

F.6. TECHNOCRACY: CULTURE, IDEOLOGY, POWER AND POLITICS

This section is in preparation. For now I show brief background, selected source texts and related items.

F.6.a. Brief background

F.6.b. Selected source texts

1. 1996. *A Declaration of the Independence of Cyberspace*, by John Perry Barlow.
2. 2001. *Cyborg Bill of Rights*. In *Cyborg Citizen: Politics in the Posthuman Age*, by Chris Hables Gray.
3. 2017. *The Cyborg Bill of Rights 1.0*, by Richard MacKinnon.
4. 2017. *Technocracy in America: Rise of the Info-State*, by Parag Khanna.
5. 2017. *Building Global Community*, by Mark Zuckerberg.

F.6.c. The Seasteading Movement

F.6.d. Is the techno-utopian/transhumanist mindset a clinical disorder?

1. Background
2. Case Study: The Singularity
3. Case Study: The Universe as a Computer Simulation

F.6.e. Professional, Ethical and Moral Behavior Among Scientists

F.6.f. Technocracy: The psycho-social dimensions and implications [in preparation]

F.6.g. Technocracy, popular culture and the arts [in preparation]

F.6.a. BRIEF BACKGROUND

The term **technocracy** has been used to designate or characterize several approaches to governance that purport to rely heavily or even primarily upon scientific and rationalist approaches to decision-making and administration, and that give preference to technological solutions to societal problems.

* The hyper-rationalistic/utilitarian proposals of Henri de Saint Simon and other **early 19th century utopian socialists** have been pointed to by modern scholars as early formulations of technocracy.

* The term *technocracy* was first used by **early 20th century engineers and scientists** in the United States who may have been sympathetic to the then-current spirit of progressivism and industrial democracy, but who distrusted the irrationality of both the capitalist market and of socialist bureaucracy, and who believed that high-level decision-making and administration by engineers and scientists could achieve desired social and economic ends more effectively.

* The **political movement that called itself “Technocracy” was established in the early 1930s** in the United States and came to minor prominence in response to the Great Depression. Its leaders were naïve about the readiness and willingness of Americans to grant control over much of their lives to unaccountable scientists and engineers. The movement faded with the end of the Depression and the beginning of WWII.

* Some elements of technocracy might be said to have informed the development of **European Fascism, Socialism and Communism in the 1930s and after**. The post-WWII Communist Party leadership of the Soviet Union, China and other countries was dominated largely by engineers. The political and economic governance today of countries intent on rapid economic development, including China, India and Turkey, includes elements of what might be considered a modern, pragmatic soft-technocracy.

* The word *technocratic* is used differently and largely pejoratively to characterize the **large, bureaucratic and often unaccountable governance structures of major social democracies**, mostly in Europe and, notoriously, the European Union. Finally, some smaller countries in Europe and elsewhere, beset by deep political divisions and endless rounds of corrupt, ineffective governments, have installed “governments of technocrats,” often as emergency measures and for limited terms, to bring order to unworkably disordered situations.

In this working paper I'm using *technocracy* in a different manner still. Here it designates a political-economic system or tendency in which the technological mindset, or what Pope Francis has called "the techno-centric paradigm," dominates and conditions the nature of social, cultural, economic and political life and decision-making. The role of technology in today's world is widely felt to be increasing and increasingly invasive, but it's not taking the form imagined in the older understandings of technocracy. Aspects of today's technocracy are both hyper-rational and hyper-irrational; both tightly ordered and greatly disordered; simultaneously dangerously libertarian and dangerously authoritarian; both deeply controlling and quite out of control. How we best understand this new technocracy, and how we best reign it in so that technology functions as one of many tools that a creative, more fully human mindset and paradigm can employ (or not) is a major challenge for all of us.

F.6.b. SELECTED FROM SOURCE TEXTS

1. 1996: *A Declaration of the Independence of Cyberspace* [full text]

John Perry Barlow - Davos, Switzerland - February 8, 1996

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather.

We have no elected government, nor are we likely to have one, so I address you with no greater authority than that with which liberty itself always speaks. I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us nor do you possess any methods of enforcement we have true reason to fear.

