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### by Cliff Conner

The Earth Day 2017 March for Science signals resistance to Donald Trump's sharp infusion of irrationality into the national discourse. Official support for climate-change denial and other antisience agendas has suddenly become much more explicit. At the same time, many protesters recognize a continuity linking Trump's bizarre bluster with a pre-existing condition sometimes referred to as the "Republican war on science."

But the problems at the root of the tragedy of contemporary American science — its corporatization and militarization — are not ones for which either the Democratic or Republican parties can offer solutions.

Describing science as tragedy would have seemed peculiar to most people as recently as the first half of the twentieth century. The reputation of science was then golden. The expectation that modern science could and soon would solve all of humanity's problems was almost universal.

That benign image received a double jolt during the Second World War. First came the horrors of Nazi racial science and its accompanying technology of human extermination. That was followed by the advent of the nuclear age in the instant incineration of more than a hundred thousand inhabitants of two Japanese cities. J. Robert Oppenheimer, one of the atomic bomb's creators, quoted a line from a Hindu holy book to signal the emergence of science's ominous dark side: "Now I am become Death, the destroyer of worlds."

### The Roots of the Tragedy

The out-of-control proliferation and use of weapons of mass destruction is perhaps the worst of contemporary science's tragic fruits, but there are others. The misuse and abuse of science to justify destroying the Earth's habitability has also become a source of widespread anxiety.

These and other perils have a common root: the corruption of Big Science by Big Money. More precisely, they are the consequence of a profit-driven economic system that hamstring humanity's ability to make rational economic decisions.

Science is presumed to be a reliable source of knowledge based on objective fact rather than subjective bias. By definition, that requires research to be conducted impartially by scientists with no conflicts of interest that could affect their judgment. But a science harnessed to the maximization of private profits cannot avoid material conflicts of interest that are anathema to objectivity.

### American Science and American Exceptionalism

The focus on *American* science is not chauvinistic bias on my part. The science of the United

States is the major component of world science — as American science goes, so goes science in general. The American federal R&D [Research and Development] budget is larger than those of Germany, France, Great Britain, and Japan combined. American science's primary competition vanished in 1991 with the collapse of the Soviet Union. By 1998 science in Russia and the other Soviet spin-offs was on the edge of extinction, surviving only by means of charitable donations from abroad.

The idea that anything about American science could be tragic may trouble some readers. It does not at all jibe with American Exceptionalism, an axiom of the ideology that reigns supreme in the public discourse of the United States. American Exceptionalism covers all things American with a halo of virtuousness and a blanket of immunity from wrongdoing.

Furthermore, isn't the United States where most of the world's scientific and technological innovations have been and still are produced? How about airplanes? Television? The computer? The Internet? The iPhone? And hasn't American science been responsible for great medical and biochemical advances? The current state of American science may present some difficulties and challenges, but isn't it gross hyperbole to call it a *tragedy*? Unfortunately, it is not.

### **The Corporate Takeover**

As corporate domination of science and technology has grown, the ideal of objective scientific investigation has diminished accordingly. Big Science has increasingly become the deferential servant of corporate interests and billionaires. Allegedly scientific studies are now routinely conducted by individuals and institutions with large financial stakes in their outcome.

Big Oil and Big Coal fund climate-change-denial studies. Big Tobacco produces findings minimizing the link between smoking and lung cancer. Big Pharma investigates the benefits and risks of the medicines it sells. Big Food enlists nutritional science as a marketing tool for their products.

The scientific method has been refashioned to fit the new reality. "Hypothesis-driven research" now signifies formulating propositions to advance corporate interests and designing studies to provide evidence for them. Investigations that produce a semblance of support for a desired hypothesis are accorded full public relations treatment, while those that do not are quietly consigned to the paper shredder.

The results of all this research are at worst fraudulent and at best untrustworthy. And yet, abetted by venal legislators and a credulous mass media, corporate science-for-profit shapes the public discourse and public policy that adversely affect our environment and our health.

### **The Institutionalization of Science-for-Profit**

There are rational voices in the public discourse that have raised concerns and warnings about the corruption of science by Big Money, but the voices serving the corporate interests have all but drowned them out. By skillful application of the false-equivalence fallacy, the latter have managed to skew the conversation far to the irrational side.

