have rejected the industrialized nation since well before the current upheaval. For the most part, this was a consequence of the dominant culture rejecting them (hence the marginalization). There always has to be someone on the bottom of the social hierarchy, and those with visible characteristics that can't be hidden, the way clothing or manners of speaking can, are most likely to be placed there by the lowest stratum of the dominant culture. These groups typically come from an ethnic background that is quite different from the folk culture that is used to construct a national identity. Even if that folk culture is largely invented, the ethnic markings that distinguish this outsider group prevents them from even pretending that their cultural inheritance contained the folk idioms adopted by the nation. This is a particular failing of nationalism in the cause of industrialization as these people are needed as workers and members of the national identity, yet humans are always on the lookout for outsiders who can be excluded from their home group. By making assimilation difficult, if not impossible, the outsiders are prevented from full participation in economic life and are therefore destined to be poorer than the average citizen. This leads to the typical stereotypes of laziness and low intelligence that those who are near the bottom of the social spectrum (but still within the insider group of the national identity) use to make sure that some other group is worse off than themselves.

One of the characteristics of states that industrialized early was their possession of colonies where they could harvest natural resources for their industry as well as exotic trade goods. The logic of the time held that the powerful could take what they wanted from the weak and their

industrial capacity, which extended to the production of weaponry, made these states supremely powerful. Simply taking what they wanted by force seemed practical and cost effective, at least for the future that they foresaw. In some cases, however, the colonies became places where the colonists wanted to stay (in large part due to the decimation of local populations that resulted from the introduction of European diseases, leaving a lot of productive land that was sitting unused). It is important to note that the local populations lived by the same rules as the colonizers: land was held by force alone, and the stronger groups would simply take what they could from the weaker. There was never a universal right of possession due to first arrival for brown people, white people, or any other kind of people. Every single square foot of occupied land in every jurisdiction in the world at the time of imperial conquests had been stolen by one group from another many times over. The colonizers, though, brought legal codes with them that aspired to put an end to that kind of justice as the will of the stronger.

Using North America as an example, the long, bloody, and wretched history of the struggle between colonizers and native peoples will not be retold here, but open warfare largely ended with the signing of unequal treaties. The natives were bargaining from a position of weakness as their livelihoods had been disrupted to the point of vanishing, in addition to the continuing scourge of European diseases. They were forced to treat for their very survival. Both sides fully expected the eventual assimilation of the native people into the dominant culture, the single "nation" that was developing with European settlement and expansion. That was simply the logic of the time that industrialization was forcing on everyone without regard for race or ethnicity. Government programs were developed to hasten the inevitable assimilation--programs that are now judged as being intentionally evil and racist by those who refuse to accept historical context. The implementation of these programs **was** intentionally racist because the physical characteristics could not be hidden, and those in the dominant culture at the bottom on the social scale felt better off if a group who were even lower on the social scale could be maintained. They had it bad, but at least someone else had it worse. These assimilatory programs were disastrous for the native peoples and largely ignored by the dominant culture, however the treaties kept the legal status of these "first nations" alive and their members found a re-awakened identity in their separate nations as the initial pressures of industrialization gave way to a logic in which assimilation was no longer needed. First nations people are now fervently

committed to separate nations, challenging the assumed congruence of the nation with the state in the modern world. Their struggle for national recognition is now fully embedded in the awareness of everyone in the dominant culture. Furthermore, the forces of justice and equity are squarely behind the first nations program and only overt racism stands against it. However, the practical problems of how to incorporate multiple nations within a modern state have yet to be worked out, so the struggle remains and often breaks through the veneer of lawful behavior.

The logic of justice as the will of the stronger was not only applied to state warfare in earlier times. Interactions between individuals were also subject to bullies getting their way. Modern feminism has challenged this behavioral norm as an abomination against a just society (women, being on average significantly smaller and physically weaker than men, have more than a passing familiarity with the problem). The nation is, first and foremost, a monopoly on the legitimate use of education to shape society. With the greater participation of women in politics, we are now at a point where the injustice of individuals using physical coercion to bend other individuals to their will is now taken for granted by everyone reaching adulthood today. That is not to say that young people are never violent nor that bullying has been vanquished; this is one of the most radical experiments in social engineering ever attempted and it is not to be accomplished in a generation, however, the intellectual battle for the morally superior position has been won. Thus a vast chasm has opened between today's youth and the elder population over the use of state power to restrict the behavior of individuals with respect to notions of bodily autonomy, identity, and consent.

The anti-bullying campaign has instilled in the youth the idea that positive rights (the right for you to expect some action by others) are fundamental rights guaranteed by society. In actual practice, positive rights are always aspirational; rights that are actually enforced are negative, where governments or individuals are restricted from performing some action. This unrealistic view of how society functions has led to the expectation that cautious behavior is unwarranted because victims must be blameless. A charming delusion that some kind of benevolent panopticon is at work, surveilling everyone, everywhere, at all times, to make sure that provocative behavior never provokes the wrong kind of person. Where earlier generations learned about the practical need to waive certain moral rights in order to avoid the painful consequences of misjudging the ability of social institutions to guarantee

one's safety, the anti-bullying program has produced a view in which the prohibition of physical coercion is a moral absolute. There can be no reckless behavior because the victim of violence is given the presumption of moral purity.

A consequence of this moral absolutism is the attempt to remove all ambiguity surrounding individual consent. Primarily this movement toward a semi-contractual form of requesting and receiving consent involves sexual activity between two individuals, however an individual's right to have sovereignty over their own bodily autonomy can hardly be limited to sexual behavior. These issues are of paramount importance to adolescents because they are not yet given the full rights of an adult, requiring consent of a parent or guardian for many trivial things, yet they are expected to transition to a full understanding of consensual requirements when interacting with their peers. There can be no room for learning from one's mistakes when dealing with moral absolutes.

The current generation has unequivocally rejected the spirit of tolerance that has served civil society so well. They have embraced a moral purity toward their predecessors in an effort to atone for the inescapable conclusion that they belong to a group of oppressors in a world that is cleaved in a binary manner between oppressors and the oppressed. They can see no way to reverse this conclusion without paying a price; a form of self-oppression to give themselves at least the color of the oppressed. Crowds of millennials, glowing with the fervour of righteousness, will gleefully topple a public statue of some statesman from the past who, by today's standards, exhibited racist attitudes that cannot be excused by circumstance (or at least by what circumstances can be conjured by the severely limited millennial imagination). All this while they remain totally blind to their own participation in a world where moral ambiguity forces choices that will one day be reviled as manifestly unjust. Their moral failing is not hidden in any way, they just do not have the self-awareness in the present that they excoriate figures of the past for failing to have in their own time.

In 2013, Edward Snowden released documentary evidence of massive surveillance programs carried out by the U.S. government against its own citizens. The programs violated the freedom from tyranny that was enshrined the U.S. Constitution and celebrated as one of the greatest achievements of The American nation. This was a watershed moment for the generation that had come of age in the new millennium; they had the

opportunity to renew that famed American innovation and stamp their generation with an imprimatur of greatness. Snowden himself thought he had served up a gentle lob that was hanging in the air waiting to be smashed out of the park. That didn't happen though, and it was a curious feint in the flow of history when the millennials basically shrugged off a scandal that seemed to condemn their generation to a future greatly diminished in personal liberty.

The ubiquitous presence of surveillance without consent is the paramount issue of moral dissonance in Western society today yet the current generation is simply incapable of recognizing it as such. The reasons for that failure to stand up for the protection of individual privacy are crucial to understanding the social upheaval created by the internet and social media. Not least because the issue of individual autonomy and the primacy of personal consent is the most important single issue that millennials are willing to fight for politically. They insist on the absolute right of the individual to proclaim their own identity, this is especially cogent for issues of sexual orientation and gender identity, and their sovereignty over issues of bodily autonomy. This is taken to rather extreme lengths with the extension of autonomy beyond physical contact. There is a strong current of support for the notion that an unwanted invitation, an act of speech, is a form of violation; an act that has not been consented to. Even further is the idea that the extension of the individual into the virtual space of the internet, like the semi-detached instantiations of celebrities or public intellectuals that existed in the popular imagination before the internet, but now extended to everyone who participates in on-line culture, must be treated as if the instantiation was the real person. For someone else to exert control over that embodiment that exists in the collective imagination is considered a transgression over an individual's autonomy.

How can individual autonomy be so important while individual privacy is surrendered with barely a whimper? The answer to this seeming paradox gives a surprising insight into the fractured nature of our social institutions. The acceptance of a loss of privacy comes from growing up with the technology of surveillance. Children are highly malleable and will adapt to the conditions of their existence in situations where adults might resist accepting the reality of circumstance. Those who grow up with social media have few inhibitions around making events in their private life fully public by self-publishing on social media. Since they are consenting to the exposure, they do not find any reason to lament a loss

of privacy. Any non-consensual exposure, e.g. when someone else publishes a photo that they would prefer not be made public, is solely caused by the person who publishes, not the technology or the company that runs the social media platform. This constant process of putting one's private life into the public domain both creates a public persona that an individual feels belongs to them (and deserves protection from non-consensual acts) and diminishes the expectation, and commiseration, of personal privacy.

Social media companies are fully absolved from being active participants in privacy violations, and they are celebrated for facilitating the publishing of personal information that the user wishes to share with the world. As new revelations drip out about the magnitude of personal data that the companies gather and retain, the companies explain that this is needed to improve the user experience and to filter out any advertising that will just annoy the user. After all, with the companies providing these wonderful apps for free, they have to pay for development through advertising, just like television, but better because of targeting. By the time that the full extent of their terms and conditions were known, where they reserve the right to sell all personal data to whomever they choose for any reason at all, the millennials were hooked. Even the Snowden revelations could not shake them from their addiction. What does it matter if the government collects this data when the tech companies are doing it too, and anyway, the people themselves are publishing most of it freely.

A further separation between today's youth and the rest of society comes from their very different educational experience. The internet and the ubiquity of computers has fundamentally changed the way children are being prepared for later life. In earlier times, memorization of factual material was given pre-eminence to rapidly build up a base of general knowledge that could be used to make inferences later on. The trusting nature of children accepted the truth of what they were taught (not always a reliable truth, especially when the historical development of the nation was concerned, but mostly true overall). Information had to be tracked down in libraries, following references and clues in various books until a trustworthy picture had taken shape. The exceptionally difficult tasks of verifying knowledge and discovering new knowledge was left for advanced and post-secondary education.

Discovery learning (though the concept is many decades old, one must

move heaven and earth to change the K12 curriculum, so it has only recently been implemented en masse) seeks to guide the student through experiences that will impart the desired knowledge in the hope that such direct learning will stick better than rote memorization and also foster a lifelong love of learning. Discovering new knowledge, whether it is new to all of humanity or just new to an individual, is an incredibly difficult and time consuming activity. It is pure fantasy to suppose that children can learn enough general knowledge through discovery to be prepared for life in the modern world. However, they no longer need to build up a base of general knowledge since they can always access information with a simple click, touch, or voice command. The hard work of finding any particular piece of information from books has been replaced by lightning fast search and the vast collection of documents and media on the web.