Governments derive their just powers from the consent of the governed. You have neither solicited nor received ours. We did not invite you. You do not know us, nor do you know our world. Cyberspace does not lie within your borders. Do not think that you can build it, as though it were a public construction project. You cannot. It is an act of nature and it grows itself through our collective actions.

You have not engaged in our great and gathering conversation, nor did you create the wealth of our marketplaces. You do not know our culture, our ethics, or the unwritten codes that already provide our society more order than could be obtained by any of your impositions.

You claim there are problems among us that you need to solve. You use this claim as an excuse to invade our precincts. Many of these problems don't exist. Where there are real conflicts, where there are wrongs, we will identify them and address them by our means. We are forming our own Social Contract. This governance will arise according to the conditions of our world, not yours. Our world is different.

Cyberspace consists of transactions, relationships, and thought itself, arrayed like a standing wave in the web of our communications. Ours is a world that is both everywhere and nowhere, but it is not where bodies live.

We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth.

We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity.

Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are all based on matter, and there is no matter here.

Our identities have no bodies, so, unlike you, we cannot obtain order by physical coercion. We believe that from ethics, enlightened self-interest, and the commonweal, our governance will emerge. Our identities may be distributed across many of your jurisdictions. The only law that all our constituent cultures would generally recognize is the Golden Rule. We hope we will be able to build our particular solutions on that basis. But we cannot accept the solutions you are attempting to impose.

In the United States, you have today created a law, the Telecommunications Reform Act, which repudiates your own Constitution and insults the dreams of Jefferson, Washington, Mill, Madison, DeToqueville, and Brandeis. These dreams must now be born anew in us.

You are terrified of your own children, since they are natives in a world where you will always be immigrants. Because you fear them, you entrust your bureaucracies with the parental responsibilities you are too cowardly to confront yourselves. In our world, all the sentiments and expressions of humanity, from the debasing to the angelic, are parts of a seamless whole, the global conversation of bits. We cannot separate the air that chokes from the air upon which wings beat

In China, Germany, France, Russia, Singapore, Italy and the United States, you are trying to ward off the virus of liberty by erecting guard posts at the frontiers of Cyberspace. These may keep out the contagion for a small time, but they will not work in a world that will soon be blanketed in bit-bearing media

Your increasingly obsolete information industries would perpetuate themselves by proposing laws, in America and elsewhere, that claim to own speech itself throughout the world. These laws would declare ideas to be another industrial product, no more noble than pig iron. In our world, whatever the human mind may create can be reproduced and distributed infinitely at no cost. The global conveyance of thought no longer requires your factories to accomplish

These increasingly hostile and colonial measures place us in the same position as those previous lovers of freedom and self-determination who had to reject the authorities of distant, uninformed powers. We must declare our virtual selves immune to your sovereignty, even as we continue to consent to your rule over our bodies. We will spread ourselves across the Planet so that no one can arrest our thoughts.

We will create a civilization of the Mind in Cyberspace. May it be more humane and fair than the world your governments have made before.

Comments: Barlow's *Declaration* is legendary among his generation of online early adopters, libertarians and techno-enthusiasts. Mainstream government and tech industry leaders were skeptical of or disagreed with Barlow's vision, arguing that regulation is necessary if the internet is to realize its potential and best serve society. Barlow's declaration was also criticized by [Transhumanists](#) for locating and prioritizing transformational change in cyberspace, whereas Transhumanists look to the transformation of biological life and physical space *as well as* transformation in and of cyberspace.

=====

2. 2001: Cyborg Bill of Rights. In *Cyborg Citizen: Politics in the Posthuman Age* by Chris Hables Gray.

1. Freedom of Travel. Citizens shall have the right to travel anywhere, virtually or in the flesh, at their own risk and expense.

2. Freedom of Electronic Speech. Electronic and other nonphysical forms of transmitting information are protected by the Constitution's First Amendment.

3. The Right of Electronic Privacy. Electronic and other forms of nonmaterial property and personhood shall be accorded the protection of the Fourth Amendment.

