NATIONAL AFFAIRS

The Constitution of Knowledge

Jonathan Rauch

Long before Donald Trump began his political career, he explained his attitude toward truth with characteristic brazenness. In a 2004 television interview with Chris Matthews on MSNBC, he marveled at the Republicans' successful attacks on the wartime heroism of Senator John Kerry, the Democrats' presidential candidate. "[I]t's almost coming out that [George W.] Bush is a war hero and Kerry isn't," Trump said, admiringly. "I think that could be the greatest spin I've ever seen." Matthews then asked about Vice President Dick Cheney's insinuations that Kerry's election would lead to a devastating attack on the United States. "Well," replied Trump, "it's a terrible statement unless he gets away with it." With that extraordinary declaration, Trump showed himself to be an attentive student of disinformation and its operative principle: Reality is what you can get away with.

Trump's command of the basic concept of disinformation offers some insight into how he approaches the truth as president. The fact is that President Trump lies not only prolifically and shamelessly, but in a different way than previous presidents and national politicians. They may spin the truth, bend it, or break it, but they pay homage to it and regard it as a boundary. Trump's approach is entirely different. It was no coincidence that one of his first actions after taking the oath of office was to force his press secretary to tell a preposterous lie about the size of the inaugural crowd. The intention was not to deceive anyone on the particular question of crowd size. The president sought to put the press and public on notice that he intended to bully his staff, bully the media, and bully the truth.

In case anyone missed the point, Sean Spicer, Trump's press secretary, made it clear a few weeks later when he announced favorable

Jonathan Rauch is a senior fellow at the Brookings Institution.

employment statistics. In the Obama years, Trump had been fond of describing monthly jobs reports as "phony" and "totally fiction." But now? "I talked to the president prior to this and he said to quote him very clearly," Spicer said. "They may have been phony in the past, but it's very real now." The president was not saying that the Bureau of Labor Statistics had improved its methodology. He was asserting that truth and falsehood were subject to his will.

Since then, such lies have only multiplied. Fact checkers say that, if anything, the rate has increased. For the president and his enablers, the lying reflects a strategy, not merely a character flaw or pathology.

America has faced many challenges to its political culture, but this is the first time we have seen a national-level *epistemic* attack: a systematic attack, emanating from the very highest reaches of power, on our collective ability to distinguish truth from falsehood. "These are truly uncharted waters for the country," wrote Michael Hayden, former CIA director, in the *Washington Post* in April. "We have in the past argued over the values to be applied to objective reality, or occasionally over what constituted objective reality, but never the existence or relevance of objective reality itself." To make the point another way: Trump and his troll armies seek to undermine the constitution of knowledge.

The Problem of Reality

The attack, Hayden noted, is on "the existence or relevance of objective reality itself." But what is objective reality?

In everyday vernacular, *reality* often refers to the world out there: things as they really are, independent of human perception and error. Reality also often describes those things that we feel certain about, things that we believe no amount of wishful thinking could change. But, of course, humans have no direct access to an objective world independent of our minds and senses, and subjective certainty is in no way a guarantee of truth. Philosophers have wrestled with these problems for centuries, and today they have a pretty good working definition of objective reality. It is a set of *propositions*: propositions that have been validated in some way, and have thereby been shown to be at least conditionally true — true, that is, unless debunked. Some of these propositions reflect the world as we perceive it (e.g., "The sky is blue"). Others, like claims made by quantum physicists and abstract mathematicians, appear completely removed from the world of everyday experience.

It is worth noting, however, that the locution "validated in some way" hides a cheat. In *what* way? Some Americans believe Elvis Presley is alive. Should we send him a Social Security check? Many people believe that vaccines cause autism, or that Barack Obama was born in Africa, or that the murder rate has risen. Who should decide who is right? And who should decide who gets to decide?

This is the problem of social epistemology, which concerns itself with how societies come to some kind of public understanding about truth. It is a fundamental problem for every culture and country, and the attempts to resolve it go back at least to Plato, who concluded that a philosopher king (presumably someone like Plato himself) should rule over reality. Traditional tribal communities frequently use oracles to settle questions about reality. Religious communities use holy texts as interpreted by priests. Totalitarian states put the government in charge of objectivity.

