THE INNER SENSES AND HUMAN ENGINEERING

Mark Stahlman
Center for the Study of Digital Life

Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has.
-- Margaret Mead (attributed, 1901-1978)

HUMAN NATURE AND MIND CONTROL

"Changing the world," of course, means changing the people in it. But how is that to be accomplished? By changing human "nature," would seem to Mead's answer. Engineer a new sort of human -- based on the science of "experimental" psychology. To accomplish this, however, would require abandoning the earlier understanding of the psyche and replacing it with a "scientific" approach that lent itself to this engineering. Human engineering. In that process, the understanding of the "inner senses," as had been the psychological consensus for more than two millennia, had to be discarded. That version of humanity was now obsolete. New theories, new "treatments" and a new world required that these be forgotten.

Today, the time has come to bring them back. We will need to retrieve that earlier understanding to deal with the robots. Understanding what it means to be human has become our most compelling priority.

One of Mead's closest collaborators, by some accounts even helping to raise her first child, was Lawrence K. Frank (1890-1968), a Rockefeller family-of-foundations executive. Frank moved from the Laura Spelman Rockefeller Memorial to child-development at the Rockefeller Foundation and was a vice-president of the Josiah Macy, Jr. Foundation, famous for its Cybernetics Conferences (1946-53), as well as its 1954 Neuropharmalogical Conference, concentrating on the then-new subject of LSD. Frank's final project resulted in the American Academy of Arts and Sciences (AAAS) Commission on the Year 2000[1], chaired by sociologist Daniel Bell, perhaps the last effort on that scale to attempt to predict the future -- including an expansive 200+ year economic forecast contributed by the Hudson Institute[2] -- since, as it turned out, they failed to capture the actual future at all. Nope, no Internet.

In 1951, Frank published his *Nature and human nature; man's new image of himself.*[3] In it he rejoices that science has finally "overcome superstition" and that humanity was now on the path to "shaping its own destiny." All we needed

was a "new image," a theme that many others would later pick up on. The theme was continued by Fred Polak (1907-1985), a leading Dutch futurist, in his 1953 *Image of the Future: Enlightening the past, orientating the present, forecasting the future*.[4] Kenneth Boulding (1910-1993),[5] a leading economist and Quaker "mystic" who had met Polak at the inaugural meeting of the Center for the Advanced Study of Behavior[6] would publish his 1956 *The Image,*[7] in which he put forward a new approach he called "Eiconics" (later to be renamed "memetics" by Dawkins in his 1976 *The Selfish Gene*).[8]

After years of private circulation, *The Changing Image of Man,*[9] based on a project supervised by Willis Harman (1918-1997) and conducted by Stanford Research International (SRI, initially funded by the U.S. Dept. of Education), was finally published in 1982 (with major contributions by Elise Boulding).   The Introduction began with, "In this study we attempt to discern fundamental and usually unrecognized influences on our societal problems. on our social policies, and on our hopes for the future." In the report's "Introduction to the Permagon Edition," its impact was evaluated by highlighting Marilyn Ferguson's 1980 *Aquarian Conspiracy*, referred to as coming from "a proponent's point of view." Harman who would go on to head the Institute of Noetic Sciences in Sausilito, and also wrote *Global Mind Change*,[10] played a key role in establishing the "Towards a Science of Consciousness"[11] conferences (initially funded by the Maharishi Mahesh Yogi, of Transcendental Meditation fame).

A New Age was in the air. Suitable for a new "image of man." But, as always, there was another side-to-the-coin. In 1978, Walter Bowart (1939-2007), founder of the early "underground" newspaper the *East Village Other*, published his *Operation Mind Control,*[12] which pointed towards a much more sinister underlying phenomenon. He keyed in on the CIA's "Project MKULTRA," as had recently been exposed in the 1975 Senate Church Committee hearing (also leading to today's Congressional oversight over U.S. intelligence activity),[13] Bowart hinted at dark forces who were trying to "brainwash" us. The foreword was written by Richard Condon, author of *The Manchurian Candidate* (1959, later made into a 1962 political thriller, starring Frank Synatra, plus a more recent remake). If humans could be "engineered," then an idyllic new age wasn't the only (or even most obvious) outcome. What if they could be "programmed" to kill? Or even "enslave" themselves or, indeed, to be harnessed to make a "worse" world?

SCIENCE OF COERCION

Modern psychology also gave us psychological warfare. H.G. Wells was hired by Fleet Street's Lord Beaverbrook to help portray the Germans as "Huns" in WW I. "Propaganda" became a major concern, leading to many efforts to try to understand its mechanisms. Events in Germany elevated the urgency. If the ostensibly well-educated/behaved Germans could be driven to such extremes, then what caused this to happen and what techniques/technology was

involved? Could it be countered? Could it be taken advantage of? Could it be improved to involve the "target" in their own coercion.

Stimulated by Hitler's rise to power, the Rockefeller Foundation launched its famous "Radio Research Project"[14] in the late-30s, initially headed by Paul Lazarsfeld, the "father of empirical sociology," first at Princeton and then at Columbia University (1901-1976). Lazarsfeld hired Theodor Adorno (1903-1969) for the "Project" to work on the psycho-social impact of popular music (Adorno was also a composer). They fought over the application of "statistics" to the problem and Adorno left. But he soon returned at the head of a new effort, resulting in the publishing of *The Authoritarian Personality* in 1952,[15] long treated as the "handbook" of the burgeoning field of Social Psychology, which had absorbed many engaged in psy-war in WW II. In it, Adorno &al proposed an "F-scale" (named after "fascism," understandable since Adorno was affiliated with the Marxist/Freudian Frankfurt School). Adorno's 1927 habilitation thesis had been titled "The Concept of the Unconscious in the Transcendental Theory of the Psyche."