4. Freedom of Consciousness. The consciousness of the citizen shall be protected by the First, Fourth, and Eighth Amendments. Unreasonable search and seizure of this, the most sacred and private part of an individual citizen, is absolutely prohibited. Individuals shall retain all rights to modify their consciousness through psychopharmological, medical, genetic, spiritual, and other practices, insofar as they do not threaten the fundamental rights of other individuals and citizens, and that they do so at their own risk and expense.

5. Right to Life. The body of the citizen shall be protected by the First, Fourth, and Eighth Amendments. Unreasonable search and seizure of this sacred and private part of an individual citizen shall be absolutely prohibited. Individuals shall retain all rights to modify their bodies, at their own risk and expense, through psychopharmological, medical, genetic, spiritual, and other practices, insofar as they do not threaten the fundamental rights of other individuals and citizens, and that they do so at their own risk and expense.

6. Right to Death. Every citizen and individual shall have the right to end their life, at their own risk and expense, in the manner of their own choice, as long as it does not infringe upon the fundamental rights of citizens and individuals.

7. Right to Political Equality. The political power of every citizen should be determined by the quality of his or her arguments, example, energy, and single vote, not based on his or her economic holdings or social standing. Congress shall permit no electoral system that favors wealth, coercion, or criminal behavior to the detriment of political equality.

8. Freedom of Information. Citizens shall have access to all information held about them by governments or other bureaucracies. Citizens shall have the right to correct all information held on them by governments and other bureaucracies at the expense of these bureaucracies. Institutional and corporate use of information to coerce or otherwise illegally manipulate or act upon citizens shall be absolutely forbidden.

9. Freedom of Family, Sexuality, and Gender. Citizens and individuals have the right to determine their own sexual and gender orientations, at their own risk and expense, including matrimonial and other forms of alliance. Congress shall make no law arbitrarily restricting the definition of the family, marriage, or of parenthood.

10. Right to Peace. Citizens and individuals have a right to freedom from war and violence. War shall be a last resort and must be declared by two thirds vote of Congress when proposed by the president. The Third Amendment shall not be construed as permitting citizens and individuals to own all types of weapons. Freedom from governmental tyranny will not be safeguard through local militia or individual violence. Only solidarity, tolerance, sacrifice, and an equitable political system will guarantee freedom. Nonetheless, citizens and individuals shall have the right to defend themselves with deadly force, at their own risk and expense, if their fundamental rights are being abridged.

=====

3. 2017: The Cyborg Bill of Rights 1.0 prepared by Richard MacKinnon.

1. FREEDOM FROM DISASSEMBLY

A person shall enjoy the sanctity of bodily integrity and be free from unnecessary search, seizure, suspension or interruption of function, detachment, dismantling, or disassembly without due process.

2. FREEDOM OF MORPHOLOGY

A person shall be free (speech clause) to express themselves through temporary or permanent adaptations, alterations, modifications, or augmentations to the shape or form of their bodies. Similarly, a person shall be free from coerced or otherwise involuntary morphological changes.

3. RIGHT TO ORGANIC NATURALIZATION

A person shall be free from exploitive or injurious 3rd party ownerships of vital and supporting bodily systems. A person is entitled to the reasonable accrual of ownership interest in 3rd party properties affixed, attached, embedded, implanted, injected, infused, or otherwise permanently integrated with a person's body for a long-term purpose.

4. RIGHT TO BODILY SOVEREIGNTY

A person is entitled to dominion over intelligences and agents, and their activities, whether they are acting as permanent residents, visitors, registered aliens, trespassers, insurgents, or invaders within the person's body and its domain.

5. EQUALITY FOR MUTANTS

A legally recognized mutant shall enjoy all the rights, benefits, and responsibilities extended to natural persons.

Comments

Richard MacKinnon is past president of [Electronic Frontier Foundation-Austin](#), former and board member of the [ACLU of Texas](#), and founder of [Borgfest Human Augmentation Expo](#) and [Cyborg Pride Festival](#).

See a review of the *Cyborg Bill of Rights* by Transhumanist Anders Sandburg:
<https://aleph.se/andart2/ethics/review-of-the-cyborg-bill-of-rights-1-0/> .