There are many other ways to settle questions about reality. Most of them are terrible because they rely on authoritarianism, violence, or, usually, both. As the great American philosopher Charles Sanders Peirce said in 1877, "When complete agreement could not otherwise be reached, a general massacre of all who have not thought in a certain way has proved a very effective means of settling opinion in a country."

As Peirce implied, one way to avoid a massacre would be to attain unanimity, at least on certain core issues. No wonder we hanker for consensus. Something you often hear today is that, as Senator Ben Sasse put it in an interview on CNN, "[W]e have a risk of getting to a place where we don't have shared public facts. A republic will not work if we don't have shared facts."

But that is not quite the right answer, either. Disagreement about core issues and even core facts is inherent in human nature and essential in a free society. If unanimity on core propositions is not possible or even desirable, what is necessary to have a functional social reality? The answer is that we need an elite consensus, and hopefully also something approaching a public consensus, on the *method* of validating propositions. We needn't and can't all agree that the same things are true, but a critical mass needs to agree on what it is we *do* that distinguishes truth from falsehood, and more important, on who does it.

Who can be trusted to resolve questions about objective truth? The best answer turns out to be no one in particular. The greatest of human

social networks was born centuries ago, in the wake of the chaos and creedal wars that raged across Europe after the invention of the printing press (the original disruptive information technology). In reaction, experimenters and philosophers began entertaining a radical idea. They removed reality-making from the authoritarian control of priests and princes and placed it in the hands of a decentralized, globe-spanning community of critical testers who hunt for each other's errors. In other words, they outsourced objectivity to a social network. Gradually, in the scientific revolution and the Enlightenment, the network's norms and institutions assembled themselves into a system of rules for identifying truth: a constitution of knowledge.

our epistemic constitution

Though nowhere encoded in law, the constitution of knowledge has its own equivalents of checks and balances (peer review and replication), separation of powers (specialization), governing institutions (scientific societies and professional bodies), voting (citations and confirmations), and civic virtues (submit your beliefs for checking if you want to be taken seriously). The members of the community that supports and upholds the constitution of knowledge do not have to agree on facts; the whole point, indeed, is to manage their disagreements. But they do need to agree on some rules.

One rule is that any hypothesis can be floated. That's free speech. But another rule is that a hypothesis can join reality only insofar as it persuades people after withstanding vigorous questioning and criticism. That's social testing. Only those propositions that are broadly agreed to have withstood testing over time qualify as knowledge, and even they stand only unless and until debunked.

The community that follows these rules is defined by its values and practices, not by its borders, and it is by no means limited to scholars and scientists. It also includes journalism, the courts, law enforcement, and the intelligence community — all evidence-based professions that require competing hypotheses to be tested and justified. Its members hold themselves and each other accountable for their errors. When CNN, in 2017, fired three senior journalists for getting a story wrong, President Trump gloated that the "Fake News" media's dishonesty had been exposed. (His tweet: "So they caught Fake News CNN cold, but what about NBC, CBS & ABC?") In fact, the opposite was true:

By demanding evidentiary accountability, CNN showed that, unlike Trump, it adheres to standards of verification.

On any given day, of course, we won't all agree on what has or has not checked out. The speed of light is widely agreed upon, but many propositions are disputed, and in some cases, such as man-made climate change, there is even a dispute about whether the proposition is in dispute. The community that lives by the standards of verification constantly argues about itself, yet by doing so provides its members with time and space to work through their disagreements without authoritarian oversight.

The results have been spectacular, in three ways above all. First, by organizing millions of minds to tackle billions of problems, the epistemic constitution disseminates knowledge at a staggering rate. Every day, probably before breakfast, it adds more to the canon of knowledge than was accumulated in the 200,000 years of human history prior to Galileo's time. Second, by insisting on validating truths through a decentralized, non-coercive process that forces us to convince each other with evidence and argument, it ends the practice of killing ideas by killing their proponents. What is often called the marketplace of ideas would be more accurately described as a marketplace of *persuasion*, because the only way to establish knowledge is to convince others you are right. Third, by placing reality under the control of no one in particular, it dethrones intellectual authoritarianism and commits liberal society foundationally to intellectual pluralism and freedom of thought.