Christopher Simpson skillfully traced the history of psychological warfare transitioning into academia in his *Science of Coercion: Communication Research and Psychological Warfare, 1945-1960*.[16] The dust-jacket introduces the volume by saying, "In this provocative study, Christopher Simpson demonstrates how the government-funded psychological warfare programs of the Cold War years underwrote the academic studies that formed the basis for much modern communications research." Like the work of Frances Stonor Saunders with her *The Cultural Cold War: The CIA and the World of Arts and Letters*[17] (originally titled *Who Paid the Piper?*, as well as her other books, plus Simpson's and others), the focus has been on trying to find someone to blame. But, given the context that produced psy-war, tracing back to the origins of experimental psychology a century earlier, a wider view might well consider these developments to be far more "systematic." Many more were implicated.

In 1953, the Ford Foundation, which by then had taken over many of the research topics previously paid for by the Rockefeller agencies, funded an extension to the earlier Radio Research Project by awarding a $43,000 grant (roughly $400,000 in today's money) to Marshall McLuhan and the Inuit-studying anthropologist Edmund "Ted" Carpenter to research "The Changing Patterns of Language and Behavior and the New Media of Communications."[18] This was the television update to the previous study on radio and it launched McLuhan's career as a "media guru." McLuhan was no "statistician," like Lazarsfeld had been. He described himself as a "grammarian" (with expertise in rhetoric) and he took an expansive view of the effects the the media itself on people. Thus, "The Medium is the Message."[19] An English professor, with significant knowledge of the artistic movements which paralleled the rise of experimental psychology, beginning with French Symbolism, he had been clipping into, analyzing and lecturing on the effects of advertising for years. What would later be captured in the *Mad Men* series reflected what he considered to be the greatest "art" of his times. It was a quite manipulative art, to be sure.

Is advertising "psychological warfare" (or just a close cousin)? In a recent conversation with an American anthropologist who moved to Japan to work in advertising, he suggested that the goal of his industry was to "seduce the affections of 13 year-old girls, since that's when brand allegiance is formed." Maybe child-abuse would be a better term? Perhaps the current furor over "misinformation" and "election interference" is instructive. Overall, these concerns are, once again, superficially trying to place blame and are rooted in political motivations. But this has drawn attention to what B.J. Fogg described in his 2002 book *Persuasive Technologies: Using Computers to Change what We Think and Do (Interactive Technologies).*[20] Underlying this relentless psychological onslaught -- begun by television-based advertisers long before the Internet exploded -- attempting to exploit whatever was needed to "sell" a product (once just goods and services and now spilling over into "dangerous" ideologies), was the continuing drive to "engineer" the population. Using psychology, which had transitioned from "behaviorism" to "cognitive science," much effort was being expended to advance the creation of a "new man."

HUMAN ENGINEERING

In 1921, Alfred Zorzybski (1879-1950) published his inaugural volume, *Manhood of Humanity: The Science and Art of Human Engineering.*[21] A Polish aristocrat who had studied engineering at Warsaw University of Technology, Korzybski served as an intelligence officer in the Russian army in WW I, later moving to Canada and settling in the U.S. Eventually he dropped the potentially offensive label "human engineering" and transformed it into what he termed "general semantics." Based on his notion that humans cannot "directly" experience reality, he proposed that we needed to train our awareness of the "abstracting" process through which we understand the world. He linked this to the structure of language and traced the origins of our linguistic debilitation to Aristotle. His followers included S.I. Hayakawa (1906-1992) and Neil Postman (1931-2003).[22]

The manipulation of language to manipulate the psyche has had a long history. Esperanto was invented, following the 1893 "World Parliament of Religions" with the intent of instilling a one-world sensibility.[23] The British Empire's response and, for a time, a serious rival to the romance-language oriented Esperanto (until all these efforts collapsed) was called "Basic English."[24] Often focused narrowly on spoken languages and associated with anthropology, linguistics expanded into philosophy and other domains. However, attempts to expand the focus of the inquiry, such as McLuhan/Carpenter's 1956 essay "The New Languages," failed to gain traction.[25] The collected essays of Benjamin Whorf (1897-1941) were also published in 1956, leading to the widespread adoption of the mislabeled "Sapir-Whorf" hypothesis (now termed "linguistic

relativity"), which holds that language determines/influences thought, cognitive categories and, ultimately, our decisions.[26]

Perhaps the most famous of the linguists from that period (largely because of his ongoing political proclamations) is Noam Chomsky. An aggressive protagonist, as discussed in Randy Harris' 1993 *The Linguistics Wars*, Chomsky came to dominate the field. His tenure at MIT and his argumentative style, however, were not matched with decisive victory for his theories. His "genetic" theory termed "Universal Grammar," has been described as a "certain set of structural rules are innate to humans, independent of sensory experience."[27] If true, which current research largely discounts, one can imagine the use of such a grammar to "program" humans. Accompanied with "cognitive" psychology, where Chomsky was a pioneer in patterning humans on computing devices, would point towards an underlying "microcode" upon which human activity rests.[28] The engineering hope remains; while the results remain meager.

Even the non-behaviorist "speculative" approaches to psychology were caught up in the "new human; new society" enthusiasm. In 1909, G. Stanley Hall (1846-1924), a student of William James at Harvard (and the first to gain a psychology doctorate in the U.S.), invited both Sigmund Freud (1856-1939) and Carl Jung (1875-1961) to lecture at Clark University (along with 27 others), where he had been named as its first president in 1889.   In the U.S., Hall's influence was considerable, having founded the American Psychological Association, he was called "King Maker" by Saul Rosenzweig in his 1992 *Freud, Jung and Hall the King-Maker.*[29] Clark, located in Worchester, MA, was founded as an all-graduate research university. This was a period in which many universities were joining together radically reform higher education -- with a particular focus on training other teachers -- as reflected in the founding, by Hall, of the Association of American Universities. Aspects of this shift away from a more traditional approach are captured in Paolo Lioni's *The Leizig Connection: The Systematic Destruction of American Education*.[30]

Psychology was at the center of this effort. Many believed that society's ills could be cured if the proper psychology was applied. Starting with the misbehaving children. A particularly chilling version of this "re-education" is detailed in Anthony Burgess's (1917-1993) 1962 *A Clockwork Orange* (later made into an iconic film by Stanley Kubrick, complete with its "droogs," as expressed in the Anglo-Russian slanguage "Nadsat").[31] Like many science fiction writers of his generation, Burgess, whose undergraduate thesis was on Marlowe's *Doctor Faustus*, had wide experience, including work with British intelligence during WW II in Gibraltar and as a teacher for the British Colonial Service in Malaya.   Frequently, key events "behind the scenes" appear in fictional works. While most attention to "mind control" experiments tend to focus on the CIA, both British and Canadian intelligence also had parallel projects, as did many others. In fact, it became a staple of the Cold War ("cold" because it was a psychological war). The aversion therapy, with which ends the book/movie, along with a panoply of drugs &c. remains a part of "behavior modification" today. New human; new society.