Facts have a different relationship to a book culture compared with a culture in which publication is essentially free and open to absolutely everyone who wants to publish. Books are vetted and edited, with authors and publishers held responsible for the contents. Scholarly books are reviewed by recognized experts in the subject matter and build on, and provide references to, the primary scholarly literature where new knowledge is first published. Web pages, on the other hand, can use rhetorical technique to convince the reader (or listener or viewer) that they contain the truth. There is no chain of responsibility where some kind of intellectual liability exists against the author's reputation. For news and current events, the situation is even worse. Traditional media, even discounting the problems they have with their target demographic (the dishonest campaign by social media companies to hijack their advertisers, the shameful abrogation of anti-trust enforcement leading to elite capture, etc.) have failed to find a path to reach the generation that only accepts "free" media (it's paid for eventually, of course, but it's never a cash transaction). Traditional news organizations, such as they are, provide the only institutionalized fact checking, holding both powerful private organizations and governments to account for what they say to the citizenry. When rhetorical appeal is the only arbiter for accepting or rejecting information, democratic governance becomes highly unstable.

But it may be even worse than an inability to judge policy proposals due to a loss of factual basis. Today's youth are prone to withdraw entirely from the political process of working out a compromise with their ideological opponents. Taking values as absolute, they move to shun transgressors immediately, even desiring the use of state power to

remove the voices (or memories) of the unrighteous. The injustices of the past are never considered as compromises made in a world where practical decisions must be made and coalitions built across the ideological spectrum. Instead, they view these past decisions as wilfully evil on all sides, acting against an obvious and absolute morality for personal gain and the maintenance of privilege. Thus do they reject the political process of the present, where they would have to work with people who were a part of a past where such political compromises were formed.

We do not live in a uniform society even though we share the common background and world view of our "nation". There are innumerable social groups that overlap and intermix and expand and contract as time moves forward. The society of the nation is like a set of sets. There is a substantial degree of shared attributes among all the sets within the larger society and chief among them is the institutional substitute for a trust network that is an essential part of being human. This is why the nation must still be congruent with the state even though the needs of industrialization have long since been satisfied. The consent of the governed flows from this institutionalized trust in the nation as a common bond that holds the people together. Without that bond, there is no hope of finding the political compromises that are needed to sustain a fully industrial and totally interdependent state. The fractious and messy business of arguing over how to act today to prepare for tomorrow, and continuing to argue until some kind of agreement can be found, is the essence of democracy. The splintering of the nation by marginalized groups who are largely excluded, especially indigenous populations, and by the youth, who are the very future of the nation, has weakened the state from within. Perhaps this is a necessary part of redefining both the nation and the nation-state, however there are forces without who see this weakening as a stellar opportunity and are unlikely to allow an internal re-alignment to proceed peacefully.

These destabilizing pressures from within various nations have not gone unnoticed by the adversaries of the states that house these nations. Whereas military conflict was once a natural component of European statecraft, the destructive capability of industrial warfare is so overwhelming that no powerful state can seriously contemplate going to war with another equally powerful state; nuclear weapons permanently altered the use of war as a political tool. Nevertheless, powerful states still want to maintain their power, and this largely means trying to limit

the power of potential adversaries. A very effective method for doing this is to identify an internal struggle within a powerful state and use that as a lever to weaken the state from within. Since the nation is contiguous with the state in the modern nation-state, any fracturing of a nation inevitably leads to the weakening, and possibly even the fragmentation, of the state that hosts the nation. This isn't the only mechanism of geopolitical strategy, not by a long shot, but as it has achieved surprisingly effective results in the last decade, states have only recently come to appreciate their vulnerability in this area.

Democratic societies are especially exposed to such risks because democratic governance depends upon the noisy and boisterous public disagreements and arguments to find consensus within the larger society. This adversarial system is a feature but also a liability as foreign actors can participate through proxies to enhance conflict and reduce the possibility of finding consensus. Prior to the internet, this wasn't a serious problem since the proxies would have to be real people with the capability of deceiving many people while they pursued a hidden agenda. Spy scandals such as the Philby affair show that this really happened sometimes, with significant costs for the infiltrated states, but it was pretty rare. However, nobody knows you are a dog on the internet, or a hired troll halfway across the world, or even a bot, for that matter (a bot is a program that pretends to be human).

The use of cyberwarfare to destabilize powerful democratic states, especially the US and the larger countries of the EU, is now widely understood to be taking place but no effective countermeasures have yet been discovered to neutralize the threat. Social media is used very effectively to discover contentious issues and then use them as levers to increase the separation of people and increase their disenchantment with the ideal of a unified nation. The mechanics of the process are terribly insidious, as information brokers can use social media to probe individual attitudes, sensitivities, and propensities for action using questionnaires posing as harmless fun (e.g. "Take our test to find out which Roman Emperor you would have been!"). That is only the overt surveillance, though. The social media companies themselves often push out provocative information and track the user's responses, down to the milliseconds between clicks. When users enter search terms they reveal their interests at a given time. Vast amounts of information are collected and sold to companies that build individual profiles for everyone who participates in online life (and that is almost everyone). All of this

information is available to anyone who wants to pay for it, and state actors who wish to destabilize democratic nations are among those who want it (and they have it).

One aspect of this program of sowing synthetic disenchantment targets elections directly. So-called populist politicians are naked opportunists, and are thus relatively easy to manipulate once they have power, so adversary states will attempt to assist their election campaigns (except, obviously, if the populist position that they are pursuing is a more adversarial approach to that state). Influencing election outcomes is not simply a matter of persuasion of the electorate to vote for a particular candidate. Often it is much easier to convince sectors to vote improperly or even withdraw from participating in the electoral process. The flip side of this tactic is convincing a different sector that their participation is utterly essential to prevent the destruction of the lifestyle and traditions that they hold dear. With individual voter profiles, those wishing to influence an election can use social media to target individuals with a message tailored to their sympathies (or prejudices) and send completely private messages, disguised as gossip from fellow citizens, without anyone else knowing what the message is. Prior to such targeted communications, political messaging was largely public so any falsehoods or deliberately misleading information could be rebutted. That is no longer the case since the individualization keeps the misinformation confined to those who are most likely to accept it. If the message gets passed on in a viral fashion, it eventually becomes known to those who recognize it as disinformation, however by that time, the damage is done and a new outrage-inducing message is already in circulation among the target audience; the propagandist writes; and, having writ, moves on.

Lest we think that these nation-state level interventions are restricted to mere rhetorical meddling, the messaging is often tied to barbaric campaigns of terror and actual warfare. Some states, Russia in particular, are combining disinformation with forced displacement of whole populations to weaponize the modern version of mercantilism (historically, mercantilism was the belief that the wealth of a state was equal to its horde of precious metals, thus protectionist trade policies were enacted to try to maintain that measure of wealth against the advice of Smithian economics. In fully industrial states, one measure of a state is its ability to provide employment for its citizens, however the elite use economic power to reduce inflation (keeping fortunes safe for the rich) by destroying jobs, hence immigration policy must be used to mollify the

populace who do not want to see the loss of jobs). The war in Syria is an example of how Russia is using extreme violence to destabilize European states by having waves of refugees seeking asylum. For example, the use of chemical weapons, killing only a handful of people, yet spreading terror among a war-ravaged population, are meant to induce those people to leave their homeland. Conveniently, they find ships hired by invisible benefactors waiting at the shore, and charging only what they are able to pay, to take them to Europe. Meanwhile, the citizens of the targeted European states have been primed with individually targeted disinformation campaigns to warn them of the coming onslaught of asylum seekers who will destroy their society.

In Central and South America, economic destruction is used to create these large populations of utterly desperate people. Shadowy people organize the dispossessed into the migrant caravans that take over the American television news shows with non-stop coverage of the impending threat. Conveniently, these penniless migrants are given clothing to make them appear like average Americans who will be able to melt into the underclass of undocumented immigrants once they reach American shores. In truth, these caravans are the least threatening phenomenon that one could possibly imagine; a ragtag group of powerless, though well dressed, individuals proceeding on foot toward the U.S. They take over the news cycle because of the invisible targeting of individuals through social media has already spread the message through much of the population. The fear and anxiety is completely manufactured, but it is done without the knowledge of those who could quickly dissipate it with simple facts and common sense.

There is another movement to destabilize the nation but it comes from both within nations and from without, though it is the same group in both cases. This threat comes from the wealthy elite in the form of neoliberalism; a movement to horde as large a portion of the produced wealth of humanity for themselves as can possibly be managed. The post-WWII industrialized nations were obligated to treat workers with a fairness that had never existed in economies based on market capitalism. The workers had sacrificed everything to protect the wealth of the elite and having done so, were determined to reclaim some of their productivity for their own comfort. In addition, the massive reconstruction required very high levels of taxation and only the rich had the resources to pay it. Thus was a golden age of productivity and egalitarian distribution of wealth entered (at least in comparison with

anything that preceded it). With steeply progressive income taxes, executives of large corporations were unable to compete with their peers to accumulate ever more obscene amounts of money, so they turned their competitive drive toward making their companies perform better and basking in the status of that form of success. Labour unions achieved substantial increases in membership and penetration of industries as well as continuous improvement in worker compensation and working conditions. Most people entering the labour market could look forward to a long-term career at a single company with the means to support a family in comfort, take regular vacations, and eventually enjoy a retirement without fear of going homeless and hungry in the streets.

The oil shocks of the 1970s sent this economic golden age into a tailspin. Cheap oil was an input for basically every industrial process that fuelled the production and growth of the economy, so when it quadrupled in price with no hope of it ever returning to its former value, the entire web of economic dependencies was sent reeling. Stagflation, a stagnant economy and high inflation in parallel, created economic crises throughout the developed world as nobody could figure out how to tackle these problems simultaneously. Strong labour unions refused to accept claw-backs of what they had fought so long and hard to achieve while governments facing massive deficits imposed austerity measures and wage ceilings on public sector workers. The lower wages and loss of purchasing power due to inflation caused frequent strikes among public sector workers. These series of overlapping crises were used to bootstrap the neoliberal program where the discredited ideology of the self-regulating market was resuscitated and imposed as the only path to economic salvation. The result was an orgy of privatization and deregulation under ruthless ideologues like Thatcher and Reagan. They didn't try to hide the fact that this program was designed to make the rich fabulously more rich, but promised that this unprecedented wealth creation would mean that even the most undeserving vagrant would be showered in manna from heaven as it trickled down upon them, raising all boats, but not all equally.