Few mainstream legal and other scholars take discussion of “Cyborgean Rights” and similar topics seriously and thus see little reason to critique it. Partly as a result, a reasonably large and diverse epistemic community of Transhumanists, Cyborgians, Singularitarians et al has emerged, housed in think tanks, major universities, commercial firms and elsewhere, who re-affirm and promote their common worldview while debating among themselves fine points of theory and practice.

4. 2017: *Technocracy in America: Rise of the Info-State* by Parag Khanna

Parag Khanna is a senior fellow at the **Lee Kuan Yew School of Public Policy** at the **National University of Singapore** and author of several books on aspects of technology and society. In *Technocracy in America* he draws on experiences in Singapore, Switzerland and elsewhere to advocate a transition to a “direct technocracy” that involves rule by technocrats combined with an involved system of citizen consultation to provide a modicum of popular communication, although not accountability. His proposals include:

- * A seven-member presidency.
- * Replacement of the US Senate with an Assembly of Governors.
- * Massive state investment in technological innovation.
- * High levels of bureaucratic autonomy, with impartial hiring and promotion to ensure skill and efficiency.
- * An ambitious program of worker re-training and skills building, with emphasis on growing sectors rather than declining ones.
- * Pervasive use of data, quantitative analysis, artificial intelligence and more to generate scenarios and then decisions that optimize long-range planning and outcomes.
- * Direct transfers and other measures to ensure that the bottom 20% of households can participate in and benefit from the astonishing economic growth that the new Technocracy will generate.

Through these and other means direct technocracy would be able to ensure “good health, ample wealth, low corruption, high employment, national military and civil services” better than either capitalism or socialism can do. Technocrats would have their skills, authority, tenure and resources to ensure a “solid infrastructure, clean air and water, ease of doing business, good schools and decent housing, freedom of expression and employment opportunities.”

5. 2017: [Building Global Community](#) by Mark Zuckerberg

In response to mounting criticisms about the impact of Facebook on people's lives and society, in February 2017 Mark Zuckerberg released what was widely referred to as a "manifesto." It purported to outline a new vision for Facebook: rather than simplistically supporting individual information sharing and networking, it would now explicitly seek to help people **build communities**. The manifesto specified five aspects of communities that Facebook particularly wanted to help people build: *supportive* communities, *safe* communities, *informed* communities *civily-engaged* communities and *inclusive* communities. As an example of how Facebook might do this Zuckerberg said the Facebook Newsfeed would henceforth prioritize news coming from family, friends and local community rather than just anybody.

General press coverage was blandly supportive but the bulk of focused commentary was critical, some sharply so. Despite the seemingly idealistic and laudable shift to "building community," under the new mandate Facebook would not only continue to be a central presence in people's lives but would become a greater presence. The manifesto made frequent reference to the "Facebook community" and the "human community" and at times appeared to conflate the two. The manifesto painted a picture of a newly universalized, globalized communitarian world of which Facebook was the foundational global institution, the new "social infrastructure."

The key new structural element proposed by Zuckerberg is that Facebook users will now be able, indeed, encouraged, to identify as members of one, several or many "communities." On crucial questions such as, for example, what kinds of content to allow or not allow on a given community site, members of that "community" would decide democratically, i.e., *by voting via Facebook*. But this isn't what voting and democracy is all about, and these new "communities" aren't real communities, in which members have serious stakes and multiple, complexly intersecting relationships. These are *Facebook pages*. As Heer (2017, see below) remarks, Zuckerberg is proposing a technocratic solution for an inherently and properly political problem.

Further comment is in preparation. See also:

Jeef Heer. "[Facebook's Promise of Community Is a Lie](#). Under increasing criticism for spreading fake news, the internet giant is using communitarianism as a shield." *The New Republic*. 7 October 2017. Heer notes that none of the "communitarian" reforms Zuckerberg proposes change the core Facebook business model, which is one of fine-grained surveillance of its subscribers and selling that information to advertisers.

