



What makes a nanocomposite material “smart”? Consider clothing that can detect the presence of chemical weapons, automatically seal its own pores, and then clean and decontaminate itself. Today the U.S. Department of Defense is funding research for fabric materials that do all these things and are also stronger, more durable, and lighter than current uniforms.

Smart materials are becoming a reality, and one of the world’s leading experts in the field is Sergiy Minko, who holds the Egon Matijevic Chair of Chemistry at Clarkson University.

One of Minko’s current projects involves research into self-cleaning fabrics sponsored by the National Textile Center. Made of any common fabric, these materials will utilize a water-repellant, dirt-repellant, environment-friendly coating made of silver nanoparticles. Their wide applications will include hospital and military garments, as well as sportswear, awnings, and convertible tops.

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The Spectacle of Public Health under the Sign of Bioterror

When examining the tendencies of capitalism, its praise for and application of the principles of efficiency, utility, and functionality often dominate analysis. Even when considering the oppressive mechanisms of capitalist power vectors, the critical use of the three principles has considerable explanatory power. Yet areas exist where these principles tend to obscure elements of specific varieties of system failure. For over ten years, CAE has been arguing that the nonrational principles of waste, uselessness, and human sacrifice can be of particular explanatory value where capital's own self description, due to its inherent contradictions, fails to produce a sufficient or accurate overview.

The capitalist tendencies toward waste, uselessness, and sacrifice serve a dual purpose. On the one hand, they must be acknowledged

as existing in noncapitalist social systems. Yet they must be hidden within capitalism itself, so that their absence can act as an alibi for the productive principles that the bureaucratic and technocratic strata of capitalism so dearly embrace. The apparent absence of uselessness demonstrates that production is always useful; the absence of waste demonstrates that resources are universally linked to efficiency; and the absence of sacrifice demonstrates that the system is just. On the other hand, a firm connection to these nonrational material relationships by dynamic forces of domination is the ultimate expression of raw power. Who but the most powerful can waste life and resources on pointless endeavors without regard for utility or profit? A quasi-controlled participation in such activity is the greatest reward within capitalism, and yet no individual or group can remain master of the under-economy (the sphere of the social nonrational) for an extended period. The realm of the nonrational is in a constant process of deterritorialization and will destroy that which attempts to stifle the process.

In the discourse on public health, these principles of the under-economy are of tremendous explanatory value. The current spectacle of security through militarized public health initiatives intersects all the worst tendencies of the under-economy. Capital has perverted the redeeming power of the nonrational by stripping away anything positive that could emerge from it and leaving only its authoritarian possibilities. In the case of public health, fighting disease and intensifying public preparedness for real, ongoing health crises is no longer a valued, humanitarian initiative; instead, we have a military flight of fantasy that prioritizes the fantastic and improbable over the real and certain. This unfortunate state of affairs actually puts the public in greater danger of medical disaster

from any type of pandemic and wastes billions of dollars on useless equipment, vaccines, and emergency planning for highly improbable events such as biowarfare, while ignoring the disasters that are actually happening, such as multi-drug resistant tuberculosis or hepatitis C, which are not of military value (i.e., not useful in warfare).

Waste and Excess

In their fundamental forms, societies were protected from the emergence of capitalism by their relationship to waste. By disallowing the centralization and consolidation of the means to power, simple societies (i.e., those with a modest division of labor) minimized the opportunity for huge separations and inequalities to develop. One common material manifestation of this collective desire is the potlatch. Here an individual would collect personal property until it reached the crisis point of becoming private property; that is, until so much had been collected that s/he could no longer use it h/erself. At this point, the excess property would begin to generate the need for a market and the opportunity to make profit. Rather than taking this fatal step, the property would be redistributed by the owner to the other members of the society in one generous, yet often wasteful, gesture.

In contrast, capitalism is dependent on market creation and expansion, and embraces the separations that accompany a complex division of labor. Within this political-economic configuration, capital would have people believe that waste has been eliminated. To be sure, waste is not good for minimizing consumer prices, and those competing for market share

can little afford to treat their resources in a cavalier way. Producers' survival in the marketplace is dependent upon their efficiency in relation to other producers competing for the same slice of the market. Due to such imperatives, the capitalist political economy has emerged as the wealthiest, most complex, and most technologically advanced society in history. The evidence is overwhelming that this position is accurate, yet an ideological sleight of hand is occurring. As profit accumulates, it can't all return as reinvestment. Some must be spent in other ways, and this spending is where capital forges one of its links to waste. A vast amount of profit and wages (in the form of taxes) must be spent on maintaining and protecting the sphere of production itself. The jewel in the crown of capitalist waste is its standing army. An unused military produces nothing and eats resources and profit at an astounding rate. Even when used, it still runs at a huge deficit. The primary function of the army is to gorge itself on as much profit and wages as it can in order to become an even larger, hungrier monster.