Manipulating research results to serve private commercial interests is anti-science masquerading as science. The forces of anti-science have strong institutional support in the United States, most significantly in our fundamental political institutions.

One dangerous result has been the weakening of governmental regulation of commercial activities that contaminate the air we breathe, the water we drink, the food we eat, and the

medicines we take. The ability of the Environmental Protection Agency and the Food and Drug Administration to provide the oversight they were designed to provide has significantly declined. And the Trump gang promises to accelerate that trend; the regulatory environment is sure to get worse before it gets better.

Politicians' appeals to ignorance are not the only weapons in the effort to undermine the integrity of American science. University research laboratories and Think Tanks alike have devolved into intellectual brothels in their ignoble quest for corporate funding to support their research. Private interests have been happy to oblige, and the obvious *quid pro quo* need never be spoken aloud.

### **The Militarization of American Science**

But the most tragic distortion of American science is a consequence of its extreme militarization. Big Science literally exploded onto the scene as a result of the Manhattan Project during World War II. Its success was validated by mushroom clouds rising over Hiroshima and Nagasaki in August 1945, thus establishing the martial inclination of Big Science's subsequent development.

If you take one thing away from reading this article, let it be this: Today, *American science's primary mission is to find new and more efficient ways to kill people* —from thermonuclear bombs, to robot drones, to cluster munitions, to antipersonnel weaponry of many kinds.

Science and technology, rather than being the creative engines of human progress, have instead been reoriented toward destructive and antihuman ends. American science has also made beneficial advances, but many of those —microwave ovens, the Internet, and GPS, for three prominent examples — have been secondary byproducts of military research.

The proof is in the U.S. budget, where more than half of the Research and Development (R&D) funding — amounting to trillions of dollars over the past decades — has been for military purposes.

Imagine, by contrast, what could be accomplished if all of that money and all of that scientific talent were instead directed toward finding solutions to the crucial problems facing the human race today, such as poverty, hunger, disease, and environmental devastation. But they are not, and if that isn't a tragedy, the word holds no meaning. Meanwhile, massive war spending begets massive weapons production that begets ever-escalating aggression that begets human tragedy of mind-numbing dimensions.

The tragedy deepens with the realization that this is a problem that cannot be fixed —at least not in the context of present American reality. That is due to the American economy's absolute, hopeless, incurable addiction to military spending.

The metaphor of drug addiction is not nearly strong enough. Some heroin addicts, with great difficulty, sometimes get the monkey off their backs, but American society as currently structured is completely incapable of breaking its addiction to militarism. War spending in the American economy is more like an inoperable tumor destined to grow uncontrollably until it kills its host.

How did the warhawks' death grip on the federal budget and its R&D component come about? If the United States were ruled by a military dictatorship it would be understandable, but that is not the case. To think the Pentagon drives the process is to believe the tail wags the dog.

Nor are the elected politicians primarily to blame for handing the generals the keys to the treasury. Concerned above all with satisfying the big-money benefactors who butter their bread, the legislators simply kowtow to irresistible economic forces they don't understand and feel no

need to understand. The incurable addiction to military spending is built into our economic system.

This dilemma has a name — a two-word phrase that sounds terribly academic, but is useful as a shorthand way to identify the problem: “Weaponized Keynesianism.”

Here is the obvious kernel of Weaponized Keynesianism: If you think the American economy is having a hard time *now* generating enough jobs to keep unemployment from rising to the skies, just imagine what it would be like without the hundreds of billions of dollars a year in military spending.

In the United States today, if the Pentagon ceased to provide a gigantic artificial market for industrial production, millions of workers —and not only defense-plant workers —would lose their livelihoods. Without paychecks they would be unable to buy goods or services and the wheels of the economy would rapidly grind to a halt. The result would not be merely a repeat of the Great Depression, it would be the Ultimate Demise of the Current Global Economy.