Adrienne LaFrance: "[The Mark Zuckerberg Manifesto Is a Blueprint for Destroying Journalism](#). Lip service to the crucial function of the Fourth Estate is not enough to sustain it". *The Atlantic*, 17 February 2017. LaFrance says that Facebook has siphoned the lifeblood out of local newspaper advertising revenue, but did not directly seek to displace the *functions* of these journals. But the new Zuckerberg Manifesto, proposes to do just that. Facebook will "help build community" by, among other things, keeping local people informed of community developments, facilitating communications among local groups, allowing petitions to be locally circulated, facilitating contact between local officials and community leaders, and more. La France notes that these are precisely the sorts of functions that local newspapers have played, and are still struggling to play on fewer resources.

Will Oremus: "[Facebook's New "Manifesto" Is Political. Mark Zuckerberg Just Won't Admit It.](#)" *Future Tense*. 17 February 2017. Oremus says Zuckerberg's characterization of Facebook as the "social infrastructure" of a new global communitarianism, is a rhetorical ploy to allow it to play a clearly political role while continuing to insist that it is just a piece of "infrastructure."

See also: **Leonid Bershidsky**, 2017. "[Facebook Plans to Rewire Your Life. Be Afraid](#): Mark Zuckerberg's manifesto offers a vision of social dystopia." *Bloomberg Online*. February 17; and **Evan Osnos**. 2018. "[Ghost in the Machine](#): Will Facebook break democracy?" *The New Yorker*. 17 September.

F.6.c. THE SEASTEADING MOVEMENT

The Seasteading movement began as an expression of hyper-libertarian technocracy. It proposes to construct artificial islands in international waters and establish on these a variety of sovereign communities free of the restrictions that most countries impose on personal life, commerce, science and technology.

The Seasteading Institute (TSI) was founded in 2008 by transhumanist **Patri Friedman**, grandson of libertarian economist Milton Friedman, and libertarian Silicon Valley billionaire **Peter Thiel**. They provided much of the early funding.

The president of The Seasteading Institute, **Joe Quirk**, authored the 2017 text, *Seasteading: How Floating Nations will restore the environment, enrich the poor, cure the sick and liberate humanity from politicians*. A scan of web commentary suggests somewhat greater interest on the part of seasteading advocates in tax avoidance, recreational and cognitive enhancement drug use, commercial sex, polyamory, organ trafficking, reckless human experimentation, human cloning, human genetic engineering and other forms of human modification and augmentation that would be prohibited elsewhere.

Initial engineering studies commissioned by TSI suggested that free-floating structures in international waters would be too expensive and otherwise impractical, at least as initial ventures. An alternative plan called for development of near-shore sites within the jurisdictional boundaries of cooperative small island nations. Legal arrangements would be agreed upon so that the sites could operate as “innovative special project zones.”

After a year or so of negotiations TSI announced in 2017 that an agreement had been reached with the government of French Polynesia for establishment and construction of the first Seastead. French Polynesia is a largely self-governing *overseas collectivity* of France, composed of over 100 islands and atolls dispersed over an area of ~ 1,600 mi².

In early 2018 French Polynesia officials announced that the agreement was no longer in force. They said that the agreement had been a non-binding memorandum of understanding with a “deadline of validity” at the end of 2017, and that they were not planning to extend or renew it. News reports said that residents had expressed fears of “tech colonialism,” were uncomfortable with the project’s “elitism” and saw it as primarily benefiting “...rich Americans who want to skip out on paying taxes.” More news here.

However, in mid-2018 TSI announced that the plan was on and released details of an ambitious project involving 300 homes, an autonomous government and its own cryptocurrency, Varyon. There appear to be differences among officials in different parts of French Polynesia regarding the acceptability of the project.

F.6.d. IS THE TECHNO-UTOPIAN/TRANSHUMANIST MINDSET A CLINICAL DISORDER?

1. Background

The stated beliefs and practices of many techno-utopians, and in particular those who identify as transhumanists, strike many as bizarre. To others such beliefs and behaviors are interpreted as visionary, or at worse as eccentric.

The techno-utopians are a subset of or intersect with the larger techie community. It's acknowledged that certain personality traits tend to cluster among techies. For example, they tend to be intelligent, tightly focused on the development and use of technology in both their vocational and personal lives, socially awkward and less socially engaged. As just stated this is a stereotype, and exceptions abound.