The second relation to waste is spending on spectacles and simulations designed to convince people that something that does not exist actually does. These are not the spectacles of late imperial Rome in which lavish sums of public monies were wasted on plebian entertainment; rather, these spectacles and simulations function to glorify authoritarian imaginaries that will never materially manifest. The current mythology of terrorists acquiring weapons of mass destruction and destroying the United States "in a mushroom cloud"—a key talking point in the build up to the Iraq war—is patently absurd. ("Weapons of mass distraction" was certainly a point of sloganeering truth.) Very few countries have the capacity

to produce nuclear weapons, but why would those that do give them to terrorists? If a nation has gone to the trouble of acquiring these weapons, it would be political insanity to give the most important weapon in its arsenal to a group whose intentions are unknown. Why give the best weapon to someone who could one day be an enemy? Certainly the case of the U.S. support of “freedom fighters” (now terrorists) in Afghanistan is but one lesson learned. “Conventional arms only” is the order of the day when it comes to supplying independent military organizations.

The point where the real amusement begins is when power vectors get caught in their own iron cage of spectacle and have no choice but to comply with the demands of the spectacle. The United States is stuck with an expanding germ warfare program in part because so much was made of the threatening specter of bioterrorism. Moreover, terrible logistical blunders in Iraq were made because of the fantasy concerning Iraqi use of chemical and biological weapons. While U.S. soldiers have all had anthrax vaccines and have full protective gear for such attacks (that have never happened), they lack proper armor for their vehicles, adequate body armor, and a sufficient number of armored transport vehicles. The priorities of equipping the army have become completely skewed. Equipping soldiers for a remote possibility is more important than equipping them for the small arms fire occurring on a daily basis. Indeed, this distortion of the real and the actions that have followed are parallel to issues of global public health, in which the diseases that kill masses of people every day are considered less important than diseases that have only rarely killed anyone.

Uselessness

Of all the principles most abhorrent to capitalist society, uselessness must rank near the top. It could be the most repulsive quality relative to capitalist values. Uselessness is generally a disciplinary term used to label people who refuse to participate in the system. Dropouts, drug addicts, welfare recipients, and the lumpenproletariat (the “dangerous classes”) in general are all candidates for the reprimand of uselessness. However, while uselessness may contradict capitalist ideological imperatives, examples of it are everywhere and intersect heavily with waste.

Uselessness is far more interesting when it is analyzed not as a visible, disciplinary label, but rather, as a hidden property that haunts the world of the functional. We find uselessness even in the most functional of items, such as simple and complex technologies. Technology is generally considered a practical, material formation. Sometimes its tendency is utopian, sometimes apocalyptic, but it is always assumed to be functioning instrumentally. In truth, instrumentality’s opposition very often creeps into the techno-object. From low-end instruments like cell phones jammed with useless features (where many of the more esoteric features are really there as ends in themselves), to the many overly specialized pieces of low-end technology that clutter the closets of the middle-class, to the highest-end germ and nuclear warfare technologies, uselessness is an integral part of each. When has the intercontinental ballistic missile ever been used? The technology is assembled only to be disassembled and removed to make way for the next generation of useless war-tech. As with the logic of germ warfare program expansion, the logic of this system can make minds melt. Should this technology ever function, it has failed to serve a purpose. Given

this non-functional purpose, the intercontinental system does not even have to work at all; it must only succeed in appearing to work.

The same may be said about germ warfare. If it doesn't remain useless it has failed its purpose, but the fantasy of its use must be acknowledged as real as often as possible. The appearance of functionality is important, and considerable resources are pumped into the hype surrounding this technology. As we have documented in past chapters, biological weapons are completely unpredictable and unreliable, but the facts do not matter. As we have shown in chapter two, there is too much money at stake. Only the fantasy is relevant. Without the fantasy, biological weapons are only what they are—useless junk.

Other elements of the germ warfare program share these same qualities of uselessness and waste, including those that are supposed to support public health. The center of this massive waste of revenue is the vaccine initiative sponsored by the National Institute of Allergy and Infectious Disease (NIAID). How could a vaccination program be a problem? Citizens may not get a good return on their investment, but at least the program can't hurt anything, and it may in fact help. While this logic sounds convincing, the facts suggest otherwise.