Together, these innovations have done nothing less than transform our way of living, learning, and relating to one another. But they have always had natural enemies. One, an ancient parasite, has recently mutated into something like an epistemic super-virus.

TROLL EPISTEMOLOGY

There is nothing new about disinformation. Unlike ordinary lies and propaganda, which try to make you believe *something*, disinformation tries to make you disbelieve *everything*. It scatters so much bad information, and casts so many aspersions on so many sources of information, that people throw up their hands and say, "They're all a pack of liars." As Steve Bannon, a former Trump aide and former leader of *Breitbart News*, succinctly put it in an interview with *Bloomberg*, "[T]he way to deal with [the media] is to flood the zone with shit."

Although disinformation is old, it has recently cross-pollinated with the internet to produce something new: the decentralized, swarm-based version of disinformation that has come to be known as trolling. Trolls attack real news; they attack the sources of real news; they disseminate fake news; and they create artificial copies of themselves to disseminate even more fake news. By unleashing great quantities of lies and half-truths, and then piling on and swarming, they achieve hive-mind coordination. Because trolling need not bother with persuasion or anything more than very superficial plausibility, it can concern itself with being addictively outrageous. Epistemically, it is anarchistic, giving no valence to truth at all; like a virus, all it cares about is replicating and spreading.

Still, trolling is epistemically low-tech. It is antisocial, even sociopathic, and therefore difficult to direct toward any constructive goal. Unmoored from all epistemic standards, it is incapable of establishing that anything is true or that anyone is right. All it can do is spread confusion and demolish trust.

Why would someone want to do that? Some trolls find it amusing to give offense (what they call "triggering"); some style themselves protesters against political correctness; and some love the thrill of vandalism and defiance. But there are other, less-nihilistic reasons.

To understand troll epistemology, think of the constitution of knowledge as a funnel. At the wide end, millions of people float millions of hypotheses every day. Only an infinitesimal fraction of new ideas will be proven true. To find them, we run the hypotheses through a massive, socially distributed error-finding process. Only a tiny few make it to the narrow end of the funnel. There, often years later, a kind of social valve — call it prestige and recognition — admits the surviving propositions into the canon of knowledge. People who successfully bring a proposition into the canon are greeted with publication, professorships, promotions, and prizes. Those who follow the rules without scoring a breakthrough receive honorable mention. Those who flout the rules are simply ignored.

The constitution of knowledge makes a very strong claim: a claim to supremacy in organizing social decision-making about what is and is not reality (much as the U.S. Constitution claims supremacy in organizing political decision-making). Of course, it's a free country, and anyone can *say* he has knowledge. But the constitution of knowledge is defined by a social pact: In return for the freedom and peace and knowledge

the system confers, we ignore alternative claims on reality where social decision-making is concerned. We let alt-truth talk, but we don't let it write textbooks, receive tenure, bypass peer review, set the research agenda, dominate the front pages, give expert testimony, or dictate the flow of public dollars. That is why we don't mail Elvis a Social Security check, no matter how many people think he is alive.

Notice the delicate balance here. To protect the wide end of the funnel, we disallow censorship. We say: *Alt-truth is never criminalized*. At the same time, to protect the narrow end of the funnel, we regulate influence. We say: *Alt-truth is always ignored*. You can believe and say whatever you want. But if your beliefs don't check out, or if you don't submit them for checking, you can't expect anyone else to publish, care about, or even notice what you think. Striking this balance is difficult, and maintaining it involves a lot of implicit social cooperation. The constitution of knowledge requires high degrees of both toleration and discipline, neither of which is easy to come by.