### **American Exceptionalism**

Most Americans, unfortunately, are oblivious to the military domination of American science and all that it entails. It is a society-wide blind spot. What could account for the collective inability to see this monstrosity ballooning before our eyes? It follows from accepting, consciously or unconsciously, the doctrine of American Exceptionalism.

American Exceptionalism is the contention that the United States is not bound by traditional norms of morality in international affairs. Invading other peoples’ countries and killing them when they resist is generally considered war crimes most foul. Also, the use of torture has been condemned as immoral and repugnant by all civilized peoples since the eighteenth-century Enlightenment. When the United States invades, kills, and tortures, however, it is deemed acceptable because America is allegedly a benevolent superpower that acts only in defense of peace, democracy, and human rights.

This normalizes the outrageously inflated, runaway American arms production as all being in a good cause. It serves as the rationale for a “national security state” that monitors the private communications of everyone in the country and spawns secret terrorism tribunals that dangerously erode the rule of law. But because American Exceptionalism has served as the ideological justification for many wars resulting in many millions of deaths all over the globe, it is long overdue for critical examination.

### **Breaking Out of the Box**

Does the preceding litany of woe seem to imply unavoidable doom and destruction of the entire social order? That is not my intention. The current tragedy of American science may appear to lead to a hopeless impasse, but there is a way out.

It is not an easy way out. To comprehend it requires some serious thinking outside the box. In this case, *the box* is the market-based, profits-driven economic system that almost all American commentators and ideologues take for granted, as if no alternative system is possible or even worth mentioning.

This has, for many decades, been a strong, indestructible box that has successfully imprisoned the minds and constrained the thinking of almost the entire American public. But the 2016 elections began, perhaps, to reveal stress fractures in the box. The campaign of Bernie Sanders

brought the word *socialism* into the public discourse as something other than a swear word for the first time in most Americans' living memory.

I do not believe Bernie Sanders' candidacy offered a solution to the crucial conundrum of Weaponized Keynesianism that threatens to engulf the planet in thermonuclear flames. The record of his quarter century as Senator and Congressman from Vermont reveals that he is an unreliable bulwark against military spending and war. While criticizing "excessive" defense budgets, he frequently voted to approve them, and to approve military aggression in Iraq, Afghanistan, Kosovo, Somalia and elsewhere, demonstrating that he posed no real challenge to the warhawks' agenda.

However, the 2016 Sanders campaign deserves a great deal of credit for popularizing the idea of socialism, and destigmatizing it, among young people in America. At least that now opens the way for serious discussion of alternatives to the current American economic system.

That discussion is essential to breaking out of the death spiral of war spending and warfare. Discussion is certainly not enough. If words don't lead to organization and action, then the problem will remain unsolved. But the discussion is nonetheless crucial.

One element of that discussion is whether science and technology can be reoriented from destructive to creative purposes by a transformation of the economic system. Fortunately, history does offer some important indications of how genuine, unfettered science might fare in a postcapitalist economy. Examining that history demonstrates that scientific advance is not, as pro-capitalist ideologues claim, dependent upon material incentives to private enterprise. The most heartening examples are in the Cuban medical sciences.

## **Conclusion**

The tragedy of American science today is that its direction is determined by private profit considerations rather than by the desire to improve the human condition. As a result, Big Science has been irredeemably corrupted by Big Money. That corruption threatens the air we breathe, the water we drink, the food we eat, and the medicines we take.

The U.S. economy's addiction to military spending distorts and deforms science by making it overwhelmingly subservient to military interests. This transforms science's classic ideal as a creative force for the advancement of humankind into its destructive and antihuman opposite. That trillions of dollars in resources and scientific talent are devoted to warfare rather than to solving the problems of poverty, disease, and environmental destruction is among the greatest tragedies in all of human history.

The Bernie Sanders experience once again reveals that there is no "progressive wing" of the Democratic Party that can offer a genuine challenge to the corporatization and militarization of American science.

The hopeful note in all of this is that replacing the current science-for-profit system by a science-for-human-needs system is not an impossible, utopian dream. To make it a reality, however, requires a fundamental restructuring of our society. That is the great, daunting challenge facing today's youth and the generations to come. It is by no means melodramatic to say that the survival of the human race depends on their success.