EXPERIMENTAL PSYCHOLOGY

Why would you want to experiment on the human psyche? Psyche (or *psuche*) is Greek for what is usually termed the "soul" in English (and sometimes "mind," although the Greek *nous* would seem more appropriate for that). Both Plato and Aristotle had a lot to say about the psyche, as have thousands after them. There is even a Greek mythological figure named Psyche, described as "a maiden beloved by Eros." Aristotle is considered by many to have "fathered" the field that came to be known as psychology (or, in etymological terms, the "study of the psyche") in his 4th-century BC classic, *Peri Psyche*.[32] So, why would you want to experiment on the human soul?

Michel Ferrari has suggested three reasons in his introduction to a special 2010 issue of "History of the Human Sciences":

> "The history of the science of consciousness is difficult to trace because it involves an ongoing debate over the aims involved in the study of consciousness that historically engaged people working in a variety of different, often overlapping, philosophical projects. At least three main aims of these different projects can be identified: (1) providing an ultimate foundation for natural science; (2) providing an empirical study of experience; and (3) promoting human well-being by relieving suffering and encouraging human flourishing. Each of these aims has its own problems and its own methods for solving them that endorse different epistemic virtues characteristic of science in different historical periods through a variety of 'styles of science'."[33]

No doubt many have had one-or-more of these "aims" in mind. But, to be comprehensive, one suspects that a fourth should be added: "(4) to manipulate populations in war and for commerce." To be sure, given current conditions in academia, this "aim" is not likely to be the focus of researchers like Ferrari and, many working in the field of "history of psychology" have tended to miss it. Leave it to the anthropologist Gregory Bateson, to state it succinctly in a comment made in 1941, in response to a paper delivered by his then-wife Margaret Mead, "How would we rig the maze or puzzle-box so that the anthropomorphic rat shall obtain a repeated and reinforced impression of is own free-will?"[34] This "rig the maze" effort -- presenting the population with the illusion of "free-will," a human quality now generally discounted by philosophers and neuroscientists alike -- had already made great strides in the radio-era and was about to become far more methodical under television conditions.

Adam Curtis has documented many aspects of this "social constructivism" in his BBC series, particularly the 2002 "The Century of the Self."[35] In the first episode (titled "Happiness Machines," followed by "The Engineering of Consent," "There is a Policeman Inside All Our Heads" and "Eight People Sipping Wine in Kettering") Curtis, who describes his politics as "libertarian," says, "This series is about how those in power have used Freud's theories to try

and control the dangerous crowd in an age of mass democracy." Edward Bernays (1891-1995), Freud's nephew, has been described as a "pioneer in the field of public relations and propaganda"[36] and he receives much of Curtis's attention. Also quoted are the 1927 words of Wall Street banker, Paul Mazar, "We must shift America from a needs- to a desire-culture. People must be trained to desire, to want new things, even before the old have been entirely consumed . . . Man's desires must overshadow his needs."

One doubts that Franz Brentano (1838-1917) had this sort of manipulation in mind when he published his 1867 *The Psychology of Aristotle* (his habilitation thesis) or the follow-on 1874 *Psychology from an Empirical Standpoint*. Ordained a Dominican priest in 1864 (leaving the priesthood in 1873 and the Catholic church in 1879, marrying in 1880), the same order that once supported Thomas Aquinas, Brentano had a stellar group of students at the University of Vienna (where he taught from 1874 to 1895), including Sigmund Freud, Edmund Husserl (a founder of Phenomenology), Rudolf Steiner (founder of Anthroposophy), Carl Stumpf (whose students later founded Gestalt Psychology) &c.[37] Martin Heidegger (1889-1976), although not Brentano's student in college, is reported to have been given a copy of Brentano's 1862 dissertation, *On the Several Senses of Being in Aristotle*, as a young man, perhaps shaping his own career and the trajectory of philosophy in the 20th-century. How would Brentano have considered the "new human" applications of his call for psychological "empiricism"?

Perhaps Wilhelm Wundt (1832-1920) was closer to the linkage between psychology and cultural formation. Noted for his Leipzig laboratory, where many early "experimentalists" studied, Wundt approached these aspects of psychology as a physiologist.[38] In 1991, *American Psychologist* published a survey which ranked Wundt's reputation first for "all-time eminence." Far less noted is the wide-range of Wundt's interests, particularly his 10-volume work titled *Cultural Psychology: An investigation into developmental laws of language, myth and conduct* (1910-20). The German term used is "Volkerpsychologie" and its later association with promotion of the superiority of the German "Volk" probably explains its current obscurity. As it turns out, Wundt's wider interests are likely ignored by many today because he was quite clear that the psyche cannot be thoroughly explained by experiment techniques. His opposition to "empiricists," notably John Locke (sometimes referred to as "sensualists"), is reflected in his use of a quote from G.W. Leibniz on the title page of his 1862 *Contributions on the Theory of Sensory Perception*, which reads "Nothing is in the intellect that was not first in the senses, except the intellect itself."[39]

DIGITAL INTUITION

Do Androids dream (of electric sheep)? No, they don't. Dream, that is -- since, alas, they have no psyche (or, if you prefer, soul). Alas, this too is being challenged. Today there is a world-wide "arms race" underway to accomplish

the breakthroughs needed to engineer Artificial General Intelligence (AGI).[40] It is widely agreed that today's "machine learning" approaches will not accomplish this goal. Even proposals for "deep learning" or the invention of a "new science of causality"[41] are unlikely to get us there. Philip K. Dick's 1968 novel, *Do Androids Dream of Electric Sheep*, later made into the 1982 Ridley Scott movie *Blade Runner* (with seven different released versions and its 2017 sequel *Blade Runner 2049*) tantalizes the audience with the possibilities.[42] Rogue robots. Empathy tests. The Tyrell Corporation. The lovely Rachael. Robots making more baby robots. Many AI researchers push the likelihood of first AGI examples into the second half (typically late second half) of this century, if at all. But that doesn't stop many from trying.