A quick scan of the literature on clinical and personality disorders is inconclusive. There is a growing literature on technology addiction and the problematic consequences of heavy use of social media and other online and new technology but that's a different topic, albeit perhaps related, from the one of whether the bizarre beliefs and practices of many techno-utopians/transhumanists might point to some sort of personality or psychological disorder.

This topic is important because the number of those who hold to these beliefs is growing, and especially so among many of the wealthiest and more powerful people in the world.

The [DSM-IV](#) published by the American Psychiatric Association defines a number of personality disorders that are characterized by many of the traits associated with techno-utopianism/transhumanism, but the correspondence does not appear to be sufficiently strong for any of these disorders to qualify as a diagnosis.

I show below a preliminary list of some of the traits commonly encountered in those who strongly subscribe to techno-utopianism/transhumanism. All of these traits need not appear in any one individual, and an individual may exhibit all of these traits yet be completely normal. Again, the titular question of this section remains open.

BOX F.6-1 – Traits associated with many who subscribe to techno-utopianism/transhumanism.

1. An overriding obsession with technology in general, and with the technological transformation of the natural world, including the biological world, and notably including the technological modification of the human species. A corresponding lack of awareness of or sensitivity to the implications and dangers of such technological intervention.
2. A pervasive, generalized misanthropy and self-disgust. Bodily human life is judged to be deeply flawed and in need to radical change and improvement via technology. A fantasized and celebrated near future in which human life goes extinct and is replaced by more advanced Superhumans, either as biological, mechanical or digital entities.
3. A profound fear of personal death and an obsessive quest to avoid it and to achieve immortality, whether as a biological, mechanical or digital entity.
4. Deep commitment to a profoundly grandiose fantasy of a future in which the world and the universe is completely and radically transformed through technology (e.g., building orbiting space colonies so that trillions of humans can populate the solar system; colonizing the stars and other galaxies; eventually stopping the expansion or collapse of the Universe).
5. A deep conviction that the techno-utopian future as outlined above is "inevitable, like it or not." This accompanies a deep and generalized sense of superiority and elitism vis-à-vis the rest of the human community.
6. Until recently the great majority of techno-utopians/transhumanists were strongly politically libertarian. A strong majority still are, but in recent years an authoritarian/statist sub-cadre has developed, reasoning that in the world to come the smart, hyper-wealthy technologically adept Post-Human minority will need to maintain control over the more populous minimally-skilled and potentially dangerous masses of conventionally biological humans.

I suggest that such a mindset, and its continued spread and deepening, is a consequence of understanding the world in narrowly secular, materialist/reductionist, individualistic and free-market capitalist terms. As the traditional institutions and paradigms that support more expansive communal and reality-grounded mindsets increasingly erode with the growth of globalized techno-centrism, the utility of those remaining communal institutions declines, thus encouraging a positive feedback loop of increasingly greater techno-centrism. I'll explore this possibility in the final working paper.