First, we must begin with the question of the two top concerns in regard to germ warfare: anthrax and smallpox. Second, we must ask whether there is any imminent threat from these germs. The NIAID will begrudgingly admit, "At present, there is no specific information to indicate that there is a likelihood of use of anthrax or smallpox as a weapon in the immediate future." When asked what the consequences are should such

a weapon be used, the response is, “While we cannot quantify the threat of either one being used as a bioweapon, we know the consequences of their use would be great.” While it sounds as if a certain clear and present danger exists, what this statement actually means when viewed through the lens of scientific rigor is that NIAID officials have no idea what the destructive capability is, but their guess is that it could be bad. This spectacle of crisis and catastrophe is a fantasy, but one that must be engaged immediately. What is the reward for accepting fantasy as reality? The U.S. government is funding three new biosafety level four labs (built for research on the most infectious and virulent germs): one at Rocky Mountain Laboratories in Hamilton, Montana at a cost of 66.5 million dollars, one at Fort Detrick, Maryland (the center of germ warfare research) at a cost of 105 million dollars, and of course, Building 33 on the National Institutes of Health’s campus at a cost of 186.1 million dollars. Nine regional Biocontainment Laboratories with biosafety level three facilities are in planning or under construction. This initiative was slow since some local residents were not keen on having these labs in their neighborhoods. Here are some of the germs to be studied in the BSL3 labs:

Anthrax

Respiratory viral pathogens

Poxviruses (e.g., *Vaccinia*)

Tuberculosis

Tularemia

Enteric pathogens

Vector-borne flaviviruses, including West Nile virus

One has to wonder if this is what is in a BSL3, what is being studied in the BSL4 labs? Be that as it may, the payoff for sup-

porting the fantasy is big. But there is more. In order to better militarize academia, the NIAID has funded ten Regional Centers of Excellence (RCE) for Biodefense and Emerging Infectious Disease Research. RCE grants have been awarded to Harvard Medical School, Duke University, the University of Chicago, the University of Maryland, the University of Texas Medical Branch, the University of Washington, and Washington University. (Other locations have not been confirmed.) At first glance, this effort also sounds good, but what it really means is that the centers' primary concern will be military interests rather than those pertaining to public health, and it is these concerns that will direct infectious disease research. As we shall see, the two sets of priorities are far from similar.

The military and NIAID know what to say when asked about what they will study. A representative list on their website looks like this: "Plague, Lyme disease, rabies, tick-borne encephalitis, West Nile virus disease, influenza, anthrax infection, Ebola virus hemorrhagic fever, HIV, tuberculosis, transmissible spongiform encephalopathies, and Q fever." A number of these are diseases that have an immediate impact on public health, such as HIV, influenza, and tuberculosis. Perhaps CAE is incorrect, and the military is acting in the public interest rather than its own; however, once one examines the central initiatives where "progress" is being made, a different scenario develops.

Of greatest concern is smallpox. To begin with, natural cases of smallpox have been eradicated from the earth. The last natural case was recorded in 1977 in Somalia. The only reason it still exists and could be reintroduced into the environment at all is due to BW programs that are keeping it alive. In fact, the last case reported occurred in 1978 in Birmingham, England.

Improper lab procedures resulted in the death of Janet Parker. Ms. Parker was a medical photographer who worked in a lab above the one researching smallpox at the University of Birmingham. Authorities believe that the virus traveled in air currents up a service duct to the room where she worked. The scientist responsible killed himself shortly after her death.

Smallpox does make great spectacle, since this very ugly disease has such a gruesome past. Smallpox has probably killed more people than any other disease in history. Unfortunately for the military, it is not an effective weapon. Viruses cannot live without a host and have been dismal failures as weapons because of this trait. The smallpox virus is heat sensitive and dies as it dries. Moreover, the living conditions of most developed nations are not conducive to its spread. Smallpox requires prolonged face-to-face contact to spread efficiently. An outbreak these days would probably spread slowly in developed nations, and public health officials have considerable experience in controlling outbreaks. Regardless, everyone should be relieved to know that if this extremely unlikely emergency were ever to occur, NIAID has spent millions of dollars on vaccine to cover everyone in the United States (300 million doses). If that is not enough, a new smallpox vaccine is in the works. The “classic” one eradicated the disease, but the new one offers less chance of extremely rare complications. With this vaccine, the NIAID may save as many as a handful of people that could not be saved otherwise.