Now the engineering of "artificial" humans is getting serious. Billions of dollars serious. New global conflagration serious. Armageddon time. But the failures of experimental psychology -- whether in behaviorist or cognitivist (or even psychoanalytic) format -- underscore our enduring ignorance of the object of all this attention.[43] While "behavior modification" seems to work in many cases, the principles of the psyche behind all this remain deeply elusive. In some ways, when "if it works" takes over, who needs to understand the principles anyway? Answer: AGI requires that understanding.

Will philosophy save the day? Psychology was once a "wing" of philosophy. Harvard didn't split the two into separate departmental designations until 1933. The first psychology book translated into Japanese and Chinese (neither of which languages then had a word for what we call "psychology") was Joseph Haven's 1862 *Mental Philosophy*.[44] But that older understanding doesn't appear to be where philosophy (or at least one of today's most publicly aggressive expressions of philosophy) is headed.

Philosophy has gone "post-human." Or, as the 2015 *The Nonhuman Turn* (a conference volume, edited by Richard Grusin, of the Center for 21st Century Studies) puts it, "This book seeks to name, characterize, and therefore to consolidate a wide variety of recent and current critical, theoretical, and philosophical approaches to the humanities and social science. Each of these approaches, and the nonhuman turn more generally, is engaged in decentering the human in favor of a turn toward concern for the nonhuman, understood variously in terms of animals, affectivity, bodies, organic and geophysical systems, materiality, or technologies."[45] Decentering the human. In favor of . . . technologies. How long before the hue-and-cry for "robot rights" becomes front-page news?

This is not exactly a fringe movement. A few years back IBM's Watson group (yes, they make robots) sponsored an event featuring post/transhuman proponents including sociologist Steve Fuller, who has published and lectured extensively on these topics.[46] Fuller is noted for his statement that "If you take seriously that evolution has to do with the transition of forms, and that life and death are just natural processes, then one gets to be liberal about abortion and euthanasia . All of these kinds of ideas seem to me follow very naturally from a Darwinian perspective -- a depriviledging of human beings, basically." In 2013

a group of Russians took over Lincoln Center to for the "Global Future 2045 International Congress," the event was dubbed "Towards a New Strategy for Human Evolution." They want to "upload" the psyche into machines.[47] In 2018, the 24th "World Congress of Philosophy" convened in Beijing with "Post-humanism" as one of its highlighted through-the-conference tracks, in which leading proponents from around the world participated.[48] Stanford University is busy with its "Institute for Human-Centered Artificial Intelligence," where the obvious extension of "human rights" to "nonhumans" is being discussed.[49]

Although most involved are pained to minimize the "negative" consequences, Elon Musk personally wrote a $1M check to finance Max Tegmark's "Future of Life" group at MIT, ostensibly to campaign against weaponized robots.[50] Trying to stop the deployment of Robocop. Signatures have been collected and pledges have been made. Few believe that will really work. Roman Yampolskiy, a computer science professor at the University of Lexington (Kentucky) and signatory of the "Asilomar Principles" believes that AIs must be "boxed" to be trusted.[51] He just might be right.

The alternative to all this "decentering" and "depriviledging" might be to return to the beginning of our effort to understand the human psyche. Aristotle "invented" psychology in the 4th-century BC. His *Peri Psyche* (*De Anima* in Latin and *On the Soul* in English) is little studied today and generally unknown to the typical psychology major.[52] Indeed, repeated and detailed discussions of Aristotle appear to be rare nowadays. Thomas Aquinas famously brought Aristotle back in the 13th-century and his *Commentary on Aristotle's De Anima* (along with many others, including key figures in Islamic philosophy) really has to be featured in that renewed course of study. Today, academic followers of Thomas, particularly among Spanish philosophers, while few-and-far-between, continue to keep these topics alive.[53] Until the "Enlightenment" these were well-worn paths both in Continental and Anglophone circles. The time has come to retrieve this largely forgotten wisdom.

We have already entered what is called the Digital Paradigm. As many would remark (and as Wired magazine warned us), "everything has already changed." The technological conditions which structured human relations in the 20th-century -- largely based around Electric technologies, like radio and television -- no longer apply. Or, as some have remarked (echoing Dorothy's line from *The Wizard of Oz*), "No, Toto, I don't believe we are in Kansas anymore."[54] Human engineering was a widespread enthusiasm under Electric conditions. That will no longer be so widely practiced, without consideration for the consequences, under Digital conditions. Society has already been restructured and old biases, prejudices, presumptions no longer hold.

Human society that is. At the same time, however, another society is growing "parasitically" inside its human "host." We call that new society the Digital Sphere. Recently Elon Musk presented an update on his Neuralink project.[55] Concluding the hour-plus presentation, billed as an effort at recruitment (today 100 work there, Musk suggested that 10,000 was his goal), the Neuralink team-members gave their wish-list of hoped-for accomplishments.

Musk was the most expansive, pointing a "tertiary neurological level," beyond the current Limbic and Cortical, in which Neuralink would incorporate a higher machine-based level. Perhaps this is what John Markoff meant when he titled his recent book *Machines of Loving Grace: The Quest for Common Ground Between Humans and Machines* (2016).[56] As the lead article in its Sunday Review immediately following Musk's demonstration of brain-implanted pigs, the New Times published Moises Velasquez-Manoff's article titled "The Brain Implants The Could Change Humanity: Brains talking to computers, and computer to brains. Are our daydreams safe." The center-fold spanning article's concluding section is labeled "A Human Rights Issue."[57] What Musk &al wants to invent will no longer be human. It will be engineered to become something quite different.