2. CASE STUDY: THE SINGULARITY [in preparation]

3. CASE STUDY: THE UNIVERSE AS A COMPUTER SIMULATION

An example of the extremes to which the techno-utopian/transhumanist mindset might be disposed is the recent attention given to the suggestion that our present Universe, including ourselves, is in fact a simulation housed within the computer of a higher-order being. This notion is a clumsily literalized version of the otherwise reasonable belief that the world of appearances is not the real world, or at least not the full and complete world, and that something else and different, or at least something more, lies (metaphorically) beneath, behind or within all that we perceive. One of the oldest expressions of this idea is the **Hindu concept of Maya** – the world of *illusion* that is perceived via the senses, as distinguished from the ultimate reality of *Brahman*, which cannot be perceived but can be accessed through spiritual practice. Similar, though not identical, ideas inform **Plato's Allegory of the Cave** (~380 BCE) and Kant's (1781) distinction between *noumena* and *phenomena*. The computer simulation version of this idea first appeared in the classic short story **Non Serviam** by Polish author Stanislaw Lem (1971), and was a central element in the popular sci-fi movie **The Matrix** (1999). The computer simulation version of this idea came to wide attention as a serious hypothesis in a paper by **Transhumanist philosopher Nick Bostrom** of Oxford (2003). He argued that if there are a large number of advanced civilizations in the Universe, many will be many times older than our own civilization, and will have long ago developed the ability to generate computer-based simulacra, including simulacra of alternative conscious entities, civilizations and Universes, and since it is trivially easy to make numerous copies and versions of computer files, there are probably many, *many* times more *simulated* conscious entities, civilizations and Universes in the Universe than there are natural ones. The simple odds, then, suggest that the Universe and the civilization that we inhabit, and we ourselves, are computer simulations. Bostrom's paper generated a flood of further papers, on-line exchanges and university panel discussions. The great majority of those involved appeared to accept the premise that this is an interesting hypothesis. Given that premise, they then ask the appropriate questions: what is the evidence that this is or is not so? How might the hypothesis be rigorously falsified? What are the implications if it *can't* be falsified? Leading scientists at a large conference on the topic at the American Museum of Natural History in April 2016 appeared to believe that the hypothesis is likely to be true. Given that assessment, writers then speculate further: What purpose might the designers have had in mind when they created our Universe? Might the designers have intentionally left clues around that tell us something about our origins? Might there be glitches in the code that we can identify? For example, some speculate that the familiar *déjà vu* experience is such a glitch in the code. Most likely, the designers of our Universe were themselves computers; what might be the implications of *that*? Is there any way to establish communication between alternative simulations? And so on. [Astrophysicist Neil DeGrasse Tyson](#), who moderated the 2016 AMNH conference, is quoted as saying he believes the simulation hypothesis is "very likely" true. Others who seem to subscribe to the simulation argument include [Elon Musk](#).

At the 2016 conference **Harvard physicist Lisa Randall** appeared to be voicing a minority position when she was asked if she found the hypothesis to be an interesting question, and replied, "I actually am very interested in why so many people think it's an interesting question," and put the odds that it is true at "effectively zero." See the report on the conference by Moskowitz (2016). Others who have expressed dismay at the attention this notion is getting include German physicist [Sabine Hossenfelder](#) (2017) and computer software programmer and author [Peter Kassin](#) (2016). A paper by [Ringer and Kovirizhim](#) (2017) is reported to be a theoretical proof that **the simulation hypothesis is false**.

F.6.e. PROFESSIONAL, ETHICAL AND MORAL BEHAVIOR AMONG SCIENTISTS

1. The profession of scientific research has long been a prestigious one and outright fraud or other professional misconduct comparatively rare. This may be changing. A survey by Jha (2012a, 2012b) of over 2000 PubMed publications showed a **10-fold increase in retractions due to fraud** over comparable rates in 1975. Fanelli (2011) found that a multi-disciplinary survey of 4,600 published studies between 1990 and 2007 showed an **increase of 22% of results that confirmed authors' hypotheses**. Suggested reasons for the increase of such misconduct include: 1) a more competitive science career environment across the board; 2) Increasing competition over shrinking levels of government research funding; 3) disproportionately large career rewards for publishing in the best journals; 4) ease of submitting papers that rely on very small sample sizes (e.g. in psychology); 5) bias on the part of both scientists and journal editors to report results that confirm rather than refute a hypothesis; and 6) neophilia among journal editors.

2. Does scientific misconduct vary among disciplines? The Wikipedia page [List of scientific misconduct incidents](#) displays cases of confirmed scientific fraud, plagiarism and other serious misconduct arrayed by discipline. Its display as of August 2018 shows:

<u>Discipline</u>	<u>Verified cases of scientific misconduct.</u>
Biomedical Sciences	57
Social Sciences	9
Chemistry	5
Physics	5
other	3
Computer Science & Math	2
Plant Biology	2
Total:	83

A single data column is insufficient to allow useful surmises, but the disproportionate number of cases of misconduct associated with biomedical sciences is striking nonetheless. Reasons for this disproportion might include 1) the many new areas of research made possible by new biotechnologies (involving e.g. stem cells, genome sequencing, gene-editing, synthetic biology); 2) the possibility of very large monetary rewards; and 3) the special interest of the press and public in research involving human health. Still, it can be argued that computer science has many of these features, but apparently far fewer cases of recorded misconduct. A possible distinguishing factor is that biomedical research often directly involves human beings, as patients or subjects, in a way that computer science does not.