The rhetoric of creating smaller and less intrusive government through privatization was always flatly dishonest. Governments were not made smaller, they were just redeployed to protecting the wealth (and the infrastructure necessary to create that wealth) of the elite, leaving workers and the poor with a smaller share of the national product. The vast increase in corporate power (as it filled the vacuum left by the

redeployment of government regulation) combined with the enormous increase in personal wealth for the very few at the top of the economic pyramid has led to political capture by the elite. Many politicians indulge in populist anti-elite messaging while on campaign but very few will truly attempt to redistribute wealth on a large scale. Politicos need a lot of money to get elected and the neoliberal machine is the most reliable source for that money. The most brazen example was, of course, the financial crisis of 2008 where the US Congress came together to give the banksters 700 billion dollars with no strings attached as a reward for their wanton destruction of the international financial system. The two parties in US politics do have major differences, but they are absolutely united on the issue of protecting the wealth of the privileged.

The elite would prefer to have a firmer hold on the range of action that is available to political actors in the economic sphere. They rarely have any sense of belonging to a particular nation as capitalism has always been international. People and their elected representatives may have a sense of a "national interest" but at the higher levels of capital accumulation there is only the interest of greater accumulation. The elite are thus quite eager to exploit any channels that are able to refocus the attention of the electorate from issues of wealth inequality. Much like the myopia of labour unions in the 1970s that was exploited to bring the neoliberal project to fruition, the current process of denationalization is being embraced as a golden opportunity to prevent democratic governance from acting to reduce the indecent level of inequality that prevails in developed nations. In particular, the billionaires associated with information technologies are working with might and main to destroy traditional news media and boost the use of social media to create divisions within the industrialized nations. Critics remain confident that their strategies will cause the various media companies to lose money and then either fold or change their ways. They seem unable to grasp that the billionaires are not using these companies as profit making enterprises, but rather as organs of influence; a type of spending on political action that sidesteps the partisan advocacy of democratic norms. In fact, the weakening of democratic constraints on private initiatives is the goal, so the actions cannot go through politicians unless those pols are actively working to reduce democracy within a nation.

The animating principle behind nationalism was the creation of a bond between people who were geographically adjacent (at least to the degree to which they were in the same State) but had no prior relationship that

could serve as the basis of trust and cooperation. That bond had previously only been accessible to those who were born into groups where everyone, like their predecessors before them, lived with each other for their entire lives. With the latter group, there is not just the implicit trust that comes from intimate acquaintance, but also an unmentionable debt to the ancestors who gave them life and sustained the conditions in which those lives could be lived. Nationalism was meant to invoke that implicit trust by persuading strangers that they each had a debt to a (largely invented) common ancestry who had built the "nation" that now gave them succour. Nationalism spread because it was wildly successful. Humans torn from their familiar groups become desperate to find a new social home that would welcome them as full members; the nation became that home during the upheaval of industrialization.

In a curious reversal, however, the debt of the living to their predecessors became substituted with an unpaid debt that their successors incurred by mistreating some of their own contemporaries. People of the present have no ability to influence the actions of those who lived before them, so there is no logical path to hold the people of the present responsible for those actions. They certainly can, and should, be responsible for acting justly to others in the present, which may involve the redistribution of resources that were hoarded by their predecessors, but in no way does this imply that guilt and punitive measures should be imposed as part of the application of justice. Yet that is precisely the string that is first pulled upon because of the intense feeling of responsibility that comes with a nationalized population that confronts the actions that accompanied the process of nationalization. The attachment that individuals feel for the national story that they grew up with is an invisible and deeply rooted prejudice that comes from having been immersed in that version of reality; it is very difficult to even recognize, much less to engage in detached analysis. Thus the presence of small fissures in the fabric of a society that begin to open as a vanguard begins to attempt to atone for the sins of their predecessors are quickly seized by bad actors who wish to fracture the society. These fissures are the ideal locations in which to insert the wedges of disinformation to accelerate the process of denationalization.

13 Synthetic Reality

Shams and delusions are esteemed for soundest truths, while reality is fabulous.
   Henry David Thoreau

Though nations and nationalism were essentially demanded by the requirements of industrialization, they did not come about through a conscious attempt to satisfy those demands. Nations were created as works of art and artifice, intentionally formed to fulfill the desire to create a constituency to backstop the desire for power and conquest, the perennial ambition of the European ruling class. Those who were engaged in the creation of nationalist sentiments knew only too well that their program was artificial, thus they felt an overwhelming need to convince people that the national identity was objectively real; a slice of social reality with the solidity of physical realty.

We understand objective physical reality as an agreement about the correspondence of our sensory experiences. If we see the sun shining in the sky, we expect everyone else to experience it in the same way. Direct sensory appraisal of the environment occurs through the same physiological processes for all humans and, for the most part, we expect an almost identical cognitive understanding of sensory data, obtained through an inductive learning process. The sensory experiences are incorporated into socially constructed concepts so that we are able to share those experiences through language; however, there are virtually no differences between cultures when comparing direct sensory inputs: everyone ducks when they see a rock thrown toward their head.

Social reality does not have the same basis in individual experience of the world through the senses. Social reality is constructed in an individual's imagination and then communicated through language. These constructions become part of the fabric of reality when enough people agree to act as though the constructions were apprehended through direct sensory input. Consensus must be manufactured through the use of social power when the elements of social reality are not embraced enthusiastically by the members of the group whose behavior is affected by that reality (for example, people who live in Australia have no need to accept, or even know about, a particular squash ladder that is run in some

small city in New Jersey, so have no need to accept that reality for it to be valid). The larger the group, or the more onerous the responsibilities associated with a given aspect of social reality, the harder is the task of generating consent. The process by which social reality is created and evolved through rhetorical persuasion rather than physical coercion, is what we conventionally call "politics".

Anyone can try to declare some social construct to be binding on a society, but how does such a declaration come to have an objective reality quite separate from that individual's imagination? This is the nut of the problem with social reality: getting others to accept the truth and universal applicability of some arbitrary construct. Before acceptance, though, the construction itself must be disseminated among the social group to which it is to apply. In large, complex societies, the most important mechanism for distributing the elements of a social construct is through the written word. Simply knowing about some laws of social behavior is not sufficient to get anyone to accept a duty to follow those laws. People need to fall back on the trust networks they use in everyday life to evaluate whether a declaration is accepted within the society or not. In our complex, modern society, we generally first turn to our trust in institutions. Failing those, our only remaining fallback is the trust network of our closest friends and relations. We trust their judgement because we have mental models of these people that allow us to predict their behavior by imagining counterfactual situations. We have confidence that they will not deceive us on important issues.

Deception, however, is similar to language in the extent to which humans have developed its use when compared to the rest of life on earth. Natural selection has produced some impressive feats of camouflage, but this is small beer compared to the infinite variety and complexity of schemes that humans have produced to deceive each other. The essence of deception lies in creating an illusion that the reality an individual perceives through their senses is different from the reality that an undeceived observer would experience. Through actions taken in direct consequence of the false reality that an individual perceives, that person is led into a trap where they actively participate in harming their own self interest. For deceptions that focus on manipulating the experience of social reality, the most convenient targets are the institutions that have taken the place of large trust-networks in our highly fragmented, industrial society.

Trust between strangers, particularly trust through anonymous market transactions, is the basis of the modern industrial economy. When the systems and institutions that allow those transactions are set up, certain checks and balances are built in to provide confidence to the users who need to know that their trust will not be betrayed. The nut of the problem, though, is that to check everything means that nobody is actually trusted, and the effort that goes into all that checking cancels any benefit that would accrue from trust. So a decision must be made about which checks and balances will be implemented, thereby implying which checks and balances will not be implemented. The knowledge of the latter, of the weaknesses in the system of checks and balances, is what fraudsters actually play on; greed, fear, and moral weakness figure prominently in the stories that are told when fraud is uncovered but they are only bystanders to the actual crime. It is actually much easier to commit fraud in a high trust society, because when trust can usually be depended upon, there is little need for excessive checks and balances.

Knowing how to manage a particular business well is, curiously, also the key to knowing how to defraud a business successfully. The most important metrics that can be used to understand how healthy a business is, and discovering what needs to be done to improve performance, are also the key indicators of where the business might be hijacked. If you want to crack a safe, the blueprints that were used to build the safe, showing the hidden mechanisms that prevent access, are the most valuable tools available. Management is essentially an information processing job that measures the performance of a business using a knowledge of how the business works to determine what assessments are most useful. The quality of management is highly dependent on the quality of the measurements that provide that information. The rich landscape of economic institutions that exist in our society have basically arisen due to a process of mutual escalation, an "arms race", between commerce and fraud. A high trust society is not only attractive to people but it is also a highly productive society due to the substantial benefits that come from putting energy into productive pursuits rather than checks and balances. Rather than destroy the benefits of the high trust society in pursuit of the eradication of fraud, it is far better to accept a level of fraud that we can live with and continue to adapt as new and more ingenious frauds are discovered.

In societies where interdependence and the division of labour are not so saturated throughout the population, the continuous process of building

institutions to combat ever-evolving schemes to deceive people does not occur. Within social groups that are based on a trust network that encompasses the entire group, frauds occur rarely, and social pressure is sufficient to rehabilitate anyone who is caught trying to defraud others. In this context, however, fraud is meant to convey the use of deception for individual gain at the expense of others. There are other types of deception that are seen as providing a net benefit to a society, with the perpetrator of the deception being a willing participant is being deceived.

It has ever been the desire of humans to bring the malleability of the world of dreams to the physical reality of the waking world. The deepest myths of any society all go back to a time when dreaming could effect change in the physical world; for how else to create things from nothing? In the same vein, primitive tribes all have privileged shamans who are able to change aspects of the world that are beyond human ability, such as the weather, through actions taken inside their dreams. From a modern, scientific perspective, the biological purpose of dreaming remains largely mysterious although it appears to be central to the ability to synthesize the correlations between actions we have performed, in real life, that affect our environment, and observations of changes in that environment into imputed causal models that can re-create these correlations. The particular events that reside in short-term memory can then be encoded as effects that had particular causes in long-term memory. Storing information about the world as cause-and-effect not only greatly compresses the amount of information to be stored, it also unifies disparate phenomena in our mental model of how the world operates, allowing cascading chains of cause-and-effect to be used to simulate complicated situations. The brain's mechanism for doing all this through dreaming seems to involve a loosening of the constraints that operate in the physical world, allowing the simulated self, within the dream, to perform and observe actions that are physically impossible in the real world. The combination of recounting experiences that are familiar to us, since they come from our short-term memory, with the ability to perform magical acts that defy reality in that familiar context, gives us a desire to bring those abilities into the waking world when we recall our dreams in the morning.

This is the basis of the universal human desire to be able to shape physical reality to our own ends. Reality, however, does not bend to human desires no matter how fervently one wishes it. Thus we take such opportunities as we can to escape the unyielding laws of the physical

world by imagining a narrative arc in which a counterfactual reality unfolds within a daydream. This was largely the furthest we could push our desire to shape reality for most of human history. We now find ourselves in a new era, where technology is freeing us from those limits.