When you hear a tech executive waxing expansively about space travel, rest assured that humans are not likely to be the explorers.[58] Having extravagantly failed to engineer a "better human," the sentiment today has shifted towards "replacing" them. Replacing us. All of us. With something better. Something no longer "animal." And, one suspects, also something no longer "rational." The 20th-century loss of our previous understanding of what it means to be human -- fueled by the urge to "experiment" on us, requiring the jettison of the earlier Faculty Pschology -- has stolen from us our ability to grasp what has been happening already for decades now. Happening to us all. We must retrieve that understanding or face the inevitably dire consequences.

Endnotes

1. Commission on the Year 2000: In the beginning of what became known as the "futurism" movement in the mid-20th century, Lawrence K. Frank (1890-1968) organized what he hoped would be a comprehensive effort looking forward to the 21st. Operating under the auspices of the AAAS, the results were presented in a special issue of the Academy's journal *Daedelus* in its Summer 1967 issue, then followed by the publication of *Toward the Year 2000: Work in Progress*. Corning Glass paid Herman Kahn's Hudson Institute to generate an underlying economic "forecast," which was separately published as *The Year 2000: A Framework for Speculation On the Next Thirty-Three Years* and other volumes. Overall, the effort was a high-profile failure. The "framework" missed the Internet (which was already then visible then in the form of the Arpanet). The recruited experts largely refused to follow Frank's attempts to focus their attention and instead wrote about their own preoccupations. Accordingly, nothing on this scale was attempted again, leaving the futurism field to its individual promoters, such as Alvin Toffler &al.

2. Hudson Institute: Following the publication of *On Thermonuclear War* in 1960, RAND Corp. senior analyst, Herman Kahn (1922-1983), was persuaded to establish his Hudson Institute, on an estate atop a hill in Westchester overlooking the Hudson valley. Some have suggested that this may have influenced Stan Lee (1922-2018), who grew up nearby in Scarsdale, in his creation of the X-Men, a group of mutants based in a similar Westchester mansion. Initially carrying on defense related work, Hudson suffered from declining income as various nuclear arms treaties were negotiated, shifting the need for more "thinking the unthinkable" towards a more commercial orientation, including a focus on Japan. B. Bruce Brigg's *Supergenius: The Megaworlds of Herman Kahn* (2000) is perhaps the best account of the early Hudson years. Kahn's close friend from RAND in Santa Monica, Andrew Marshall (1921-2019), also came East, first joining Henry Kissinger's National Security Council in 1969 and then founding the Office of Net Assessment (ONA) at the Pentagon in 1973. The Center for the Study of Digital Life (CSDL), publisher of *Dianoetikon*, was spun-out of work done for ONA and was formed in 2015, the year Marshall retired.

3. *Nature and human nature; man's new image of himself*: Lawrence K. Frank was an important foundation executive associated with a series of Rockefeller related groups. His focus on education, always a crucial topic for Rockefeller research efforts, made him one of those concerned with using education to a "new" sort of human being. Various technologies were thought to help provide this new image. Frank's involvement with the Josiah Macy Foundation involved conferences on both computers and hallucinogens, which have been two of the most prominent approaches to human engineering in the past 50+ years.

4*. Image of the Future: Enlightening the past, orientating the present, forecasting the future*: Fred Polak (1901-1985) was an early Dutch futurist, professor of sociology and adviser to the Dutch government, as well as a Dutch politician and founder of a political party. He recieved UNESCO and Ford Foundation fellowships and founded Teleac, the Dutch academy for educational television. In 1954, Polak was a part of the first session of the Ford backed Center for the Advanced Study of Human Behavior (see note #6), where he met Kenneth and Elise Boulding (see note #5 and note #9). Elise (1920-2010) was so impressed that she learned Dutch so that she could translate Polak's book, which she did twice, first in its entire 2-volume format and then again as an abridged version. The abridged text followed the layout of the original but omitted an entire

chapter which Polak had titled "The Futureless Future." Polak had understood that the elimination of Christianity as the West's source of its "image of the future" had dire consequences, but which Boulding did not want acknowledge. Instead, she concluded with her version of a "new age," then being synthesized.

5. Kenneth Boulding: Boulding (1910-1993) was an economist, social science "king-maker" and peace activist. He and his wife Elise described themselves as "Quaker mystics." He was President of the American Economic Association, the Society for General Systems Research, the AAAS and the Peace Research Society and was repeatedly nominated for both the Nobel prize in Peace and Economics.

6. Center for Advanced Study in the Behavioral Sciences: The Center was established at Stanford University in 1954 by the Ford Foundation. It has now been absorbed by Stanford and operates through a consortium of institutions. Nomination for Fellows was initially closed to those involved and it served as an in-group award for particularly promising scholars, often taking the year at CASBS to work on book projects.   Thomas Kuhn (1922-1996) worked on his *The Structure of Scientific Revolutions*, from which we get the popular notion of "paradigm shifts," when he was there in 1958.   More recently, Fred Turner wrote his *The Democratic Surround: Multimedia and American Liberalism from World War II to the Psychedelic Sixties* when on sabbatical there.

7. *The Image*: Kenneth Boulding highly cited 1955 book, in which he promotes the idea that humanity needs a new "image." He proposed that a new field of practice be launched which he called "Eiconics" to deploy and track the effectiveness of images across the population. The intent was to engineer the missing "image of the future" to provide society with a "final cause." This idea finally caught on with the invention of the approach called "Mimetics" (linked to early human mental development, see note #6)

8. *The Selfish Gene*: Picking up where Boulding left off, Richard Dawkins supplied the name for this process of promoting "self-replicating" ideas by coining the term "meme" in this 1976 book. Dawkins is an evolutionary biologist , long associated with Oxford, where he was their "Professor for Public Understanding" from 1995-2008. More recently he has become famous for his wide-ranging defense of atheism. A detailed account of the use of memes, written by Marxist historian Adam Westoby (1944-1994) has been published with the title "The Ecology of Intentions: How to make Memes and Influence People: Culturology" on cognitive psychologist Daniel Dennett's website.