With that in mind, the implications of troll epistemology come into sharper focus. By insisting that all the fact checkers and hypothesis testers out there are phonies, trolls discredit the very possibility of a socially validated reality, and open the door to tribal knowledge, personal knowledge, partisan knowledge, and other manifestations of epistemic anarchy. By spreading lies and disinformation on an industrial scale, they sow confusion about what might or might not be true, and about who can be relied on to discern the difference, and about whether there *is* any difference. By being willing to say anything, they exploit shock and outrage to seize attention and hijack the public conversation.

That last tactic is especially insidious. The constitution of knowledge is organized around an epistemic honor code: Objective truth exists; efforts to find it should be impersonal; credentials matter; what hasn't been tested isn't knowledge; and so on. Trolls violate all those norms: They mock truth, sling mud, trash credentials, ridicule testing, and all the rest. Instinctively, the champions of the constitution of knowledge defend their values — but when they do, they "feed the trolls," providing attention and airtime that the trolls use to redouble their attacks. In this way, Trump and his troll army delighted in repurposing the charge that they were purveying "fake news."

In 2013, someone using the handle @backupwraith tweeted, "i firmly believe that @realDonaldTrump is the most superior troll on the whole

of twitter." Whereupon @realDonaldTrump took the trouble to tweet back: "A great compliment!" We can't say he didn't warn us.

a perfect storm

If trolling is sociopathic and disinformation is parasitic, how did this ancient but usually containable bug become a super-virus?

George Orwell thought that making us doubt the truth that's in front of our noses required bureaucracies and police agencies marshalling the might of a state. In his age of big business and big unions and big government and the other "bigs," disinformation and propaganda seemed unlikely to succeed without large-scale institutional support — and even for states as overbearing as the Soviet Union, the lift was heavy. Liberalism's diffuse, decentralized model thrives on dissent, whereas a single Andrei Sakharov threatened the brittle Soviet system.

To be sure, fake news existed and entrepreneurs found ways to profit from it. Who can forget the *Weekly World News*? From 1979 to 2007 it treated us to headlines like "Clinton Hires 3-Breasted Intern," "Hillary Clinton Adopts Alien Baby," and "Bat Child Found in Cave." In 1992, politicos knew George H. W. Bush's re-election campaign was in trouble when *WWN*'s beloved space alien endorsed Bill Clinton for president. But that august publication had to employ writers and editors to make up stuff, artists to doctor photos, and sales staff to round up ads for penile enhancement; then it had to pay for printing and buy rack space in supermarkets. The bat child was expensive to create and distribute, and the market for him was small and costly to reach. By contrast, the Associated Press could bundle reporting from reputable papers everywhere and distribute it to outlets around the world. Economies of scale favored real news.

In the heyday of the bigs, reality defenders became complacent about disinformation. There didn't seem to be a private-sector business model for it, and the state actors were weakening. What we could not foresee was a perfect storm of technological, economic, and political changes, all working to the disadvantage of the constitution of knowledge.

First, social media created a distribution platform for disinformation. Putting stuff out there costs effectively nothing. Mobilizing troll armies of humans and bots is easy and cheap. As the digital-media critic Frederic Filloux writes, "For a few hundred bucks, anyone can buy thousands of social media accounts that are old enough to be credible, or millions of email addresses. Also, by using Mechanical Turk or similar

cheap crowdsourcing services widely available on the open web, anyone can hire legions of 'writers' who will help to propagate any message or ideology on a massive scale."

Second, software learned to hack our brains. Sophisticated algorithms and granular data allowed messages and images to be minutely tuned and targeted. These are powerful new tools that humans are not designed to encounter or resist. (Coming soon, according to Filloux: "weaponized artificial intelligence propaganda," fake or hyperpartisan content that is customized for particular individuals and distributed by swarms of bots. Do you feel ready?)

Third, the clickbait economy created a business model. Disinformation went from vandalistic to profitable. Google Ads and Facebook (among others) monetized page views, thereby monetizing anything that generates clicks, regardless of truth value. At the same time, traditional media's business model crumpled. Because accurate reportage is orders of magnitude more expensive to produce than disinformation, the economic advantage of real news vaporized.