Graphic art has almost always been heavily weighted to blend metaphorical meanings onto images by recasting the actual content of the visual field with additions or distortions that affect the way the images are interpreted by the viewer. Photorealistic artwork is a very new phenomenon, not because the technical ability was lacking, but because it would serve no purpose to create a scene that one could just as easily see with their eyes. The development of photography showed that, in fact, composition could be highly meaningful, with care taken to arrange all elements of the image before opening the shutter. With film and video, though, we enter a new paradigm of imparting meaning through graphic images by creating alternative realities that are brought forth by watching the movie. It was not just the elements of each frame that could be constructed to give meaning, but an entirely fictitious narrative arc could be created that appeared to the viewer as something that really happened. Counterfactual realities could be created and shared by groups of people, bringing social context into the realm of synthetic reality.

Recently computer graphics have finally caught up to the resolution of the human retina and with the vast processing power now available, virtual models of 3 dimensional objects can be rendered using ray tracing algorithms to reconstruct photorealistic images that are only limited by the imagination of the artist. Now these virtual worlds can be manipulated through time, developing fully realistic renderings that progress through a fictitious narrative, allowing the illusion of both counterfactual and counter-physical worlds to be created. Artificial intelligence based on trained neural networks makes the process of creating deceptive realities even easier and more true-to-life than ever. Although deep neural networks are not really "intelligent" in any practical sense, they are extremely good at stitching the rough edges between concepts provided by humans, thereby making it much easier, and much, much faster, to combine text, sound, or images from disparate sources into a form that appears as if it was taken from real life.
This ability is not only available to wealthy film studios but is now within reach of ordinary individuals who wish to create such worlds. Putting such incredible power into the hands of regular people cannot help but to change our society dramatically.

The most immediate change comes in the form of a diminishing trust in our ability to discern an objective physical reality that everyone experiences in the same manner. When you can no longer trust the ability of your sensory perception to verify what is real and what has been created by a human mind, then profound effects tumble forth from that deception. First off, the people creating these synthetic realities are heavily influenced by the forms that have been established by the movie making industry. The cinematic paradigm is built upon getting the viewers emotionally involved in the plight of the on-screen characters, and then taking those characters through a series of life-defining challenges, building and releasing tension until the story finally resolves and the viewer can recover from the intensity of the emotionally draining experience. The viewing audience, too, expects and relishes the act of committing themselves to become invested in the outcome. They want to see a sudden twist that changes their perception of the situation just as badly as the creator of an altered reality wants to provide such a denouement. All great events happen this way when presented cinematically, and so it is with deceptive reality; the banality of real life is no match for an orchestrated narrative.

For another thing, they way we judge evidence when evaluating matters of fact is based on sensory perception. We also know perfectly well that experts in any given field must also rely on their senses to judge the evidence that is presented for validation by their expertise. When the senses cannot be trusted to find the truth about the world, when other people can create a separate reality that can fool anyone, then doubt is created around the wisdom of trusting experts. The highly specialized division of labour that we live with means that we are almost always unable to judge technical matters for ourselves (even if we could fully trust our senses), thus a loss of trust in experts can have catastrophic consequences for institutional trust, for that trust is necessarily built upon a trust of experts.

When institutional trust fails, humans automatically revert to the more fundamental networks of trust that exist in small groups. When this happens, then the meaning of words can become subordinate to the social context in which they are used. The sprawling communities of anti-vaxers and election deniers that have formed on social media are examples of just how destructive this reversion to socially embedded thought processes can be for a modern society. These communities are not limited

by the necessities of social isolation; they are distributed throughout the cities, towns, and neighborhoods and networked through social media rather than person to person. They are easily manipulated because social media is controlled by corporations who developed the applications for precisely that purpose. When the loss of institutional trust spreads on a massive scale then the wider civil society loses its ability to chart a direction for social progress. Finding and charting a trajectory for the whole of society requires a consensus on how the world works; and in a modern, industrial society it works by an almost complete fragmentation of technical and skill-based knowledge into specialized occupations. Each atomized division of labour must self-perform the business of maintaining integrity within the discipline and communicating honestly the implications that their work has for policy options in the wider society. The great breakthrough of civil society is to give government the responsibility of oversight to keep all of these disciplines honest, and then to give oversight (and the power of hiring and firing) of government to the entire society. The loss of institutional trust strikes a blow to the very heart of civil society.

Social power is conventionally divided into types that are based on how it has been used historically to get people to do things they would not otherwise be likely to do. People can be coerced to do things through the threat or use of violence, they can be convinced by rhetorical means, they can be paid to do what they would not do voluntarily, or they can convince themselves to do things once an ideology has been implanted in their minds. Synthetic reality, created to intentionally bring about individual actions and disseminated through social media has now been demonstrated to be a new form of social power. A community that has been created through manipulation of social media can be convinced that a created, counterfactual narrative of events is objectively true, and they take individual actions based on that belief. This is one of the many changes brought on by a rapidly advancing technological capability; one that has no precedent in history to guide us in finding ways to counteract the destructive potential that has been loosed upon the world.

14 Accelerating Changes

The factory of the future will have only two employees, a man and a dog.
The man will be there to feed the dog. The dog will be there to keep the man
from touching the equipment.
   Warren Bennis

The transition to an industrial economy represented an irreversible
commitment to sustained and exponential economic growth. As
agricultural technology improved, English landowners began turning
their attention to the challenge of using their land to increase their wealth
(those on the continent left business entirely to their stewards). This was
actually a new idea; wealth was subordinate to power previously, and
that came by linking up powerful families through marriage. Many of the
trappings of power such as having retainers to execute one's will could be
purchased with money, thus the static rents of the feudal economy
became obstacles to profit once the ability to improve farm production
and decrease the labour required to reach that production diffused across
England. Once the idea of increasing yields and realizing profit from land
took hold, then it was like a growing snowball. As farms began requiring
less labour, the surplus populations migrated to the towns and cities,
hoping to find work there. At nearly the same time, lagging enough to
establish squalor and overcrowding in English cities that would last for a
good long while, textile manufacturing underwent a similar technological
flowering, putting this large population to work in manufactories where
water power, and later steam could augment human labour. The
industrial revolution was the expansion of this process of using
innovations in technology to bolster the scope and scale of
manufacturing, employing the ever greater numbers of people who were
made redundant in their rural villages due to landowners seeking ever
greater profits from their land.

In England, the linguistic and cultural landscape was quite uniform due to
several centuries of relative stability, so the newcomers to the cities were
at least able to communicate with each other and not feel excluded from
the cultural practices of others that they lived among. There was a need
to get people who had never interacted with anyone that they hadn't
known from birth to cooperate with each other. A method that worked
was to build a sense of belonging to the larger group that was England,

not just the village they had known. As work became more productive, with larger numbers of employees and more complicated supply chains, the need for administrative work grew exponentially. With a rapidly increasing need for literate people to carry out these clerical tasks, the state instituted universal public education to standardize the language and create an inexhaustible supply of literate and numerate workers. Public education turned out to be ideal for creating a "nation"; giving the young a common sense of culture and purpose that infused the growing institutions of civil society.

Although England was much slower than its European neighbors to realize it, the continuation of universal education beyond basic literacy was instrumental in the pursuit of technological innovation, the foundation of unending economic growth. By including everyone in an education in basic science, the entire population was turned into potential innovators by enabling them to understand the mechanisms that were used to create technological solutions to problems. This was fortuitous because when innovations are adopted without an understanding of the long-term effects that they will cause, as they are and as they must be, then some of the unintended consequences will turn out to have dire repercussions for the health and well being of society.

The pattern that develops is a cycle of both virtue and vice. Applying technological innovations leads to greater production of food, goods, and knowledge. More food allows for an increase in population and greater knowledge allows that population to live longer and healthier lives. Mass education pulls the larger population into creating more innovation, which is needed to counteract the unintended consequences of previous innovations that now threaten to reduce health and lifespan (such as toxic pollutants becoming intermingled with the people's food and water supplies). With increasing numbers of people participating in the process of developing and applying technological innovations, the pace at which change occurs also accelerates. This means that the number of problems that must be solved to maintain a healthy population is also increasing, thus the timescale over which solutions must be found and implemented gets shorter and shorter. The commitment to innovation is absolute; once a society starts down this road there is no off ramp, there are always impending crises on the horizon that must be solved.

For most of the 20th century the vast majority of jobs involved the interpretation and processing of paper based information. The generic

training provided by 12 years of schooling plus, for management track, a liberal arts post-secondary education, gave employers access to a malleable workforce that could be taken in and given the further training they needed for the specialized work they would then perform. Employers could make this investment in training because the time scale at which fundamental change due to innovation happened was significantly longer than the working lifetime of an individual human. People could expect to remain employed in the occupation for which they had been trained for their entire working life. Thus was the entire system of education and employment set up to educate the young, and only the young, who would then go on to work without pause until retirement.

The ascendancy, and really, the total victory, of the neoliberal program in the 1980s led to a surging movement to find efficiencies in production at any cost. Quaint notions of resiliency, redundant capacity, and institutional knowledge, to say nothing of worker satisfaction and dignity, were thrown by the wayside in a singular pursuit of lowering costs and increasing profits. The pattern of education and work as two successive stages of a life remained unchanged, but employers, who had captured political power well beyond their numbers, insisted on putting the burden of specialized training (in addition to the generic education that must precede it) onto the state, with the costs to be born by individuals. The absurd rhetoric of the time, which persists even now, centred around a collection of isolated individuals devoid of any social obligations or feelings beyond what might arise contractually between consenting adults. So the individual was claimed to be the sole beneficiary of an education as it gave them access to lucrative employment instead of being reduced to begging in the streets, the default assumption for those who lacked the superior moral constitution that accompanied inherited wealth. There was no possibility for young people to earn enough through part-time work to pay for even a fraction of what was imposed on them, so a form of debt peonage was imposed to create a social cage that limited the ability of the populace to rebel against this system.

Once an individual had joined the workforce, putting their highly specialized training to work so that they could eventually repay the debt incurred by obtaining that training, they were forced to nurture and maintain a healthy supply of goodwill with their employer to avoid the risk of default and the loss of what little savings they might have put away. But looming over them was the ever increasing rate of change of technology and its potential for imposing a massive upheaval on the way

that work is done. The world these young people were born into had seen most workers able to continue working in their chosen occupation for the entire length of their working life, often with the same employer. The spectre of becoming redundant through the elimination of the field for which they are trained, and worse, of their training becoming useless to potential employers, now hangs above the heads of almost all people engaged in today's workforce. The system is rigidly bereft of opportunities to retrain in mid or later life. The responsibilities and financial obligations that are undertaken to provide for a growing family cannot be put on hold for several years while taking on the burden of yet more financial debt to rejoin the workforce, and this time without the benefit of having a full working life to amortize these enormous costs over.