9. *The Changing Images of Man*: Under the direction of Willis Harman (1918-1997) and his colleagues at the Stanford Research Institute, the U.S. Dept. of Education sponsored a series of projects and publications, starting in the late 1960s, aimed at engineering the future of society. The most ambitious of these efforts was circulated privately in the 1970s and finally published in 1982 with the "Changing Images" title, as part of the Permagon "Systems Science and World Order Library."   It involved an international cast of notables, including an advisory panel that included Margaret Mead, Rene Dubos and Sir Geoffrey Vickers. The listed "reviewers" included Margaret Mead, Carl Rogers, Ervin Laszlo, James Fadiman, Stanley Krippner and Elise Boulding (who wrote an appendix to the report), along with others. What is often called the "New Age" movement grew out of these efforts, as reflected in Marilyn Ferguson's (1938-2008) best-seller *The Aquarian Conspiracy: Personal and Social Transformation in the 1980s* (1980), later translated into 16 foreign languages. She was described by fellow New-Ager, Deepak Chopra, as a "one-woman movement for hope."

10. *Global Mind Change*: Harman had an expansive career, joining the Stanford faculty as an electrical engineering professor in 1952 -- where he is described as "teaching transistors to Silicon Valley" -- and finishing as President of the Institute of Noetic Sciences (IONS) in Sausilito for the last 20 years of his life. IONS was famous for its "parapsychological" research, including on ESP and "remote viewing" (as dramatized in the movie *Men Who Stare at Goats*) and the Institute has been described as "devoted to exploring psychic phenomena and the role of consciousness in the cosmos."   Harman was closely associated with Alfred Hubbard (1901-1982), an inventor and sailor who dubbed himself "Captain, known as the "Johnny Appleseed of LSD," who believed that the drug was a "secret sacrament" for the Catholic Church. Along with Ampex executive, Myron Stolaroff (1920-2013), he administering LSD to many Silicon Valley engineers, including the author of "Human Augmentation," Douglas Englebart (1925-2013), at his Menlo Park clinic, the International Foundation for Advanced Study.

11. Towards a Science of Consciousness: Now called "The Science of Consciousness," this biannual conference has been held since 1994, organized by the University of Arizona, initially in Tucson and later expanding to international locations. Willis Harman played an important role in securing the early funding for the event as well as helping to launch its companion publication, *Journal of Consciousness Studies*.

12. *Operation Mind Control*: Building on details released by the Senate (see note #13), "underground impresario" Walter Bowart seized the opportunity to publish a wide-ranging and "conspiracy" filled account of government-backed efforts to use drugs for social and personal "mind control." This theme was then picked up in a series of titles, including *Dope, Inc., The Search for the Manchurian Candidate, Acid Dreams and Storming Heaven* &c. The notion that the CIA used drugs to disable the anti-war movement gained broad acceptance as a result. The important role of the Soviet KGB in distributing these drugs as "psycho-chemical" warfare in the Cold War to "destablize the West" (much as today's LSD is being supplied by China) has yet to be fully explored.

13. Senate Church Committee: The CIA's use of LSD and other drugs, starting in the 1950s as part of research on interrogations, expanded into multiple projects in the 1960s, the most famous of which was code-named MK-ULTRA. These hearings are considered by some historians to be an expression of conflicts within the Agency, raising doubts about the veracity of the "accidentally" discovered MK-ULTRA files, portraying some in the CIA as dangerous and out-of-control. One of the major results of the Church Committee was the establishment of Congressional oversight of the U.S. Intelligence Community, as has recently been in the news.

14. Radio Research Project: Starting in 1937 and continuing into the early 1940s, the Rockefeller Foundation funded an expansive effort to understand the effects of radio on society, perhaps the largest study of its kind ever conducted. This was later updated by Marshall McLuhan with his research on the effects of television (see note #18). The rise of Hitler, using radio to build support, was a major motivation for the study. The Project began at Princeton, managed by the "statistical" sociologist Paul Lazarsfeld (1901-1976), later shifting its focus to Columbia University, where Lazarsfeld had founded the Bureau of Applied Social Science. It was overseen by the Princeton psychologist Hadley Cantril (1906-1969), who analyzed the 1938 Orson Welles dramatic reading broadcast of H.G. Wells's "War of the Worlds," during which many listeners believed that Earth was actually being invaded by Martians. One of the more important participants was Frank Stanton (1908-2006), who started as director of research and

later became the president of CBS. Theodor Adorno (1903-1969), famous Frankfurt School philosopher/musicologist, was hired to explore the effects of popular music but quit over methodological differences.

15. *The Authoritarian Personality*: Following WW II, considerable effort was made to try to understand how modern Germany had become "fascist." T. Adorno teamed with three others to produce the volume which "invented a set of criteria by which to define personality traits and their intensity in any given person on what it called the 'F scale' (F for fascist)". This approach, despite many criticisms for bias and methodology, became influential in the burgeoning field of Social Psychology. It was later cited by Norwegian mass-murder Anders Brevik, defending his actions, as a primary document used to organize the "indoctrination" of the Norwegian population.

16. *Science of Coercion: Communication Research and Psychological Warfare, 1945-1960*: Christopher Simpson's account of the transition of WW II psychological warriors into the field of "Communications Research" is detailed and persuasive. Psychology had been deployed in a limited way in WW I but it became a widespread offensive tactic 20 years later. Replacing many aspects of "kinetic" conflict, psychological warfare became the underpinning of the "Cold War" (i.e. "cold" because kinetic weapons deployment had become "limited"). One of those new departments, catalyzed personally by Margaret Mead, was at Fordham University -- where Marshall McLuhan would take a famous sabbatical (also where the study of his media work shifted after the death of Neal Postman, see note #22), as well as where the Rockefeller Special Studies Project turned for a "moral justification" for limited nuclear war.