The NIAID’s second primary concern is anthrax. Anthrax can be successfully weaponized. In its spore form, it can even be placed in shells and bombs. As CAE has pointed out in previous chapters, anthrax, like all BWs, has had a very disappointing track record. But is it a public health hazard? The United States

has reported 236 cases of anthrax between 1955 and 1999. Anthrax is really not a disease of intense urgency—although workers who labor with animal carcasses and products might be pleased, since they have the highest occupational chance of contracting anthrax. Regardless of this low intensity public threat, the NIAID is focusing on bringing a new vaccine to market. The old one works, but the new one requires fewer doses to reach immunity. Knowing that our soldiers and first responders will have fewer pricks in their arms should make us feel more secure. Vaxgen, Inc., the company contracted to produce the 75 million doses of the vaccine, is probably significantly more financially secure as well. How public health is actually improved by all this hoopla remains to be seen.

The NIAID goes on to say that anthrax is a “Category A” agent. These agents are considered the highest threat to national security due to their “ease of transmission, high rate of death or serious illness, and potential for causing panic.” This list of priority qualities is odd to say the least. First, what is meant by “transmission?” Anthrax cannot be transmitted from person to person—no record of this happening exists anywhere. Maybe the NIAID authors meant something else, but it sure sounds as though they mean transmission from person to person. Second, what are the criteria for “the potential to cause panic?” How was this studied? During the October 2001 anthrax attack, CAE does not recall anyone panicking. The postal workers left the contaminated buildings in which they worked, got tested, and when the sites were cleaned up, they went back to work. The closest the population came to panic stemmed from the panic of the Department of Homeland Security, which rather than be seen doing nothing, told citizens to stay at home and seal their windows with plastic and duct tape.

The next priority is CAE's personal favorite, the ebola virus. Like anthrax and smallpox, it is also a Category A agent. Is it a public health risk? Until recently, only a few outbreaks of ebola hemorrhagic fever striking humans had been reported. The first two outbreaks were in 1976: one in Zaire and one in western Sudan. These were relatively large outbreaks, resulting in more than 550 cases and 340 deaths. A third outbreak, in 1979 in Sudan, was smaller, with 34 cases and 22 fatalities. More recently, outbreaks have occurred again in Zaire in 1995 and 1996, with 352 cases and 276 deaths, and in Gabon in 1996, with 60 cases and 45 deaths. The death toll is 683 from five outbreaks in Africa in recent history. It's hard to see this as an urgent public health risk next to HIV or tuberculosis (which together are annihilating entire communities in Africa and the rest of the world). For these diseases, 683 deaths is a typical hour. While millions will continue to die every year of HIV and TB, our germ warfare program has spent millions of healthcare dollars making an ebola vaccine.

Consider some of the other products of the germ warfare program:

Safe and effective alternatives to toxoid vaccine

Monoclonal antibodies

Polyclonal antibodies

Second generation anthrax vaccines (e.g., rPA)

Marburg hemorrhagic fever vaccines

Tularemia vaccines

Plague vaccines

Rift Valley Fever vaccines

Cell culture (e.g., Vero cell) based vaccines for influenza

Antivirals for smallpox and viral hemorrhagic fevers

With the exception of influenza (Category C), the listed germs are Category A agents. This product list suggests that Category A is the highest priority. Unfortunately, while the A list germs may awaken scary fantasies in the minds of the military, they are not public health dangers. These two elements—military priority and public health priority—are almost completely unrelated.

CAE must also inquire how these categories are even created. The reasoning suggested above (ease of transmission, high rate of serious illness or death, or potential for causing panic) cannot be true. For example, why is smallpox a Category A and multi-drug resistant tuberculosis (MDTB) a Category C? MDTB is equally contagious; it has a similar mortality rate; unlike smallpox, it's incredibly difficult to treat (which is in part responsible for its high mortality rate); it's an astronomically bigger drain on medical resources; and, unlike smallpox, it is already killing people in New York, California, and Texas. TB itself is the most infectious disease globally, infecting nearly one third of the world's population and killing two to three million people every year. The only possible argument that could be made on behalf of smallpox is that it would cause panic, while MDTB is already in the United States population and has not caused panic. This position is as arbitrary as the categories. Ultimately, the military is more obsessed with its fantasy about smallpox than the reality of TB.

Other diseases that make the A list also have no relation to public health crises and register as significant only because the military is interested in them for one paranoid reason or another. Tularemia, also known as "rabbit fever," is not even a blip on the public health radar. Approximately 200 cases of

tularemia are reported each year. Less than two percent are fatal. Tularemia cannot be transmitted person to person, it is not highly infectious, and it doesn't seem to be causing panic. In the mind of the military, a big panic is underway. Tularemia is a bacteria, so it can live independently from a host. The germ is very versatile—it can be airborne, it can live in water, and it can live in mammals. It could be sprayed and inhaled, or it could be used to poison the food or water supply. Its one disadvantage is that it cannot take a spore form, so it cannot be placed in bombs. Tularemia is on the list not because it fits the Category A description, or causes panic in the general population, but because it makes the military panic.