3. A related but tangent concern is the challenge (some say crisis) of **reproducibility in experimental science**, particularly in the social sciences and psychology. This concern shouldn't bear directly on our topic one way or the other, as everyone has an interest in good science over sloppy science regardless of their worldview or politics. More germane is the question of whether the particular disciplines with which we are most closely concerned, including genetics, synthetic biology, biomedicine and computer/information science are either more or less subject to the reproducibility problem, and if so why so. I hope to look at this further later. For source and overview texts see Ioannidis (2005), Baker (2016), May (2012) and the website of the [Center for Open Science](#). Fanelli (2017) argues that the problem of reproducibility is overblown and that there is little evidence that the current rates of false, biased and/or irreproducible research findings are seriously distorting the scientific enterprise.

4. Some scientists and academic ethicists who support human genetic and related biological modification are so convinced of the moral rightness of their position that they feel justified in defying or skirting laws, regulations and best practices with respect to their work. These illicit genetic initiatives, or advocacy of them, are of several sorts:

1. Circumvention: Scientists, clinicians and others remain within legal bounds by exploiting loopholes, or by conducting illegal procedural steps in jurisdictions in which these are allowed or in which prohibitions go unenforced.

2. Defiance: Scientists and others may defy legal restrictions or advocate doing so. There are perhaps three sorts:

- * *covert defiance*, in hopes of not being caught;
- * *overt defiance* in anticipation that laws will not be enforced, or so as create publicized test cases;
- * *defiance advocacy*, without defying any laws or regulations themselves.

Examples of legal circumvention and defiance by scientists include:

* **French Anderson:** In 1998 medical geneticist Anderson sought U.S. federal approval for an *in-utero* somatic gene therapy trial that would likely “inadvertently” result in a child whose germline had been modified.

* **Jaime Grifo:** In 2003, after the FDA prohibited NY fertility clinician Grifo from proceeding with a risky human fertility procedure, Grifo arranged for colleagues in China to experiment with the procedure there.

* **Hwang Wu Suk:** In 2004 Korean veterinarian Hwang claimed to have created the first human embryonic stem cells using somatic cell nuclear transfer. In 2006 the claims were found to be fraudulent. Huang was also found to have embezzled millions in government funds and to have obtained women’s eggs illegally.

* **Douglas Cline:** in 2014 Indiana fertility clinician Cline admitted to having illegally used his own sperm to impregnate ~ 50 women who contracted with his clinic for infertility treatment.

* **John Zhang:** In 2016 NY fertility clinician Zhang arranged to carry out a “3-parent-baby” IVF procedure, which is unapproved in the US, in Mexico.

* **“Stem Cell” treatments:** Hundreds of clinics worldwide now offer scores of fraudulent and borderline fraudulent treatments involving human stem cells, typically for very high fees. See Interlandi (2018) and Wells (2017).

* The **DIY gene-editing and synthetic biology underground** network shares facilities, equipment, preparations and more among its participants. A first DIY fatality occurred in early 2018. See Mullin (2018) and Ireland (2017).

5. DNs 50 and 114 and the through-narrative of Attachment F.2 further illustrate the obsessive drive concerning human genetic modification that characterizes a certain sector of biomedical practice and industry. The fact that the great majority of human biomedical scientists *do not* violate the law, while commendable, is beside the point. Most everyone close to these developments acknowledges that the sorts of illegal and unethical behaviors sketched here, even if punished, have the net effect of normalizing human genetic modification and furthering the narrative of its “inevitability” rather than sparking stronger popular, political or professional opposition.

F.6.f. TECHNOCRACY: THE PSYCHO-SOCIAL DIMENTIONS AND IMPLICATIONS [in preparation]

F.6.g. TECHNOCRACY: POPULAR CULTURE AND THE ARTS [in preparation]

#