17. *The Cultural Cold War: The CIA and the World of Arts and Letters*: In a psychological war, particularly under "television conditions," the locus of conflict shifts from physical territory to its mental equivalent. During the 1950s, the CIA waged an multi-front battle with the Soviet Union for "propaganda" reasons,. Supporting an array of journals and artists, many of which were "left-wing," the Agency apparently sought to counter Soviet assertions about "decadent art" by promoting movements like Abstract Expressionism. Saunder's book paints a top-down control picture, since the goal was to tarnish the CIA-as-enemy, but that seems to have been an ideological stretch. In fact, when money is being handed out in this fashion, many will take the funding and then just continue with their own plans. Hugh Wilford countered Saunder's arguments in his *The Mighty Wurlitzer: How the CIA Played America* (2008). Among the projects funded by the CIA but then rejected by the participants for having any influence were the LSD/Pscylocybin experiments conducted by Timothy Leary (1920-1996) &al at Harvard, tracing back to MK-ULTRA (see notes #12 and #13).

18. The Changing Patterns of Language and Behavior and the New Media of Communications: In 1953, the Ford Foundation's "Program Area Five: Individual Behavior and Human Relations" (as named in the 1949 "Gaither Report" which structured the Foundation, working in coordination with various Rockefeller foundations) granted $43,000 for this study to anthropologist Edmund "Ted" Carpenter (1922-2011) and his colleague, an English Professor, Marshall McLuhan (1911-1980). This funding was intended to be the television-era follow-up to the earlier Radio Research Project (see note #14) and it launched McLuhan's career as a "media guru." Despite the fact that Ford specifically declined to support the launching of a journal with these funds, McLuhan and Carpenter went ahead and started *Explorations* journal anyway. *Explorations*, which has recently been reprinted, contained articles by the editing duo (each got their own issue at the end of the run), as well as many of those invited to speak at the seminars they organized at the Univ. of Toronto.

19. The Medium is the Message: This famous phrase is the title of the first chapter of Marshall McLuhan's *Understanding Media: The Extensions of Man* (1964). He had been using the phrase since the late-50s and it became, often with serious misunderstangings, as closely associated with McLuhan, along with "Global Village" &c. McLuhan was a Catholic neo-Thomist, spending much of his academic career at St. Michael's College at the Univ. of Toronto, in close proximity to the Pontifical Institute for Medieval Studies. What he meant by "medium" was later modified to "environment" and, in both cases, he meant to highlight the importance of Aristotle's "formal cause" in shaping human behaviors and attitudes. His son and close collaborator, Eric McLuhan (1942-2018), attempted to illuminate this problem with comprehension in a 2005 essay "On Formal Cause," which was then re-printed in the 2011 collection, *Media and Formal Cause*, along with other essays. Beginning in the books' Introduction, the effort was already underway to sabotage Eric's effort, falsely equating formal cause with "complexity science" (which is, rather, a modern version of "material cause"). The entire topic of causality has become fraught in the 20th-century, as "efficient cause" (which what most mean by cause-and-effect) was replaced by statistical correlations. Judea Pearl, a well-known artificial intelligence researcher, has countered this deficiency with his *Book of Why: The New Science of Cause and Effect* (2018), correctly asserting that breakthroughs in AI are already hampered by our general ignorance of the topic. As it turns out, constructing "artificial humans" requires understanding how humans comprehend causality.

20. *Persuasive Technologies: Using Computers to Change what We Think and Do (Interactive Technologies)*:   The current furor over "election interference" and "surveillance capitalism" rests on the notion that our neuro-anatomical mid-brain can by "persuaded" by particular stimuli. While these techniques have long been employed by television advertisers (in fact, they are the ones who invented "one-to-one marketing"), the negative reaction to the election of Donald Trump in 2016 launched a panoply of commentary about how "social media" is manipulating our thoughts and actions. This is generally not well informed, however strongly the opinions might be held, since the analogs to research on addition, "mirror neurons" &c have few clear correlates. Rather, it seems, many have been driven to grasping at straws to justify their political opinions.   The actual psychological processes involved remain obscure to most, particularly the effects of radical "paradigm shifts" in the underlying psycho-technological environments. Eric and Marshall McLuhan's 1988 *Laws of Media: The New Science* might be helpful for those confused about how new technologies generate shifts in popular behaviors and attitudes.

21. *Manhood of Humanity: The Science and Art of Human Engineering*: Alfred Korzyski (1879-1950) was a Polish nobleman and Russian intelligence officer who relocated to New York and founded an approach to mass-psychology that became known as "General Sematics" (GS).   His approach was initially called "human engineering," but since that phrase has negative connotations, the more neutral "semantics" was substituted. His suggestion was that language was the problem, aligning with many other efforts then underway to revise our language use in the hopes of engineering a "better" human. Among these were Esperanto and Basic English (see note #24), as promoted by C.K. Odgen (1889-1957) and I.A. Richards (1893-1979), co-authors of the widely-read 1923 *Meaning of Meaning: A Study of the Influence of Language upon Thought and of the Science of Symbolism*. For many, WW I reflected a sort of "collective insanity" and psychology was thought to be the solution, particularly focusing on the distinguishing characteristic of human psychology -- our use of

language. Semiotics grew out of this concern, along with the "linguistic turn" in philosophy and the engineering potential of linguistics in general (see note #27).

22. Neil Postman: Postman (1931-2003) was a follower of Korzybski and, after an internal split within "General Semantics," edited the movement's West-coast publication *ETC*. Postman parleyed this role into a prominent position at NYU, eventually directing his own program at the University, initially staffed with others from GS. Among his most widely known works is the 1985 *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*, building on the work on figure/ground from Gestalt psychology as promoted by Marshall McLuhan. He termed this graduate program "Media Ecology," a term initially suggested to him by Eric McLuhan. This effort is now institutionalized in the Media Ecology Association (MEA), which shares an over-lapping board with the GS movement. For many years, the MEA group was one of the few places where scholars of the McLuhan's work could present papers, although this has changed with multiple independent efforts now underway. In the speech he delivered on the night before his 2018 death (in Bogata, Columbia), Eric called for a "new media ecology," an effort now being picked up by his grandson, Andrew McLuhan, and others.