The mania for efficiency imposes an obligation among employers to reject utterly any commitment to their workers. If moving production offshore generates a greater return to shareholders, they must do that no matter the effect on the society in which the employers themselves (and maybe even the shareholders) exist. When particular specialized jobs become obsolete, the employers must balance the cost of retraining against the potential savings of hiring a young person who is newly trained in the technology that rendered the older worker obsolete, and so the older worker is thrown into the dustbin of neoliberal ideology.

It cannot be overstated how much meaning is given to one's life through the contributions they make in their working life. It may be through the emotional work of helping people cope with the stresses they come under or with making a contribution, however small, to building the institutions or physical structures that organize our society and give us the building blocks to create a better world. The threat of becoming unneeded is not just a financial one; it also robs one of the pride in, and partial ownership of, the immense pyramid of structures that constitute modern society. The sense of personal failure is acute and invades all aspects of one's life. Even the ability to contribute to civil society is questioned; if an individual hasn't the skills to contribute through employment, do they have the wherewithal to contribute to the direction that society should be moving? The anxiety is very real and our society has no institutional mechanisms to mitigate it even though the pace of change continues to increase year on year.

The inescapable feeling of being unworthy of contributing to civil society only compounds the loss of national identity that is being driven by the various movements toward denationalization. Although public education was the primary instrument of nationalization (recall that the nation is the entity that has a monopoly over the legitimate use of education within its territory), it is now featuring as an instrument of denationalization. The idea of using early childhood education to train workers is anathema to modern society, not least because we insist on universal education up to adulthood before entering the workforce, but also because the idea of providing generic training, and only generic training, has been abolished by the neoliberal policy of removing the responsibility for job-specific training from employers and putting it on the state. This left something of a vacuum for early education as there was never a well developed plan for creating specialized workers (such a program had to be created by stealth or it would have been killed in its tracks). The void was filled by attempting to prepare the groundwork for citizens who would redress the injustices imposed on marginalized groups that became highly visible and concerning as the individualization that accompanied neoliberalism took hold. Collective guilt is diffuse and relatively easy to ignore but individual guilt, especially considering the magnitude of injustices that had been perpetrated by the larger society, can be very intense. Affirmative action, political recognition of past institutional injustice, and the ever present discrimination against minorities all served to increase societal awareness of a pattern of errors in the past that continued to deliver harm in the present. Those who felt this guilt most deeply were also those who were most involved in early childhood development and education.

Although the intention had been to diminish the separation that existed between dominant ethnic groups and minorities, without introducing any new discriminatory attitudes based on prejudice, the law of unintended consequences struck here as elsewhere. The result of this educational program was to separate people into groups that were identified by ethnic, social, or gender-based criteria as either oppressors or oppressed. The unity of humanity and the continuous mixing of oppressor/oppressed categories throughout the entirety of human history was lost in the moral righteousness generated by identifying the oppressor and the oppressed in the tiny slice of history that led to present day injustices. This created a strong generational separation as young people fervently began to feel an unquenchable need to atone for the mistakes of their (recent) predecessors.

Historical movements such as colonialism were judged solely by the criteria of a present day moral reckoning of the suffering that was imposed upon people against their will. The idea of finding comfort and a sense of belonging to a nation that had perpetrated acts that hindsight can only view as pure evil became anathema to an entire generation. The older generation was held responsible for having been a willing participant in this national coverup, for not having put all of their energies into creating a world where their children would not have been born as pariahs, inheriting the shame of belonging to a nation built upon evil. The intensity of this generational separation is incomprehensible to the older generation, but it is rapidly eroding the institutional trust that an industrial society needs if any consensus for social direction is to be found. The cracks in nationalism have not gone unnoticed by hostile state actors who wish to weaken the democracies of the world, and they have wasted no time in placing wedges into those cracks to lever apart what continuity still remains in civil society.

There is little wonder that consent between individuals is such an important concept for the younger generation. They have been taught to view consent as a transactional agreement between individuals with any acts committed without the explicit agreement of both parties as a fundamental violation of the rights of one party. The difficulties in defining what constitutes an act that requires consent are usually passed over, as if an unwanted invitation is the same as an unwanted assault (extreme cases make for bad laws). This moral absolutism is extended to problems of social power as well. The younger generation rejects submitting to the will of the majority (when they are in the minority) as being a non-consensual violation of their right to autonomy over their self. The tyranny of the majority is clear enough in historical injustices like colonialism and thus they extend that principle to questions of social decision making in the present. The difference between individual and social consensus, and the impossibility of finding unanimity among a population eludes them. The illusion of social context that they get from social media, as they totally isolate themselves to focus on the screens of their phones, even when in a crowd, gives them a false sense of participating in civil society. The illusion keeps them acting as individuals rather than as a society and makes the quest for majoritarian consensus, the sine qua non of civil society, a moral impossibility to be avoided at all costs.

When digital cameras first came out it became common to see photographers hunched over their cameras as they reviewed the shots they had just taken. The posture quickly became known as "chimping" as the practitioners resembled chimpanzees engaged in grooming behavior. The pejorative was just as quickly abandoned when smartphones became ubiquitous shortly thereafter and everyone started to spend significant amounts of time hunched over their devices, oblivious to the outside world. Mockery is only fun when it's aimed at a minority group. The term, however, was especially ironic because grooming behavior among apes is a profoundly social act while withdrawing into the sensory deprivation zone of a smartphone is the exact opposite. The online social world is one in which an individual has complete control over who is allowed to exist in their instantiation of that world and the extent to which engagement takes place. When almost everyone chooses to focus entirely on these pseudo-social interactions while excluding the real people who surround them, that situation is profoundly diagnostic of a collective pathology. People are craving the control that social media gives them precisely because they feel so completely unable to exert any control over the cascading events that are hammering them from all sides like the concussive effects of a detonating minefield. The Western world is overflowing with symptoms of the growing need for people to escape the reality of daily life. Opioid addictions are increasing exponentially, across all age groups, and the number of people dying from fentanyl overdose is increasing just as fast. That people would accept such a high degree of risk, with the full knowledge that immediate death is a real possibility, for a temporary flight to oblivion, speaks clearly to the desolation of their existence. The incidence of adolescent suicide in the U.S. has increased by 50% over the last decade, indicating a remarkable loss of faith in a future worth living for.

Change is happening too fast for people to cope with it in the social context that we currently inhabit. These changes are perceived as only making people's lives worse and there is no path forward in which they feel they can have an influence toward making improvements. People feel like they are trapped in a social cage where they cannot participate in governance; the levers of power have been captured by larger actors who are not concerned with the welfare of ordinary people. Democracies should not just allow people to actively contribute to policy discussions, but also to perceive their input as being meaningful. What we currently see, however, is the single-minded pursuit of minoritarian policies by prominent political parties, to be enacted through authoritarian means

once power has been seized. This leaves majoritarian parties with the sense that they don't have to be responsive since there is no real competition left for voter loyalty; they will get the votes they need because their opponents are so horrible. At a time when consensus on issues of enormous moment is so palpably needed to solve the impending crises, people are left feeling utterly helpless to control their own future. The opportunity this situation provides for adversarial social disruption is unprecedented.

Looming over all of this is the mother of all technologically induced unintended consequences, the threat posed by global climate change. This threat is undeniably an existential threat to humanity as a species, yet millions deny it with every ounce of their being. In the 17th and 18th centuries we discovered a method for creating reliable knowledge. We found a way to accurately predict the future state of the physical world within certain (known) constraints and these predictions came true time after time; the knowledge was truly reliable. This scientific method for understanding the physical world has shown us that the rate at which we are burning fossil fuels recovered from the earth's crust has created a situation where the biosphere can no longer buffer the pollution created by fossil fuel burning. The climate of the earth is warming rapidly, more rapidly than it ever has since life began, and our current technology cannot return us to the climate that our ancestors knew for at least a century. And we know that it will get worse during that century.

Critically, though, the return to a comfortable climate within a century depends upon all of humanity cooperating in a way that will require the sacrifice of many comforts and changes in lifestyle and even the very path that our lives will follow by most of humanity. This comes at a time when the strongest social forces that we experience are driving us apart and rapidly destroying any hope that we can join forces to solve this technology-induced problem before it kills us all. We know, too, that we are still irreversibly committed to technological innovation; we can't just solve this problem and live happily after that. There will be a new problem of global scope that we haven't yet appreciated that will threaten us anew. This is the devil's bargain that we have made with technology.

15 Moral Injury

Hain't we got all the fools in town on our side? And hain't that a big enough majority in any town?
    The Lost Dauphin, rightful King of France

A moral injury occurs when an individual loses their ability to assess whether their actions, or their intended actions, are consonant with the values of the community to which they belong. Everyone needs to have an understanding of what constitutes a good life so that they can feel a sense of self-worth by evaluating their own behavior in the context of how they will fit in and be accepted by those that they trust and esteem. Morality is not absolute, and even the edicts that are accepted as having been delivered by divine intervention represent the standards of a particular community at a given point in time. In the kind of small communities that humans formed for most of our history, where trust networks and individual reputations ruled interpersonal relations, a moral injury would represent the perceived betrayal of a trusted peer. The sudden loss of trust would set the person adrift, not knowing how to proceed without being able to trust those with whom they had shared their lives.

In a fully industrialized society, where people belong to many fluid and overlapping networks of interaction that depend upon hierarchical organization to delegate trust, obligation, and responsibility, a moral injury is caused by an institutional betrayal. This is different from a personal betrayal because it breaks the bonds of trust between an individual and the shared culture of the society at large: the nation. Although these bonds are weak, they are vital to an individual's understanding of where they fit in with the social order all around them. To the extent that individual identity is shaped by group membership, the shared conception of the national story is the essential foundation for the societal group that individuals adopt as their own. The national story itself is largely just a part of the background to everyday life, rarely brought to bear on any issue that might arise but always taken for granted as a backstop that can't be taken away. A great deal of moral laxity is permitted within the historical context of the national story; even the greatest of heroes are recognized to be fallible characters whose positive contributions remain indelible even if new evidence of personal failings come to light. At least, this has been the working model for civil

society in the past. Following the extreme deviations from basic morality that were inspired by zealous nationalism in the mid twentieth century, a general amnesty for historical saintliness was instituted around national myths so that they could once again serve as an institutional bulwark for the many strangers that had to live and work together in a modern society.

With successive generations born and raised in cities, people who take full advantage of the wealth of opportunities provided by industrial society to travel widely and freely throughout the world, the necessity of having a semi-mythical nation as a stand-in for the tight groups that humans have belonged to for their entire history does not even rise to the level of being worthy of serious consideration; it simply does not occur to anyone to notice its presence. This is not to say that the nationalism of early industrialization was purposely created to provide group membership. It was not, nor did anyone notice that the nation provided that framework for replacing personal trust in fellow group members with institutional trust; this was a happy accident that went completely unnoticed until quite recently. It was the politically determined use of universal education to create a national identity as a means for creating a workforce that could serve the industrial use of technological innovation that led to the unintended consequence of the nation as a repository of institutional trust. The universality of education, using a strictly enforced regularity of curriculum, created the institutional nature of a national identity. It became invisible precisely because it was the same for everyone who belonged to a given nation; it was an unquestioned background that colored daily life, prescribing holidays and the manner in which they were celebrated, assigning status to various roles or accomplishments that served to further civic progress (itself defined by the background assumptions of how civic society should function), characterizing the norms of behavior that governed everyday interactions between people; all the intangible and unwritten rules that people obey but never consciously think about.