Together, those changes democratized and economized disinformation in ways Orwell could not have imagined. One more step was then required to complete the process: Politicians and nation-states weaponized trolling. Russia, as we now all know, was ahead of the curve in understanding how to mechanize and merchandize disinformation. Orwell wasn't wrong: A nation-state is still an impressive force multiplier. As state-based actors and independent trolls and bots cued each other with fake news, they created an echo chamber that proved deafening and disorienting.

All of which was compounded by one other actor. A student of disinformation and a self-described troll, Trump established his political celebrity with a lie about President Obama's birth and never stopped lying. The outrage and bewilderment evoked by his tsunami of balderdash dominated the 2016 campaign and afforded him unprecedented free media. Like an epistemic virus, Trump commandeered the media and reprogrammed them to pump out his memes.

Trump's most important contribution to the trolling of the American mind is not what he says, but that it is impossible to ignore what he says. In the past, the constitution of knowledge dealt with and contained alt-truth by ignoring and sidelining it. For generations, such marginalization allowed Christian Scientists and astrologists and conspiracy theorists and many other purveyors of alternative realities to believe

what they believe without disrupting science and society. But there is just no way to marginalize an American president. He can set the agenda and dominate the news. He can turn the White House into a baloney factory. He can impanel a public commission to investigate a claim he completely made up. All of which, and more, he has done.

all downside

Will Trump and the trolls triumph? I doubt it. Weaponized trolling has enjoyed the advantage of surprise, but as that diminishes, the troll army will encounter a disadvantage. Trolls have swarms, but the constitution of knowledge has institutions.

Creating knowledge is inherently a professionalized and structured affair. Whether you are engaged in bench chemistry, daily journalism, or intelligence analysis, testing hypotheses requires time, money, skill, expertise, and intricate social interaction. Of course, ordinary people can and should participate, and the constitution of knowledge welcomes their efforts. Anyone who follows the rules can make a contribution, as amateur astronomers and geologists have been doing for centuries, and no one is jailed for being wrong. But at the core of the constitution of knowledge, by its very nature, are professional networks.

The distinguishing characteristic of journalism is professional editing, and its institutional home is the newsroom, which curates and checks stories, trains reporters, organizes complex investigations, inculcates professional ethics, and more. The distinguishing characteristic of academic research is professional review: a sophisticated, multilayered project distributed among university faculties, journals, credentialing organizations, scholarly conferences, and so on. Modern jurisprudence, policy development, and intelligence collection would be unthinkable without institutions like the courts, law schools, and think tanks, as well as agencies like the Congressional Budget Office, Bureau of Labor Statistics, Central Intelligence Agency, and many others — all staffed and run by elaborately trained people who exchange detailed knowledge across specialized channels, using protocols developed over decades and centuries. To be an accomplished scholar or journalist requires years of training and acculturation, which only institutions can provide.

Troll networks are acephalous, which makes them self-organizing and persistent. They do have some institutional nodes, such as Russia's Internet Research Agency and President Trump's Twitter account. And

they are nothing if not ingenious. So they are in a position to spring a lot of unpleasant surprises. But they cannot approach the institutional depth of the communities built up around the constitution of knowledge, nor do they try. Instead, they relentlessly attack the institutions at the heart of those communities, hoping to make the public see professional academics and journalists as scammers peddling biased personal opinions. On that score, they have had some success.

Charges that academia, journalism, and other evidence-based enterprises are bogus, biased, illegitimate, racist, oppressive, secular-humanist, and so on are nothing new, and they contain important grains of truth. Although the marvel of our knowledge-making institutions is how well they have functioned (especially compared to the alternatives), it's reasonable to worry about, for example, liberal bias in traditional media and a replication crisis in establishment science. The answer, however, is to remediate the defects, not to trash the institutions. How much damage the troll attack inflicts depends on a lot of things, but it depends most on how successfully the institutions rally to improve their performance and defend their values.