Plague is on the A list, because it is really scary. From Thucydides' description of bubonic plague to the current military's fear that bioterrorists will use pneumonic plague (which, unlike bubonic plague, can be transmitted person to person), this bacteria has always been the King of the Fear Factor. It is gruesome, and it is contagious. Yet despite its regular appearance in the southwest United States (approximately 10 cases per year) it hasn't caused panic. The total number of cases on medical record worldwide amounts to 2,118. Moreover, plague is not a very good weapon. It is very sensitive to light and heat, and once deployed, under the best conditions, it can only live up to an hour without finding a host. From the time of the Japanese plague trials, to the British trials, to the United States trials, no military has been able successfully to use it tactically. In addition, it is treatable with antibiotics that already exist. However, millions more tax dollars are being spent to develop vaccines and more antibiotics to fight plague. As long as the military stays infatuated with the spectacle of a

given disease, that disease is going to stay on the top-ten list and continue to consume resources that could be better used to save lives now.

One last note is necessary before leaving the realm of the useless and the wasteful, and that is in regard to stockpiling vaccines. Vaccines don't last. Most have to be replaced every six months to a year. Just like the missiles standing dumb in their silos waiting to be disassembled and replaced, so are the stores of vaccines. The logic of vaccine stockpiling is that if a nation has vaccines and in-kind retaliatory capability, it will deter an enemy from using biological weapons. Memories of Dr. Strangelove and the Russian doomsday machine come flooding back. Strangelove famously remarked that for a weapon to deter, everyone must know that a nation is in possession of it. As the United States publicly acknowledges the types of vaccines it has stockpiled, it allows the enemy the options of transgenically modifying the germ to thwart the vaccine, or simply using a bug for which the United States is unprepared. If the United States decides to keep their stockpiles a secret, they do not get the deterrence dividend. In the age of transgenics, stockpiling vaccines is little more than a very expensive publicity stunt offered to reinforce the public perception of security. Once again, the government and military offer empty spectacle to counter a perceived threat in order to look like they are doing something. The amount of resources wasted on useless material like stockpiles of vaccines is inexcusable, especially as it comes at the expense of people dying here and now from actual public health emergencies. Those who die are the sacrificial victims of the demented strategies of capital.

Human Sacrifice

Human sacrifice is typically assumed to be a “primitive” institution—one that long ago vanished from Western civilization. Unfortunately, quite the opposite is true. The institution of sacrifice lives on. Although much of it is hidden from view, it remains an essential part of first world everyday life, politics, and economy.*

Health care has long been among the primary sites of sacrifice in the United States. The thousands of deadly hospital mishaps and mistakes that occur each year are one of the unfortunate byproducts that citizens are willing to tolerate in order to have hospitals at all. While precautions are taken, people understand that perfect safety is not achievable and that a number of people must be sacrificed to this institution every year. To be sure, society always hopes to lower the number each year, but with an expanding system and an aging population more sacrifices will be required. The toleration of these deaths on an annual basis demonstrates that the population is sincere about the value and importance of having hospitals. This form of sacrifice is understandable, and to some degree unavoidable, much like the United States population must be willing to sacrifice approximately 40,000 people each year to continue automotive transportation.

*For a more complete discussion of human sacrifice in capitalist economy, please see Chapter 5 in *Electronic Civil Disobedience* (ECD). For a more complete discussion of useless technology, please see Chapter 4 in that same book.

However, truly pathological forms of human sacrifice also regularly occur in health care in the United States. The worst is due to the fact that the United States insists on being the only developed nation without universal health care. The United States has the highest infant mortality rate in the developed world. Those in power are willing to sacrifice thousands of children each year to show they are sincere about the value of privatization and free market capitalism. To give mothers universal prenatal care or to ensure that all children are vaccinated would be tantamount to communism. While a commercial smallpox vaccination will be available to everyone who needs it, power vectors believe that a comprehensive vaccination program for children is going too far with the government handouts.

The relationship of authoritarian power vectors to emergent infectious disease is another point of pathological sacrifice. Given APVs' propensity for violence, emergent infectious disease is viewed primarily as a resource for violence. Those diseases that best fit military need to produce artificial forms of death are the ones focused upon, at the expense of diseases that are causing the catastrophic and present forms of natural death. The military has managed to reframe microbiology and health policy as arenas in which the improbable rules the actual. The cost is sacrifice. Millions must die to show sincerity and commitment to the "War on Terror." But the death of soldiers is not enough. As this chapter has shown, a sacrifice of the sick on a worldwide basis is yet more tribute that must be paid.