One such unwritten rule was that outsiders who joined the nation—as immigrants, for example—was that individual success, especially the successful provision of better opportunities for one's children, came about through assimilation. The communities of outsiders, especially those who retained phenotypic differences such as skin color, ignored or repressed knowledge of past and present injustices that affected their communities so as to more fully create better opportunities for the next

generation. Everyone passing through the public school system would, therefore, share an affinity and affection for the festivals and celebrations that belonged to the dominant culture, though the lens of civil society could abstract these holidays from the particular religious basis that generated them initially (whether or not they were borrowed from other religious traditions) and turn them into secular festivities. In fact, civil society in the West had been doing just that to drive consumerism as industrialization created an ever growing national wealth. As just one example, Christmas had been a very low-key celebration before the 19th century, overshadowed by New Years that follows shortly afterward. The idea of decorating and spending on gifts to give at Christmas was driven by capitalists looking for new markets for consumer goods.

The children of immigrants, like the children of those with an ancestry in a country, developed their sense of national identity through the experience of going through the public education system. The extremism of the romantic nationalism of the 1930s, also embedded in school children through the public education system, prevented anyone from openly acknowledging that aspect of universal education. Quite the opposite, in fact, as a great deal of effort was put into developing anti-nationalist teaching into the curricula of all countries. The softer side of nationalism, the national story of creating an ever more just and wealthy society, was still included, but it was impossible to avoid covering the many injustices committed and supported by each nation's founding members alongside the injustices that accompanied the rise to fascism through romantic nationalism in the Europe of the 1930s. Children are not equipped to understand the necessity of compromise and practical concessions that must be performed under conditions of extremely limited information about the present, and none at all about the future. When viewed through a pedagogically organized and minimized historical lens, an injustice can appear with the absolute moral clarity of childhood disputes. Thus did a generation of schoolchildren see the injustices rained down upon their parents or grandparents, or those of their classmates, in the national story that was to be their own story. They were not having it. An entire generation was dealt a severe moral injury with the potential to fracture the nation that was not even recognized until the disintegration began happening before our very eyes.

The attack on the nation from within was not appreciated as a disruptor with the potential to tear apart the very fabric of society because the quest for social justice is a foundational principle of civil society. But the

stability provided by the institutional trust that comes from belonging to a "nation" remained completely invisible. There didn't seem to be any need to hang on to a national story that used semi-fictional hagiographies to construct historical ties that could bring unity to a diverse (and diversifying) population. That this dissolution of trust in the historical institutions of a nation came to a head at the very time when the mechanisms of forming consensus around the events occurring in the present (manufactured consent), only served to hasten and amplify the fragmentation of social consensus. The younger generation had lost their trust in the institutions that grounded them within the society, casting them adrift with the desperate need to re-establish social trust to lessen the suffering of moral injury. They were also separated from the institutional systems that largely created social consensus around current events. All this while the existential threat of global warming hangs over their heads like a sword of Damocles. There could not have been a more opportune moment for states with an antipathy toward democracy and civil society to use social media to conduct informatic warfare.

People who are suffering from a moral injury have no visible pathologies, nor can they articulate the source of their suffering. When they rejoin a community in which they can once again place their trust in the certain knowledge that should trouble arise, they are part of a coalition that will stay with them through the troubled times, their suffering is almost instantly relieved. The gratitude they feel for this relief serves to increase their loyalty toward this new community. The malicious actors who are using social media to recruit people under the cloud of moral injury know this and exploit it. Troll farms in Eastern Europe will organize demonstrations in North America, posing as fellow community members and bringing online communities into real life contact. Through such tactics do virtual communities become real communities, organized around some "truth" that a population of morally injured individuals was searching for. People raised in a fully industrial society where single-stranded thinking and primacy of empirically demonstrable facts went unquestioned can revert, almost overnight, to a multi-stranded form of thinking in which social loyalty trumps empirical reality when the social context demands it. Those outside the group cannot understand how their friends and relatives could have changed so dramatically in such a short time because they see only the denial of reality and not the social bonds that are at work.

In times gone by, institutional betrayal on a limited scale could be healed through the work of people within an individual's trust network. With time, the person could separate the betrayal of individuals within the institution from the institution itself and once again become part of the nation. Social media pounces on these vulnerable people before they can retreat to the protection of their friends and family. Once they have transferred the trust that they formerly placed in the institutions of the nation onto the community that relieved their suffering, they are truly like members of a cult, but one organized around a virtual community fashioned on social media rather than around the delusions of a charismatic individual. The neoliberal myths of individual achievement have completely masked the absolute necessity of social engagement and belonging for humans. Society is very real and the moral injury that accompanies a separation from society will be quenched. The infowars that are currently raging all around us mean to capture an entire generation and destroy the wonder that is civil society.

There is another type of moral injury that comes about when an individual feels betrayed by their trust network, not through an actual lie or deception perpetrated by a trusted source, but by the community that embodies the trust network changing its beliefs or practices in a way that the individual cannot accept. Social practice, for any given community, is largely a matter of custom; of continuing to do and believe what the members of that community have always done and believed. The reasons for any particular customary behavior are usually lost in time and often given a mythological basis. No matter what the original justification, the use of custom as a reason for doing or believing something is unassailable; no further rationale is required.

Individuals growing up in a community become accustomed to attitudes, prejudices, and behaviours that they have known since birth and accept them as the natural order of things. Individual beliefs come to have a justification that is beyond question just as communities do. Social behavior, though, requires coordination and cooperation; people have to work together to perform the various roles that define any particular custom of the community. For this to be maintained, it has to serve some function that the community would dearly miss if the behavior was discontinued. With individual beliefs, however, there need be no cultural requirement for the maintenance of the belief. In fact, in the case of individual belief, more work is involved to change the belief than to continue with it.

If a community is totally insulated from other social groups, then individual beliefs and attitudes will most likely continue to be held without any form of reappraisal or monitoring of the validity and usefulness of those beliefs. When change comes to a community, possibly with the broadening of its interactions with outsiders, then particular attitudes or behaviors may lead to conflict in these interactions. People outside the community may see these attitudes as obviously and transparently hurtful to some individuals (who may be inside or outside of the community). Even just the exposure to different attitudes may create conflict within the community if some customary injustice was exposed by the new interactions. For example, traditional attitudes toward gender roles might be re-evaluated by community members of a given gender should they come to see that they are getting the short end of the stick. If there is no cultural importance to the beliefs or behaviors that are causing conflict, other than normalization through long usage, then most members of the community may begin to feel that there is no advantage to maintaining them. If there is an obvious moral clarity to abandoning these behaviors (to reduce harm to others) then they may quickly drop all opposition to replacing these long-held but destructive attitudes. Everyone may feel some cognitive dissonance with their former selves, and probably some embarrassment for not proactively recognizing the injustice that was always in plain view, but once a consensus view emerges in which the injustice of past usage must now be confronted openly, then most (but not all) people will make the change willingly.

Those individuals who are unable to make the change despite the growing social pressure to disavow prejudicial attitudes and cease harmful behavior, will suffer a moral injury when this pressure reaches a point where it must be confronted. The reasons for their inability to make the change may be varied between individuals, but some people just cannot bring themselves to adjust what they perceive as their core beliefs; they believe it would make them become a different person. From an objective perspective, this injury is entirely unjustified, but internally, the individual feels betrayed by his or her community. They wonder why was this OK for so long but now it is not? Are all the respected figures of their past now to be disowned and shat upon as disreputable rogues, when they can no longer defend themselves? For these people, it is not simply a matter of making some minor adjustments to their behavior; these beliefs are irreducibly connected to their entire understanding of

who they are as a person. To make these changes means that they would have to destroy their sense of self and re-make themselves as a new person; someone without a past and without a community (where the history of their community takes precedence of the present instantiation).

Because the attitudes are so obviously immoral from an objective point of view (they cause harm to others that far exceeds any benefits they provide), there is no way to transition away from these attitudes in phases. The individual must find a way to dissociate these views from their sense of self and make the change all in one go. Even for those who are able to make the change, it is not just a matter of accepting the new reality and going about their business. New converts, wishing to atone for their former immorality, often take things to extremes and try to purge their history of all traces of evil. They will try to justify this extreme behavior as a type of affirmative action, but it is a purely selfish desire to regain an internal sense of moral righteousness. These extremal actors only serve to cause the morally injured sub population to dig in their heels ever more firmly against change. Their worst fears are confirmed that this change is not merely a small shift in attitude, but a wedge that will be used to destroy themselves and the community that has shaped their entire life. Those who are late to transition are now faced with these extreme purges that are being pushed by those they formerly trusted. This deepens their sense of social betrayal and thus the intensity of their moral injury. For them, there is now an immense cost to making the transition that is much higher than it was when only outsiders were pushing for it. They make a new cost-benefit analysis and decide that the harm of maintaining their prejudices is less than the harm of joining the purges.

In the past, before the internet, the prevalence of this form of moral injury was just as common as it is today, but the individuals who could not bring themselves to reject customary but prejudicial attitudes, were basically stuck with the community in which they lived. They would face overwhelming social pressure to conform, and in outward behavior, if not in belief, they would have to do so. Their sense of personal grievance would probably stay with them for their entire lives, coloring all their ventures with the embitterment of having been dealt an unjust and manifestly unfair hand. Their lives would be a string of bitter disappointments but other than the misery they carried with them, they

would have little to no impact beyond their limited interactions with the people they knew and worked with.

The initial response of an individual who suffers from a moral injury is to be cast adrift from their trust network. So much of what we feel as our self-determined will is actually the determination of a consensus view of our trust network and the alignment of our own attitudes with that view. When we are cut loose from the network, it is as if we are cut loose from our ability to have free will; to determine the course of our own future. This puts us into a condition of psychological suffering that is unbearable. At the first chance where a different community shows an empathy for this suffering, especially if they are being genuine and can tell an individual exactly how they are feeling (having been through it themselves), then the lost individual will jump at the chance to join this community. Cults prey upon people in just such a state as their suffering can be almost miraculously ended by being emotionally embraced by a new community. Cults are generally organized around the odd beliefs of a charismatic individual, so although they might accept the prejudices of new members, they don't proselytize those attitudes. Joining cults that have no relation to the particular moral injury serves to dilute the capacity for those sufferers to organize around that grievance. When connectivity was limited to interpersonal connections in real life, that limited the spread of these "unjustified" moral injuries that are predicated on harmful attitudes and behaviours.