Most of those institutions appear to be rising to the challenge. Mainstream media organizations, for example, have responded well to Trump's unprecedented populist attacks. They have shown no signs of being intimidated or deterred; if anything, just the opposite. The public seems to be responding with new, if sometimes grudging, respect. Between 2016 and 2017, according to polling by the Freedom Forum Institute, the percentage of the public saying that media outlets try to report news without bias jumped by an impressive 20 percentage points, from 23% to 43%. *Politico* reports that even young subscribers are flocking to old media. Trump's attacks on the press seem to have strengthened its resolve and its popularity.

The courts and law enforcement have also responded resolutely, even bravely. The judicial system has gone about its business with unperturbed professionalism, much to the frustration of the White House. Still more frustrating to the president has been the determination of professionals within the Justice Department and the FBI to maintain their integrity in the face of his unrelenting campaign to demonize and politicize them and bend them to his will. The same appears to be true of the intelligence community. Republicans charge the so-called "deep state" with one impropriety after another, yet each investigation

only bolsters confidence that the law-enforcement and intelligence communities are on the level, and the Republicans are not. It's no coincidence that some of the most outspoken defenders of the constitution of knowledge — such as Hayden, the former CIA director, and James Comey, the former FBI director — have come from the intelligence and law-enforcement worlds. Although the government's statistical and research agencies — places like the Centers for Disease Control and Prevention, the Bureau of Labor Statistics, and the Congressional Budget Office — have not come under direct attack (with the possible and partial exception of the Census Bureau), my guess is that, when the attack comes, they too will stand their ground.

New media and social platforms have not performed as well, but they are scrambling to do better. Trolls and bots stole a march on them. Their own mistakes and blind spots left them vulnerable, and they lack the deep institutional cultures and defenses that old media have evolved. Fortunately, Facebook and Google — the industry titans — have declared their commitment to the constitution of knowledge and are working fast to demote fake news, kick out bots, and deter abusive behavior. Whether they can get a handle on the problem remains to be seen, but they are trying, and that is important and good.

But then, in the not-so-hot category, there is academia, which may well be the most important of the institutions that comprise the constitution of knowledge. A recent study of top-ranked liberal-arts colleges by the National Association of Scholars found that 39% had zero Republican professors, and that almost 80% of the academic departments had "either zero Republicans, or so few as to make no difference." You need to go about with a lantern in broad daylight, Diogenes-style, to find a conservative in a humanities department. Many academics and students who do lean right are closeted. The university does not reliably feel like a safe space for them.

On campus, conservative speakers are often shunned, shouted down, denounced in hysterical terms. An unguarded statement, even if not obviously controversial — say, a suggestion that grown-up students at Yale should not need university guidance about their Halloween costumes — can ignite a firestorm. Many otherwise outspoken students, including many who do not think of themselves as particularly conservative, say they will not discuss race or gender on campus, for fear of being called out. As one recent Ivy League graduate told me, "It's all downside."

The large majority of professional scholars strive to conduct gold-standard research, and many if not most students quietly resent the call-out culture. But theirs are not the dominant voices on campus or in the media. News stories about campus intolerance and unreason ricochet throughout the media to portray the university as a place that puts political standards ahead of professional ones. No wonder much of the public has formed the impression that academia is not trustworthy.

It should be routine for universities to welcome conservative scholars and champion conservative scholarship; to engage civilly and even appreciatively with controversial speakers; to shrug off provocations and reject censorship in all its forms; to eschew the politicization of research; to define safety as something other than intellectual conformity; to teach students to transcend their tribal identities rather than to burrow into them; to regard diversity of perspective as a reason to have conversations, not to shut them down. Universities are the mainstays of the constitution of knowledge. They train students and scholars in the methods and mores of structured inquiry; they build and safeguard knowledge; they ask the questions that others overlook or avoid.

And so if universities are rackets, merely imposing some opinions on everyone else or pursuing someone's political agenda, then the constitution of knowledge is a racket, too. If universities foster cultures of conformity rather than of criticism, if they traffic in politicized orthodoxies and secular religions, then the winner is not social justice but trolling. Which is all downside.