23. World's Parliament of Religions: In 1893, the first of many "World's Parliament of Religions" (now called Parliament of the World's Religions) was held in Chicago, in conjunction with the "World Columbia Exposition" (an early world's fair). Notably absent were representatives of any major Christian or Jewish denominations. Buddhism, Hinduism, Jainism, Theism and Theosophy were all given prominent placement. This was the first time Baha'i was presented to an American audience and it spread, along with the parallel development of Esperanto, as an explicitly "globalist" faith.

24. Basic English: Like Esperanto, Basic English was a "controlled language" based on a limited subset of English based on C.K Ogden's 1930 *Basic English: A General Introduction with Rules and Grammar*. H.G. Wells (1866-1946) picked it up as the inter-language used in his 1933 *The Shape of Things to Come*, which he published in response to his "godson," Aldous Huxley's (1894-1963) 1932 *Brave New World: A Novel* (constructed as a satire on his "godfather's" work, whereas his brother, Julian (1887-1975), worked closely with Wells, carrying forward his plans for an "Open Conspiracy" as the founding head of UNESCO).

25. The New Languages: This was an important essay published by Marshall McLuhan and Edmund Carpenter in the Chicago Review in Spring 1956. It was, in many ways, a summary of their work on the Ford Foundation's 1953 grant to them (see note #18). Appearing at the same time as a collection of Benjamin Whorf's essays (see note #26), it presented the novel idea that technologies are themselves languages and vice-versa.

26. Sapir-Whorf: While Benjamin Whorf (1897-1941) and Edward Sapir (1884-1939, who had been Whorf's professor at Yale) never authored a paper together and never stated their ideas as a hypothesis, the fascination with the potential use of language to engineer humans led to a belief in "linquistic determinism" (now largely discredited). Whorf's collected essays were published in 1956 as *Language, Thought and Reality: Selected Writings of Benjamin Lee Whorf*. Among those selected were Whorf's presenations to meetings of Theosophical Society.

27. Universal Grammar: If, in fact, there was a "universal grammar" that applies to all human language, then it could potentially be used to program humans, or such was the view of some in the 1950s. In parallel with the notion that humans are "computer-like"

(see note #28), this interest led MIT to hire him on a fast-track to tenure, after he had spent years as a Harvard Fellow. As it turns out, there is no such universal grammar and, even more importantly, humans are not "computer-like."

28. Cognitive Psychology: Over the course of the development of "experimental" psychology, various approaches have been attempted, including an early focus on "behavioral" psychology. Starting in the late-1960s, "cognitive" psychology took over the "scientific study of mental processes" and remains largely dominant to this day. This shift was tied to the development of the field of Cybernetics, which began (with that name) following the publication of Norbert Wiener's (1984-1964) 1948 *Cybernetics: Or Control and Communication in the Animal and the Machine*.

29. *Freud, Jung and Hall the King-Maker*: In parallel with the development of behaviorism &c, the field of psychoanalysis became widely studied and practiced. A seminal event in this history was the joint appearance of Sigmund Freud (1856-1939) and Carl Jung at Clark University in 1909 (in Worchester, MA, established as a "research only" institution, rivaling Harvard &al). Freud was concerned that most of his adherents were Jewish and was anxious to bring the Swiss Christian Jung into his movement. The two did not hit-it-off and Jung, who turned out to be a "gnostic," soon split with Freud and built his own following, often called "depth psychology."

30. *The Leizig Connection: The Systematic Destruction of American Education*:

31. *A Clockwork Orange*:

32. *Peri Psyche*:

33. Michel Ferrari:

34. Gregory Bateson:

35. The Century of the Self:

36. Edward Bernays:

37. Gestalt Psychology:

38. Wilhelm Wundt:

39. G.W. Leibniz:

40. Artificial General Intelligence:

41. New science of causality

42. *Blade Runner*:

43. Failures of experimental psychology:

44. *Mental Philosophy*:

45. *The Nonhuman Turn*: In May, 2012, the University of Wisconsin-Milwaukee's Center for 21st Century Studies hosted a 3-day conference on "The Nonhuman Turn," describing it as addressing a trend "that has been emerging in the arts, humanities, and social sciences over the past few decades." It traced the origins to a host of influences, including "actor-network theory" (ANT), "projects for animal rights," cognitive science, the "new realism and "new materialism," "panpsychism," as well as "systems theory in its social, technical, and ecological manifestations." The academic interest in granting status to "nonhumans" is widespread. Bruno Latour, who originated ANT (which became a mainstay of Science, Technology and Society practices), famously addressed the American Anthropology Association by asking the standing-room only participants at his lecture, "What is the intention of this glass of water?"

46. Steve Fuller:

47. Global Future 2045 International Congress:

48. World Congress of Philosophy:

49. Institute for Human-Centered Artificial Intelligence:

50. Future of Life Institute:

51. Roman Yampolskiy:

52. Aristotle:

53. *Commentary on Aristotle's De Anima*:

54. *The Wizard of Oz*:

55. Neuralink:

56. *Machines of Loving Grace: The Quest for Common Ground Between Humans and Machines*: John Markoff is a retired New York Times technology reporter, currently working on the authorized biography of "Whole Earth" organizer Stewart Brand (while a Fellow at the CASBS, see note #6) and working with Stanford's Institute for Human-Centered Artificial Intelligence (see note #49). He previously wrote *What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry*, which set to link Silicon Valley's success to its LSD-linked past, centering on Stewart Brand, who had previously been the focus of Tom Wolfe's (1930-2018) 1968 *The Electric Kool-Aid Acid Test*. Markoff's "Dormouse" book was a rewrite of an earlier effort to write about the influence Willis Harman (see note #10) on the cultural politics surrounding Stanford.

57*.* A Human Rights Issue:

58. Space travel:

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