Some few would divorce themselves from their community in order to find like-minded people with whom they could form a new trust network. In situations where the prejudicial attitudes were widespread, then enough of these aggrieved individuals might find each other to form communities where they could sustain their beliefs. The insular nature of these communities means that they reinforce each others' arguments and push them toward an extreme version of those beliefs. Their grievance is not just real, it is existential. They begin to see the larger community as a mob that is trying to exterminate them. Each individual goes through the same internal monolog of catastrophizing where they see themselves being accused of terrible acts and desires. Even though there are rarely any public accusations of this sort, the imagined reality becomes genuine and they resent it. The pre-internet form of these communities were restricted to the formation of fringe political parties tilting at windmills however some large-scale organizations were able to coalesce these groups if the larger organization wished to increase its constituency (and

thus its political power) by using its own networks of communication to recruit them (e.g. the Moral Majority).

In the early days of the internet, before social media, the connectivity of the internet, and later the ability to search for web pages, allowed those suffering from a particular moral injury to find like-minded individuals and develop support networks that would give them a community as well as keep their grievances alive. The dynamics of social change, however, worked against them. They could not push their cause into the consciousness of the larger society in a timeframe that could address the issue before it became moot. The social consensus had become a fait-accompli before any attempt could be made to create an event or scandal that could shed doubt on the social consensus.

It was only with the advent of social media, and it's absurdly successful penetration into the lives of almost every human on earth, that this form of moral injury became especially pernicious. Anyone suffering from a particular moral injury can now easily find others who have the same complaint due to the high connectivity of social media, the ease of search, and the helpful algorithms that the social media companies use to put them in contact with each other to drive engagement with the platform. It would, in fact, be difficult for these individuals to not be put in contact with each other, so effective are the algorithms used by social media companies. Cult-like communities inevitably form, centered on each particular moral injury that people have suffered from. Within the self-reinforcing communities that owe their existence to an identity formed around a particular grievance, community members redouble their commitment to fight for their ability to continue to hold attitudes and engage in behaviours that are harmful to others, under the mistaken, but sincerely held belief, that the injustice visited upon them is the greater injustice—it goes against custom.

With the strength that comes from adding large numbers of people to their community, not to mention the unquestioned authority that custom dictates, these communities soon organize themselves to reverse the majority consensus view on the issue that divides them from the larger society. There is an awareness of the futility of arguing for their beliefs directly—a majority will not accept the imposition of a minority position when the issue is well known by the whole society—so they re-frame the issue as an injustice toward the aggrieved group. Their goal is to find and publicize and confront an injustice done to the group that will not be

immediately dismissed by the larger society. An event is embellished, or even invented, but kept intentionally ambiguous through noise and distraction (the celebrated tactic of well known rabble rouser Steve Bannon—to flood the zone with shit—is a prime example). The aggrieved group develops a reasonably coherent narrative to demonstrate the injustice. If this narrative doesn't gain traction, they may look for a new event to take its place. This process continues until something starts to stick (i.e. gets picked up by an important, but unconnected, source of news). Coordination is used to pounce on this initial burst of momentum and push it out so that everyone who comments on public issues feels they have to express an opinion. These groups exploit the asymmetries of social media to influence public opinion and gather recruits to their cause.

One of the principal imbalances of social media is its ability to publish in a one-to-many manner. A single user who has cultivated a large list of followers or "friends" can reach tens to hundreds of thousands of other users with no more effort than is required to reach one other user. This gives an immense reach to those who are motivated to push their message out to a wide audience.

The algorithms used by social media companies also act strongly in favour of these communities build around grievances. Social media companies need to monopolize their users' attention, so their algorithms (the internal programs that determine what each user will see when they connect to the platform) are structured to capture and maintain user engagement. Conflict, especially conflict that pushes the boundaries of the socially acceptable, has been found to be exceptionally useful for this purpose. Aggrieved communities know this and carefully structure the "event" and its wider implications, around which they build their campaign, as a conflict due to outrageous behavior. They construct a narrative around the escalation of this conflict using cutouts and pseudonymous personas so that the algorithms recognize it as a developing story that can be used to drive user engagement.

The anonymity of social media allows those who use the medium for persuasion to develop vast networks of trolls and bots for driving engagement and spreading a particular message. Trolls are actual humans who join conversations with the singular goal of promoting or countering a particular message. They are hired to drive a conversation in a particular direction and may do that in a sophisticated manner but are

more often just spreading talking points that have been distributed by a central source. Bots are computer programs that pretend to be human, searching social media for topics or phrases and then responding with, again, various levels of sophistication (but usually in a barely grammatical manner). The low cost of creating anonymous personas and inserting them into real human networks, combined with the multiplier effect of digital, lossless copies, gives committed propagandists an unbelievably powerful mechanism for creating the exact conditions that social media algorithms exploit to generate engagement.

A related factor, largely caused by social media, is the vastly diminished state of journalism for legacy media. Newspapers and television news programs have almost no investigative reporters left to cover stories with anything more than a cursory purview. Without the costly business of delving into the causes that lie behind a social media controversy, it can be difficult to recognize a substantial asymmetry in the numbers of participants. A tiny but dedicated community can make more noise on social media than an overwhelming majority that is loathe to engage with obviously bad actors. The lingering need of legacy media to supply balance to any story (a need that was far less harmful in the past when that same media was able to decide what was a story and what wasn't), is used very effectively by aggrieved groups to demonstrate the legitimacy of their grievances. Propaganda doesn't need faultless logic, it needs an exemplary champion. If a respectable newspaper gives equal time to both sides, then the casual reader assumes that there is an equality to the underlying issues.

Aggrieved communities have shown that they can be astonishingly effective at centralized coordination and message discipline. The moral injury suffered by these individuals causes them to submit to the group with cult-like loyalty; the small group becomes their new trust network and a type of multi-stranded thinking takes over where social coherence trumps any outside demonstration of empirical fact. They are totally committed to the cause of furthering the group's message, beetling away on social media with a focus that borders on pathological.

Another asymmetry of social media that works in their favour is the celebrity culture of public figures and intellectuals. There is an expectation that these people will contribute to the discourse; public pressure tells them that this is a necessary function that they need to fulfil in order to maintain their celebrity. Whether out of vanity or as part of a

grift, they need to do it and the communities know that they can call them out for not addressing an issue. Even if they side against the aggrieved communities, they keep the issue front and center and this serves to magnify the importance of the issue with the general public. On top of this, social media has created an influencer culture where anyone can be a celebrity if they have enough followers. Of course gathering followers is just like algorithmic engagement: outrage and conflict trumps credentials every day of the week. These influencers also feel compelled to weigh in on these issues, however they are usually historically, civically, scientifically, and logically illiterate and bring little in the way of analysis to any situation.

The small but all too real population of truly crazy and violent individuals make up the last category of asymmetric attributes of social media that make it such an ideal tool for those dealing in the politics of grievance. Social media connectivity and algorithms recruit these people to engage with issues where individuals are being accused of grievous crimes against helpless innocents. In their maladapted world view, they are apt to believe the most ludicrous accusations and then act as vigilantes to restore justice. Doxing, derived from "documents", where an adversary's address and phone number in real life is published as a means of intimidation to prevent argument is among the most vile tactics for obtaining a victory from social media debate. It is precisely because of the unpredictable, but always present, purveyor of violence that this tactic can be equated with a statistical attempted murder. Those who would dox their adversaries have so confused the distinction between social and physical reality, and the artificiality of synthetic reality, that they put real lives in danger for their own gratification.

16 Conclusion

A democracy cannot depend on intellectuals alone. A democracy requires the intellectual effort of all its citizens, and it must value intellectual practices other than those associated with high culture.
   Philip Agre

The industrial and scientific revolutions utterly changed our world, right down to the way we think. The massive shift to a highly specialized division of labour brought with it a mode of thinking in which concepts mapped one-to-one onto things in the world. This replaced the old mode of thought in which concepts could be mapped onto many things, with social context providing the necessary guidance toward meaning in a particular situation. But it didn't completely replace the earlier mode of thought, it just relegated it to those aspects of life where scientific knowledge had not yet made an impact.

There is a type of irony in this arrangement because this kind of thinking is understood to be separate from the mode of thought that is used for matters where serious decisions must be made. Real knowledge, the kind that furnishes reliable results, is the only sound basis for making decisions in fields where getting results is crucial; fields such as medicine, engineering, business, politics, the press, regulation of industry, and a host of others. Or at least it was up until very recently.

Now there is a substantial fraction of society, approaching a majority in many jurisdictions (and even achieving a majority occasionally), that rejects modernity and its referential mode of thought. These people have lost their faith in the superiority of that way of thinking and replaced it with a faith in communities that they have found to fulfill their lack of moral reference; the emptiness that was left inside them when they became disconnected from the nation they had grown up a part of. These communities are, for the most part, online communities that consist of charlatans, wage labourers playing a role to earn their living, computer programs pretending to be human, and other lost souls searching for a community that will fill that intangible, but nevertheless overwhelming, need to belong to a group that forms a trust network.

The enormous success that scientific thinking has had on the world is of no import to these people. For their entire lives they have never given a single thought to the vast array of near-miracles that allows them to walk into an elevator and be delivered to the top of a hi-rise building alive and well. The same goes for all of the chains of technology that have to work without fail that facilitate everything they do; indeed, that support their very lives. It just works and it will always just work; it is part of the natural order of things. These people are fighting as hard as they possibly can to remove serious thinkers from positions of power within society. They cannot see the disaster that would ensue if they were to succeed, only the tribal call to consolidate power within their own group.

The lack of trust in scientific thinking translates into a larger rejection of expertise on any sort, if the experts in question are outside of their tribe. Instead of recognizing that these experts have spent decades studying a particular field and consolidating the combined efforts of thousands of people who have gone before them, they are seen as merely opinionated individuals who want to exercise social power over the gullible. There is a common belief that information is equivalent to knowledge, and that a few hours spent doing an internet search is enough to make anyone the equal of those who have studied a field for decades and even created some of the knowledge that defines a field. The situation is analogous to the famous Dunning-Krueger effect because until you do the very difficult and time consuming work of becoming an expert, you have no idea of how profoundly ignorant you are before doing that work. With the rejection of expertise, all efforts to put expert knowledge to work in forming public policy become perceived as attempts to exert power over others. When individuals no longer feel like a part of the larger society, then this perception of the exertion of power is understood as an attempt to infringe upon an individual's basic rights and freedoms. This kind of thinking came to a head during the pandemic when many groups found common cause in the belief that basic public health measures such as restrictions on public gatherings, and later restrictions based on vaccination status, were intolerable violations of individual freedoms.

If we want to live as individuals with the freedom to determine our own future, then we must bind ourselves to a group and accept the constraints on our liberty that come with obligations and responsibilities to the other members of the group. The ability to decide on a course of action in the complex world of humans, and their byzantine quirks of behavior, comes from simulating counterfactual scenarios within our minds. We all have a

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bespoke model of our own little corner of the universe tucked away inside our minds, and this is what we use to explore the alternate futures that might occur based on the way we act inside the simulation. To do this we need not only simulate the physical world, which has symmetries that provide continuity between different times and places, making it possible to simulate events with reasonable fidelity, but also the social world, which is made up of humans running their own simulations, with rather less continuity between different times and places. Without some simulated humans in our model that we can trust absolutely to behave in a predictable manner, our counterfactuals run away with an infinite regress. We have nothing to ground our understanding of other human minds and so their behavior becomes random. When we lose that trust network that backstops our simulation, we are cast adrift. We can no longer trust our simulations of counterfactual futures and so we cannot determine the consequences of our actions. We lose the feeling of having free will because without the ability to predict the results of our actions, we cannot find a path to satisfying our goals. It is the paradox of human nature that freedom only comes from accepting the constraints on freedom that are part of social belonging.

Our sense of free will, of being able to plan out our future and then will ourselves to take the actions necessary to bring about that future, is central to our sense of self. The essence of our personal identity is the collection of our desires and the strategies that we work out to fulfill them. When we get into a situation in which we are dealing only with complete strangers, with not a single individual with whom we have some basis for predicting how they will act, then any attempt to make a plan to guide our actions dissolves into an abyss of endless "what if" questions. The longer we remain in such a situation, the less we feel able to exert some control over our own lives. As we lose our sense of free will, we also lose our sense of self. This becomes intolerable for humans and will cause psychological torment, even a feeling of terror if we feel our identity slipping away irretrievably. A person in this pitiable state will desperately seek to be taken in by a group.

Although we have this need to belong to a group, we still experience the world as individuals. All the stresses and problems that arise in daily life sometimes drive us, as individuals, to feel a bit of unfairness in the way our group is treating us, and we react accordingly. All groups go through cycles of disharmony as self-interested individuals jostle with each other in a never-ending struggle to find a balance between autonomy and

cooperation. Thus a real need arises within all groups to regularly, and unmistakably, no matter what internal tensions may be present, ensure that each member is fully committed to preserving the group against any external threat. This is the rationale behind the multi-stranded mode of thinking that anthropologists witness in primitive tribes, where words and concepts can take on different meanings in different social contexts. The example of the Nuer seemingly mistaking a cucumber for a bull in a particular context is one such instance of social needs taking precedence over empirically observed physical reality. It is not at all clear how and why these socially determined multiple meanings arise but, like accented language and dialects, they are inevitable in isolated groups of humans.

The strange twist of history that led to cities, writing, the creation of management as a separate category of work, and the beginning of labour specializations and which eventually led to industrialized societies, created an entirely new type of thinking and way of relating to groups that is crucial for understanding our current predicament. With specialized divisions of labour came the expansion and fragmentation of knowledge—people in a particular specialized occupation would develop their own words and concepts to communicate with their peers, but much of this knowledge would be irrelevant to outsiders and any individual can only hold so much knowledge in one brain. There was no possibility of using these specialized concepts and their related terminology as markers of social belonging, thus the collection of entities where concepts mapped one-to-one onto things kept growing larger. Eventually the scientific revolution led to the primacy of facts—empirically observable events or objects that all observers agreed upon—as the foundation upon which reliable knowledge could be built. For this to work, the single-stranded type of thinking that maps concepts one-to-one onto things had to be extended to all aspects of life that touched upon the physical world. Scientific knowledge turned out to be so clearly dominant over all previous forms of knowledge that, despite the lack of any way of knowing truth (what is really real, not just agreed upon fact), it rapidly displaced all forms of creating knowledge that preceded it. The curious part of this transformation was that the hyper-specialization of labour that is created by industrialization leaves individuals utterly unable to even survive as individuals. There are no specializations left that can satisfy our basic needs to stay alive, leaving us completely dependent upon the cooperation of others for our continued existence. This is curious because in leaving behind the mode of thinking that allows us to verify our trust in a group, we become even more dependent upon our membership in the

group. We have a very real need to have a trust network where we know enough about the people with whom we interact that we can predict how they will behave in a given situation. Though we cannot see this need through introspection, when it is removed, we feel its loss acutely (though without knowing the source of our distress since we cannot perceive the need in the first place).

The societal needs of industrialization led to the happy accident of solving the problem for each individual of creating a trust network that could be used by the people who were scattered in the vast interdependent web of reliance of industrial society. In fact, a rather large part of the reason for the industrial revolution beginning in Britain was because this dual solution was closest to being realized (prior to industrialization) in that region. That it was only partially realized was responsible for a great deal of the misery and suffering that accompanied the industrial revolution; other jurisdictions were able to implement the solution to the societal problem as industrialization began, thereby alleviating the individual problem that nobody understood (or even recognized) at the same time. The societal problem was that people from the thousands of independent villages within a state, each speaking with different accents, dialects, or even languages, each following the rhythm of whatever customs had happened to become important to that place, and each knowing only how to interact with people they had known for their entire lives, had to be brought together to work in factories where the high degree of specialized tasks made it essential for strangers to be able to communicate and cooperate to produce the products of industrial manufacture. The solution to this societal problem was the creation of the "nation".

Nationalism was, first and foremost, a response to industrialization. The rise of manufacturing using industrial methods, and the administrative work that accompanied it, created an enormous need for people who could communicate with each other and work together in a highly cooperative environment. The existing states at the beginning of industrialization were the natural boundaries for creating nations that could work somewhat like villages, with a common language and understanding of how the world works. Britain very nearly had this already in the late 1600s but conditions in continental European states were far less harmonized. Constant warfare between states since the fall of the Western Empire had left a patchwork of villages with different languages, customs, and ritual behaviors that only poorly aligned

themselves with the fluid boundaries between states. The problem for each state, then, was to find a literate culture that they could lay claim to, and graft onto it a low (not literate) culture that represented a majority of the populace within its territory. Often this meant mixing, or even fabricating, elements of various low cultures to create a national story that could find acceptance. Creating workers who were literate and conversant with this new national identity, giving them a sense of ownership of the language, culture, and history that was created, was accomplished through state enforced, universal education.

By instilling the same national story into everyone through universal education, they created, quite accidentally, an institutional basis for individual trust networks that replaced the person-to-person trust networks that humans in village sized groups had known for their entire history. Each individual coming out of a nationalized education system was able to understand enough about the background assumptions that their peers would use while making decisions to develop a minimal mental model that could be used in counterfactual simulations within the imagination. Although these models were much weaker than those that would develop in a true village upbringing, they were able to span across the whole population that was educated in the same manner. The breadth of this weaker institutional trust network was sufficient to allow people from across the nation to interact with each other without suffering from the fear of identity loss and the desperate search for group membership that would have plagued industrialization without nationalism.

The institutional trust network also happened to be an ideal precursor for the adoption and extension of democratic forms of governance. Finding consensus throughout the population of a large state is virtually impossible in most situations, however, with a population that maintains a certain minimal level of trust between all members, it is possible to find consent to go along with the majority opinion (while retaining the right to try to change that majority opinion through legitimate political means). If a substantial minority flatly refuses to submit to the majority, even temporarily, then violence will be inevitable. Either the majority uses state power to bring the minority to heel (or worse), or the minority resorts to terrorism to break the will of the majority. The "romantic" nationalism that led to fascism in the 1930s used the latter to gain control of the state and then discarded democratic institutions to pursue their misguided vision of racial perfection. A diffuse trust network is generally one that advocates tolerance due to the complexity of human projects and

desires that are contained within a larger society. When a few token cultural or ethnic characteristics are represented as the only worthwhile objects of reverence within an entire society, then this hyper-focussed attention leads to fanaticism and cult-like devotion to the group.

An institutional trust network also favoured an institutional approach to finding consensus among large populations, most of whom have far too many obligations to family and work to devote the time needed to actively participate in the policy forming mechanisms of political parties. A functioning democracy requires a civil society that takes the notion of self-governance seriously even when the formal interaction between individuals and democratic institutions is limited to casting votes for representatives. The informal discussions and debates that occur between citizens all serve to consider the arguments that shape the policies eventually enacted by government. With a tolerant national identity, the institutions that most serve this purpose are the various media organizations that distribute journalism, news, and editorial opinion. While it is true that powerful interests can manipulate the press to manufacture consent around policies that would not otherwise be popular, either by suppressing information or counter-arguments or by monopolizing rhetorical opportunities, it is also true that consent must be manufactured, at least partially, in order to prevent the paralysis of requiring unanimity before acting.

Part of the broad consensus in the post WWII democracies was that social justice for marginalized groups was a goal worth pursuing; especially when the injustices were carried out by the nations who were seeking to set things right. The national stories that were invented to create a unified nation in the first place came under intense scrutiny and the flaws and outright fabrications that went into those stories were laid bare. The desire to make amends demanded that these retrospective analyses of a nation's history be included in the public education curriculum led to an entire generation coming to reject the foundations used to support national sentiment. This process of de-nationalization has been aimed at fighting historical injustice, but it has also eroded the institutional trust network that served as the foundation of civil society. Without a functioning civil society, democratic governance and the tolerance needed for finding consensus is put at risk. This is the precipice upon which we are teetering. The abyss is much closer than most people realize because we have such a poor understanding of our social nature.

Understood or not, we know that we are in trouble. Technological innovations keep spreading like wildfire, without any thought as to the consequences. Like the spring-break revellers who rushed to embrace thousands of strangers from all over the country in the middle of a pandemic, the intoxicating rush of novelty is simply irresistible as a reprieve from overwhelming anxiety. Social media has opened up our civil society to the most pernicious form of social hacking. Hyper-realistic computer graphics and video generation has taken away our confidence in our ability to trust our sensory perception of the world around us. The pace of change has given all of us the impending sense of doom associated with the inevitable expiry of the knowledge and skills that we need for gainful employment. Many of our closest friends and relatives have seemingly lost the ability to understand simple matters of fact, even when their very lives are put at risk by their embracement of alternative facts. Obscene levels of inequality, maintained and extended by moronic billionaires who have captured enough legislators and jurists to do their bidding, keep us from correcting even the most blatantly crooked institutions. We have poisoned our environment and our best hope is to ride out a century of heat and misery, but only if we can all come together, globally, to try to fix the problem. On top of all this self-inflicted harm, there are nation-states who are putting vast amounts of their resources and efforts into using these levers to destabilize our civil society and utterly destroy our democracies. This is the standing wave that is rising above us, an enormous superposition of calamities poised to crash down upon us. Yet there is hope. We can move the rocks in the stream and redirect the small ripples so they aren't all piling on top of one another. We just need to recognize our mutual interests, and our interdependence, and our social nature. We need to realize that civil society is the goose that has given us all the golden eggs. No single meal can ever come close to even a single one of those precious gifts, so we must not eat the goose. That's the tweet: Don't eat the damn goose!